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**Healthy-Food Choice and Purchasing Behaviour Analysis: An  
Exploratory Study of Families in the UK**

**BARWEEN HIKMAT AL KURDI**

Thesis submitted in fulfilment of the Requirements for the degree  
Of Doctor of Philosophy

Durham Business School  
Durham University

**2016**

## Dedication

I lovingly dedicate this thesis to my husband, who supported me each step of the way.

I also thank my parents for their love and support throughout my life.

Finally, this is an expression of my deepest love to my children who have shared this journey with me.

## Abstract

Over the last three decades, poor eating habits and their consequences have become an increased area of concern worldwide (Higgs, 2004). This phenomenon is not an isolated issue as it affects various social categories, particularly families (Vogt, 2006). In fact, people's food choice and eating behaviour have been thoroughly investigated in recent times as food choice and consumption have increasingly shifted towards unhealthy-food products. For example, fast-food consumption is increasing rapidly. Thus, studying family-food choices and consumption is essential, especially from parents' viewpoints, according to Birch and Davison (2001), since parents provide food environments for their children from the earliest stages of life.

The most direct influences on children's food choices, especially in their early years, are their parents and families. Therefore, this thesis focuses on the family and has targeted UK families, investigating their food choice determinants as the main theme. Moreover, the study tries to find suitable answers to the research question, What are the main factors that affect families' healthy-food product choices? Thus, healthy-food purchasing and consumption gaps could be addressed by further research in two ways. First, emphasis should be placed on studying the factors that affect patterns of healthy-food choice and consumption in families, so as to create a more effective and healthy community. Second, studying the barriers to healthy eating requires investigating factors influencing food choice both outside and inside the home.

The choice of food is influenced by a variety of complex and interrelated factors involved in individual, family and societal levels. Thus, to have a clear understanding of food choice and its determining factors inside and outside the home, this study employed the Behavioural Perspective Model (BPM) as the main theoretical and practical framework to give a clear operant explanation of family-food choices within a real behaviour context. The context of this study is food choice, which is determined by the main BPM elements, namely, consumer behaviour setting, consumer learning history, both utilitarian and informational reinforcements and both utilitarian and informational punishments.

Based on the study's framework, a set of hypotheses was designed and tested using different data collection approaches and analysis instruments. Suitable data was collected from UK families to test the planned hypotheses to achieve the study objectives. Based on the data analysis, the study found that families' food choice was determined by a set of factors, which were behaviour setting, utilitarian punishment and informational punishment factors, without consideration of learning history, utilitarian reinforcement and informational reinforcement factors. Therefore, this study describes and provides a tested way of how parents might influence their family members to be healthy through buying and consuming healthy-food products in the continuous purchasing setting.

**Key Words:** Social marketing, Food choice, Consumer behaviour, UK families.

## Declaration of rights

The copyright of this thesis belongs to the author under the terms of the United Kingdom. Copyright acts as qualified by Durham University - Business School. Due acknowledgment must always be made of any material contained in, or derived from, this thesis.

## Acknowledgments

Initially, I would like to express my thanks to God who has always taken care of me and who gave me the opportunity and the patience to learn and finish this thesis

I would like to express my special appreciation and thanks to my advisors, Dr. Michael Nicholson and Dr. Sarah Xiao who have been tremendous mentors for me. I would like to thank you for supporting me in this research and for allowing me to grow as a research scientist. Your advice on both research as well as on my career have been priceless. I would also like to thank my viva members for serving as committee members, even at a difficult time.

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# **Chapter One**

## **Introduction**



## Introduction

Food is a basic human need and its consumption trends have changed tremendously owing to many interrelated factors, including environmental, economic, political and social influences (Streeten, et al., 1981; Pollard, et al., 2002; St-Onge, et al., 2003). Buckley, et al. (1987) denoted that there is an increase in consumers' awareness and interest to link between diet and health which tend them to buy and consume healthy-food products, but many scholars (for example, Taylor, et al., 2005) have found that youths are moving notably to buying and eating unhealthy-food products. Although various health problems and diseases have been attributed to the increased consumption of unhealthy food (Alston, et al., 2006), the consumption of candy, salty snacks and soft drinks has increased hugely (Nielson, et al., 2002). In addition, the consumption of junk food<sup>1</sup> is increasing at a pace surpassing that of healthier food items (Parmenter, 2002; Hawkes, 2006; Romero, et al., 2007a). This trend is confirmed by Mai, et al. (2009) who showed how fast-food consumption has rapidly increased since 1980. Also, many studies have shown that junk food consumption leads to extra energy intake, which, in turn, has increased the risk of health problems such as obesity (French, et al., 2000; Harnack, et al., 2000). Accordingly, studying food choice and investigating how to encourage consumers to choose healthy-food options has become an important issue for organisations and governments (Milio, 1990; Cooter and Fulton, 2001).

Generally, parents play the main role in food choice behaviour as they authorise the process of food offerings and often influence their children's food choices (Douglas, 1998; Lopez-Dicastillo, et al., 2010). Thus, the largest contributors to many family members' health problems are parents, who admit to buying unhealthy food for their children as treats (Turner, et al., 2006). Research has shown that the food choice in childhood affects nutritional learning and can affect health in later life (Birch, 1999; Williams, et al., 2002). Begley (2000) claimed that around 20% of overweight four- to five-year-old children go on to be overweight adults. Overweight children and adolescents risk serious physical problems such as high cholesterol, shortened life expectancy, gall bladder disease and cardiovascular disease (WHO, 1998; Daniels, 2006).

Many approaches and programs have been implemented to enhance parent purchasing and consumption behaviour with regard to healthy food, especially within the public health

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<sup>1</sup>I use the term 'junk food' throughout this document to refer to fast food, frozen food, or convenience foods typically high in fats, salt, sugar or sweeteners.

community (Grier & Bryant, 2005; Maibach, 2006; Marino, 2007). However, some scholars (Verplanken & Wood, 2006; Koenig, et al., 2009) claim that intervention has yielded disappointing results, especially with respect to long-term behavioural change. This may be due to the reliance on specific policy approaches to behaviour change (Larson & Kretzer, 1995; Doebbeling, et al., 2003). Therefore, this study aims to provide a detailed explanation of the parent food-choice behaviour, exploring how to stimulate and reinforce healthy-food product buying and consumption.

### **1 - 1: Research background – Family-food choices**

Choices about food are most strongly-influenced by family and, particularly, parents. Parents usually take the role of establishing a family, which is defined as “a group of two or more persons related by blood, marriage, or adoption, and residing together as a household” (Levy & Lee, 2000, p.30 cited by Lawson, et al., 1996). Birch (1987) as well as Birch and Davison (2001) described parents as providing the ‘food environment’ for their children as from weaning onwards, food is primarily selected and controlled by parents. However, rather than parent food choices exclusively, family-food choices is also affected by many other factors, including peer group norms (Treena, et al., 2009), family-food policies, family interaction with the external environment (Gillespie, 2008), as well as the biological and social environments within which individual family members select food (Galef, 1996).

The process of food choice is a complex system that includes rational action, decisions based on emotional feelings, and decisions based on habit (Bennet & Bennet, 2008). Zey (1992) describe the family-food decision-making process as a sequence of socially-located processes; for example, families seek to meet the nutritional, social and taste preference needs of their members who connect to acquire, transform and consume food. Thus, it can be noted that, the family food-selection behaviour is a dynamic process of interaction among all participants, who make a specific choice from the structure and process viewpoints within the family behavioural setting (Evans & Smith, 1969; Bartolo, et al., 2001). For Wong (2004), all types of behaviours are choices between alternatives, and the majority are made after an interactive decision-making process. Studying this decision-making process in relation to family-food decisions and considering the influence of a set of closely-interrelated factors that drive this process could provide more food-choice insights, which, in turn, might improve health outcomes.

Qualls (1987) claimed that the food choice phenomenon within the household context is a significant topic for scholars and summarises that the main food-choice research focuses for scholars include various factors. Firstly, which family member makes most purchase decisions (Koc, 2004). Secondly, the results of household decision behaviour (Ashraf, et al., 2006), and, thirdly, the main factors determining which family member is most heavily involved in the decision-making process (Belch, et al., 2005). One of the notable issues is how family members interact with each other (especially parents) when deciding what to buy and eat in addition to considering other purchasing factors such as price and brand. For example, do parents usually know exactly what healthy-food products mean and how do they differentiate between healthy-food products and non-healthy ones? Secondly, are parents influenced by their educational and income levels when purchasing food products? Thirdly, do parents employ their previous purchasing experiences or rely on food stores offers? Fourthly, are parents influenced by situational factors that relate to food products (for example, healthy-food availability) and situational factors that relate to the store (for example, store availability or location)? Finally, do parents take into account food-consumption consequences (reinforcements and/or punishments) when buying their children food especially in either long-term or short-term perspectives? These questions represent the basic background for this study and the need for practical and clear answers by providing a rigorous theoretical background.

For example, regarding healthy-food product buying, Ziegler, et al. (2006) studied the meal and snack intakes of both Hispanic and non-Hispanic infants and toddlers. The overall result showed that the percentage of children who ate snacks increased with age. In addition, it was that more than 90% of Hispanic children consumed an afternoon snack, with more than 80% of toddlers aged 12-24 months consuming afternoon snacks. Based on these findings, Ziegler, et al. (2006) explained how snacks contributed to overall body energy but were not generally healthy enough. As a result, Ziegler, et al (2006) recommended that parents should plan toddler's snacks to complement meals by including additional healthy food such as vegetables, fruits and whole grains rather than cookies, crackers and fruit drinks. This is supported by studies which found that the majority of unhealthy issues and some diseases are linked directly or indirectly to the accumulated consumption of unhealthy-food products and other preventable risk factors such as lack of physical activities and tobacco use (Onzivu, 2000; Diaz-Bonilla, et al., 2002). Therefore, enhancing the families' intake of fruits, vegetables and cereal grain may help prevent some diseases such as cancer and heart diseases (Nancy, 1997). However, this cannot be done without making significant shifts in a variety of issues such as

healthy-food benefit factors, food-risk knowledge factors, and even environmental health-risk factors (Frumkin, 2010). In addition, unhealthy-food products are purchased and consumed for many reasons including the high availability of products (in homes, schools and shops); the lower price compared to healthy alternatives; ease of choice and purchase, taste, effort and time saved (Ahuja & Walker, 1994; Haerens, et al., 2009; Lawrence, 2009). Thus, there is a need to increase public awareness of the consequences of consuming both healthy- and unhealthy-food products (Dunt, et al., 1999; Ringold, 2002; Liu, 2003). This cannot be achieved without investigating healthy-food product-choice drivers especially within the family context.

## **1 - 2: Research gap**

It has been shown that the availability of a theoretical foundation that explains healthy-food purchasing behaviour to help in predicting a specific target population's behaviour is limited (Wierenga, 1997; Kloeble & Batish, 1999). Moorman and Matulich (1993), Young, et al. (2008) and William, et al. (2009) claimed that there was a need for a comprehensive model to explain accurately consumers' food-choice behaviour. In addition, a notable study was conducted by Geeroms, et al. (2008) who studied the relationship between consumers' health-related motive orientations and ready-meal consumption behaviour using cross-sectional data. Geeroms, et al. (2008) confirmed that there was a need to conduct future research addressing the social responsibility towards some convenience products, food preparation and meal choice. Based on this perspective, it is important to conduct more studies that target healthy food-buying motives from social perspectives such as that conducted by Honkanen, et al. (2006) who targeted the influence of ethical values on motives that drive organic-food choice.

A vast number of research studies have been conducted to measure the effect of food-choice drivers from different perspectives. For example, Kelder, et al. (1994) explained how healthy-food choices (for example, low levels of salt and sugar consumption and higher intakes of fruits) not only affected children's and adolescents' behaviour, but also affected their consumption consequences such as the physical activities they usually performed. However, little research has been done to explain healthy food-choice behaviour in a real-purchasing context based on a solid theoretical background foundation supported by empirical evidence from real-life situations (The World Health Organization (WHO), 2005; Costa & Jongen, 2006; Josiassen & Harzing, 2008). A possible reason for this research gap is that the consumer choice itself is seriously-bounded and takes place under complex and real-environmental

conditions (Jones, 2001; Brewer & Stern, 2005). As a result, most literature has addressed only part of healthy food-choice behaviour drivers, such as studying the relationship between TV food advertising and caloric intake (Halford, et al., 2008) without investigating the effect of other factors such as cost and easy access to fast-food meals. In addition, they do not use a clear theoretical model to explain the consumer choice in a continuing behavioural setting, so they often cannot provide a practical solution to the problem.

One of the main legacy elements in applying different social-behaviour programs and frameworks is highlighted by Martin (1968 cited by Kotler & Zaltman, 1971) who found that these programs often lacked the qualities of an organised, well-planned and continuous marketing effort. For example, Körtzinger, et al. (1994) conducted a study to measure behaviour related to the consumption of chocolate in primary schools in England and Germany. Their analysis investigated culture, sex and social class. The research revealed highly-significant differences in the total number of chocolate bars consumed each week by the different social classes in both countries. They also discovered that chocolate consumption is much lower in Germany than in England. Another important finding was that German children, when given a choice between chocolate, fruit or other snack foods, had a stronger preference for fruit than did English children (who preferred chocolate). Based on this study, it was claimed that German children preferred a portion of “healthy-food alternatives” such as yogurt and fruit, compared to English children who preferred choosing four chocolate products instead of healthy items. Körtzinger, et al. (1994) confirmed that healthy-food purchasing and consumption gaps should be addressed in further research in two ways. First, by studying the barriers to healthy eating which requires investigating factors both outside and inside the home. This investigation should address healthy-food purchasing behaviour in-depth. Second, emphasis should be placed on studying the factors that affect patterns of healthy-food choices and consumption in families, to ensure a more effective and healthy community. This research cannot be conducted without utilising many programs or projects that stimulate social change towards healthy-food adoption (Berry & Bowman, 2006).

Literature relating to marketing behaviour focusing on parents and family members lacked a solid theoretical framework that explained healthy food-purchasing behaviour and decision determinants (Crawford, 2001). Thus, there is a need to investigate behaviour explanation (why a food choice issue has taken place from situational and consequences perspectives) by employing a solid theoretical model that highlights the roles of the behaviour’s antecedents

and consequences as well as behaviour-setting and learning history to enhance healthy behaviour change. The required theoretical background should not simply highlight the results of healthy-food purchasing and consumption or introduce recommendations to the public. Rather, it should provide a clear empirical application supported by a wide behavioural-situation investigation. This gap is generally recognised by many scholars such as Bove, et al. (2003) who recommended more qualitative and quantitative parental research, especially tackling new concepts such as food individualism and food projects. In addition, Wiley, et al. (2007) identified literature gaps that analysed the characteristics and purchasing behaviour of different child age groups such as teenagers. In summary, there is a need to investigate food choice from an operant perspective to determine the main family healthy-food product-purchase determinants and obstacles by using a justifiable theoretical model that reflects real situations.

### **1 - 3: Research question and objectives**

The problem of food choice has been addressed by many scholars from different perspectives. However, most of the literature has one primary goal, which is how to improve the practice of healthy-food consumption. This primary goal has usually faced various obstacles, including food-product cost and availability. Thus, plans and efforts should be exerted to enhance and stimulate healthy-food purchases and consumption by utilising suitable programs such as nutrition education programs (Galbally, 1992; Glanz, et al., 1998). Consequently, there is an increasing interest in designing, developing, implementing and assessing nutritional studies and/or programs to address different groups of people, especially children, based on practical approaches to enhance their quality of life (Ruel, et al., 2008).

Quality of life is defined by Hoffmann (2008) as the result of combining personal resources, control of the environment, personal values and actual living conditions. Quality of life means enhancing behaviour and lifestyle to be healthier, which cannot happen by simply developing promotional programs that incorporate factors reported to influence adoption and maintenance of positive health-related behaviours (Graham & Abrams, 2005). Also, positively enhancing quality of life cannot happen just through selecting highly-trained and motivated groups of people who seek to introduce family members to healthy food through parents and other related institutions such as school (Burke, et al., 2002). Thus, Ang (2002) and Videon and Manning (2003) addressed the factors that affect patterns of eating and physical activity in families as a way of changing behaviour. In addition, Griffiths (2008) recommended that healthy-food

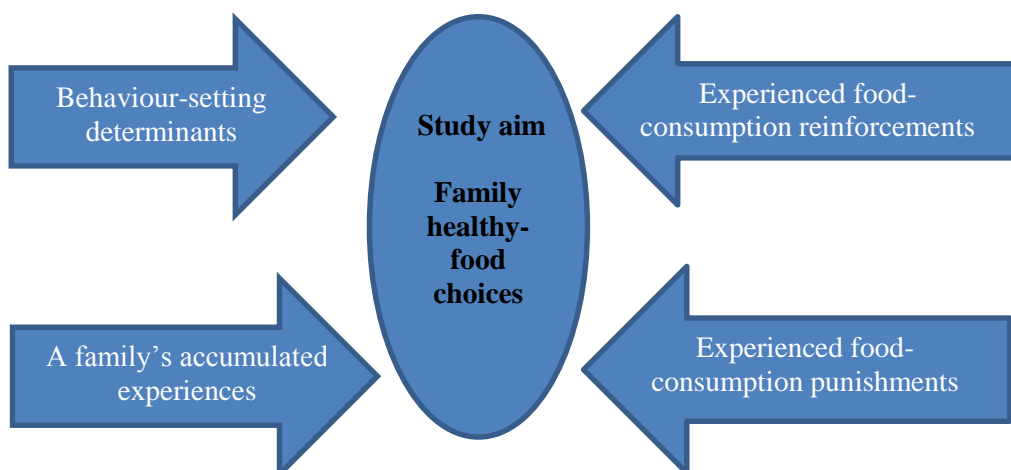
purchasing and consumption behaviours should be enhanced in public by developing educational programs as well as including resources such as books and toys in healthy-eating school curriculums.

Noble, et al. (2007) claimed that future studies or programs need to acknowledge the complex reality of parenting as well as the barriers and competition to healthy-food choices, and should offer parents meaningful help when purchasing and preparing food. Various studies have highlighted the need to explore the apparent paradox between the nutritional knowledge of parents and their actual food-purchasing behaviour (Lo ´pez-Azpiazu, et al., 1998; Holgado, et al., 2000; Ang, 2002; O'Dea, 2003). These studies have highlighted the importance of studying the barriers to healthy eating for both children and adolescents in and out of the homes. Further research could take the form of broader quantitative or additional qualitative studies in geographic, cultural and socio-economic locations to study healthy-food choices accurately beyond those employed in previous studies (Noble, al., 2007; Scarpello, et al., 2009). Therefore, there is a shortage of literature explaining which motivations enhance parent healthy-food choices and analysing family members’ eating behaviour. Thus, the thesis’s main aim is focused on answering the following question:

What are the main factors that affect family choices of healthy-food products?

Based on this research question, and on the analysis of related literature, a set of research objectives were drawn as a set of sub-questions:

- 1) Do behaviour-setting determinants influence family healthy-food choices?
- 2) Do family experiences influence healthy-food choices?
- 3) Do food consumption reinforcements influence family healthy-food choices?
- 4) Do food consumption punishments influence family healthy-food choices?
- 5) Do family-food choices differ depending on the parents’ demographic characteristics?



**Figure 1-1: An outline summary of the proposed research framework**

By identifying the main healthy food-purchase determinants, the study attempts to provide a guide for families on how they can change their habitual purchasing decisions regarding food choice. This object cannot be achieved without using a suitable research background that presents an actual purchase-behaviour situation (food choice) and encompasses a set of pre-behaviour factors (for example, behaviour-setting determinants) and a set of post-behaviour factors (for example, product-consumption consequences that include both benefits and risks). Thus, the Behavioural Perspective Model (BPM) was chosen to investigate this a situation. A brief description of the BPM is provided in Chapter three (see Section 3-8) while the application details and its use in family food-choice contexts are provided in Chapter four (see Sections 4-1 to 4-7).

The BPM is a model that was developed by Foxall (1992) to give a clear understanding of how consumer behaviour can be explained and studied within different situations from operant perspectives. The operant perspective shows that the behaviour is determined by its consequences supported by additional explanations of many interrelated elements that describe the purchase-behaviour setting. The model has been divided into two parts that explain the behaviour situation clearly which are, firstly, the pre-behaviour part that includes a variety of essential behaviour-settings elements such as physical-setting, social-setting, temporal-setting and regulatory-setting, which all interact directly and continuously with the consumer learning history. Secondly, the post-behaviour part encompasses both utilitarian- and informational-reinforcement consequences, and both utilitarian- and informational-punishment consequences. It is important that the post-behaviour factor effects should be taken into consideration within the purchase-behaviour situation when determining what to buy and choose to eat. Section 1-4 provides an overview of the research contributions that have been identified from the research question and sub-questions.

#### **1 - 4: Research contributions**

Studies have revealed that buying and consuming unhealthy-food products and ready meals has increased significantly among adolescents and children while purchasing and consuming healthy-food products has decreased extremely. For instance, Geeroms, et al. (2008 cited by GFK Consumer Scan, 2007) explained that the ready-meals market penetration in Belgium was estimated around 81% of the household purchasing share in 2005. According to Lytle, et al. (2000), more research is needed to explain how eating behaviour can be changed towards having healthier food-product buying skills within a set of customer perspectives, and not



based on an individual customer's perspective. In addition, a large number of studies have been conducted to explore the motivations for healthy-food product-buying practices, benefits and barriers such as the Health Belief Model (Sheeran & Abraham, 1996) and the Theory of Planned Behaviour (Conner & Sparks, 1996). However, these studies do not provide a clear practical model that explains the buying behaviour of healthy-food products based on an operant-conditioning instrumental learning perspective, which is the case in this study.

The adoption of healthy-food consumption is also limited by many direct and indirect environmental, social, economic and regulatory constraints and barriers (Rothman, 1998; Brewer & Stern, 2005; Ragona & Mazzocchi, 2008). Some of these barriers are internal, such as consumer attitudes and beliefs toward the study objectives, while others are external, such as financial constraints (price) (Hausmann-Muela, et al., 2003). However, this study used a different set of healthy-food product-purchase determinants (such as food purchase behaviour-setting determinants and food-consumption determinants) each of which is considered important to be studied by relying on a real sample of UK parent viewpoints.

Many scholars such as Booth, et al. (2001) have discussed the importance of studying the effect of behaviour-setting in determining food choices and even shaping the choice process and execution. Based on this understanding, this study extends the current literature by investigating the effect of four broad elements of behaviour-setting on healthy-food choices, as classified by Foxall (1999), namely, physical-setting, social-setting, temporal-setting and regulatory-setting within the UK family behaviour choice-analysis context.

As a result, this study provides a practical example of how healthy-food physical-settings affect family-food choices. The physical setting is an important factor to be considered because it shapes the food-choice environment (Furst, et al., 1996), and it represents the core in studying such phenomena (Booth, et al., 2001). To have an accurate understanding of how food-product purchases take place, factors influencing food choice, eating behaviour and being healthy need to be better understood to develop policies and programs effectively to change eating behaviours, making the current study appropriate to be utilised by policy makers, consumers and practitioners.

While in most cases, physical setting cannot be separated from social settings, healthy-food buying is often determined and can be manipulated by social-setting surroundings. McFerran, et al. (2010) found that consumer choice is usually influenced by the social presence of others

even if they are not involved in any communication directly or indirectly with the purchaser. This study adds value by testing the effect of social surroundings on family healthy-food product buying.

As consumer behaviour tends to change with time, it has been found that simultaneous and temporal contexts influence food choice as well as time pressure influencing a consumer's food-purchasing and consuming choices (Cardello, 1995; Dhar & Nowlis, 1999). This context is important as families usually buy their food products within different time frames such as purchasing during the day, week, month and year as a result of the seasonality of certain products. Thus, researching the temporal-setting effect on food choice decision-making adds to food-choice understanding and how it usually takes place in real situations. The current study aims at contributing to the existing literature by testing the temporal-setting influence in a new context, which is the family healthy-food buying context.

The study also contributes in exploring the regulatory setting under which the food product production, purchase and consumption are tested on quality standards. It is important to keep in mind that food-product interrelated regulations, such as food safety, usually change over time and which might differ from one country to another (Otsuki, et al., 2001). Some of the food-product detailed information such as validity dates and package information are usually referred to by parents to gauge food-product values and qualities, which, in turn, helps in food choice and purchase decisions (Silayoi & Speece, 2004). Thus, this study investigates the effect of regulatory setting in relation to healthy-food product purchasing, cooking and consumption on family healthy-food choices.

Another contribution of the current study is to provide an overview of the effect of family-accumulated learning and experience on their food choices. This study provides a real example of how parents can improve, stimulate and reinforce healthy-food product purchases and consumption behaviours based on antecedent and consequential learning contingencies. Few studies have been conducted taking into consideration family-accumulated knowledge and parental experience influencing healthy-food choices. Bettman and Park (1980), Bolton, et al. (2000), Desmet and Schifferstein (2008), Alshurideh, et al. (2012), Alshurideh (2014) and Alshurideh, et al. (2015) have highlighted the importance of studying the effect of previous experience and knowledge on maintaining both current- and future-purchase behaviours, consumer-decision processes, and even repeat-purchase behaviour within different behaviour

settings rather than family healthy-choice purchases or options. This study builds further knowledge in the same context.

An attempt has also been made in this study to apply the Behavioural Perspective Model (BPM) from the Social Marketing (SM) perspective, which, in turn, helps in providing a satisfactory operant explanation of parent behaviour related to healthy-food choices. Although Ajzen (1991) studied different SM issues, the model's implications in the food-choice contexts remains unexamined. This study extends this knowledge by encompassing selected pre-behavioural factors and post-behavioural consequences to provide an understanding how such purchasing activity takes place and why.

Yet another contribution of this study is to the body of knowledge of food-consumption consequences, both in the short- and long-term. Scholars such as Magnusson, et al. (2003) have highlighted the importance of taking the potential consequences of food consumed on family-food choices. This issue is known in the behavioural psychology literature as operant-conditioning learning, which denotes that food-choice behaviour can be amended or changed, based on its potential and expected consequences. According to Foxall and Greenley (1998), choice consequences have been categorised into four main types, namely, utilitarian reinforcement, informational reinforcement, utilitarian punishment and informational punishment. Regarding utilitarian reinforcement, it has been identified that utilitarian reinforcement represents the tangible functional and economical compensations that result from a consumer's choice (Fagerström, et al., 2010). Accordingly, when buying healthy-food products, it is important to undertake the effect of benefits that are expected to be gained from food consumption, which usually return in later stages as an accumulation of positive consequences, into more analysis and investigation within the family context. Thus, this study adds a dimension to extend the explanation of the power of family food-choice analysis and extends current literature by explaining food choice through relying heavily not just on the situational determinants but also by taking the food-consumption consequence determinants into consideration within the purchase setting.

The study also investigates the informational benefits that are perceived to be gained after consuming healthy-food products. Foxall, et al. (2004) identified that a consumer's choice is based on maximising patterns of reinforcements and utilities, especially the informational ones. According to Magnusson, et al. (2003), choice of healthy food (for example, organic products) is related to the perceived consequences for human health (tangible benefits such as

being well and intangible benefits such as having a good mood). According to Grunert (2002), a consumer's food choice is determined in terms of the combination of quality expectations before and quality experience after the purchase and consumption. While there is a lack of the studies that have been conducted to reveal the effect of experienced informational-positive benefits, the current study looks deeply into the emotional, invisible and informational utilities gained from healthy food-product consumption and provides valuable insight for producers.

In addition, this also study explores a link between family-food choices and food-consumption utilitarian punishments. According to Foxall (2003), behaviour punishment is a type of behavioural consequences that plays a significant role in a specific behaviour not being repeated. In such situations, there are many barriers that affect negatively the process of buying healthy-food products such as healthy-food product and diet costs (Drewnowski & Darmon, 2005). For Shepherd, et al. (2006), more studies are needed to evaluate healthy-food programs and their interrelated procedures to remove or minimise the effect of such barriers. This study explores how food-purchase utilitarian punishment barriers can be manipulated within the family healthy food-choice settings. Furthermore, the current study also investigates a link between the informational punishments of healthy-food product buying or consumption and food-product choices. Stevenson, et al. (2007) found that the taste of healthy food was a barrier to healthy-food product buying and eating. These barriers can be considered as part of healthy-food product buying informational punishments as (Pliner & Mann, 2004). Studying these punishments has not received much attention from scholars in relation to healthy-food adopting. As a result, one of the major roles for this study is to examine food-buying informational punishment effects on family-food choices.

Usually, the process of purchasing food and drinks is conducted mainly by parents (Kannan, 2012). This study provides an understanding of how a family (as a whole unit of analysis not based on an individual base of analysis) plans their healthy-food purchases and consumption. Though studies have been conducted to study food-choice issues from an individual's perspective yet there has been a need to consider this aspect from a group's perspective as family-food choices usually become a group decision-making process (including parents and children). The study provides further value by examining any variation in the process of family-food choices depending on parent demographic characteristics such as age, income and education. Exploring any possible relationship between parent demographic characteristics with their food choices adds more insight into the existing body of knowledge in this field.

In summary, this study's main contribution is to explain and analyse healthy food-product buying behaviour within the UK family setting, especially when this process has many interrelated determinants and barriers, each of which is addressed in detail. This study makes a major contribution to food-choice literature by determining in detail the main reinforcements and punishments that affect parent healthy-food purchasing behaviour, which, in turn, provides a justifiable view of how food choices can be investigated from an operant viewpoint within a real-purchase situation with respect to food purchase-setting determinants. To achieve this understanding, the research stages are explained in the thesis outline in Section 1-5.

### **1 - 5: Thesis outline**

This thesis consists of seven chapters and commences with Chapter one, which introduces the study by briefly discussing the study's research background, research gap, research question and objectives, and concludes with the research's knowledge contributions. Chapter two introduces the literature review, which provides an in-depth exploration of family-food choices within the SM phenomenon. This chapter presents a detailed overview of what healthy food is and why it is an important topic to be studied especially within family settings. This understanding is supported by outlining the main family characteristics. The chapter also discusses reasons for using the SM approach to study such phenomena, identifies the key principles of SM, and family healthy-food choices by considering one of the SM problems, namely, the family healthy-food choices.

Chapter three discusses the main theoretical approaches that have been used by scholars to study consumer behaviour and behaviour change such as Social Exchange Theory, Other theoretical approaches include the Transtheoretical Model of Behaviour Change, the Health Belief Model (HBM), the Theory of Planned Behaviour, the Theory of Reasoned Action (TRA) as well as the Social Cognitive Theory/Social Learning. The chapter also outlines the main criticisms of using these behaviour theories and models in different social contexts. Chapter three then discusses behaviourism and extends the discussion to include both classical and operant conditional learning theories to provide an approach to explore behaviour change. The chapter ends by introducing the study's applied theoretical model, which is the Behavioural Perspective Model (BPM) and explains why it was applied and supported by outlining its main criticisms.

Chapter four commences with the theoretical model application and explains how the study hypotheses have been developed. This chapter then discusses the main study constructs to include the effect of behaviour setting, the effect of family learning experience, the effect of utilitarian reinforcements and punishments, the effect of informational reinforcements and punishments. Chapter five then presents the research design and discusses the methodological approaches that were adopted to answer the research question. This chapter focusses on discussing the main research approaches that were used to collect the primary data. The two steps for the data collection included, firstly, conducting three focus groups with parents who were considered part of the study sample to rectify the main study items that were perceived as important from their viewpoint. Secondly, preparing the study survey, which included the various data-collection stages such as questionnaire structure, wording, population and sample selection, questionnaire reliability and validity, response rate and non-response rate as well as bias. Finally, Chapter five ends by discussing a set of analytical tests such as the Measurement Validation test, the Confirmatory Factor Analysis (CFA) test, the Structure Equation Modelling (SEM) test, the Convergent-Discriminant Validity test and the Common Method Variance Testing to purify the study's model.

Chapter six describes the data-analysis process and demonstrates the main results, then describes the study sample and justifies the hypotheses treatment. Specifically, this chapter provides a comprehensive data analysis, which includes the main study sample's demographic characteristics, family purchasing-behaviour analysis of interrelated issues, family food-intake behaviour analysis, testing of the study's model, reliability and correlation of the study's factors. The chapter concludes with testing the main study hypotheses and sub-hypotheses.

Finally, Chapter seven concludes the research study and summarises the main study findings, outlines the research limitations, identifies future research needs and concludes with both theoretical and managerial implications.

## **Chapter Two**

### **Literature Review – Family-Food Choices and Social Marketing**

## **Introduction**

Creating a healthy food and eating environment is not just gaining scholars and practitioners interests, but also parents in need of understanding the motives underlying the selection of healthy-food products in a way to create a population-wide improvement in eating (Steptoe, et al., 1995; Story, et al. 2008). In recent years, the increase of various health problems and diseases has been attributed to poor food choices, including many interrelated issues such as diet, which is seen as an important concern for individuals, organisations and governments (Cooter & Fulton, 2001; Milio, 1990). This increase in health problems and diseases has often been attributed to the increased consumption of unhealthy food or products such as fast food (Alston, et al., 2006). Furthermore, the consumption of fast and frozen food, or convenience food with high level of fat and sweeteners, otherwise known as junk foods, is increasing at a pace that is surpassing the consumption of healthier food items (Romero, et al., 2007b; Parmenter, 2002; Hawkes, 2006). Many scholars confirm this view such as Mai, et al. (2009) who showed how fast food consumption has rapidly increased during recent decades.

Many studies have pointed out how fast-food consumption leads to extra energy intake, which, in turn, increases the risk of health problems such as obesity (French, et al., 2000; Harnack, et al., 2000). The largest contributors to this problem are parents, who admit to buying unhealthy-food products for their children as treats (Turner, et al., 2006). Many studies have been designed and implemented to influence parents' purchasing and consumption behaviours with regard to healthy-food choices, especially within different target areas such as the public health community (Marino, 2007; Maibach, 2006; Grier & Bryant, 2005). However, according to many scholars such as Math, et al. (2006) and Koenig, et al. (2009), the results were inadequate for a variety of reasons including the studies relying on specific and unplanned approaches to both planned and performed behaviour changes (Doebbeling, et al., 2003; Larson & Kretzer, 1995).

There is a consensus that crucial choices about food are not shaped or influenced by family, though in most cases, it is chosen by one or both parents (Patrick & Nicklas, 2005). Researchers have shown that food choices during childhood can affect long-term health. For example, Begley (2000) claimed that around 20% of overweight four- to five-year-old children go on to be overweight adults. Overweight children and adolescents face the risk of serious physical problems such as high cholesterol, shortened life expectancy, gall bladder disease and cardiovascular diseases (WHO, 1998). They also face social and emotional health problems



such as depression and withdrawal, social marginalisation, decreased quality of life and negative body image (COIC, 2007). Therefore, this study approaches the family as a study unit, representing the determinants of healthy-food choices to help families reconsider and reinforce healthy-food choices and consumption.

This chapter reviews the first part of the literature which is divided into eight sections. Section (2-1) examines what is meant by 'healthy food' and why is it important to study it; Section (2-2) explains why it is important to study the impact of healthy-food choices among families; Section (2-3) focuses on family-food purchases and consumption, particularly with respect to the main family characteristics. Section (2-4) explains SM as a powerful approach to study social behaviour change, and this is supported by explaining the importance of the SM approach as a special route to study food choice in Section (2-5). SM is defined in Section (2-6), and the main principles and practices of SM are provided in Section (2-7). Finally, Section (2-8) explains the SM problem, which is the core of this thesis.

## **2 - 1: What is healthy food and why is it important to study it?**

There is no general agreement among scholars for a unified definition of 'healthy food'. Healthy food could be described as 'special or specific food nutrients', which are often made into products that sometimes have special labelling or advertising (Drescher, et al., 2007). Healthy-food products can become unhealthy by ways of preparation or eating a greater amount than is recommended. Healthy eating, however, is related to specific types of food consumption that are seen as having an ideal balance for specific individuals since a healthy meal for one individual might not be seen as healthy for another. In addition, a healthy diet can be seen as having balanced healthy products or meals that optimise the benefits and the well-being of the consumer (Croll, et al., 2001; Keyes, et al., 2002).

Diet has been described as having many main food elements such as an abundance of plant foods (breads, fruits, vegetables, potatoes, cereals, beans, nuts and seeds) and having fresh fruits and vegetables (Simopoulos, 2001; Panagiotakos, et al., 2006). Moreover, a healthy diet consists of eating fruits, vegetables, and whole grains, while at the same time, avoiding excessive dietary fats and other materials such as salt (Butrum, et al., 1988; Krauss, et al., 1996). Brug, et al. (1997) confirms that eating fruit and vegetables brings numerous healthy benefits to the human body. As these food sources are a significant source of vitamins and minerals (Knežević & Serdar, 2009), their health benefits include controlling blood glucose

positively (Venn & Mann, 2004), lowering risks of cancer, heart disease and cataracts (Williamson, 1996), supporting good health and preventing diseases, reducing the risk of certain cancers including lung and stomach, and preventing heart disease, hypertension, and strokes (Van Duyn & Pivonka, 2000; Kushi, et al., 2006). In addition, they may protect against diabetes, help to prevent obesity, and minimise the rate of cardiovascular disease (Verlangieri, et al., 1985; Marlett, et al., 2002). Brug, et al. (1997) confirms that eating fruit and vegetables brings numerous healthy benefits to the human body such as the positive effects on blood glucose control (Venn & Mann, 2004), lowered risks of cancer, heart disease and cataracts (Williamson, 1996), and supports good health and prevents diseases as they are a significant source of vitamins and minerals (Knežević & Serdar, 2009). However, much evidence has been highlighted by John and Ziebland (2004) that, in practice, it is not so easy to convince some children to eat fruit and vegetables. As a result, it is necessary to make fruit and vegetable consumption more attractive, fun and interesting for children (Griffiths, 2008).

In addition, the lack of a healthy diet is the main cause of many of the diseases afflicting society such as coronary heart disease, and various types of cancer (Wheelock, 1992; WHO, 1990). For example, whole grains are rich in a wide range of compounds with known health effects as they are rich in fibres, vitamins and minerals. The benefits of eating whole grains include protection against chronic disease and obesity (Slavin, 2003). Therefore, whole grains could play a major role in reducing the risk of disease by means of favourable effects on metabolic risk factors (McKeown, et al., 2002; Venn & Mann, 2004). The importance of studying healthy-food products comes from the fact that unhealthy-food product buying and consumption has increased significantly in the last two decades and has become an uncontrollable issue. Many reasons contribute to this fact such as school systems continue to allow for such “junk food” to be entered and sold for school student and the convenience of buying such products and meals within large number of entertainment places such as malls and cinemas (St-Onge, et al., 2003). Unhealthy-food products are purchased and consumed for many reasons such as lower price relative to healthy-food products and beverages, the high availability of these products in homes and schools, ease of accessibility and purchase, taste and time-saving (Haerens, et al., 2009; Lawrence & Barker, 2009; Ahuja & Walker, 1994).

One of the notable issues in this research is to provide an understanding of why it is important to choose healthy foods and make it a habit for all family members. Human beings usually live in social norms known as families, which, in turn, play a fundamental role in a community or

a society. Based on this, the main goal of the parents of any family is to provide safe and suitable food environments for their children's early experiences with food and eating, which, in turn, enhances the possibility of adopting a healthy diet and becoming healthier in later life stages. In addition, food choice in childhood is important because it determines nutritional intake which promotes health, growth and development at this early stage in life. On the other hand, food choice is also important in the establishment of good eating habits, which will probably be carried through into adulthood (Dibb, 1993; Neale, et al., 1994). Section 2-2 explains why family healthy-food choices should be studied.

## **2 - 2: Why study family healthy-food choices?**

Targeting family-food choices and consumption is essential, according to Birch and Davison (2001), since parents provide food environments for their children from the earliest stages of life by controlling their children's earliest experiences of food consumption. Before talking about healthy-food selection by families, there is a need to highlight some interrelated concepts and family characteristics. This is important because studying food choice and consumption within the context of the family unit cannot be done successfully without understanding these related issues.

Healthy people are often the result of a healthy family, which, in turn, results in a healthy community (Twiss, et al., 2003). Building a healthy community can only be achieved through long-term project planning supported by all societal organisations (Shediac-Rizkallah & Bone, 1998). Further, there must be a collaborative programme between governments as well as public, private and non-profit sectors in communities (Adams, 1995). The 'community' then begins to surface in the field of research with various meanings. From a psychological perspective, McMillian and Chavis (1986 cited by Blanchard, 2004) have defined the community as "the members' feelings of shared emotional attachment, belonging, influence, and the integration and fulfilment of needs that makes the community different from simply a group of individuals" (p.2). Other scholars have referred to the community as a group of individuals who share a physical location (for example, a neighbourhood) or a group of individuals who have common interests or similar characteristics (for example, the scientific group) (Mann, 1978; Schuler, 1996). Also, the 2010 Healthy People Report provides a clear definition of the community as "a specific group of people, often living in a defined geographical area, who share a common culture, values and norms, and who are arranged in a social structure according to relationships the community has developed over a period of time"

(Dzewaltowski, et al., 2004, p.236). This study targets the family as a dynamic part of the community's interactions with the environment to provide an accurate food choice analysis.

The definition of 'the family' has been left relatively open, needing an existing or intended long-term relationship, but not a formal legal commitment or the presence of young children. It was clear that the participants accepted an understanding of what 'the family' was which went outside the simple notion of 'the household' (Gregory, 1995). Levy and Lee (2000, p.30 cited by Lawson, et al., 1996) have defined a family as "a group of two or more people related by blood, marriage, or adoption, and residing together in a household". The family represents the main microenvironment, in which children live among its members. It is within this environment that food choices have been made for them and in which they have learned food consumption behaviours.

On the other hand, consumers develop their own systems of deciding what to buy and eat (Asp, 1999). Such systems differ from one family to another. In general, family food-purchase choices are affected by a variety of complex factors, which interact simultaneously with each other. From a macroeconomic perspective, there are many external factors affecting food choice. These include social factors such as social structures (Warwick, et al., 1999), economic factors such as job types and availability (Shepherd, 1992), poor job conditions (Sacker, et al., 2001), high workload (McCann, et al., 1990) and culture (Shepherd, 1992; Bruss, et al. (2005). In addition to these factors, there are many micro-level factors that influence family-food purchases. These factors linked to the family itself, and include income level, personal or religious reasons (Lefebvre, 1992a), family structure and member roles (Tulchinsky, 2000). There are also many other factors that relate to family behaviour such as increasing the domain for convenience foods which can include home delivery meals, meals prepared by microwave and takeout food (Wales, 2009).

In general, family-food choices are considered a socially-interactive process within family behaviour that should be highlighted at this stage from the point of view of structure and process. This is because all types of behaviours are included when choosing between alternatives and the majority of these decisions are the result of an interactive decision-making process among many of the family members. Therefore, it is necessary to study these behaviours to determine how to alter family-food choices towards healthy-food products and healthy-food schemes based on justifiable health consequences.

Consequently, discussing the issue of family-food selection is one of the goals of this study. Horne, et al. (1998) stressed the role of family in general and the role of parents specifically in encouraging healthy-food selection and consumption by giving their children incentives and encouragements to taste food they have previously rejected by using different techniques. Horne, et al. (1998) found that there were a lack of qualitative studies investigating attitudes, motivations and behaviour towards healthier food and diets that take demographic differences into account. Therefore, encouraging healthy-food selection and consumption should be of interest to different parties encompassing individuals, organisations, and governments to avoid escalating health problems. According to Gillespie (2008), the majority of food choices have been learned by a consumer over time by repeating the same purchasing process. Accordingly, food selection and consumption are daily processes within routine daily living practices, which are controlled mainly by the environment and societal trends that encourage unhealthy patterns such as little physical activity and overeating (Treena, et al., 2009). To change the typical food selection and consumption processes, it is necessary to encourage changes in the family's life habits and lifestyle at the micro-level while at the same time suggesting changes in the external environment or community at the macro-level. Before discussing family patterns of food choice and the factors that affect family-food consumption, it is important to briefly describe the main family characteristics which might add some insights to family food-choice selections. Some scholars have highlighted the importance of explaining the main family characteristics (for example, family life cycle) not just in its structure and behaviour but also as food purchasing, meal planning and food consumption patterns (Coughenour, 1972; Mela, et al., 1997; Turrell, et al., 2002; Turrell, et al., 2004). Section 2-3 explains briefly family-food choices with respect to the main family characteristics.

### **2 - 3: Main family characteristics**

To explore family-food choices further, there is a need to consider the main family characteristics to help define its structure and to explain the effect of these characteristics on what this study is intending to achieve. According to Levy and Lee (2004), the five primary family features are family income, family life cycle, social class, culture and sex-role orientation. A brief explanation of each family feature is discussed in Section 2-3, which is supported by study examples that establish a connection between these family features and the food-election behaviour in the family setting.

An important family-food choice study was conducted by Blake and Bisogni (2003). The study used semi-structured interviews to study both personal and family food-choice schemes to gain a conceptual understanding of how low-to-moderate income rural women choose their food. Results showed that participants should understand and be aware of the social interaction processes involved in food choice by having the ability to differentiate between the existing options in both family and personal situations. Based on this understanding, the interviewed participants behaved according to both personal and family criteria regarding food choice in which such criteria could be categorised based on behavioural scripts and/or food meaning. Food meanings may have direct relations with self-reported, attitude and feelings linked with food. It seems that there are many food scripts that could be used to describe behavioural plans especially those that describe regularised food choice and eating situations. Based on this understanding, Blake and Bisogni (2003) categorised behaviour plans and schemes into five personal food choice schemes (namely, health fanatic, dieter, non-restrictive eater, picky eater and inconsistent eater) and four family choice schemes (namely, healthy provider, peacekeeper, partnership and struggler). However, Blake and Bisogni (2003) recommended that further studies were needed on food choices in different populations and in various food and eating situations. In addition, studying the main issues of family-food choices, preparation and consumption are needed continuously as confirmed by Díaz (1996), Nestle, et al. (1998) and Story, et al. (2008).

The first family characteristic that affects food choice is the family income, which has been found to have a great influence on food choice. For example, some scholars such as Taylor, et al. (2006) and Fisher (2008) illustrated that some families with low incomes realise the importance of both purchasing healthy-food products and healthy eating, however, they are more concerned with avoiding waste and spending within limited budgets (Walker, et al., 1995; Turner, et al., 2006). Also, Granbois (1971 cited by Levy & Lee, 2004) found that the lower the family income, the greater the cost of the products or services needed, and the greater the tendency for two or more of the family's members to be involved in the same decision-making process. The second essential family characteristic that affects food choice is the family life cycle. Family life cycle is described by Foxman, et al. (1989) as changes which occur in family and household structures as they progress over time. Accordingly, it has been claimed that families who share similar demographics, purchasing characteristics, monetary status, social patterns and lifestyles are considered in similar stages of the life cycle (Subhash, 1975). However, families that differed in life cycle stages may have some differences such as social

interaction patterns and structures, and having different communication techniques and time consumption methods. For this reason, Alaniz and Gilly (1986) have recommended that researchers who use any of the family-life cycle classifications to categorise consumers should recognise the main key differences in families and homes and take these differences into consideration when studying family food-consumption behaviour.

The third family characteristic that affects food choice behaviour is social class. Schiffman, et al. (2014) define social class as “the division of members of a society into a hierarchy of distinct status classes, so that members of each class have either higher or lower members of other classes” (p.689). Social class is connected directly with the family's income level, which, in turn, affects parents' behaviour. According to Mckenzief (1974), the lower social class is considered to be more conservative than other classes in their attitude to life, less flexible, less able to comprehend intellectually, less able to absorb in terms of ideas and changes, and less likely to recommend making changes in food patterns. Also, Granbois (1971) found that there was a tendency that two or more family members were usually involved in the purchasing process when the cost of the purchased object (products or/and services) was high. In addition, the role of the buyer of food products differed from one family member to another and from one class to another (Granbois, 1963). Therefore, social class is not clear enough to guide the process of the food behaviour investigation adequately. One example, which supports this view, is Cooper and Botting (1992) finding regarding the female social class. Cooper and Botting (1992) found that women's views are traditionally shape by their male partner, the same as the children, who connect directly with the father's social class (as categorised by occupation, though this is not true in all cases).

The forth family characteristic, which affects behaviour and attitudes towards food selection, is culture. Hempel (1974), Rozin (1991), Lee, et al. (1997) as well as Levy and Lee (2004) have claimed that there is a difference in family-food choices from one culture to another in spite of the limited number of family decision-making studies that have been carried out in cross-cultures within the same behaviour setting. Marquis and Shatenstein (2005) studied healthy-food choice among cross-cultural areas as well as the health and social benefits of the family mealtime. The study targeted immigrant mothers in terms of food motives of healthy family meals, and data was collected from three different cultural communities in Montreal by using a self-administrated questionnaire. Part of the study was aimed at asking mothers the degree of importance of joining the rest of the family to eat together. In addition, they asked

mothers if their children enjoyed sharing meals with the family. For the study, 653 questionnaires were distributed and just 209 of them were considered valid. Seventy-five questionnaires were collected from Portuguese, 86 from Haitian and 66 from Vietnamese mothers. Results that emerged from the analysis explained about 62% of food choice variance. Also, the results illustrated that there was a significant difference between the participants' countries of origin according to factors encompassing pleasure, health, ingredient properties and familiarity.

The fifth family characteristic is the Sex-Role Orientation (SRO). SRO is described by Qualls (1987 cited by Levy & Lee, 2004) as a theoretical construct that is used to identify different types of families, based on their family ideology being either traditional or modern families. In traditional families, for example, husbands usually have the role of choosing and dominate the purchase object and purchase process for many family purchased items (for example, buying a car) instead of sharing it with other family members but, by no means (in most cases), interfering with other family decisions or purchasing items (for example, meal type). Roberts and Wortzel (1979) confirm that traditional women usually tend to provide high-quality food for their families.

There are many dimensions related to the family construct that affects healthy-food choices. These encompass number of family members, parents' communication, family role distribution, education, income and life style. For example, choosing healthy food is motivated and affected by parents' education, norms and habits (Kelly, et al., 2006). Also, in Western societies, single-parent family types have very important influences on family purchasing behaviour and decision-making (Mangleburg, et al., 1999). Accordingly, a family's structure affects its behaviour in different behavioural dimensions and situations.

In addition, there are many factors that influence a parent's food-buying behaviour, which are related to personal, economic, social, psychological and environmental circumstances. Some factors have unique aspects that render them worthy of special consideration. For example, factors related to child-care facilities, which include physical quality, functionality of available equipment (for example, safety and cleanliness of play areas) or availability of after-school child care. These represent critical considerations on the part of parents.

When tackling family-food choices and purchases, Svenson (1979) discusses the family decision-making process as one of the social-interaction issues that helps in getting more



understanding of healthy-food buying. In addition, scholars such as Contento, et al. (2006) confirm that the food-choice process involved personal food decision-making rules in line with family values and habits, that include trade-offs between a variety of elements within any single meal (for example, taste or health). Family decision-making is one of the research themes that has captured the interest of many scholars and is essential for researching households and families. According to Zey (1992), family-food decision-making is described as a sequence of socially-located processes, through which families seek to meet the nutritional, social and taste preference needs of their members who link to acquire, transform and consume food. Qualls (1987) summarised the main three themes on which studies have focused as:

- 1) Which family member takes care of the decision-making in most purchases?
- 2) What are the results of household decision behaviour?
- 3) What are the main factors that determine which family member is involved more heavily in the decision-making process than others?

Generally, family-food decision-making and selection strategies are affected by many factors and shaped by many sources and elements. Some of these sources are peer-group norms (Treena, et al., 2009), family-food policies, interactions among family members with the external environment (Gillespie, 2008), and the biological and social environments within which individuals select items to ingest (Galef, 1996). Therefore, the decision-making process is seen as a complex system that includes rational action, decisions based on emotional feelings and decisions based on habit.

Although the decision-making process is documented while it passes through many stages, the number of stages is different according to many scholars based on different perspectives. For example, from the self-report perspective, decision-making has three stages according to Davis and Rigaux (1974), four stages according to Mochis and Mitchell (1986), and nine stages according Woodside and Motes (1979). For the majority, however, the decision-making process classification includes four main stages, namely, problem recognition, information search, alternative evaluation and choice (Lee & Marshall, 1998). In the literature, the decision-making process is linked dominantly with the decision-making roles, which Assael (1987) identifies as the initiator (problem recogniser), the influencer (influences other family members), the information keeper (who has the data and provides assessment of it), the decision maker (who authorises buying), and the purchaser (who executes the purchasing process).

It seems that family food-choice decisions are connected to the research theme of food selection, preparation and consumption which all are considered core elements of family daily life. However, these food-choice elements need to be evaluated intermittently to ensure that they are at least within the minimum health standards. This cannot be done without attempting to study various indications of healthy-food choice that prevent the consumption of unhealthier products that have become more convenient and lower in cost than healthy products (Donkin, et al., 2000). This is confirmed by Chambers, et al. (2008), who claimed that “there is an increasing need to understand what motivates and prevents consumers from eating a healthy diet so as to be able to tailor policy interventions to specific groups in society” (p.356). In addition, Stockley, et al. (2007) explained that there has been little research on public health nutrition and food selection for families and children compared to other issues such as work in schools. Based on this conclusion, this study was conducted to investigate family-food behaviour tackling a broad range of factors to identify barriers that might prevent communities increasing their healthy-food product intake.

Fitzgerald, et al. (2009) also claimed that if the goal is to make young people’s nutrition programmes more effective, they need information about the factors influencing their food choices, especially those that address a broad range of factors. Thus, factors influencing the food choices of families need to be better understood to improve food consumption patterns especially for families who have children (Fitzgerald, et al, 2009). Particularly, one of the main values for this study is how parents can influence their children’s food-selection behaviour for mutual benefit. For example, a similar study of the purchasing behaviour of consumers claimed that when it comes to buying toys, it was definitely a family affair as parents made 50% of toy purchases for their own children. Second to parents were grandparents, whose numbers were increasing annually (Buyers & Receivers, 2004). The primary influence on parental choice comes from their children as children usually employ various techniques to persuade parents to comply with their requests. Parents’ responses usually vary from outright denial to total acceptance (Wimalasiri, 2004).

To conclude, these family characteristics provide an added value of how food choice usually takes place within different situations and circumstances. Also, there are other family characteristics that affect food choice such as the number of children within one family and the family size, parents’ age, gender and level of education. Such characteristics are explored and discussed in different sections in Chapter six. The main question, however, is how to

change family-food behaviour so that healthy-food options are selected with respect to the many behaviour setting interrelated and overlapping dimensions. As a result, this study investigates family healthy-food purchase options and consumption within the SM approach. Section 2-4 discusses the SM approach and provides reasons for its suitability in this context.

## **2 - 4: Social marketing as a powerful approach to social change**

Social marketing was primarily introduced by Kotler and Zaltman (1971), who defined it as “the design, implementation and control of programmes calculated to influence the acceptability of social ideas and involving considerations of product planning, pricing, communication, distribution and marketing research” (p.5). Primarily, a large amount of marketing knowledge was transferred from commercial marketing to SM by applying marketing concepts in non-profit organisations such as hospitals and universities. The field then became focused on using marketing to benefit everyone, for example, in public health (Goldberg, et al., 1995), healthy behaviour and lifestyle (Lefebvre, 1992b).

SM is not a new approach to promoting health but its adoption by the government does represent a paradigm shift in the challenge to change public opinion and social norms. This is supported by Andreasen (2006), who agrees that SM is an extremely powerful approach to both social and individual behaviour changes, which, in turn, can also change lives in both small and large ways. Based on this paradigm shift, SM can be used to change and improve life quality in a variety of dimensions both physically and mentally by studying and analysing behaviours and trying to change them positively. A reason for this is that some damaging behaviours, such as smoking and excessive alcohol consumption are no longer considered socially-acceptable (Jesson, 2007).

Social behaviour changes have been the focal point for a variety of public social issues, such as reducing poverty and the growing levels of obesity and child abuse (Walsh, et al., 1993; Andreasen, 2003a; Andreasen, 2003b; Andreasen, 2006). Much evidence at this stage is available to support the value of social behaviour change, especially in early stages, to ensure considerable benefits to individuals and societies in the future. For example, it has been denoted by Crawford (2001) that spending \$1 on childhood immunisation today saves \$10 in later medical costs, spending \$1 on comprehensive prenatal care for women saves \$3.38 in later health costs, and spending \$1 for quality preschool education saves \$4.75 for later special education, crime, welfare and other costs.

To further explore SM as a broad context of this study, Section 2 - 4 discusses reasons why SM is a powerful approach to encourage family healthy-eating behaviour change. In particular, this section addresses the following topics: (1) Why SM? (Section 2-5); (2) What does SM mean? (Section 2-6); (3) What are the key SM principles and practices? (Section 2-7), and, the main SM problems (Section 2-8).

## **2 - 5: Why social marketing?**

There are many issues that need to be explained for tackling healthy food-choice issues using ‘Social Marketing’ or SM approach as a field of research instead of using other approaches such as social work or public health, which have different policies to organise public health behaviour (Herrick, 2007).

Kotler and Zaltman (1971) provide an understanding of the term “Marketing” as being ‘concerned with how all of the organisation's transactions are created, stimulated, facilitated, and valued, not just transactions with customers but with all public including shareholders, employees, suppliers, special interest groups, and the public-at-large’. However, SM is defined by Andreason (1995) as “the application of commercial marketing technologies to the analysis, planning, execution, and evaluation of programmes designed to influence voluntary behaviour of target audiences in order to improve their personal welfare and that of their society” (p.7). Bryant, et al. (2000) identify the main SM principles by which SM as ‘a field of management approach’ has different aspects that can be used more efficiently than applying other approaches. These include: A) a consumer orientation, B) a reliance on formative research to understand consumers’ desires and needs, C) segmentation of populations and careful selection of target audiences, D) the use of marketing’s full conceptual framework to design behaviour change interventions, E) continuous monitoring and revision of programme tactics to achieve desired outcomes, and F) recognition of competition.

As a result, SM is used to understand consumer needs and wants by investigating many consumer-behaviour determinants such as attitudes, experience and environment. Based on collected information, suppliers are doing their best to reflect consumer needs and wants into products and services that can be easily and properly-targeted to different market segments. This cannot be done without marketing research which is properly executed by marketers to understand consumer preferences, product benefits, product prices and factors affecting behaviour towards healthy-food products. Consumer-behavioural research, for example, is

used by many scholars to make market research investigations well-designed and well-executed to study consumer behaviours during various activities such as healthy-food purchasing or recycling behaviour (Tonglet, et al., 2004).

Moreover, one of the characteristics of SM is to choose customer-audience segments when preparing and executing different social programmes. An example of this is the market segmentation model provided by Jesson (2009) to investigate household waste-recycling behaviour. The potential for using SM as a useful tool to change behaviour for environmental problems has been established by cooperation with Food and Rural Affairs in the United Kingdom, who had the goal of exploring the main barriers to recycle household waste and to develop a segmentation model that could be used by local authorities. The study provides a valuable contribution to the SM knowledge by introducing a competence framework and market-segmentation pattern of recycling behaviour by collecting both quantitative and qualitative data. The segmentation was done based on dividing the study participants into four segments, namely, conscious or unconscious and competent or incompetent. Based on this division, four levels of segmentations in a competencies learning model were determined, namely, level 1: unconsciously incompetent; level 2: consciously incompetent; level 3: consciously competent, and level 4: unconsciously competent. In addition, Jesson (2009) distinguished seven levels of recycling competence that connected directly with recycling rates. In addition, there are different levels of competence that have been explained by Jesson and Pocock (2008) in a conference paper as 6% of the population's recycling rate was 0%, which they described as recycling unaware or aware but inactive, 23% of population's recycling rate ranged from sporadic-to-a little, which they described as contemplated but not engaged or unreliable, 41% of population's recycling rate ranged from a little-to-a fair amount, which they described as unreliable or trying their best, and, finally, 30% of population's recycling rate is ranged from a lot-to-100%, which they described as broadly competent or the complete recycler. In addition, the study determined four main types of barriers for the conceptual framework which were categorised as situational barriers (for example, not having adequate containers), behaviour barriers (for example, difficult in establishing routines for sorting waste), lack of knowledge barriers (for example, knowing what types of waste materials to put in which container), and attitudes and perception barriers (for example, having no motivational rewards for recycling).

Another distinguishable feature of SM is the preparation of frameworks and programmes to achieve behavioural change. For example, Morris and Clarkson (2009) doubted whether SM would provide a rigorous framework for changing healthcare practice. Morris and Clarkson (2009) found that SM could provide solution-focused frameworks, which would serve as a systematic understanding of group or/and individual behavioural change, and hence intervention could be designed accordingly.

From a market perspective, in free economic markets, customers should have the right and freedom to make their own decisions freely. These dissections are connected to what is promoted and offered to customers and to what shapes the space of customers' choices. SM is the right field to enhance consumers' choice of food products and to support free-market harmonisation to improve both individuals and societies as a whole. Thus, SM is considered one of the best fields to organise the supplier-customer relationship and shape the exchange process between any two parties by using many tools called 'marketing mix'. Kotler and Zaltman (1971) confirm this relationship by explaining that SM is a branch of marketing's use of marketing knowledge, concepts and techniques to improve social welfare. Therefore, its responsibility is to provide cooperation regarding what to sell and what to consume from different types of goods, for example, good which have different health targets and market segments (Hastings, 2002; Lefebvre, 1992a). Thus, SM has a strongly determines what is provided to customers from healthy-product options to reducing unhealthy choices. This comes by organising the various relationships between customers and suppliers, based on ongoing processes with marketers and suppliers who determine what to supply to customers.

From the suppliers' perspective, many researchers agree that SM is effective knowledge which is used in the best way to change behaviour. This provides a mechanism which is aimed at dealing properly with social problems, such as high-fat diets, smoking, drinking and driving, a lack of physical activity, unsafe driving and a lack of appropriate family planning (Kotler & Zaltman, 1971; Levy & Zaltman, 1975; Andreasen, 1993; Andreasen, 1995; MacFadyen, et al., 1999) by trying to inform, influence, motivate and persuade customers to adopt new good behaviour (MacFadyen, et al., 1999). To achieve these purposes, providers usually seek to gain knowledge of consumers' healthy-food needs, tastes and preferences to ensure that they provide consumers with better treatment and encourage adoption of healthy-meal choices (Prescott, 1998; Sloan et al., 2008).

SM is one of the approaches that is used by firms to reflect strategically on their tactics, programmes and activities such as training, education, public fairs, promotion and strategic integrated marketing communication to public or selected parts of it (Holm, 2006). Choudhury (1974) confirmed the capability and full responsibility of SM to alter the strategy of doing businesses to meet changes in the environment. Choudhury (1974) illustrated that reflecting firms' social responsibility in their marketing planning is considered one of the examples that denote SM capabilities to make changes in both business and consumer markets. Also, Houston (1986) and both Bronn and Vrioni (2001) identify that SM activities are aimed by some firms at supporting a variety of objectives, such as improving their reputation within their target market, maximising customer response and loyalty, and helping to differentiate the company from its competitors.

According to Herrick (2007), SM depends mainly on a promotional mix and specifically on the possibility of communication processes that are used by firms to 'communicate consistent messages about health'. This is because 'communication' according to Hastings and Haywood (1991) is 'a central aspect of health promotion'. Also, the role of health promotion and communication is confirmed by Parish (1995 in Herrick, 2007) who noted that 'whilst the discourse of health promotion emphasises the merits of providing people with knowledge and information so that they can make healthy choices, the structural critique suggests that the notion of individual choice is a mythical one and draws attention to the fact that health promotion makes people feel responsible and culpable for their health status'. Also, SM works to enable individuals to transform the information provided through the communication process into 'reasoned action' (LeBesco, 2004), or to make a behaviour change toward positive health and consumer orientation (Grier & Bryant, 2005). This transformation factor is confirmed by The White Paper's scholars who claimed that "we will bring together messages that raise awareness of health risks with information about action that people can take themselves to address these risks" (DH, 2004, p.22 in Herrick, 2007).

For Herrick (2007, p.92), SM is "a tool to induce sustained behaviour change in line with specific health targets". Many researchers, including Peattie and Peattie (2009) and McKenzie-Mohr (2011) argued that SM attempts to achieve social behavioural-change targets based on small budgets and good execution of marketing plans, such as those plans that tend to provide a pathway to a proper lifestyle aimed at reducing individual food consumption (Takahashi, 2009; Peattie & Peattie, 2009). Part of the success of behavioural change came out of

consumers charitable and volunteerism resources (Perese, et al., 2005). Encouraging customers to adopt healthy-food choices sometimes required special pricing considerations in addition to food product planting, preparation and food-choice behaviour considerations (Sloan, et al., 2008; Pollard, et al., 2002). Therefore, SM has come to take care of these considerations from the starting point of production (for example, farmers) to the last consumption point (for example, consumers' food intake) by designing suitable marketing and management activities such as food-pricing strategies that affect food choice at both individual and population levels (French, 2003; Sloan, et al., 2008). For example, some researchers, such as Ottman (1993) and Farhar and Houston (1996) reported that about 40-70% of residential customers expressed their willingness to pay a 5-15% premium for buying environmentally-friendly products including renewable energy.

There are many approaches used to investigate behavioural change. However, according to Grier and Bryant (2005, p.334) "no single theory or discipline is likely to provide all the guidance needed to direct social change". Therefore, SM is heavily investigating behavioural change by using a wide array of potential behavioural change determinants (for example, motivation and emotion). Behaviour change cannot happen without highlighting food benefits and risk reduction. Mitchell and Boustani (1994) have explained how marketing in general, and SM as a special approach are essential for reducing customers' risk perception and risk reduction. Risk reduction is a critical stage in changing behaviour, which is used by marketers, suppliers and intermediaries to highlight both positive and negative healthy-food purchasing and consumption consequences, especially when these issues have a long-term consequence which cannot be dealt with in the short-term. Risk reduction provides many benefits for individuals or the population in total. This is confirmed by Rader and Norgaard (1996, p.40) who argued that "risk reduction is systemic and has public benefits because it reduces shocks to the economy as a whole". This idea is confirmed by Siegrist, et al. (2008) who found that perceived risks, perceived benefit and perceived naturalness were the main factors of public acceptance of innovative food products and acceptance of new food technologies. After giving a brief explanation of why this study has chosen SM as the main study context, there is a need to define what SM means and to explain its main principles.

## **2 - 6: Defining social marketing (SM)**

The beginning of SM was established when Wiebe (1952) asked a question, 'Why can't you sell brotherhood and rational thinking like you sell soap?' In his comment, Wiebe (1952)



encouraged the paying of attention to both social causes and commodities since they were inseparable issues. However, to guarantee the power of SM, a broad representation of marketing and its related concepts is needed. After that, the platform upon which SM can work successfully needs to be logically found (Wiebe, 1952).

Although there is no universally agreed upon definition of SM (Perese, et al., 2005), it is generally agreed that SM is linked to social work related to people's welfare to adopt healthier lifestyles (Andreasen, 1995; MacFadyen, et al., 1999). The National Social Marketing Centre defined SM as "The application of commercial marketing tools and techniques in order to encourage a change in behaviour for the good of the individual, organisation, community, or society as a whole" (NSMC, 2006). Nicholson and Xiao's (2008) definition is considered to be the most satisfactory in the present context:

...the integration of tools and frameworks from marketing applied psychology and behavioural economics, its goal being to facilitate and encourage a change in behaviour that benefits the individual, organisation, community, or society-at-large.

After providing an overview of SM, Section 2-7 gives a brief explanation of the main principles of SM.

## **2 - 7: Key principles and practices of social marketing**

SM has been chosen to be the main route to study family healthy-food choice. Thus, some SM features and characteristics can be highlighted. Firstly, SM influences target audience, motivates people to engage voluntarily, motivates people with the intervention and offers them something beneficial in return (Gordon, et al., 2006). Secondly, SM tries to induce change by applying the principle of exchange (for example, benefits and/or cost), recognising that there must be a clear benefit for the customer if change is to occur (Houston & Gassenheimer, 1987). This exchange means that the products' market could be both tangible and intangible (Kotler & Roperto, 1989). Thirdly, SM could, therefore accept, reject, modify, or abandon behaviour (Kotler, et al., 2002) to improve the welfare of the target audience. As the target audience assumes the main role in the SM process, SM is centred on the target audience (Andreasen, 2002), such as helping pregnant smokers, which means that all strategies start with the customer. Because SM influences strategies, it always starts with an understanding of the target audiences' needs and wants, their values and their perceptions (Andreasen, 1995).

Fourthly, For SM, consumer behaviour is the target that needs to be changed and social marketers consider behaviour as the core that needs to be changed to create social success (Tower, 1994). Unlike instructors, who may be satisfied that messages were distributed and received and that people have in fact learned some facts, SM argues that learning facts is only important if it leads to a desired behavioural outcome. Programmes must be cost valuable, for instance, for their commercial sector progenitors, social marketers must worry about being cost-effective. This is why they are constantly aware that they have limited resources and that they must use them cleverly (Andreasen, 1995). SM tends not to deal with targets as mass markets, rather SM tends to segment the target market carefully. Finally, the final characteristic of SM stems from the fact that social marketers place a good deal of focus on competition. For example, a great deal of pressure has been used to push people to eat fast food products and fast food organisations usually spend thousands of millions each year on such issues, which, in turn, limit the effect of healthy-food adoption campaigns especially when such campaigns have limited resources and alternatives. This issue is confirmed by Andreasen (1995) who explained that campaigns “recognize that every choice of action on the consumer’s part involves giving up some other action. Thus, campaigns must keep in mind not only what the marketing is trying to get across but also what customers see as the major alternatives” (p.80).

While this study adopts SM as the main route to study family-food choices, there is a need to explore what is the main SM problem, which is presented in Section 2-8.

## **2 - 8: What is the social marketing problem?**

Macionis (2002, p.4) defined a social problem as a “condition that undermines the well-being of some or a society and that is usually a matter of public controversy”. Society, according to Macionis (2002), consists of people who interact within some territory guided by culture. In addition, SM can deal with problems like poverty, starvation, disease and discrimination. These problems have been related to all societies in the world for a long time including both the simplest, and the most-developed societies (Hastings, 2007, p15). Kotler and Zaltman (1971) have argued that SM could solve some social problems such as pollution control, mass transit, private education, drug abuse and public medicine problems. These problems need innovative solutions and approaches for gaining public attention and support, for instance, by health promoting policies and by designing health promotion campaigns. SM approval by the government represents a paradigm shift in the challenge to change public opinion and social

norms. As a result, some detrimental behaviour, such as smoking or excessive alcohol consumption, is no longer considered socially-acceptable.

MacFadyen, et al. (1999) argue that many social and health problems have behavioural causes, for example, the spread of AIDS, traffic accidents and unwanted pregnancies are often all the result of everyday, voluntary human activity. Thus, according to MacFadyen, et al. (1999), SM provides a mechanism for tackling such problems by encouraging people to adopt healthier lifestyles. Also, for Andreasen (1994), SM aims to influence behaviour, not to promote ideas. However, SM faces some problems, firstly, there is a lack of understanding of SM at top management levels. Leaders of many non-profit organisations and major government agencies are often unaware of SM or its potential for organising and implementing major social-change programmes. Indeed campaigns often are unable to use SM approaches, or, when they do, they are poorly-founded or their results cannot be implemented easily (Andreasen, 2002). Secondly, as the field often has “poor brand positioning”, SM as an approach to social change “lacks clarity and is perceived by key influential people as having several undesirable traits: (Andreasen, 2002). Firstly, SM is sometimes misunderstood, and many people claim they are doing SM when they are not because there are too many definitions of SM being used (Andreasen, 1993). In addition, these definitions conflict in major and minor ways and some SM definitions are borrowed from the commercial sector of marketing. Also, in most cases, SM is confused with social advertising. Many social programmes use both advertising and advertising techniques as a core approach to promoting healthy behaviour, which is usually seen as much broader than a simple advertising message. For example, the nature of the behaviour to be promoted (the product), the ways in which it will be delivered (the place), and the costs that consumers perceive they will have to pay to undertake it (the price) (Andreasen, 1995).

Secondly, SM is not adequately differentiated from its competition especially in ways that would be in its favour. For example, SM is perceived to have attributes that are unattractive to important target audiences, most prominently, the perception that SM is manipulative, and not community-based (Andreasen, 2002). Thirdly, there is an inadequate documentation and publicity of successes. Any social change approach gains favour to the extent that it can document its effectiveness, and, particularly, its superiority to alternatives (Andreasen, 2002). Fourthly, SM lacks academic stature. Measures of the legitimacy of a field include the extent to which it:

- (1) Is taught on a regular basis at major universities
- (2) Leads to specific career options and so merits formal learning
- (3) Is supported by a significant base, and sometimes makes contributions to other fields to which it is related

SM is usually taught in one or two class sessions in a marketing, communication or public health courses. No institution usually grants a formal degree in the field or even a specialisation. However, the field is slowly developing a significant foundation of conceptual and theoretical underpinnings, as is reflected by the growing number of solid studies appearing in a variety of journals (for example, *Journal of Public Policy and Marketing*, *Social Marketing Quarterly*, and *Journal of Marketing*, among others) (Andreasen, 2002). Fifthly, the potential of SM is often 'underappreciated'. As an integrated approach that starts with target customers and their needs, wants and perceptions, SM is more firmly-grounded than rival approaches in the reality of the target markets that ultimately decide the success or failure of programmes. Thus, while influencing behaviour is SM's fundamental objective, the discipline can be applied to a wide range of topics and audiences (Andreasen, 1995).

Researching SM is not easy especially in the healthy food-choice field, and Goldberg, et al (1995) classified some complexities associated with research in SM. Firstly, with market analysis and evaluation problems, social marketers have trouble obtaining valid and reliable measures of the main variables. For example, it may be more difficult to ascertain usage rates for fast food than for healthy food. In general, demand problems are likely to be more challenging in efforts to understand and influence sensitive public health issues. In addition, social marketers may have more difficulty sorting out the relative influence of identified determinants of behaviour. Secondly, with market segmentation problems, reaching the target segment in SM is negatively inclined and costly. In addition to this, the available data does not usually make it easy to identify important segments. As such, an efficient way of dealing with substance abuse among teenagers would be to identify and address high-risk teenagers. However, because real analytic analysis of 'high-risk' is lacking, the typical strategy is to intervene with all children in a school. Although this is not all bad (in that the intervention may be a reminder for those teens that are not involved with illegal matter and might positively influence those at the margin), it has a lower chance of reaching the high-risk adolescents. They may drop out of school or regard the school environment poorly. Thirdly, with product and pricing problems, SM has less flexibility in designing products and/or offerings. The

associated benefits may be difficult to convey for effective products or difficult to realise, which may appear in different cases such as the task of persuading a family that has just faced the painful death of a loved one of the benefits of organ donation. Fourthly, with channel problems, SM experiences great difficulty in using and controlling the needed intermediaries. This is a major concern with in-school interventions. For example, programmes typically rely on teachers to implement the intervention, and, as a result, SM is at the mercy of channel variations.

Fifthly, with organisational design and planning problems, Goldberg, et al. (1995) argued that social marketers often find themselves in organisations that are structured to deal with specific issues on a large scale and over the long-term because of the complex nature of the problems they confronted. These organisations often have members who do not share the marketers' perspective or single-minded purpose. For this reason, Backer and Rogers (1993) suggested that social marketers must have the patience and insight to deal with such inter- and intra-organisational issues. Sixthly, with communications problems, SM finds paid advertising difficult to use. Still, ahead of the cost of appropriate placement and targeting, it is important to consider the problem of the advertising context in which these messages are experienced. Another issue is that how effective is a message that promotes the eating of healthy food (DeJong & Winsten, 1990).

## **Chapter two summary**

Chapter two provides a preliminary view of the link between the SM arena and the study's research focus, which is family-food choices. Chapter two began by providing an overview of the research problem, describing family healthy-food choices and why this issue is considered a problematic matter. Studying food choice is not a new phenomenon, but tackling healthy-food choices within the family behaviour context is novel and adds value to the knowledge. Thus, there is a need to explain what a family means, supported by its main characteristics, which, in turn, might provide a set of elements that support the study's focus and provide a clear analysis of family-food choices. The chapter then discusses the SM context by addressing many interrelated issues such as why this study is conducted using SM, defines SM, explaining the main key principles and practices of SM, and, concludes by providing a brief overview of the main SM problems. Finally, as food choice is this study's focus, Chapter three provided an explanation of the main theoretical models and approaches that were used to study consumer behaviour analysis and behaviour changes.

## **Chapter Three**

### **Literature Review -**

### **Main Theoretical Approaches to Study Consumer-Choice Behaviour**

## **Introduction**

Chapter two provided a preliminary justification for studying healthy-food choice within the family context. Studying such an issue required identifying the main family characteristics that affect food choice. In addition, Chapter two focused on explaining why SM has been chosen as the suitable track to be followed in this study field or paradigm. Thus, it was important to define SM and explain its main principles and practices. In addition, the identification of the key SM problems required a critical analysis of the main difficulties that are currently being faced regarding family-food intake and purchasing behaviour.

SM cannot be practiced in isolation but requires an interdisciplinary approach, since its main interest is to change people's behaviour. Consequently, SM's schools are mostly related to social-influence theories, concentrating on "psychological inoculation, normative education and resistance skills training" (Botvin, et al., 2001, p.888). As a result, this chapter discusses the main theories that have been used in the SM field to investigate and explain how behavioural change occurs. These theories include the Social Exchange Theory in Section 3-1, Trans-theoretical Model of Health Behaviour Change (TTM) in Section 3-2, the Health Belief Model in Section 3-3, the Theory of Planned Behaviour (or Theory of Reasoned Action) in Section 3-4, and the Social Cognitive Theory in Section 3-5. The chapter then provides a brief discussion of why these social-behaviour approaches were not suitable for this study and the analysis of family food-choice behaviour in Section 3-6. Section 3-7 discusses in detail behaviourism and behaviour-change approaches supported by briefing both the Classical Conditional Learning Theory in Section 3-7.1 and Operant Conditional Learning Theory in Section 3-7.2. In addition, this chapter provides another model which can be applied in studying family-food choice, namely, the Behavioural Perspective Model (BPM) in Section 3-8. This selection is supported by the rationality and suitability of using such a model within the family healthy food-choice context in Section 3-9. Finally, the chapter ends with over-viewing some BPM limitations in Section 3-10. Sections 3-1 to 3-5 discuss the main previous theoretical approaches in more detail.

### **3 - 1: Social Exchange Theory**

A very effective method in analysing behaviour is the Social Exchange Theory (SET). Kotler and Lee (2007) suggest that SET to more than the purchasing of tangible goods and services to encompass the intangible and symbolic products and/or services (for example, recycling).

Although Houston and Gassenheimer (1987) proposed that the SET had its foundations in psychology and economics, this theory is based on the premise that behavioural changes should be built on cooperation and mutually-beneficial exchange elements, which are considered the key successes of any change required. This idea was initiated by Kotler (1984 cited by Barnes, 2001, p.67) who defines marketing as “a social and managerial process by which individuals and groups obtain what they need and want through creating and exchanging products and value with others”.

In addition, Bagozzi's (1979) exchange model explains the main elements that should be taken into consideration when explaining the application of SET and its determinants of behavioural exchange. These elements include situational contingencies, social influence between actors, characteristics of social actors, and the third parties' effects. In this sense, Bagozzi's (1975) model claims that exchange between parties should be made by transferring something of value (tangible and intangible items) between any two social actors. In addition, Kotler (2000 cited by Hastings, 2007) determined five prerequisites for exchange to take place that provide a broad view of the behavioural change environment and the cause-effect relationship between two parties. These prerequisites are:

- (1) There should be at least two parties
- (2) Each party has something that might be of value to the other party
- (3) Each party is capable of communication and delivery
- (4) Each party is free to accept or reject the offer
- (5) Each party believes it is appropriate or desirable to deal with the other party

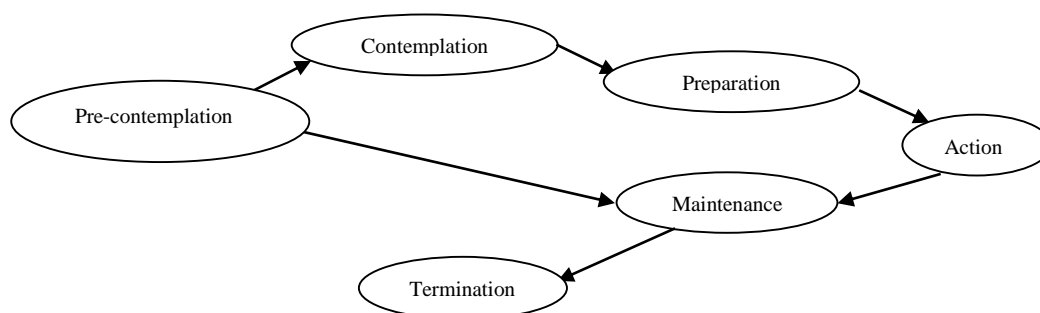
Therefore, according to Emerson (1976), it is agreed that SET includes related interactions that create obligations, which give the reason or excuse to initiate the core of changes. Accordingly, the ‘interdependent transactions’ produce unique relationships, which makes SET regarded for thinkers, as social power, networks, organisational justice, psychological contrast, and, consequently, as the most influential theory among others.

SET has been applied in a variety of behaviour studies such as in explaining business-to-business relational exchange (Lambe, et al., 2001), studying customer satisfaction with existing outdoor recreation facilities (Bryant, t al., 1981), predicting the effects of human resource management practice on employee outcomes (Gould-Williams & Davies, F. (2005), the possibility of using the SET to create a sense of shared responsibility to service settings (Sierra & McQuitty, 2005), and, finally, investigate the influence of family members on family meal vegetable choices (Wenrich, et al., 2010).



### 3 - 2: Trans-theoretical Model of Behaviour Change

One of the core elements in tackling social behaviour change is the Trans-theoretical Model of Health Behaviour Change (TTM) as illustrated in Figure 3-1. This model is frequently applied in different SM issues (Marshall & Biddle, 2001; Marcus & Simkin, 1994). Based on behavioural change and psychotherapy theories, TTM identifies ten discrete processes of change that people usually engage in to progress through the stages by using covert and overt activities (Ayers, et al., 2007). It was developed by the psychologists Prochaska and Diclementes (1977) and formally known as the ‘Stages of Change’. This model was initially applied in health psychology to explain behavioural change as a series of different stages (starting from pre-contemplation, contemplation, preparation, action, maintenance, and termination) and 10 processes that provide a clear view of how to achieve a proposed behaviour change by using covert and overt activities (Prochaska & Diclementes, 1992). Some of these processes, according to Lefebvre (2000), are raising consciousness, in which the causes, consequences and solutions for problems might be considered, and self-re-evaluation, in which self-image might be accessed far from having any unhealthy behaviour. Social liberation is another process in which oppressed people are considered by trying to find social opportunities to support them. Finally, another process is facilitating relationships that create healthy behaviour changes through caring, trust, openness, acceptance and support. The interaction between these processes urges a move through the behavioural change stages as illustrated in Figure 3-1.



**Figure 3-1: Trans-theoretical Model of Health Behaviour Change (‘Stages of Change’ Model) - Prochaska and Di Clemente’s (1983)**

Essentially, Prochaska and Diclementes (1983) claimed that the construction of new behaviour required moving through five stages. The first stage, pre-contemplation, aims to alert the individual to the problem, since he/she does not realise the threat he/she is facing, for example, smoking kills. The individual begins to recognise that he/she is at risk in the contemplation stage, in which he/she is prepared for the next stage. In the preparation stage, the individual

makes a decision to take action to change his/her behaviour. When the action stage takes place, the individual takes a serious step forward in trying the new behaviour. Without support, the individual may not try again if he/she fails initially. At the end, the individual should move to the confirmation stage, where he/she gets used to the new behaviour without having an intention to draw back.

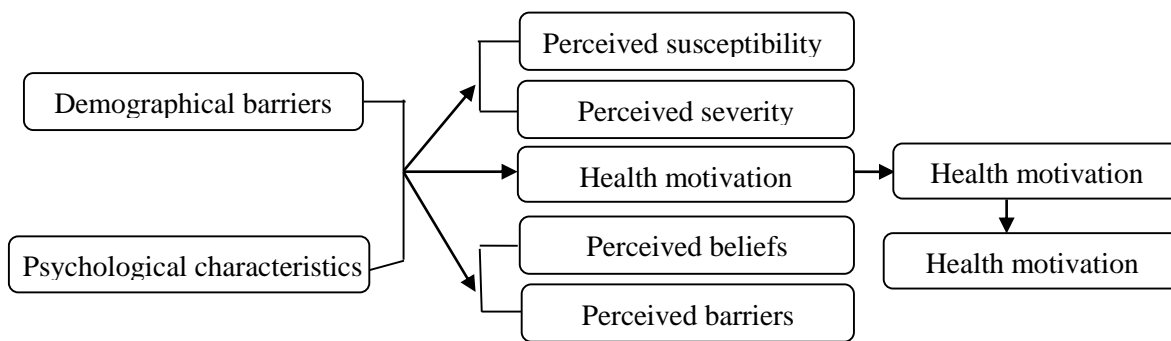
Regarding the Stages of Change Theory applications, it has been applied to investigate consumer behaviour change in different behaviour settings such as smoking cessation, weight control efforts, mammography screening, and primary care (Rustin and Tate, 1993; Prochaska, 1994; Glanz, et al., 1994; Elder, et al., 1999; Glanz, et al., 2002). Moreover, this theory has been applied in research on sexual behaviour and HIV/AIDS (Brown, et al., 2000). For example, the Centres for Disease Control and Prevention (CDC) used the Stages of Change Theory in an HIV/AIDS Counselling and Testing Study at clinics that treat sexually-transmitted diseases and infections (STD) (Rietmeijer, 2007).

### **3 - 3: Health Belief Model**

The Health Belief Model (HBM) (Rosenstock, 1990) as illustrated in Figure 3-2 is a psychological model that attempts to explain and predict health behaviours by focusing on the attitudes and beliefs of individuals. This model was developed in the 1950s as part of an effort by social psychologists in the United States Public Health Service to explain the lack of public participation in health screening and prevention programmes. Then, the HBM was updated in the 1980s and developed later to involve health behaviour change of short- and long-terms in different behaviour settings such as high-risk sexual behaviour, high blood pressure screening, nutrition, health education programmes and smoking cessation (Kloeblen & Batish, 1999; Rosenstock, et al., 1988; Rosenstock, et al., 1994; Janz & Becker, 1984).

In addition, Rosenstock (1990) suggested that the HBM tries to change the individual's knowledge, attitudes and intentions by focusing on the communication of information related to the risks and the benefits of an action. In fact, it is related to psychological elements because it explains and expects healthy behaviours focusing on the individual's attitude and belief. Also, both Prochaska and Diclementes (1983) highlighted that the importance of benefits and cost depends on the consumer him/herself. In addition, according to the HBM, the individual should have perceived threat and/or benefits that include perceived susceptibility, perceived severity/seriousness, perceived benefits, perceived barriers, cues to action, and self-efficacy

(Weinreich, 1999). In the perceived susceptibility stage, the individual must believe that he or she is susceptible to the condition or have a subjective perception of the risk of contracting a health condition. In the perceived severity/seriousness stage, the individual must believe that getting the disease or condition leads to severe consequences. In the perceived benefits, the individual must believe that the effectiveness of strategies in preventive behaviour reduce the threat of illness. In the perceived barriers, the individual must believe that the negative outcomes (for example, tangible or psychological costs of performing the behaviour) are of a lower magnitude than the benefits. In the cues to action stage, the individual must be motivated to take action or perform the behaviour from the environmental perspective. Finally, in the self-efficacy stage, the individual must believe that he or she can take action. Also, Keenan (2002) provides more description of self-efficacy, which refers to ‘beliefs about one’s own effectiveness and competence to cope with a situation’.



**Figure 3-2: The Health Belief Model - Sheeran and Abraham (1995)**

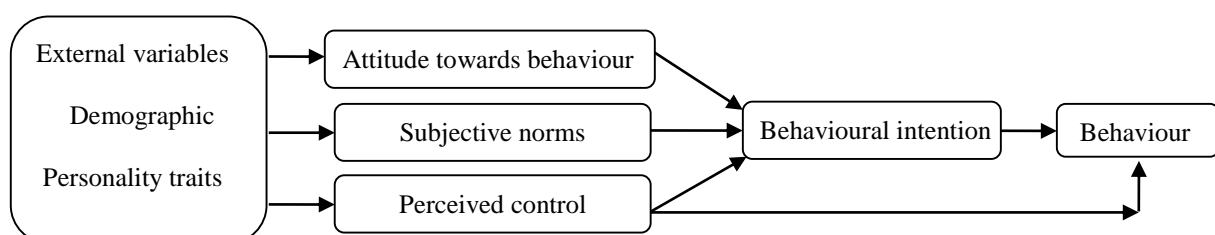
The HBM has been applied in a variety of social behaviour studies such as examining older adults’ food-handling behaviours (Hanson & Benedict, 2002) and explaining patients’ drug-taking behaviour (Ried & Christensen, 1988). For example, Prochaska and Diclementes (1983) showed that many applications of this model in risk-behaviour studies involve homosexual men and pregnant women.

**3 - 4: Theory of Planned Behaviour and Theory of Reasoned Action (TRA)**

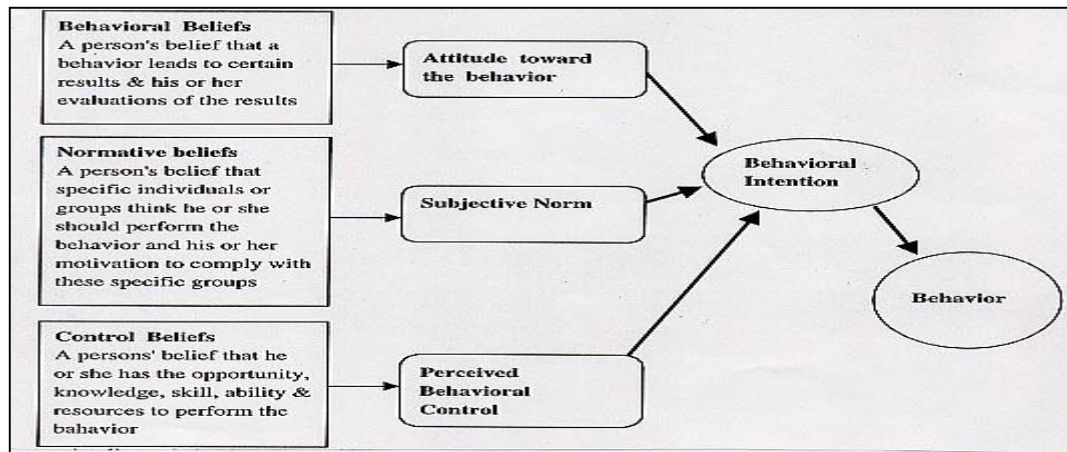
The behavioural change theory discussion also includes assessing the importance, applications and limitations of the theory of planned behaviour which was developed by Ajzen (1985). This theory was an extension of the theory of reasoned action, which was proposed by Fishbein and Ajzen (1975), on behaviour change. TRA has explained and predicted a variety of human behaviours since 1967. Based on the premise that humans are rational and that the behaviours being explored are under volitional control, the theory provides a construct that links individual

beliefs, attitudes, intentions and behaviour (Fishbein, et al., 1994). The theory has many variables, which have been described by Fishbein, et al. (1994) and Ajzen and Fishbein (2005), for example, behaviour is a specific behaviour defined by a combination of four components, namely, action, target, context and time. For example, implementing a sexual HIV risk reduction strategy (action) by using condoms with commercial sex workers (target) in brothels (context) every time (time). Intention is described as the intent to perform behaviour, which is the best predictor that a desired behaviour will actually occur. In order to measure it accurately and effectively, intent should be defined using the same components used to define behaviour, namely, action, target, context and time. In addition, both attitude and norms, influence one's intention to perform behaviour. Attitude is illustrated as a person's positive or negative feelings toward performing the defined behaviour which has a link with the behavioural beliefs (Ajzen & Fishbein, 2000). Thus, the behavioural beliefs expressed are a combination of a person's beliefs regarding the outcomes of a defined behaviour, and the person's evaluation of potential outcomes. These beliefs will differ from population to population. For instance, married heterosexuals may consider introducing condoms into their relationship an admission of infidelity, while for homosexual males in high-prevalence areas, it may be viewed as a sign of trust and caring. Also, 'norms' are known as a person's perception of other people's opinions regarding defined behaviour. Norms are different from the Normative Beliefs, which are illustrated as a combination of a person's beliefs regarding other people's views of behaviour and the person's willingness to conform to those views. As with behavioural beliefs, normative beliefs regarding other people's opinions and the evaluation of those opinions will vary from population to population.

In summary, intention is determined by two major factors as explained by Kotler and Lee (2007) as beliefs about the behaviour outcomes associated with the behaviour, perception and beliefs of how people cared about will view the behaviour in question. The TRA provides a framework for linking each of the above variables together as shown in Figure 3- 3 and Figure 3 - 4.



**Figure 3-3: The Theory of Planned Behaviour, following Conner and Sparks (1995)**



**Figure 3-4: Theory of Planned Behaviour. Organisational Behaviour and Human Decision Processes - Ajzen (1991)**

The TPB has been applied in different marketing contexts such as green marketing (Kalafatis, et al., 1999) and heavily in SM (Stead, et al., 2005; Baranowski, et al., 2003; Hagger, et al., 2002). As Fishbein, et al. (1994) claimed, “To date, behaviours explored using the TRA include smoking, drinking, signing up for treatment programmes, using contraceptives, dieting, wearing seatbelts or safety helmets, exercising regularly, voting, and breastfeeding” (p.62).

### 3 - 5: Social Cognitive Theory/Social Learning

Social Cognitive Theory (SCT) is derived from Miller and Dollard (1941) and their work in the social learning theory. The proposition states that if any person is motivated to learn a specific (defined) behaviour, the targeted behaviour cannot be achieved without a clear observation. In addition, positive rewards play an essential role in copying the observed actions that will be learned. Therefore, this theory has been renamed the Social Cognitive Theory from the Social Learning theory, because it involves learning social behaviours and using observations. It is also widely-known as the ‘Social Learning’ concept, which was proposed by the American psychologist (Bandura, 1986).

SCT is viewed as one of the more comprehensive efforts to explain individual behaviour (Baranowski, et al., 1997). It is based on the assumption that people learn by watching others, and that cognitive processes mediate the social learning. While learning is an internal process that may or not change behaviour, reinforcements and punishments have both direct and indirect effects. Therefore, behaviour eventually becomes self-regulated and behaviour is directed toward particular goals (Bandura, 1986). Unlike the previous behavioural theories,

SCT does not recognise the effect of intrinsic or environmental factors on one's behaviour. On the contrary, the individual him/herself can control his/her own behaviour and personality. He/she is able to respond to his/her environment in different ways. According to Bandura (1977), SCT suggests that the individual is able to make certain behaviours happen, emphasising the audiences' sense of self-assurance. According to this theory, human behaviour is reciprocally-determined by internal personal factors (such as knowledge and self-efficacy) and environmental factors (such as levels of deprivation or availability of facilities in the local community). In addition, SCT recognises the bilateral relationship that exists between personal and environmental factors (Bandura, 1986; Maibach & Cotton, 1995). It emphasises the need for social marketers to address both dimensions of risk failure.

The SCT has been applied in a variety of social behaviour studies such as studying the main factors that affect children's dietary practices (Corwin, et al., 1999), investigating of gender role development and functioning (Bussey & Bandura, 1999), explaining socio-economic variations in adolescent eating behaviours (Ball, et al., 2009), demonstrating the impact of a community-based diabetes educational programs (Chapman-Novakofski & Karduck, 2005), controlling HIV infection (Bandura, 1994), and explaining how some variables such as self-efficacy and self-regulation are used to account for the nutrition content of food purchase and consumption among adults to integrate healthier nutrition into U.S. lifestyles.

### **3 - 6: Brief criticisms of using behaviour theories in different social contexts**

Section 3-5 overviewed the main theories that have been used in the SM context as appropriate approaches to study a variety of issues that related directly to consumer behaviour analysis and manipulation. However, no model or theory is without criticism. Thus, this section identifies the limitations of using these theories in a variety of situations.

In spite of many Social Exchange Theory (SET) applications, SET has not escaped criticism. For example, Coyle-Shapiro and Conway (2004) found that it lacked observations and theoretical clarity. Others theorists identified the vague representation of SET's general model. Actually, relations in SET, which have developed over time have been found to have trusted and reciprocal commitments, which have imposed some rules on the parties. In other words, Emerson (1976) theorises that the rules are related to what the participants agree on as a definition of a certain situation in an exchange relation, which makes negotiation about rules possible. Similarly, the Transtheoretical Model of Health Behaviour Change (TTM) has also

been criticised. In addition, Weinreich (1999) and Hastings (2007) claim that the Change Theory has many limitations. On the one hand, Prochaska and DiClemente (1983) and Hastings (2007) found that ‘these changes do not, for the most part, occur overnight’.

Changes usually involve a series of stages from initial contemplation through to reinforcement, a process that is both dynamic and precarious as individuals can “regress or change heart at any point’ (Prochaska & DiClemente, 1983). On the other hand, Change Theory deals with ‘tailoring interventions; the stage at which one finds the target audience along the road to high-involvement behaviour change’ (Prochaska & DiClemente, 1983). Also, the stages of the Change Theory focus on the individual and ignore other issues related to the environment. However, this view contradicted by Posner (1995), who argued that success in applying the Change Theory is very much related to psychology. Moreover, the researcher does not explain behaviour based on specific causes but presents a clear descriptive of behaviour which weakens the relationship between stages, which, in most cases, is not clear. As a result, the stages of change cannot be applied to all societies’ populations (Posner & Higuera, 1995).

In addition, the Health Belief Model (HBM) has been criticised from different angles. Since this theory is a psychological model, it ignores other environmental and economic factors, which often have an influence on health behaviours. Moreover, social norms, which influence the individual’s decision, have no place in the HBM since it supposes that the health behaviour can be considered a social process. In addition, Rosenstock, et al. (1994) claimed that there is no way by which all HBM components can be applied in total. Therefore, a selection of components in different researches requires the testing of the model only partially, not as a whole unit. However, this theory also has many limitations, and some of these limitations include the inability of the theory, owing to its individualistic approach, to consider the role of environmental and structural issues, and the linearity of the theory components (Kippax & Crawford, 1993). As a result, individuals may first change their behaviour and then their beliefs/attitudes about it. For example, some studies that related to the influence of seatbelt use (De Vries, et al., 1988) showed that some people usually changed their negative attitudes about the use of seatbelts while driving as much as they become accustomed to the new behaviour.

Like other methods, the Social Cognitive Theory (SCT) has also been subject to criticism. It assumes that knowledge is a prerequisite to behaviour change; that is, there is a hierarchical system to improving behaviour (Hastings, 2007). Also, the environmental variable (observational learning) is considered an essential term in SCT. For its theorists, the

environment not only affects behaviour, it also enables one to judge the surrounding behaviours and gain knowledge of their consequences (Wilson & Dunn, 2004). On the other hand, observational learning includes a number of processes, such as, attention process, retention, production, motivational process, self-efficacy, outcome expectation, outcome expectancies, emotional copying response, inactive learning, rule learning and self-regularity capability (Ferrari, 1996). SCT tries to elucidate human behaviour, by attempting to create new behaviours in its audience, following the observational learning processes (Lefebvre, 2000). For Maibach and Cotton (1995), there is a mutual relationship between the environment and personal factors, in which any failure needs social marketers to provide a solution. To be sure, SCT is criticised for ignoring the existence of a hierarchical system that changes behaviour positively, dealing with knowledge as a prerequisite to behaviour change. Moreover, SCT does not illustrate the movement of the consumer to the change-exchange theory, which should follow it directly.

The discussed theories, namely SET, TTM and SCT have different applications in a variety of research areas. These applications have both positive and negative circumstances. For example, Wenrich and Cason (2004) have used food and nutrition education programs to assess the consumption and perceptions of soy among low-income adults. However, this literature highlights the need for an additional model to explain consumer behaviour change towards eating more healthy food. For example, the Social Learning Theory, the Health Belief Model, and the Self-Efficacy Model have been applied in different situations targeted at predicting, explaining and influencing behaviour with varying degrees of success (Rosenstock, et al., 1988). However, the Stages of Change Theory ignores other issues related to the environment, the target audience is expected to move through all stages, and it does not study or explain behaviours from the point of view of causes (Jones & Donovan, 2004). In addition, the Social Cognitive Theory does not explain specifically how behaviour changes and what barriers may prevent behaviour change (Jeffery, 2004).

In summary, Section 3-6 provides an overview of the main theories that have been used to study and explain how consumer behaviour can be analysed and changed. However, the identified models do not provide a clear view of how behaviour can take place, or be changed based on a good operant behaviour approach that gives a justifiable explanation of the links between the pre-behaviour and post-behaviour determinants within the family-behaviour setting. For these reasons, there is a need for a theory that considers the environment, and



tackles continuous family behaviour within an actual healthy food-choice behaviour setting, based on the consideration of short- and long-term consequences. One of the main objectives in this study, therefore, is to clarify how food choice can be researched and enhanced using an appropriate theoretical model, which is explained in Chapter four.

### **3 - 7: Behaviourism and behaviour change**

Behavioural research has been widely-undertaken by many researchers with the shared thought that all changes targeted should start with behaviour, especially those that tend to promote health (Andreasen, 1995). Consumer behaviour defines a wide range of activities and behaviours and specifically reflects ‘the processes involved when individuals or groups select, purchase, use or dispose of products, services, ideas or experiences’ (Gabbott & Hogg, 1998, p.10). Also, Gabbott and Hogg (1998) noted that consumer behaviour can be defined as “the act of an individual directly involved in obtaining and using economic goods and services, including the decision processes that precede and determine these acts” (p.56). Behaviour as a concept was initially taken from Behaviourism which is considered a philosophy or a movement in psychology as claimed by Boakes (1984). Behaviourism is viewed as a philosophy about the science in which all behaviourists agree on one central idea, that a science of behaviour is possible. This science has come to be called behaviour analysis (Baum, 2005). John B. Watson (1913) is an American psychologist who established the psychological school of behaviourism, after researching animal behaviour. Taking his lead from comparative psychology, Watson attacked the idea that psychology was the science of the mind by pointing out that neither introspection nor analogies to animal consciousness produced the reliable result produced by the method of other sciences (1913 in Baum, 2005). Baum (2005) explained Watson’s point of view that the science of psychology should be an objective science based on observable behaviour, called behaviourism. This does not focus on studying the soul or mind of humans, which is responsible for creating the consciousness and unconsciousness.

In 1913, Watson published the article ‘Psychology as the Behaviourist Views It’ - sometimes called *The Behaviourist Manifesto*. In this article, Watson sets out the major characteristics of his new philosophy of psychology, called ‘behaviourism’. The article focused on the external behaviour of people and their reactions in given situations, rather than the internal, mental state of those people. In Watson’s opinion, the analysis of behaviours and reactions was the only objective method to gain insight on human actions. This viewpoint, combined with the complimentary ideas of determinism, evolutionary continuism and empiricism, have

contributed to what is now called ‘radical behaviourism’. The radical behaviourist usually looks for descriptive terms that are useful for understanding behaviour and economical for discussing behaviour (Day, 1969; Baum, 2005).

Of post-Watsonian behaviourists, the best known is B. F. Skinner (1904-90). Skinner’s ideas of how to achieve a science of behaviour contrasted sharply with those of most other behaviourists. Whereas the others focused on natural-science methods, Skinner focused on scientific explanation, and argued that the way to a science of behaviour lies through the development of terms and concepts that would allow truly scientific explanations. Skinner labelled the opposing view ‘methodological behaviourism’ and also named his own view ‘radical behaviourism’ (in Baum, 2005).

The starting point to explaining behavioural development is to return to learning theories. Learning is a basic process in human development, and it is a critical process in ontogenic development. Learning is defined as a relatively permanent change in behaviour in relation to the environment owing to experience and information (Novak & Pelaez, 2004). Cognitive learning was the first type of learning discovered to occur. The building of stimulus-response associations can also lead to learning. The development of these associations is the focus of classical conditioning whose fundamental principles were explained and laid out in the early twentieth century by Pavlov, Watson and Skinner. Section 3-7.1 discusses the main learning theories.

### **3 - 7.1: Classical conditioning learning**

Pavlov (1849-1936) proposed the first theory of classical conditioning, asserting that it is a fundamental way of learning by which all organisms adapt to their environment. Pavlov, the father of classical conditioning, demonstrated this type of learning through many processes using dogs (Blackwell, et al., 2001; Cole & Cole, 1993). Research has since shown that many other responses to stimuli can be classically-conditioned in animals and human beings (Schwartz & Lacy, 1982). In addition, the classical conditioning tests initiated by Pavlov (which were experiments of salivation measurements) are explained in the Appendix Figure 3-1. The test is based on reflex as a basic unit of behaviour. The conditioning stage illustrated that salivation is seen as an unconditional response for an unconditional stimulus (food). In repeating the unconditional stimulus-response relationship many times during the conditioning stage, it has been found after conditioning that additional elements (such as bell ringing, light,

and footfall sounds (namely, conditional stimuli) alone can create the same response (salivation: a conditional response).

These elements do not have the effect of creating any response by any means alone. The learning process occurred by having an unconditional stimuli occur with conditional stimuli within specific circumstances such as type, time, quantity and quality, as well as the process of repeating both of them (the dog would learn to salivate to the ring of the bell). In healthy-food choice conditional learning, the majority of fast food restaurants serve free soft drinks attached with different unhealthy-food products such as pizza or fried chicken. After the repetition process, a consumer learns that any fast food product cannot be eaten and satisfy customers' needs without drinking soft drink products, which tend to not be served free later.

There are many authors who doubt the use of classical conditioning in changing and amending consumer behaviour. This is because presenting the conditional stimuli continually and introducing the unconditional stimuli sporadically does not produce the required response (conditional response) in most cases of classical conditional experiments (Brown & Jenkins, 1968). Foxall (2002) has explained three additional considerations regarding the inability of using and applying classical conditioning to alter consumer behaviour. Firstly, in most products usually encountered in the consumer day life, altering consumer behaviour is not effective because the effect of unconditional stimuli will decrease when the product is encountered without the unconditional stimuli. However, classical conditioning might be very effective with any new car product line because the car might be rarely seen outside the car's advertising. Secondly, when using classical conditioning, it is not recommended to use many advertisements for the same conditioning object. That is because the effect of unconditional stimuli which occurs simultaneously to conditional stimuli will decrease without the conditional stimuli if different rare processes are used. Thirdly, with respect to the familiarity (number of exposures) factor, the usage of unconditional stimuli without the conditional stimuli should be minimised because the effect of unconditional stimuli may lead to the unconditional response which will decrease the conditioning effectiveness.

### **3 - 7.2: Operant conditioning learning**

In addition to conditional learning, Edward Thondike adds another value to studying behaviour change by extending classical learning theory to include instrumental learning. Thorndike suggested that learning could happen through trial and error (in Eysenck & Flanagan, 2000).

This theory of instrumental conditioning was further developed by B.F. Skinner (1904-1990) into operant conditioning (Eysenck & Flanagan 2000). Skinner (1953; 1981) proposed operant conditioning, in which organisms associate behaviours with their consequences. His research with animals revealed that reinforcements like food steadily directed animal's actions toward a desired behaviour. Modgil and Modgil (1987) put forward the concept that 'behaviour is shaped and maintained by its consequences'. The degree of behaviour operating on the environment is known as the 'operant' behaviour, which works to produce consequences that are determined by those behaviours.

Based on this, cognitive learning was the first type of learning discovered to occur. Pavlov (year) was influenced by Watson's (1913) notion that the emotions and behaviours of people, despite being biologically-induced, are mainly a collection of conditioned responses. But Watson (1913) advocated the rejection of cognition (inner thoughts, feelings, consciousness and motives) as did Pavlov. This can be used in broader conditioning experiments rather than just making dogs salivate in specific conditioning cases. Watson (1913) made a statement which provides the essence of behaviourism, namely, 'Why do people behave as they do - how can I, as a behaviourist, working in the interests of science, get individuals to behave differently today from the way they acted yesterday? How far can we modify behaviour by training (conditioning)?' (in Zimmer, 1999).

The basic idea of operant conditioning is that changes in behaviour occur as a result of the positive or negative consequences the behaviour produces; that is, organisms will tend to repeat behaviours that lead to rewards and will tend to give up behaviours that fail to produce rewards or that lead to punishment (Skinner, 1953; Thorndike, 1911). Some researchers are unsure of whether to employ cognitive or operant philosophy to explain consumer choice. Based on many previous studies such as Singh (1988), the field of studying consumer behaviour lacks an appropriate commonly-acceptable conceptual model that can be used satisfactorily in analysing consumer choice. Whereas most researchers agree with Skinner's operant model (of behaviourism), there is a school of thought positing that the cognitive process can form part of behaviour analysis. Behaviourists' exclusion of cognition in behaviour analysis raises a question: How is it possible to explain human behaviour only in terms of behaviourism without considering cognitive causation? Other researchers have confirmed that human actions are a mix of behaviour and cognition. For example, Plomin (1994, p.105) posited that behaviour is the result of a complex interplay of traits and situations. While, based on Foxall's (2007b)

perspective, Plomin (1994) questioned why there was no broader philosophy or philosophical framework to deal with behaviourism, and not cognition's orientations which missed much of the points related to behaviourism. Toates (1986) and Dickinson (1997) clearly agrees with the advantages of a psychological premise that recognises both cognition and behaviourism. This construct has been operationalised as a behavioural perspective and a personality characteristic (Janssen, 2000 cited by De Jong & Wennekers, 2008).

Behaviour analysis has focused on situational variables, in which the operant theory has been used in a wide array of phenomena, including learning, verbal behaviour, clinical interventions, politics, religion and consumer behaviour (Skinner, 1957; Foxall, et al., 2007a; Foxall, 1999d). However, it has not been employed in any sustained fashion in connection with SM in relation to healthy-food choices. To explain a consumer choice and provide a clear picture of behaviour analysis, there is a need to explain the three-term contingency.

The three-term contingency is considered one of the fundamental conceptual models to study operant conditioning. The three-term contingency was formulated by Skinner who believed that any behavioural act could be divided into three main parts, namely, discriminative stimuli, operant responses and reinforcement or punishment. This is stated in a notation form as  $S^D \rightarrow R \rightarrow S^R$ ; where ( $S^D$ ) represents discriminative stimuli, while the environmental situation specifies a response (R), which, in turn, is either reinforced ( $S^R$ ) or punished. Foxall, et al. (2006) put it another way as A, B and C, where 'A' represents the antecedents (environment situation), 'B' represents behaviour (response), and 'C' represents consequences (reinforcement or punishment). However, Blackman (1980 cited by Foxall, et al., 2006, p.115) argued that the existence of an antecedent does not automatically lead to the specified behaviour; nor does the reward of that behaviour on previous occasions make its repetition inevitable. Based on Foxall's (1992) viewpoint, explaining behaviour by relying only on the behaviour-setting elements usually sheds light only on part of the behaviour situation investigation, and more light needs to be shed on studying behaviour consequences to complete the picture, especially when behaviour change is the target.

Based on Nicholson and Xiao (2008), consumer choice behaviours are deemed to be directed toward maximisation of positively-reinforcing consequences and/or minimisation of punishing aversive outcomes. Based on Nicholson and Xiao's explanation, determining and investigating the factors that affect family choice within the food-purchase setting without employing an operant approach is not enough. More investigation is needed to stand for other behavioural

elements, such as the purchase behaviour consequences that are usually determined by consumers' learning history. These have the potential to change family habits to adopt healthy eating habits. This is because behaviour is shaped by many interrelated elements that need to be explained, not only personal efficacy but also environmental perspectives. Bandura (1986) used the self-efficacy concept to explain that people's judgment of their capabilities help in executing and organising a set of required actions. Balch (1974) added to this both external and internal efficacy. Internal efficacy is related to the personal (or family or parents) sense of having the skills, knowledge and experience needed to execute a specific action. However, external efficacy is related to the person's perception that an action can be shaped and can take place based mainly on circumstances or the behaviour of others in a way to cooperate, facilitate, or allow doing such action. The self-efficacy concept is connected directly with learning specific skills. This is related to Social Learning Theory, which proposes that a person needs to practise a specific behaviour personally and even be rewarded for doing it in order to feel involved and accomplish a specific task.

Such an issue led some scholars to think about the types of consequences that need to be taken into consideration when planning for a desired behaviour with respect to the situational factors. As a result, many scholars have taken the situational factor effect into consideration as some situational factors can play an essential role in influencing behaviour. For example, a pleasant environment can encourage more time spent shopping, and hence in spending more money (Christiansen & Snepenger, 2002). A situational setting also brings both positive and negative cues (Peeters & Czapinski, 1990). Convenient drug environments help in drug product availability, and offer an easy chance to buy and consume them. While, convenience healthy-food product availability helps to increase the degree of exposure to such products in markets, stores and even school areas, as well as helping to increase the chance of buying healthy products such as fruits and vegetables.

Exposure and repetition are also connected with traditional learning theories (Skinner, 1963). This, in turn, explains that the more times one sees and practises an action, the greater the chance of repeating it. This has a direct link with reinforcement, which in later stages is called operant conditioning learning. In this approach, rewards play a critical role in repeating an action if the action is rewarded, and, vice versa, if not. Operant behaviour has a proven role in shaping and repeating an action or behaviour (Baer & Bandura, 1963). The situational setting leads to another concept to be explained, namely, modelling, which translates to observational

learning. Observational learning helps in applying other models that usually act in desirable ways, for example, 'imitate and repeat' behavioural models. These ways of learning can be enhanced through the use of promotional media. Promotion is usually a set of models that facilitate learning, especially learning to adopt a healthy lifestyle and healthy-food buying and intake.

Anderson (1994) explained that many issues are present when planning a set of coordinating approaches for social marketers to change a specific behaviour to another desired one. These approaches include increasing the positive outcomes from the proposed behaviour, decreasing the acknowledged negative outcomes or costs from the proposed behaviour, increasing the amount of social pressure that comes from individuals or groups to help carry out a desired behaviour, and increasing the importance of self-efficacy to the target customers (families) that matched directly with the desired behaviour. Based on Anderson explanation, a recognition has been recognised that both a benefit-based approach and a cost-based approach can be employed to study many social phenomena such as healthy-food choice (provide references here of these scholars).

Based on this understanding, family-food choices from an operant behaviour perspective needs to be discussed. This encompasses a set of concepts that have been highlighted from different theories and models to give a clear picture of such behaviour, and how it has been shaped and executed. Such concepts include social pressure, conditional learning, situational effect and both positive and negative consequences and reinforcements. Thus, the Behavioural Perspective Model (BPM) has been chosen to provide a fundamental understanding of family-food choices. The BPM might help more in this situation because it explains not only the main pre-behaviour determinants but it also gives a clear idea of post-behaviour determinants (Brewer & Stern, 2005). Therefore, this study explains food choice, as a specific situation, by giving a clear analysis of its situational elements that usually shape a specific choice and its consequences. The study also sheds extra light on the behaviour output that usually plays an essential role in behaviour execution, especially when the route of the behaviour or behaviour alternatives are clearly defined before the decision takes place.

Finding a suitable theoretical model that can match both the majority and variety of situational determinants that could logically fit with their related consequences, can be found in the chosen BPM. BPM was chosen because it encompasses both conditional behaviour and operant behaviour to clarify how a choice can be determined and explained in a continuous purchase

situation. Food choice is considered a continuous consumption process that is affected by the variety of behaviour-setting elements that interact directly with a consumer's learning history. Behaviour-setting elements that interact with learning history shape the part of the behaviour that usually plays an essential role in determining behaviour consequences. Section 3-8 provides more detail about the main BPM elements, and the level to which it is considered essential to be applied thoroughly.

### 3 - 8: Behavioural Perspective Model (BPM) and its application

The BPM, as proposed by Foxall (1999d), represents a modern behavioural framework that provides an explanation of purchase and consumption responses in terms of the contingent relationships between the behaviour in question, its antecedents, its stimuli and its reinforcing or punishing consequences. The behavioural perspective model relies on both classical and operant learning theories that have long dealt with the environmental influences on the formation and effects of attitudes and behaviours (Foxall, 1995). Foxall (1990; 1999b) proposed ‘a neo-Skinnerian theory of situational influence on consumer behaviour in which the responses of consumers are determined by the contingencies of reinforcement under which they are emitted’. According to the Behavioural Perspective Model (BPM) shown in Figure 3 - 5, consumer behaviour/choice can be predicted based on two main dimensions of situational influences, namely, the consumer behaviour setting and the utilitarian and informational reinforcements or punishments signalled by the setting and the consumer’s learning history (Foxall, et al., 2007).

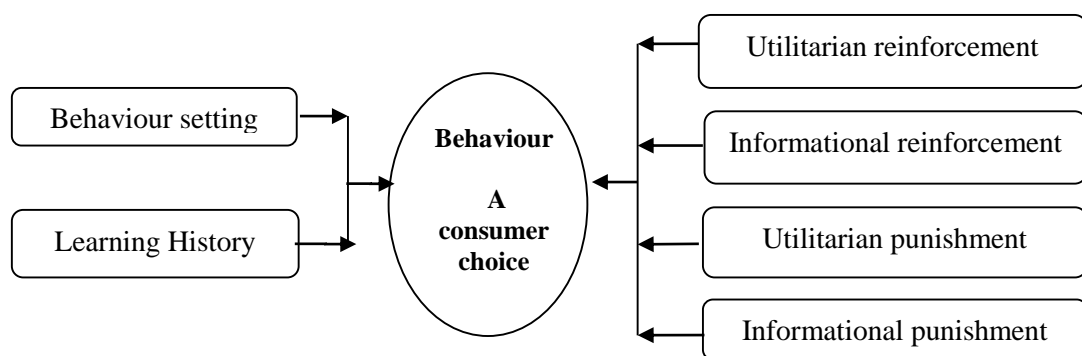


Figure 3-5: Behavioural Perspective Model (BPM) - Foxall, et al. (2007)

Brief descriptions of the main BPM elements, namely, behaviour setting, learning history, utilitarian reinforcement, informational reinforcement, utilitarian punishment, and informational punishment and their application need more understanding and explanation. Those elements can be identified by the consumer behaviour setting which contains events or



discriminative stimuli that signal the potential consequences for various consumer behaviours. Behaviour setting has been defined as “the social and physical environment in which the consumer is exposed to stimuli signalling a choice situation” (Oliveira-Castro, et al., 2008, p.7). In a broader view, behaviour-setting stimuli have been divided into four main categories which are physical (for example, alternative brands), social (for example, store staff members), temporal (for example, short-term promotions), or regulatory (for example, rules concerning shopping) (Foxall, et al., 2006). The behaviour-setting stimuli act as stimuli that bring about in the consumer, based on his or her past learning history, the kind of consequences that are likely to follow each type of response, such as buying, postponing the purchase, accelerating the purchase, searching or saving (Foxall, et al., 2006). Based on this understanding, learning history reflects previously accumulated information, knowledge and skills, which all interact with each other directly or indirectly (Hwang, 2003). The main role of customer learning history is to lead the customer to what to buy or choose according to previous or similar behaviour situations, and customers usually rely heavily on their learning history to buy or choose among a variety of alternatives or evaluate service quality (Parasuraman, et al., 1985).

On the one hand, reinforcement has been described as “responses to a person’s behaviour that increase or decrease the likelihood of reoccurrence, promote self-initiated rewards and incentives” (Glanz, 2002, p.169). ‘Reinforcement’ may come from the benefits acquired from products and services, or from social approval, whilst punishment arises because the consumer must relinquish generalised conditioned reinforcements such as money, rights as well as the time and effort spent in making the purchase (Foxall, et al., 2006). The simultaneous reinforcement and/or punishment described by Foxall et al. (2006) is taken into account in the BPM, which positions consumer behaviour as a function of its consequences. Also, according to Foxall (1998a), utilitarian benefits or reinforcements are important functional advantages that come from purchasing, owning or consuming a particular item or service, while informational benefits or reinforcements are important in the resulting representative consequences. Thus, the former relates directly to the use of products while the latter is associated with social and personal evaluations people have of these products. Reinforcement may include any reward (namely, positive reinforcement of desired skills, knowledge, and attitudes) or punishment (namely, negative reinforcement of undesired skills, knowledge, and attitudes) mechanisms used by the socialisation agents (Moschis & Churchill, 1978).

On the other hand, punishment has been described as “consequences of a behaviour that decrease the likelihood of the behaviour reoccurring” (Keenan & Evan, 2009, p.52). Unwanted consequences or the dissatisfaction of buying a specific offering (product or service) might decrease the likelihood of buying such an offering again or of repeating the same/similar experience in the next purchase situation. Punishment based on the BPM perspective has many other facets than monetary cost, such as time cost (for example, waiting too long to make a deposit in a bank’s front-desk), physical cost (for example, having a web-page to improve the finding of an organisation and to avoid customers getting lost), psychological cost (for example, eliminating or reducing unpleasant or inconvenient procedures), and sensory cost (for example, reducing noise and installing more comfortable furniture and equipment inside stores), as categorised by Lovelock and Wirtz (2007).

Consumer behaviour based on Gabbott and Hogg (1998) has been described as “the act of an individual directly involved in obtaining and using economic goods and services, including the decision processes that precede and determine these acts” (p.56). Thus, according to the BPM, the meaning of behaviour as seen in specific circumstances is an interaction between the discriminative stimuli that form the behaviour setting and the individual’s history of reinforcement and punishment in previous experiences in similar behaviour settings (Foxall, 1995). Based on this, the BPM is seen as a model that consists of a set of pre-behaviour factors connected logically with many post-behaviour factors that can be used systematically to give a clear view of how a behaviour or choice can be predicted, controlled and amended. Thus, brief descriptions have been presented previously of the BPM’s main elements. To come closer to having a clear picture of using the BPM, the suitability and rationality of using such a model in this study is presented Section 3-9.

### **3 - 9: Rationality and suitability of using the BPM in the SM context to study family healthy-food choices**

This section discusses two issues, namely, initially, it provides a description of how SM paradigm is essentially related to studying both individual and group(s) health behaviour and behaviour change. Secondly, it provides a set of reasons that explain why and how the BPM will be used to study family healthy-food purchasing and consumption behaviour.

Andreasen (1995) confirms that the ultimate goal of SM is bringing benefits and welfare to a specific target audience or to the broader society. Keeping in mind that the basic goal is to bring benefits and welfare to the individual/families and even society through influencing

behaviour, while in more complex cases, the goal is changing behaviour (Andreasen, 1994). Scholars such as Venkatesh and Morris (2000) confirmed that influencing behaviour is the basic job in any social setting. In addition, Kotler and Roberto (1989) reported that the majority of social campaigns have been planned to analyse behaviour and behaviour changes. Van De Ven and Poole (1995) also argue that changing and influencing behaviour is not a simple process and may take long time to occur as many interrelated and overlapped factors need to be taken into consideration at once. Moreover, Stead, et al. (2007) explained that the target audience is the corner stone in any SM program or study in which the aim is always to influence the voluntary behaviour of the target audiences. As target audience varies, SM might start with the lower level of investigation such as an individual or a customer or it might have few numbers of individuals, such as a single family, or have large number of audiences, such as a society.

No behaviour change process can occur until the target audience is influenced and takes action accordingly. In addition, any social change cannot occur until the behaviour that is being addressed or studied is the bottom line and such behaviour is important and visible. Family-food choice is considered one of the main SM issues that is considered important for all individuals, societies and even governmental and non-governmental institutions. As SM requires more analysis and understanding, the purpose of this research is to provide a suitable explanation of families' healthy food-choice behaviour, which, in turn, may effectively help in modifying such behaviour and persuading family members to adopt new behaviour or accept better food-choice alternatives. There are many approaches that have been discussed to investigate behaviour analysis and change within the SM context in this chapter. For example, Anderasen (1995) discussed the social influence approach which has a variety of features that make it the best for dealing with critical social issues that are linked directly with behaviour acknowledge and behaviour change. Such features are derived from the fact that behaviour is driven by four key elements which include perceived severity of the social problem or issue, perceived susceptibility to a given behaviour, perceived benefits of the acting and, finally, perceived barriers to take an action.

By briefly reviewing some of the main theories that have been explained in Chapter two, there is a need to find a model or a theory that suits investigating social behaviour issues appropriately. In addition, the model or theory needs to have the ability to take into account a large number of factors that usually overlap to explain complex family food-choice behaviour,

and how it should be well investigated. Also, Kotler and Roberto (1989) suggest that the majority of social campaigns have been planned to analyse behaviour in addition to making behaviour changes. To do this, Baer, et al. (1968) conceptualised that behaviour analysis is the sense of simplification and separation of components. Thus, in any model that is chosen, it is preferable to take into account a set factors or components that are seen as essential to explain any social behaviour by highlighting both the behaviour-setting determinants and food consumption consequences.

To explain social behaviour and to understand how a consumer behaves within a specific behaviour settings, it is still necessary to study the relationship between an individual and his/her interaction with the environmental forces such as physical and social forces (Popkin, et al., 2005). This is because environmental forces experience continuous significant change that in turn influence consumer behaviour (Dato-On & Moustafaeva, 2004). Targeting the family-behaviour setting is essential. According to Birch and Davison (2001), this is because parents provide the food environment for their children starting from an early stage such as feeding practice and children's early experience with food and eating, which are primarily selected and controlled by parents and other interrelated behaviour-setting environments. Thus, the BPM is considered an appropriate tool to be employed as it focuses on the interaction between a set of behaviour-setting determinants that shape the choice and the purchase decision, which, in later stages, affect the choice consequences.

Relying on behaviour-setting determinants to shape consumer behaviour and choice has been highlighted by Bitner (1992) who identifies that any behaviour analysis will not provide a clear view until the impact of behaviour-setting surroundings, especially physical surroundings, social interaction and social pressure are taken into consideration and become part of the analysis. Thus, any behaviour analysis model used to explain any social issue should include the behaviour-setting component(s) in addition to the effect of social effect component(s). In addition, the more educated the target audience is, the more they will take better choice and will rely less on their habits and norms in their food choice. This is confirmed by Prahalad, and Ramaswamy (2004) who claim that the more educated the consumer is, the more he/she will make an intelligent choice and execute a better trade-off.

This highlights the effect of learning and accumulated knowledge when investigating any social issue to make the process of social change through repeating the process of purchase within similar circumstances easier. Thus, when studying any social issue, it is important to

include the effect of learning history and experience in any social behaviour analysis. Moreover, when applying part of any a social behaviour analysis approach, it is important to consider the effect of behaviour consequences, especially when such consequences might have positive or negative effects. According to Gordon, et al. (2006), if any behaviour change needs to occur; clear benefits for the customers should be recognised. This confirms the importance of behaviour consequences and benefits when analysing any social behaviour issue. In order to consider all previous elements, the Behavioural Perspective Model (BPM) has been chosen to achieve this purpose by providing a clear behavioural analysis of family-food choices.

One of the main questions that might be asked is why the BPM is used and was it used before? These questions are essential and are addressed briefly in Section 3-10.

Previous studies have frequently investigated the eating behaviour of consumers but have lacked the theoretical background that provides a complete view of healthy behaviour related to food purchasing and consumption that encompass the effect of stimuli, namely previous experience as well as various modes of reinforcement and punishment. In addition, this study focuses on simultaneously analysing the effect of interrelated elements such as behaviour setting, learning history and behaviour consequences on food choices in a new SM context. Also, as the use of the BPM in SM is relatively novel, the present study does not only propose the need for such a model, but also displays its potential usefulness, especially within a family healthy food-choice setting.

The BPM differentiates between two types of reinforcement and punishment, namely, utilitarian and informational (Foxall, 2003). Both reinforcement and punishment factors have been used in many studies in different behaviour settings indirectly to study healthy food-behaviour change (Lerman & Vorndran, 2002; Jeor, et al., 2002). The BPM is aimed at explaining how people behave in different situations and can be used in different approaches to create behaviour change where other models have failed. For example, some scholars such as Walker, et al. (1996) showed how punishment-based intervention techniques have failed to treat serious, undesired student behaviour, which increased in the school setting. Other researchers such as Moschis and Churchill (1978) used specific terms and concepts such as economic (rational) and social (non-rational) motivations to explore food selection and consumption. However, this did not provide a clear picture about the behaviour itself and how it occurred in real-life contexts. Moreover, Marteau, et al. (2009) studied the use of financial incentives to achieve healthy behaviour by reducing obesity, smoking and other addictive

behaviours. This study tackled different behavioural issues by explaining the effect of one element of the behaviour setting and ignoring the mutually-interactive effect of other factors, such as experience or positive and negative consequences. It focused on the effect of socially-related short-term behaviour change by using financial rewards; and it ignored the essence of social change. Consequently, such studies have missed the opportunity to study healthy food and drink choices in an operant behaviour setting. Therefore, there is a need in SM, to highlight the importance of addressing the healthy food and drink consumption of the family by applying a solid theoretical framework in a real-life setting that encompasses a variety of factors affecting purchasing behaviour. This need is stressed by Foxall (2001) who claimed that “the tendency has been to concentrate on the potential contribution of operant psychology to managerial practice rather than to examine the potential of behaviourism to provide a theoretical basis for marketing and consumer research” (p.165). The BPM provides a satisfactory analysis that takes place in a wide range of behavioural settings and on different levels of utilitarian and informational reinforcements promised to families in real-life behavioural settings.

In addition, Story, et al. (2002b) proposed an ecological model for understanding and explaining the individual and environmental factors that affect a child’s eating behaviour. This model proposed that it is just a function of four levels of influence, which are explained by Marquis (2004) as individual, interpersonal, environmental and social levels. These four levels of influence are part of the stimuli that provide some explanation for the behaviour-setting elements without mentioning the effect of other factors such as the temporal or regulatory conditions. As a result, the author, investigated some parts of the BPM model but did not employ the punishment and reward parts and did not consider continuous behaviour. However, this study applies the BPM and investigates all its elements that might help to improve the analysis of the main factors that influence healthy-food choices within the family context. Also, with respect to the BPM applications, another contribution could be made by interpreting complex behaviours such as family-food choices to investigate factors that affect and control behaviour change. This interpretation is based on the combination of both behaviour stimuli and consequences which are signalled by different buying-behaviour setting elements which interact simultaneously with a consumer’s learning history.

Regarding the BPM application, the BPM (Foxall, 1998) has been used in a variety of behaviour settings, including consumer behavioural analysis within SM context (Foxall, et al.,

2006). However, the model is useful in the context of healthy-food choices because it can give a clear understanding of food choice analysis, as it takes into account the complex interaction of both pre-behaviour and post-behaviour factors within the family food-choice setting. The possibility of using intervention programmes to change families' behaviour toward adopting healthy diets by employing the BPM may add more value to future studies. Moreover, the BPM has been applied in different research arenas. For example, Fagerstorm in (2005) applied this model to understand and predict online consumer behaviour as an alternative stance to many other attitude theories such as the Theory of Planned Behaviour (TPB) and Theory of Reason Action (TRA). Soriano, et al. (2002) tested BPM to investigate consumer choice based on Mehrabian and Russell's theory of emotional responses to environmental stimuli in a Latin American context. Moreover, Foxall (2009) has used a more structured version of the BPM to interpret a variety of consumer behaviours, such as innovation choice, imitation, every day purchasing and saving, compulsive behaviour and green consumer behaviour. In the same line, Foxall, et al. (2006) used this model to analyse different classes of consumer behaviour which are related to SM, and a variety of environmental conservations, namely, consumption of domestic energy, use of private transportation, domestic consumption of water and waste disposal. Foxall, et al. (2006) suggested that the BPM can be used for promoting and maintaining environmental behaviour. They argued that environmentally-damaging behaviour and consumer choices from patterns of consumerism encouraged by mass advertising can be reversed by to SM (Foxall, et al., 2006). One of the main contributions of this study was to extend the application of the BPM in the SM context to investigate the choices of healthy-food products in a real family purchase settings.

Another original idea might be highlighted that why other behaviour analysis models were not used to explain such social behaviour issues? Many researchers such as Giddens (1979) and both Prochaska and DiClemente (1983) identify that health-related behaviour issues have been investigated by using irrelevant concepts and employing inadequate models or frames especially those connected directly with social behaviour change complex issues (for example, smoking). In addition, Taylor, et al. (2006) discussed many social models used to analyse behaviour change such as the Theory of Reasoned Action (TRA), the Health Belief Model, the Trans-Theoretical Model (TTM) and the Theory of Planned Behaviour (TPB). Taylor, et al. (2006) also highlighted many flaws in these models' usages, namely:

None of the models examined in this review is specified adequately to incorporate and interpret the significance of social, economic and/or environmental factors as predictors and determinants of health behaviour.

Buckley, et al. (2007), Mahon, et al. (2006) and Olsen (2003) have also explained the lack of using a variety of theoretical models to study healthy-food choice by showing that the previous models used different psychological terms (for example, attitudes, beliefs, social norms, cognition, food related to lifestyle) which related to consumer perceptions and not behaviour in an attempt to address and study food-choice behaviour. According to Kippax and Crawford (1993), cognitive terms alone do not adequately explain different social and economic settings. Additionally, neither TRA and TTM, nor TPB provide sufficient information to support using their components. This, according to Ferguson (1996 cited by Taylor, 2007), increases the opportunities that help shape and define both environmental and organisational determinants, that are required to apply different intervention plans and programmes intended to change the targeted social behaviour. Based on this understanding, the BPM is a good tool to predict consumer choice by investigating not only the influence of different environmental behaviour-setting elements such as social effects (for example, friends) or promotion effects (for example, TV advertisements), but it also includes the effect of learning history in addition to the effect of punishments and reinforcements in the same behaviour situation supported by behaviour consequences. However, TRB and TRA have to some extent the same attitudinal and social norms components which eliminate the effect of external direct elements (Fishben & Ajzen, 1975). Additionally, TPB has some self-efficacy and belief constructs (Ajzen, 2002). Section 3-10 highlights limitations for BPM applications.

### **3 - 10: BPM limitations**

As with any theory or model, the Behavioural Perspective Model (BPM) is not short of limitations or critiques and application determinants. Some of these limitations for BPM use is the provision of plausible consumer-choice explanations, especially family healthy-food choices.

The BPM is a consumer behaviour analysis model that has been based on the three-term contingency from behavioural psychology. Based on this, the theoretical foundation of the BPM framework is not sufficiently capable of providing sufficient explanations for specific behaviours especially the complex ones. The behaviour explanation is not clear when there is a hierarchy of reinforcements for an organism that suitably match different levels of behaviour



occurrences (Premack, 1959). In addition, for Foxall (2013), while the BPM is manipulated to be used to extend literature in explaining consumer choices within an operant-behaviour setting, it is not possible to indicate to what level that specific types of stimuli are needed to account for the appearing of specific behaviour types. In addition, it is hard to determine to what levels that specific types and/or levels of stimuli are needed to be accounted for to activate specific types of behaviours and to what levels. Moreover, in any operant behaviour analysis, especially when using the BPM, it is not easy to predict to what levels that specific types and levels of stimuli are needed to activate specific behaviours to be continued or repeated. Based on this, one of the limitations to be taken into consideration in any behaviour creation, modification and continuation is determining the continuity of specific stimuli to be offered or continued especially when such stimuli indicate or predict specific types of consequences. Therefore, missing the relationship and possible directions among levels/types of behaviours and levels/types of stimuli makes the BPM a difficult approach to apply in some real behaviour settings (for example, adopting a healthy diet) and to rely on it to provide an adequate and practical framework for behaviour analysis.

Another criticism for using the BPM to explain purchasing behaviour, is that the model has a variety of variables. Arboleda and Escobar (2011) argue that it is difficult to determine which variable identification of which is a function. In addition, it is also difficult to provide logical implications of the alternative roles that provide the same or different consequences within the same or within one category context of behaviour. These issues can be explained by an example, namely, while the purchase action (food choice) takes place, based on the operant view, it is assumed that it can be manipulated by its consequences. Thus, it is important for food producers to plan for offering the right food quality within appropriate strategies that enable contacting and releasing such consequences among specific products that match more with specific consumers (Arboleda & Escobar, 2011).

In addition, the relationship between stimuli, behaviour and consequences are not clear, while in some cases, the needed or obtained consequences take a long time to be seen or appear such as enjoying the benefits of adopting healthy-food diets and being healthy. The stimuli of purchasing healthy-food products are direct, clear and can be noticed easily (for example, a promotion of organic food products sale then buying such products) more than food healthy consumption's consequences (for example, having a healthy shape and not being overweighted). Thus, the issue of believing in such consequences cannot be done without

talking about the intention and mental learning process that might add value to behaviour analysis understanding. In addition, one of the criticisms of behaviourism is that it does not give much attention or it ignores the mental processing learning while it relies mainly on the learning that originate from personal experiences and their interaction processes with their environment. Additionally, it is important to keep in mind that learning from another perspective is possible by observing others as explained in some social learning theories.

Moreover, relying on both operant and classical conditionings, learning principles cannot provide sufficient explanations of how people behave in some situations without respecting the trial and error effect (previous learning history) within the time. This, in turn, highlights the issue that the model is situational in most cases, which usually matches the situational aspects (context and consequences) and dispositional, which is the effect of learning history (Arboleda & Escobar, 2011). However, Arboleda and Escobar (2011) claim that BPM is still one of the best models that provide a good guideline for action.

Scholars such as Davies, et al. (1995) explain that to have a full understanding of behaviour analysis, there is a need to understand the reasons behind buying and connecting such reasons with consumer buying patterns. Such connections are not clearly identified within the BPM situation of analysis. One of the main factors that play a critical role in behaviour analysis is the behaviour situational contexts. The behaviour context according to the BPM is categorised into main four broad elements (understood as space, temporal, social and regulatory circumstances). Such elements are categorised easily but, practically, the link or relationship between them and how they interact together in the first stage and interact with the consumer learning history in the second stage within one setting is too complex to fully explain family healthy-food choices. In addition, how such interactions can be explained clearly within the creating of both symbolic and tangible consequences especially when such behaviour output is a result of emotional-reaction psychological functions is complex (Hirschman & Holbrook, 1982).

In summary, SM is considered a powerful approach to be used for in-depth study of a wide range of social problems such as healthy diet, environment awareness, social welfare and safety. In such an approach, the primary goal of any SM study is to start with behaviour analysis and focus on behaviour changes which makes it more suitable than any other approaches that rely mainly on studying and analysing consumers' attitude and awareness. The SM uses behaviour as the bottom line to start and customer-centred behaviour as the second

line to be discussed in more detail. Thus, bringing those factors affecting consumer behaviour is the mission to provide more insight on how behaviour can be acknowledge and analysed. Thus, while Andreasen (1995) highlighted that a large number of studies have provided a variety of explanations for a wide number of SM issues, however, to date, “the field lacks a solid conceptual framework for those who which to understand and undertake SM programs” (p.33). Thus, BPM is planned to be used as a new approach to explain family healthy-food choices. Chapter four introduces the main part of this study, which is how to apply BPM within the family food-choice setting. The SM takes behaviour as a bottom line to start with and customer centred as the second line to be discussed in more details.

### **Chapter three summary**

Chapter three overviews the main theoretical approaches that have been used in previous studies to investigate and analyse consumer choice. After discussing the main targeted theories, namely, the Social Exchange Theory, the Trans-theoretical Model of Behaviour Change, the Health Belief Model, the Theory of Planned Behaviour and the Theory of Reasoned Action (TRA), and the Social Cognitive Theory/Social Learning, the chapter provides brief criticisms or limitations for using these theories in different social contexts. Chapter three then explains why there is a need for an improved approach to ensure greater explanatory power for the study’s research focus. In addition, this chapter has focused on explaining what behaviourism means and why behaviour change should be addressed supported by briefing both the Classical Conditioning Learning and the Operant Conditioning Learning theories. Moreover, this chapter also discusses the meaning of the Behavioural Perspective Model (BPM) and why it can be applied in the family healthy-food choice context. Chapter three then illustrates the rationality and suitability of using the BPM model in the SM context to study the family healthy-food choices and concludes by reviewing criticisms or limitations of the applied BPM model. Chapter four also reviews the literature, and discusses in more detail the application of the chosen conceptual BPM framework supported by developing a set of proposed hypotheses for testing family food-choice determinants.

## **Chapter Four**

### **Current Conceptual Framework and Development of Hypotheses**

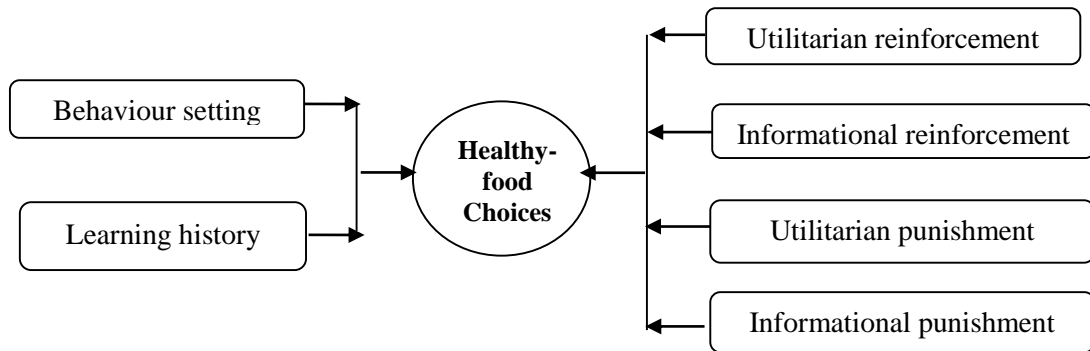
## **Introduction**

Chapter three overviewed the literature that discussed the main SM theories and theoretical models that have been used by scholars to investigate consumer behaviour and behaviour change. Additionally, the chapter provided a suitable explanation of why these approaches were not sufficiently suitable from an operant-behaviour perspective to investigate family food-choice issues. Chapter three then introduced the Behavioural Perspective Model (BPM) and justified using this model followed by its main implications and criticisms. Chapter four introduces the study's theoretical model, which is considered the study's practical framework, namely, family healthy-food choices supported by explaining the development stages of the main thesis hypotheses. The practical applications of this model starts with pre-behaviour determinants (behaviour-setting and learning history) and concludes with the post-behaviour determinants (utilitarian reinforcements, informational reinforcements, utilitarian punishments and informational punishments). Finally, Chapter four ends with determining whether family-food choices differ according to the parents' main demographic characteristics.

### **4 - 1: Application of BPM within the family healthy-food choice context**

The BPM of purchase and consumption is a practical behaviour model developed by Foxall (1992) to provide a satisfactory explanation of consumer behaviour with respect to four main factors, namely, behaviour-setting elements, learning history, utilitarian and informational reinforcements, as well as utilitarian and informational punishments as illustrated in Figure 4-1. The BPM model explains the relationship between the antecedent factors and the consequence factors in a strict and coherent way. For example, the antecedent model constructs do not usually affect individual responses, but they stimulate an individual towards many alternatives available in the behaviour situation which lead him/her through the amount, levels, types and conditions of utilitarian and informational punishments as well as reinforcements that would be gained if each option had been chosen. Also, the BPM is essential in its application because it provides a review of different behavioural outcomes. According to LaVigna and Willis (1995), behavioural outcomes result from the treatment of all factors and barriers that affect healthy-food purchasing and consumption in different behaviour situations. The behaviour outcomes are considered the main drivers of behavioural change (Ajzen, 1985), which end with the gaining of required outcomes and the avoidance of redundant outcomes. Based on Foxall (1998; 2007c), consequences are derived from both utilitarian and informational reinforcements and punishments. Utilitarian and informational consequences are

considered the main behaviour outcomes that are classified by the BPM model by which its application becomes more practical.



**Figure 4-1: Behavioural Perspective Model (BPM) - Foxall, et al. (2007)**

The benefits of using the BPM as a suitable framework for SM campaigns have been discussed in this study. In addition, the BPM has been shown to be transferable to a context that aims to achieve social good as opposed to influencing purchasing behaviour, and this may open up many new avenues for the discipline of SM. This is because the “BPM research programme is concerned to establish the epistemological status of this interpretation of consumer choice as environmentally controlled” (Foxall, 1994 cited by Foxall, 1998b, p.342). As a result, studies have used the BPM to assess a wide range of consumer-behaviour contexts such as interpreting consumer-brand choices (Foxall & Schrezenmaier, 2003), predicting attitude-responses to consumer environments (Foxall, et al., 2004), and choosing a service provider (Alshurideh, 2010). However, before discussing the implications for using the BPM and its main dimensions within family healthy-food choices, the logic for the arrows directions as seen in Figure 4-1 need to be explained. It has been discussed in many places that the family learning history interacts with the family behaviour-setting dimensions. Based on this interaction, food context and situation usually shape food choice and this choice usually shapes its consequences (Fagerstrøm, 2005). Although these consequences usually stem from a family’s food choice, purchase and consumption, the desired consequences usually have been planned to be tested to measure to what level they have affected and shape a family’s choice of healthy-food products. Thus, the arrows have been planned to appear as seen in the Figure 4-1 model to lead the investigation and check if the food-choice consequences affect the food choice itself. The following sections provide a detailed application of the BPM within the family healthy-food choice context supported by the study’s hypotheses at the end of each section.

#### **4 - 2: Effect of behaviour setting**

According to a research conducted by Coon, et al. (2001) and Story, et al. (2008), families whose meals usually contain fast food products are more likely to have poor access to healthy-food items, to have unhealthy-food habits and a high risk of obesity. Many studies have pointed out that fast-food consumption leads to extra energy intake and, in turn, increased risk of being overweight and of obesity (French, et al., 2000). Based on this relationship, family-food choices and eating behaviour has come increasingly under the spotlight in recent years (Johnson, et al., 2002). This is because family food-consumption has shifted rapidly towards purchasing unhealthy-food products such as fast-foods (Paeratakul, et al., 2003). Thus, effective environmental change strategies have been emphasised as key in improving the eating behaviours and dietary intakes of children (Story, et al., 2002b; Sallis, et al., 2003; Booth, et al., 2005). Therefore, both social and physical environments of families, schools and communities all have important roles to play in what children choose to eat (Neumark-Sztainer, et al., 1999; Kubik, et al., 2005; Patrick & Nicklas, 2005; Lytle, et al., 2006).

After explaining the general meaning of behaviour setting, it is essential to provide a comprehensive discussion of the scope of behaviour-setting effects when studying food choices.

#### **4 - 2. A: Scope of behaviour setting**

The scope of consumer behaviour setting is defined by consumer learning history and the social, physical, temporal and rule-based stimuli that create the behaviour setting. When a specific behaviour (or choice) occurs, the effects of the environment on consumer behaviour vary within the scope of the behaviour setting. For Foxall and Yani-de-Soriano (2005), the scope of the setting reflects “the degree to which consumers are encouraged to conform to a pattern of behaviour set by someone else e.g., on an airplane journey, a relatively closed setting) or are comparatively free to behave in a variety of ways (for example, browsing for a gift in a luxury store, a relatively open setting)” (p.519).

It has been suggested that purchasing and consumption activities arise in a continuum which range between relatively-open to relatively-closed behaviour settings (Schwartz & Lacey, 1988). Foxall and Greenley (2000) also differentiate between open and closed settings. In an open consumer behaviour setting, a consumer can choose freely between several options. Consumer responses can vary according to open-setting circumstances as the breadth of

options can make behaviour difficult to predict. An example of this is grocery shopping as the consumer may have many options for a given product, and also various choices of store (Wicklund, 1980). A closed-setting is when a consumer has little or no choice (Foxall & Yani-de-Soriano, 2005), for example, when a consumer is obligated to buy government-issued postage stamps to send mail (Foxall, et al., 2006).

In addition, Foxall, et al. (2006) illustrated four categories of consumer activities, viewed as a hierarchy or sequences of clusters. Termed operant classes, they can be described according to the types and levels of reinforcement (namely, high/low utilitarian and high/low informational). The four operant classes of consumer behaviour include maintenance, accumulation, hedonism and accomplishment (Foxall & Yani-de-Soriano, 2005). Each of the operant classes have different patterns. On the one hand, maintenance refers to any open behaviour setting low in both utilitarian and informational reinforcement. It takes the form of routine purchasing behaviour, for example, weekly supermarket shopping (Foxall, 1999). Also, maintenance behaviours are controlled by levels of both hedonic and informational consequence, which are lower than those associated with other classes of behaviour. Often they are controlled negatively by the removal of a threat (Foxall, 1992; Khan & Dhar, 2005). On the other hand, accumulation occurs in relatively-closed behaviour settings low in utilitarian reinforcement and high in informational reinforcement (Foxall, et al., 2006). This category has some hedonic contents which are principally informational. Accumulation is the planned acquisition of products with low utilitarian reinforcement, high informational reinforcement and some hedonic content (such as saving money or collecting air-miles (Foxall, 1992; Foxall, 1999).

In addition, hedonism is behaviour reinforced by pleasant consequences. It has low levels of informational reinforcement and high levels of utilitarian reinforcement (Foxall, 1999). It is maintained by a high level of hedonic reward and a lower level of informational reinforcement, benefitting the individual (Foxall, 1994). Purchases within this category include clothing and entertainment (Foxall, 1992). However, accomplishment is when personal achievement is maintained by relatively-high levels of both informational and hedonic consequence (Foxall, 1993). In this type of consumption, consumers enjoy the acts of choosing, purchasing and consuming a specific product/service. The four operant classes can also be expanded and operationalised alongside the scope of the setting to produce eight separate contingency categories to further classify a broad range of behaviour based on relatively-open behaviour



settings or relatively-closed behaviour settings. Although this contingency categorisation can be further discussed and applied but it is beyond the scope of this study. Based on the behaviour-setting element discussed, its effects can be proposed as:

- Hypothesis 1: Family healthy-food choices are influenced positively by behaviour-setting determinants.

Regarding the behaviour-setting effect, and according to Wicker (1992), behaviour setting is a small-scale social system, bounded by place and time, composed of people and physical objectives. These four main elements of behaviour setting (namely, time, place, people and physical objectives) are required, more than the investigation of individual or family characteristics, to explain and investigate family behaviour (Barker, 1978). Thus, while the purpose for including behaviour setting is to contribute to family studies by investigating family food-choice settings by employing the BPM, surrounding environmental effects on food choice can also be classified into four broad main elements including physical setting, social setting, temporal setting and regulatory setting. These physical elements are explained in Section 4-2. B to provide an understanding of how healthy food is bought and consumed.

#### **4 - 2. B: Effect of physical setting**

The behaviour-setting effect has come from a variety of elements by which food choice can be influenced (Hare, 2003; Turley & Milliman, 2000). These elements might include food-store availability, convenience, closeness, accessibility and store physical evidence such as music, light, store venue, internal store environment, store closeness and atmosphere. Also, other facility elements that are offered by food stores might affect food choice behaviour, including free deliveries, online browsing and purchasing as well as car parking. However, it can be questioned whether these physical elements really affect healthy-food choice.

The food product availability within supermarkets and local food stores, as well as how to access them via driving or walking, have taken some scholars' interest (Larsen & Gilliland, 2008; Glanz, 2009). Increasing the number of retail networks, such as Tesco, has an effect on many smaller local retailers, which either close down or increase their prices (Pollard, et al., 2002). According to Mintal (2001), 83% of the market share in fresh vegetables and fruits was for market stalls and 11% for independent greengrocers. This matter has affected the means of purchasing healthy-food products, whether by walking or by using public or private transportation means to travel to retail stores. Donkin, et al. (1999) studied the effect of food store allocation and availability on people travelling to obtain healthy food, by defining a list

of stores and a list of food prices within a 2 km radius. The study found that the cost of a young man eating healthily in the UK whilst living on income support would be out of reach, consuming more than 50% of his weekly income. Based on this, food store availability and accessibility has a significant effect on family-food choices (Paquet, et al., 2008). In addition, convenience stores and local food outlets as well as fast-food outlets has also had some effect on family-food access and its choice of healthy-food products with respect to parents walking or driving to obtain them (Gruenewald, et al., 2002; Larsen & Gilliland, 2008; Glanz, 2009; Walton, et al., 2009).

Moreover, scholars such as Neumark-Sztainer, et al. (1999) as well as Storable and De Castro (2004) have discussed the importance of the physical surrounding (which includes store lights, temperature, colour, smell, atmosphere and food product displays) on consumer behaviour and particularly on food shopping. These elements were considered essential environmental stimuli (known as ambience) that affect store and food product choice (Spangenberg, et al., 1996; Nestle, et al., 1998; Stroebele, et al., 2001; Stroebele & De Castro, 2004). For example, warm light slow down an individual's movements but bright ones make most people more active (Birren, 1988). Again, Birren (1988) studied the light effects in fast-food restaurants and found that bright lights cause customers to eat their meals quickly. In addition to lights effect, there were more physical items which were related directly to family-food choices and which could influence such a process. These physical items include free delivery of food (De Castro, 2002), online shopping availability (Huang & Oppewal, 2006) and free car parking availability (Lake & Townshend, 2006; Koistinen & Järvinenn, 2009). Studies have also highlighted the importance of offering facilities that help to make shopping more convenient, and of offering 24 hours of shopping time.

In summary, Hersey, et al. (2001), Bellisle, et al. (2004) and Papas, et al. (2007) identify that food-shopping practices and environments are an important areas to consider when studying food choices, and especially when planning nutrition education with low-income audiences. Therefore, the physical-setting effect sub-hypothesis is:

- Sub-Hypothesis H1-A: Family healthy-food choices are influenced positively by physical-setting determinants.

The next behaviour-setting stimulus that is found to be important by many studies such as those done by Shepherd (1999) and King, et al. (2004) is the social surrounding, which is discussed in Section 4-2.D.

#### **4 - 2. D: Effect of social setting**

There are a wide range of complex and often interrelating factors that influence the choice of food. Social factors are considered the main surrounding environmental elements that affect individual food-choice behaviour (Stephoe, et al., 1995; Saelens, et al., 2003; Conner, 2007; Lytle, 2009). The source of the social effect is divided among parents, friends, family, peer group, social links with other people such as sales persons and store employees, reference groups and social class members (McKenzie, 1974; Keane & Willetts, 1994; Murcott, 1995; Sutton & Rafaeli, 1988; Contento, et al., 2006; Nelson, et al., 2008; Mattila & Wirtz, 2008). The social effect might appear not only before, during and after choosing and buying food products, but also before, during and after any meal consumption (King, et al., 2004).

The size of the social effect relies on many issues such as the credibility of the social sources, and the closeness and strength of the social source on the food buyer or food decision-maker (Herne, 1995; Johnson, et al., 2000). For example, single people living alone and usually choosing their food by themselves will most likely not put much effort into having healthy-food products. Although families that live in groups have food choices usually made by parents (Lagström, et al., 2001), it is usually acknowledged that it is not possible to guarantee that teenagers make 'healthy-food product' choices when they are away from home and parents (Backett-Milburn, et al., 2010). Gillman, et al. (2000) found similar findings in a cross-sectional study that examined the association between the frequency of eating dinner with family and measures of diet quality. The findings suggested that participants consumed 0.8% more servings of fruits and vegetables if they ate dinner with their families every day than those who never or rarely ate family dinners. In addition, participants who ate dinner with their families more frequently had slightly higher energy intakes and higher intakes of some nutrients (dietary fibre, calcium, folate, vitamins B6, B12, C, E, and iron). Adolescents who participated in family dinners showed a lower consumption of trans-fats and saturated fats as sources of energy intake. The studies concluded that participation in family dinners impacted on diet quality with some healthy patterns such as increases in the consumption of fruits and vegetables. Thus, scholars (Dahlgren & Whitehead, 1991; Nestle, et al., 1998; Gortmaker, et al., 1999; Neumark-Sztainer, et al., 1999; ChanGim & YoungSook, 2000; James, 2004; Patrick & Nicklas, 2005; Contento, et al., 2006) have confirmed the effect of social factors including family's members, extended families, friends and neighbours on healthy-food choices. In addition, schools have a potential effect on enhancing students' adoption of healthy-food

choices and improving children's healthy-eating patterns (Young, 1993; Stroebele & De Castro, 2004). Based on this finding, scholars (Symons, et al., 1997; Whelton, et al., 2002) recommended that school programmes and curricula should include health-education programmes.

Moreover, social class, social status and social support or pressure that usually come from different social bodies such as clubs, neighbours, participating communities, peer groups have some effect on consumer food choice (Cullen, et al., 2001; Diez Roux, 2001; Story, et al., 2002a). This is because social classes are ranked usually by official classification of occupations and are assumed to have similar social status, social background, intention to eat healthily and similar food intake habits (Shepherd & Dennison, 1996; Biloft-Jensen, et al., 2009). Differences in healthy-food intakes are even larger between social classes. It has been found that individuals with higher education, income and social status have a higher consumption of fruits and vegetables than those with lower education, income and social class status (Johansson & Andersen, 1998; Roos, et al., 1998). Also, high quality food and dietary supplements are used usually by high social class members (Ishihara, et al., 2003). In addition, many studies have highlighted the effect of both social pressure and social support, on what to buy and eat. This pressure usually comes from a variety of sources such as clubs, participating in communities, and peer groups. One of the main social pressure sources is friends who not just encourage individuals but also families to choose and eat healthy-food products. For example, eating habits and food-related activities are influenced deeply by others. Thus, eating together, which partially comes from living together, helps to encourage families and family members not just to adopt the buying of healthy-food products but also a healthy lifestyle (Kremmer, et al., 1998; Contento, et al., 2006). Not only this, but social networks also help in such a matter. Thus, some families prefer eating with others instead of eating alone (Charles & Kerr, 1988), or unify the eating times for all family members. There is evidence to support and confirm the effect of community in recommended physical activities, leading to healthy-food choices, both in product choice and cooking alternatives (Kushi, et al., 2006; Byers, et al., 2002). To confirm this issue, Christakis and Fowler (2007) found some statistical proof of the spread of obesity in large social networks over 32 years.

Generally, social sources provide many benefits for customer planning to choose between a variety of food products. For example providing reliable purchasing information through sales people (Licoppe & Smoreda, 2005), providing social support from individuals such as friends,

or from groups such as social networks (Shine, et al., 1997), helping in facilitating access to knowledge, supporting the exchange process and decision-making activities (Ferlander & Timms, 1996; Haythornthwaite, 2004), minimising purchasing risk whether it is social or financial risk (Mahon & Cowan, 2004), and, finally, helping in enhancing the quality of food choice decision-making (Furst, et al., 1996). Based on this explanation, the social setting sub-hypothesis is:

- Sub-Hypothesis H1-B: Family healthy-food choices are influenced positively by social-setting determinants.

One of the behaviour-setting stimuli that has been found essential to study as claimed by many scholars such as Fisher and Birch (1998) and Friese, et al. (2008) is the temporal behaviour setting, which is explained in Section 4-2.C.

#### **4 - 2. C: Effect of temporal setting**

Temporal factors have a significant effect on food choice. This is due to the restriction on parent's time, for food product purchasing, preparation, cooking, consumption and after-consumption activities (Pollard, et al., 2002). Not that much time available for parents because some parents spend a long time at work or doing other activities. Thus, time left will minimise the chance of buying and cooking healthy food especially if the food stores are not convenient enough (Contento, et al., 2006). As a result, easy alternatives usually fill this gap, for example, using fast food, baked or frozen products.

Many studies have tackled how families use their time during the day and how they distribute their activities and decisions among members. One of the main elements that consume family time is highlighted by Duncan (1968), who observes that the major role of family is socialisation. The socialisation of family members is based upon the reactions and interactions learned among members, especially if done whilst eating their main meals (Neumark-Sztainer, et al., 2004). Planning to eat together is one of the main issues (others include sleeping enough, eating well, spending sufficient time together) to which families' members should give more attention (Fristad, et al., 1998). This is because these issues help in having a healthy family climate, and make family members take care of what, when and where to eat.

Some families tend to organise their eating by having special mealtimes such as group dinners which, in turn, help parents to have spare time to teach their children about healthy-food product benefits to make them love such products and adopt them (Spagnola & Fiese, 2007;

Fiese & Schwartz, 2008). According to Bradley, et al. (2001), it is estimated that more than 50% of studied families reported that they eat together two to three times per week. Thus, spending more time in group shopping and eating gives greater opportunity, not only to enjoy eating healthy-food products but also to motivate greater healthy decision-making and shopping practices (Dixey, et al., 1998; Dixon & Banwell, 2004).

Scholars such as Falk, et al. (1996) highlight the importance of the effect of food seasonality on food choice in relation to food availability, especially in relation to specific products such as fruits and vegetables. Little research has been given to this dimension in relation to other factors such as food cost, food store promotion and food store distribution (Mela, et al., 1997; Ailawadi & Neslin, 1998; Radder & Le Roux, 2005; Weber & Matthews, 2008). Also, scholars have given attention to when families plan their purchasing of food products and shopping during the day, week and month, because this has a potential effect on what to choose to eat inside or outside the house (Granzin, et al., 1997; Story & French, 2004). Study findings suggest that a specific behaviour is usually conducted within a set time (for example, buying clothes at the beginning of each month or buying barbeque products on weekends and holidays), therefore, it seems that the effect of temporal stimuli may affect healthy-food choice. As a result, the temporal effect sub-hypothesis is:

- Sub-Hypothesis H1-C: Family healthy-food choices are influenced positively by temporal-setting determinants.

The next behaviour-setting factor considered as important in this context is regulatory stimuli which is discussed in Section 4-2.D.

#### **4 - 2. D: Effect of regulatory setting**

The importance of regulatory factors is that they have the potential input to enhance healthy-food choices and consumption. Such inputs appear on various occasions, such as following weight regulation (Finlayson & Blundell, 2007). This can occur by organising food policies to serve all people by using a macro-project cooperated by many governmental and non-governmental bodies. Generally, many scholars (Vaughan & Branch, 1995; Mello, 2008) claim that the government influence of economic and food laws as well as import and export tariffs have potential overriding effects on what a nation eats and consumes.

In a broader view, food policies should address many fundamental issues including increasing the number of healthy food-product stores, encouraging the providing of a variety of food

products sold to customers, improving access to healthier food products, maintaining town centre food stores as well as supporting cooperative and voluntary food projects (Furey, et al., 2001; Story, et al., 2008). In a narrower view, food policies should take care of individuals to influence what they buy and eat. For example, Appleton, et al. (2009) recommended that food policies should include strategies aimed at increasing fruit and vegetable consumption, which target different segments of the population, such as those who are older individuals and those living in more deprived areas.

One of the essential matters relating to the regulation of healthy-food products is labelling. Food labelling, when used as a mandatory policy, could help increase the credibility of product information, buying process and market regulation (Hooker & Caswell, 1996; Caswell, 2000). In addition, food safety laws and procedures can also enhance food product choice and availability through import and export protocols, and the statement of production origin, which helps to enhance fresh food quality, assurance, safety and taste (Holleran, et al., 1999; Grunert, 2005; Honkanen, et al., 2006; Florkowski, 2007; Trienekens & Zuurbier, 2008).

Regulatory effects play an essential role in what to choose, buy and consume, from both healthy and unhealthy-food products, from an individual perspective as well as a community perspective. This relates to influencing the general public's health, which all leads to making consumers move towards healthier food choices (Grunert, 2002; Lawrence, 2009). Therefore, the regulatory setting effect sub-hypothesis is:

- Sub-Hypothesis H1-D: Family healthy-food choices are influenced positively by regulatory-setting determinants.

The next family food-choice determinant that is considered as important in this context is the effect of family learning history which is discussed in Section 4-3.

#### **4 - 3: Effect of learning history**

Learning history refers to the accumulated information, experience and practices that an individual learns from, which might be practical (for example, practice and do actions such as test drive) or theoretical experience (for example, reading a story). Experience also has a strong link with learning. This is because a consumer learns through accumulating positive or negative incidents with link to their consequences. Moreover, learning usually occurs after many trials (interaction) with a health threat or benefit (Oliver & Winer, 1987; Devine, 2005). Usually, a consumer tends to repeat an activity that gives him/her pleasant consequences and

avoids other activities that do not please him/her, such as a child's experience with sweet foods or experiencing sweet food as a reward (Birch, et al., 1980; Schwartz & Puhl, 2003).

In consumer behaviour, learning that a consumer gains from past experience regarding any product, has generally been defined in terms of product familiarity or prior knowledge (Alba & Hutchinson, 1987). While in a more general view, past experience (representing the consideration, use and purchase of the product) is hypothesised to influence attitudes toward the product, perceived purchase consequences, purchase affects, self-definitions, referent expectations and habits through customs (Smith & Swinyard, 1983; Lee, 2000). Previous experience is also found to have a critical effect on food choice. This is supported by Furst, et al. (1996) who provided a conceptual model of the food-choice process, and found that people's life experiences significantly affect food choice, which include a variety of elements such as resources, ideals, personal factors, and both social and food context that makes consumers develop a variety of strategies to make the food choice process simple. Furst, et al. (1996) claimed that the development of a personal system of making food choices incorporates many factors including both value negotiations and behavioural strategies. Also, these scholars identify that value negotiations in turn serve many issues such as "weighed sensory perceptions, monetary considerations, health and nutrition beliefs and concerns, convenience, social relationships and quality of food choice decisions" (p.247). Devine, et al. (1998) and Kahneman and Thaler (2006), for example, illustrated that people often explain current food choices in terms of maximising experienced utility signalled from behaviour situations.

Within the family context, family food-purchase behaviour is derived based on many elements, but mainly by previous experience (Kiel & Layton, 1981; Hoch & Young-Won, 1986). This is because a family has both positive and negative direct or indirect accumulation of knowledge, information and interaction with the food target objective. The experience or accumulated knowledge and information usually has a long-term effect on parental decision-making. Schaefer, et al. (2008) have also found that experience has a long-lasting effect.

One of the notable issues is that experience increases with exposure, thus parents are recommended to increase their children's exposure to healthy-food products to increase their experience in choosing and sharing healthy food-related decisions in a food-purchasing setting (Thomas, 1991; Meneely, et al., 2009). Moreover, one of the main learning history effects regarding healthy eating comes from copying others in their food intake especially among children and teenagers. Copying others is one of the main methods that individuals or even



children usually learn. Alongside this view, Blades (2001) confirmed that peer group pressure could exert extreme influences particularly among children and teenagers.

Many scholars give more attention to an individual's past experiences because past behaviour is considered as a good predictor of future behaviour (Mela, 1999). For example, that childhood experiences in some way influence later patterns of consumer behaviour is an important hypothesis, for two reasons. Firstly, by knowing something about childhood experiences, some parts of adult behaviour may be predicted. Secondly, understanding processes by which children acquire consumption-related skills, knowledge and attitudes is important to public policy formulation, and the development of consumer education programmes. Partly as a by-product of the public policy issues surrounding effects of promotion on children, there is a renewed interest in parental education, as a means of preparing young people to evaluate and process marketing information (Diamond, et al., 1976; Moschis & Churchill, 1978; Moschis & Churchill, 1979; Drewnowski, 2009). In a way to gain benefit from accumulated family knowledge, a family usually uses experience to evaluate and choose from a variety of healthy-food products and derive benefits from positive experiences for developing their choices from one time to another. In addition, a family usually learns from their bad experiences of consuming unhealthy-food products and this makes them switch to healthy alternatives. In applying this, healthy-food preparation and cooking skills also influence what to buy and cook (Soliah, et al., 2006). A family's skills come with repeated shopping, preparation and cooking activities, which, in turn, help in shaping family food-product choice, and cooking habits. This is because some families experienced buying fast food because of their lack of healthy-food preparation and cooking skills.

While talking about family experience, family nutritional knowledge about healthy diet products affects what to buy and cook. Knowledge of what food products contain (for example, containing vitamins, fibre and minerals) and even knowledge of label brands determines food choice and consumption (Grunert, 2002). Thus, family learning is connected directly with what both parents perceive or understand with what they believe or the attitude they have. In addition, positive parents' attitudes toward healthy diet influence what to buy and eat in terms of healthy-food products (for example, fresh meals).

Significant issues that need to be explained in this instance is the effect of some parents' demographical characteristics such as family race, ethnicity, religion and culture on their accumulated learning and experiences, which, in turn, affect the family food-choice process

(Rozin, 1996; Cohen, 1998; Heiman, et al., 2004; James, 2004; Block, et al., 2004). Scholars such as Sun (2008) have highlighted how demographical factors affect and mediate the effect of food choice motives and consequences. These factors include age and gender (Nu, et al., 1996; Ares and Gámbaro, 2007), education (Barker, et al., 2008), family size and structure (Beauchamp, 1998; Kemmer, 2000; Lawrence & Barker, 2009), family income (Wiig & Smith, 2009a), culture (Prescott, et al., 2002; Garcia, et al., 2004; Leclercq, et al., 2009), social status (McKenzie, 1974) and religion (Just, et al., 2007).

Parents are constrained in their choice by available family resources such as income and occupation of parents in relation to family size, members and ages (Widdows & Powell, 1990). In addition, choosing healthy food is motivated and affected by parents' education (Kelly, et al., 2006). For example, a study was done by Liu, et al. (2009) which showed the effect of nutrition education on health by conducting an intervention programme that enabled women to take away some unhealthy traditional postpartum practices and decrease the prevalence of postpartum health problems. Also, El-Hofi and Al-Sharif (2003) studied food consumption and its relation to lower education and poorer classes in Egypt. The scholars found that these classes tended to add high calorie ingredients to their food such as sugar, oil and butter. Moreover, there is a direct link between parent levels of education and parent occupation. Parent occupation is beneficial in many issues such as understanding how and why parents choose healthy-food products. For example, employed parents have little time to spend with their families or the amount of time available for either parents or one of them to choose and cook food products is not long.

Hofferth and Sandberg (2001) found that children spend more time in day care if they live with an employed mother. Also, there is a link between parent levels of education and parent social class. Social class gives many clues that usually indicate and determine many issues such as types of food selection and even the quality of diet and food energy (Darmon & Drewnowski, 2008). Scholars have also studied the effect of the level of education and occupation on food choice. De Bourdeaudhuij (1997), for example, found that the father's occupation has a significant effect on food choice. Thus, for the study it is important to have an idea of the parents' working status.

As a result, there are significant variations between regions, social classes and genders and the high and low consumption of fruits and vegetables (Pollard, et al., 2002). A study about the relation between health and lifestyle was conducted in 1993 by the Health Education Authority.

The Health Education Authority found that there was a difference between demographic characteristics such as age, gender and smoking status that distinguished between low and high fruit and vegetable consumption (Thompson, et al., 1999). Also, it has been found that some demographical characteristics perhaps exhibited the strongest variations in fruits and vegetables intake, and found that women consumed more fruits and vegetables than men and older adult consumed fruits and vegetables more than the younger generations (McClelland, et al., 1998).

Regarding decision-making, there are a limited number of cross-cultural studies on family decision-making, but some exist and suggest that there is a big difference in influence patterns between cultures (Hempel, 1974; Davis, et al., 1998; Levy & Lee, 2004). In one of the fruits and vegetables intake studies, it has been found that individuals living in the North East of England and Scotland generally consumed less than individuals in the South West, London, Midlands, Wales and the South East (Leather, 1995). In addition, cultural groups such as ethnic and religious groupings have notable effects on food choice. This view is confirmed by scholars such as Shepherd (1992) and Mokhlis (2006) who claimed that culture and religion affect purchasing behaviour. Moreover, religion plays an important role in choosing food products (Losch, et al., 1995; Kearney, et al., 2007). For example, Islam provides a list of foods that are forbidden such as swine and blood, and, apart from these, everything else is considered lawful (Stacey, 2008). In addition, Hinduism does not allow the killing of cows and the slaughter of cattle may be prohibited and their meat may be forbidden (Mahadevan & Blair, 2009). Another example of religion's effect upon food intake is demonstrated by the avoidance of eating pork products by those of the Jewish faith. Based on previous discussion which put much emphasis on the understanding of family accumulated learning history effect on what to choose and buy from food products is supported by many scholars' views such as Cramer (1997), Wolfe, et al. (2003) and Le Grange and Eisler (2009). Therefore, learning history effect can be proposed as:

- Hypothesis 2: Family healthy-food choices are influenced positively by accumulated-learning history.

The next family food-choice determinant that is considered as important in this context is the effect of utilitarian reinforcement which is discussed in Section 4-4.

#### **4 - 4: Effect of utilitarian reinforcement**

Behaviour consequence is considered one of the elements that gives some explanation of consumer choices in different operant behaviour settings (Foxall, 1994). This explanation is built on the notion that choice is selected based on its consequences. Behavioural consequences are divided into utilitarian and informational reinforcement or punishment. Also, reinforcement in humans is divided into two elements which might come as utilitarian (deriving from functional and economic incentives) and informational (deriving from feedback) functions (Foxall, 2007c).

When studying behaviour change, some scholars have used the utilitarian and informational reinforcements to stimulate individuals to take behaviour actions towards any new behaviour to achieve positive consequences. According to Dowling and Staelin (1994), positive consequences may be achieved “in terms of the magnitude of consequences and the probabilities that these consequences may occur if the product is acquired” (p.120). Therefore, in this instance, to help individuals take the right decision according to the best buying options, there is a need to identify buying goals and benefits which are usually needed from a specific product's attributes when a product or brand is offered (Cox, 1967). To explain the effect of utilitarian reinforcement in healthy-food choice and to create behavioural change, scholars have explained the effect of utilitarian reinforcement on food choice by focusing on ‘health benefits’ a consumer or a family may gain in both short and long terms. For example, scholars such as Dittus, et al. (1995), Adamson, et al. (2000) and Brownell, et al. (2009) found that believing in the health advantages of food may well increase consumption. As a result, an individual having to deal with nutrition is positively-related to special dietary behaviour consequences. This view is confirmed by Pollard, et al. (2002) who claimed that health benefits of eating fruits and vegetables may increase the consumption of such healthy products which, in turn, minimises the chance of illness and health risks. Minimising both health risk and illness do not just come from choosing healthy-food products which have less or no artificial materials, but also from encouraging the adoption of healthy planting and manufacturing using suitable and tested standards (Bidlack & Taylor, 1992; Lambert, et al., 2002).

Moreover, for child obesity issues, which have become an international concern, minimising healthy-food barriers is an essential strategy. Scholars should investigate a variety of reinforcements that stimulate children and adolescents to adopt healthy-food selection and consumption. An example of such studies was conducted by Stevenson, et al. (2007) who

studied some factors that encouraged adolescents' healthy-food eating. By conducting twelve focus-group discussions (N=73 participants) and using thematic analysis, the study identified four key factors which are considered as barriers to healthy eating. These factors are: 1) Perceptions of contradictory food-related social pressures. This means that there are still some doubts or no general agreement about what healthy food means to the majority of people and even for families. Thus, one of the goals of conducting this study is to have a closer view of what healthy-food choice and eating healthily mean to UK families. 2) Perceptions of the concept of healthy eating itself. This means that there is a clear need to explain the full meaning of being healthy and to understand its concepts and to explain its roots according to different consumer targets. 3) Physical and psychological reinforcement of eating behaviour. By another means, standing theoretically and practically on the main reinforcements (utilitarian and informational) that push people to adopt healthy-food choice and make it habitual. Such issues will be one of the main objectives of conducting this study, which is planned to test the effect of behaviour reinforcements on family-food choices. 4) Perceptions of food and eating behaviour. Studying family-food choice is essential as it leads to exploring the perception of nutrition as a dominant influence in both choice and consumption. Moreover, Stevenson et al. (2007) noted that healthy eating as a goal was absent and not clear from the data collected. Accordingly, healthy-eating goals should be included in developing future communication, and target adolescent eating habits.

Regarding the benefits of healthy-food products, there are many utilities that a consumer and/or a family can gain, for example, helping families' physical wellbeing (O'Dea, 2003), improving sleeping patterns, having a good appearance (Hanna, et al., 1995), enjoying a healthy and balanced diet (Whitney, et al., 2009), having better digestion and having higher energy levels (Drewnowski & Specter, 2004), increasing immune system function (Calder & Kew, 2002), having a healthy body, heart and stomach (Sallis, et al., 1987; Lichtenstein, et al., 2006). However, it should be considered how reinforcements should be used by scholars to stimulate healthy food-product choices and consumption. Foxall (1998a) has described two main guidelines by which scholars can use reinforcements in food intervention as follows: controlling the schedule by which reinforcement is presented; and increasing the quality or quantity of reinforcement (for example, food benefits' types or amounts) or what signals to them, such as labelling. Caswell and Modjuzska (1996) and Caswell (1998) have highlighted the importance of food labelling to provide food-product attributes, benefits, quality, safety, origin of production, healthy appearance and taste. Based this analysis and with reference to

other scholars in consumer behavioural analysis (Leek, et al., 2000; Foxall, et al., 2004; Foxall, 2007a), utilitarian reinforcement's effect can be proposed as:

- Hypothesis 3: Family healthy-food choices are influenced positively by previously-experienced utilitarian reinforcement.

The next family food-choice determinant that is considered as important in this context is the effect of informational reinforcement which is discussed in Section 4-5.

#### **4 - 5: Effect of informational reinforcement**

Utilitarian reinforcement is one of the behaviour consequences that denote the functional benefits that a consumer gains when purchasing and consuming healthy-food products (Foxall & Yani-de-Soriano, 2005). However, informational reinforcement is a behaviour consequence that points to indirect benefits, for example, the psychological, social and emotional rewards of purchasing products and also the consequence of product consumption. This is usually feedback from others or from self-evaluation, for example, emotional support from being a healthy weight and food-eating enjoyment (Raghunathan, et al., 2003; Verstuyf, et al., 2013). A question that can be posed in this situation is, What are the main informational reinforcements that affect healthy food-product buying?

Generally-speaking, there are many informational reinforcements that can be gained from adopting healthy nutrition and products such as having fun and enjoying healthy-food buying and consumption, self-respect, self-trust, having a healthy body and shape, and having healthy hair, skin and nails (Dittus, et al., 1995; Schifferstein & Oude Ophuis, 1998; Gilbert, 2000; Leek, et al., 2000; Morland, et al., 2006; Krystallis, et al., 2008).

Scholars such as Gilbert (2000) have explained that eating healthy-food products may lead to having healthy hair, skin and nails, which in turn improve an individual's image, trust and confidence which increases the likelihood of being healthy and having enjoyment. For example, buying organic food products is connected directly with consumers who feel responsible towards their health and tend to take preventive actions more than other consumers (Schifferstein & Oude Ophuis, 1998). Schifferstein and Oude Ophuis (1998) found that consuming organic food products is not an unplanned process; it is part of a way of life, ideology, and connecting tightly to a specific value system, personality and attitude. In addition, Gilbert (2000) recommends that individuals should not only be concerned with functional nutritional benefits, health enhancements or disease, but should have certainty of

those benefits, including indirect benefits such as having good mood and feeling good. Other scholars add other informational benefits for consuming healthy food such as minimising stress, being relaxed, sleeping well and waking up in a good mood, and feeling good about themselves and others (Lockie, et al., 2002; Padel & Foster, 2005). As a result, healthy diets makes people feel healthy and look good. The latter enhances enjoyment of the social environment by increasing group acceptance, conformity and prestige (Backman, et al., 2002; Salvy, et al., 2008). Moreover, healthy eating helps families achieve healthy lifestyles and improves relationships and interactions (Klesges, et al., 1991; Moreno, et al., 2008). Positive feedback regarding eating healthy products helps in being both mentally and emotionally healthy, not being stressed, and puts people in a good mood. As a result, healthy eating enhances the family's emotional status (for example, enjoyment of eating and entertainment) and well-being (Alaimo, et al., 2001; Edson & Bettman, 2003; Flakoll, et al., 2004; Backett-Milburn, et al., 2010).

Based on the analysis of the studies that discussed the informational consequences of healthy-food product purchasing and consumption, and based on the importance of investigating such issues (Klesges, et al., 1991; Lockie, et al., 2002; Backett-Milburn, et al., 2010), informational reinforcement's effect can be proposed as:

- Hypothesis 4: Family healthy-food choices are influenced positively by previously-experienced informational reinforcement.

The next family food-choice determinant that is considered as important in this context is the effect of utilitarian punishment which is discussed in Section 4-6.

#### **4 - 6: Effect of utilitarian punishment**

This section discusses how punishment impacts on healthy-food choice and consumption consequences. Behaviour punishment is one of the behavioural consequences that play an essential role in increasing or decreasing the possibility of behaviour being repeated (Foxall, 2003). Punishment is defined as 'the main distinct behaviour outcome that reduces the chance of a specific behaviour being repeated' (Foxall, 1998). Punishment can also be categorised as either utilitarian (direct such as healthy-food cost) or informational (indirect such as obesity feedback). Utilitarian punishment has many elements which can be categorised as direct (immediate or short-term) and indirect (distant or long-term), which include food cost, risk of behaviour change (happy owing to practicing exciting behaviour such as buying ready food),

health issues and diseases in the long-term (such as obesity), as well as time and effort a consumer exerts to acquire and consume healthy-food products (Epstein, et al., 2001; Story, et al., 2008).

Management of marketing has many components, one of which being food-pricing strategy. Food pricing is an essential component of the food choice and eating environment. This element has been confirmed by Lennernas, et al. (1997) who found that price, service quality, family preferences, taste and trying to eat healthily were the most important influences on food choice for European Union (EU) adults. To explain the utilitarian punishment effect, scholars confirmed that food price-reduction strategies played a major role in healthy-food choices (Jeffrey, et al., 1994; French, 2003; Sloan, et al., 2008). For example, a study was conducted by French (2003) to explain the effect of price-reduction strategies on food choice by lowering the price of selected food products to be less than other alternatives. Two price-reduction interventions have been used in two different community types (12 secondary schools and 12 work sites) to promote the effect of food price reduction on consumer choice. In the secondary schools, a 50% price reduction on selected food products (fresh fruits and baby carrots) led to a four-fold increase in fresh fruit sales, and a two-fold increase in baby carrot sales. In the work sites, a price reduction of 10%, 25% and 50% on high-fat snacks led to an increase in sales that amounted to 9%, 39% and 93% respectively. Accordingly, this study demonstrated that in both study situations, price-reduction intervention techniques were an effective strategy to increase consumers purchasing of healthy-food products in different purchasing settings such as schools and work sites. On the other hand, it has been found that as healthy-food product prices increase, the possibility of buying healthy-food items decreases.

A consumer should be aware that his/her behaviour consequences will either occur in the short-term or in the long-term. Accordingly, perceiving risk is not an easy objective for individuals, especially if bad consequences are not clearly-determined in the short-term, such as consuming a large amount of sweets (Steiner, 1977). Also, altering the energy balance in the short-term is essential to avoid many health problems in the long-term (Racette, et al., 2003). The perception of risk is described by Lindsay (2000) as a process where both classical and instrumental elements closely-cooperate which, in turn, aim to mediate the effectiveness of both action and perception. Lindsay (2000) explained that attention is important as it motivates individuals to learn and it might reflect the overall disposition to learn. Thus, health risk seems to be one of the main determinants of behavioural consequences. This is because perceived risk is one of



the main elements of the behavioural-change process and behaviour drivers (Colbourn, 1978). It might also be considered the corner stone of the change process that motivates consumers to move towards real steps of behaviour amendment. For example, Jaeger and Renn (2001) provided a description of the effect of perceived risk and uncertainty on an individual's actions.

In marketing, researchers have introduced the use of Perceived Risk Theory to understand the consumer behaviour of making decisions within imperfect and inadequate circumstances (Bauer, 1967 cited by Baird & Thomas, 1985). Cox and Rich (1964) as well as Cunningham (1967) have described the perceived risk construct containing two elements, namely, adverse consequences and uncertainty. However, according to Kaplan, et al. (1974), perceived risk has multidimensional elements which encompass financial risk, social risk, functional risk, psychological risk, physical risk and time-loss risk. Not all types of risk are perceivable by an individual as some individuals reach the stage where they do not perceive any risk signs in their behaviour. According to Bauer (1967 cited by Baird & Thomas, 1985), if any risks exist and a customer does not perceive them, then he/she cannot reflect on its effect on his/her behaviour and how to resist it. However, Dowling (1986) claimed that from an economic perspective, prior knowledge of decision alternatives and each option's occurrence probability are known by a decision maker. One of the main risk elements that some consumers usually care much about is the health risk. Health risk comes from a variety of concerns such as the risk of cancer and the risk of weight loss or gain (Esposito, et al., 2003; Kushi, et al., 2006). For example, according to Oncken, et al. (2005), to understand the effect of smoking-related diseases, smokers need to perceive risk which requires an adequate knowledge of smoking's harmful effects. For example, Chapman and Coups (2006) studied three items related directly to bad consequences which were perceived risk, regret and worry. They used perceived risk in preventive health by using a longitudinal questionnaire among 428 university employees. From the study, there were three main results, firstly, levels of emotions among participants differed systematically from experienced emotions. For example, vaccine participants anticipated less worry and more regret than they actually experienced. Secondly, anticipating both regret and worry was higher for the vaccination than perceived risk. Finally, anticipated and experienced emotions were implicated by previous vaccination choices.

In addition, some scholars differentiate between the short-term and long-term health punishments and risks (for example, obesity and having a bad mood) that were a result of eating unhealthy-food products (Jeffery, et al., 2000). Thus, many studies have tackled current

and potential risks as well as health problems that might appear when adopting and eating unhealthy-food products, such as cardiovascular disease and cancer (Turconi, et al., 2003). Based on these studies' findings, health programmes and planned recommendations have been used to make families choose what to buy in terms of food value, to avoid short-term and long-term health risks (Ebbeling, et al., 2002).

Moreover, scholars have explained additional punishment issues that an individual usually experiences, such as shopping and cooking time and effort. Time and effort saving in relation to many behavioural elements, namely, pre-meal activities (for example, food store convenience, travelling and shopping), during-meal activities (for example, meal preparation, cooking and consumption), and post-meal activities (for example, cleaning and dish washing) are essential to determining healthy-food choices and consumption (Candel, 2001; De Boer, et al., 2004; Buckley, et al., 2007; Olsen, et al., 2007). One of the notable issues is that some healthy-food products (for example, fish products) are considered convenient to purchase in some countries and inconvenient in others. Thus, some scholars recommended making fresh healthy products convenient to increase the possibility of healthy food-product purchasing by decreasing the time and effort that are usually exerted by consumers to buy and get such products (Olsen, et al., 2007; Murakami, et al., 2009).

Based this analyses, the role of utilitarian punishment in determining healthy-food buying and consumption, or encouraging preventive behaviour (Colbourn, 1978; Morrison, et al., 1999; Siero, et al., 2004), utilitarian punishment's effect can be proposed as:

- Hypothesis 5: Family healthy-food choices are influenced negatively by previously-experienced utilitarian punishment.

The next family food-choice determinant that is considered as important in this context is the effect of informational punishment which is discussed in Section 4-7.

#### **4 - 7: Effect of informational punishment**

Behaviour punishment has been divided into two parts, namely, utilitarian, which was explained in Section 4-6, and this section, which discusses the informational part in more detail. Informational punishment has been described as any intangible and indirect negative issue arising from adopting unhealthy-food products, which affect consumer behaviour. For example, when parents reward their children for performing certain behaviours, they might maintain the behaviour, expecting further reward. When children are punished for performing

certain behaviour, they might stop the behaviour to avoid future punishment. This process is important for children to develop their innovative behaviours and attitudes (Mischel & Mischel, 1976; Chen, 2007).

Many studies have indicated other informational punishments that an individual consumer or a family may face. For example, in some situations, social criticism and negative feedback from others encourage both adoption and consumption of healthy-food products (Hamilton, et al., 2000; Drewnowski & Darmon, 2005). A study has been conducted by Thornton, et al. (2006) to investigate eating and physical effects, and the extent to which these contribute to excessive pregnancy weight gain, obesity and diabetes for Latino mothers and their children. Specifically, the study focused on measuring the effect of social support on the beliefs and behaviours related to weight, diet and physical activity, using a qualitative analysis technique through a community-based project. The study found that social support is an essential health determinant which, in turn affects, health-related behaviours and beliefs. Also, results showed that the main sources of social support came from husbands and female relatives. Moreover, social support has been found to be divided into emotional, informational and instrumental elements, which all affect beliefs related to diet, weight and physical activity.

Sometimes, the issue of choosing healthy food is connected with liking or disliking such products. For example, Hamilton, et al. (2000) claimed that “a high consumption of sugary products was evidenced along with a distinct dislike for healthier alternatives such as fruits and vegetables” (p.113). Also, unpleasant affective outcomes (for example, bad temper and depression) are essential reasons for not consuming unhealthy food (for example, fast food) as such food has a bad effect on a family's life style and behaviour (for example, bad temper, depression, anxiety and nervousness) (Kent, et al., 1999; Gustafsson, et al., 2008; Gustafsson, et al., 2009). Another informational punishment is the risk associated with consuming unhealthy-food products (for example, social risk and psychological risk). These are important reasons for a family to carefully choose what to buy and eat (Graber, et al., 1994; Littleton and Ollendick, 2003; Janssen, et al., 2006).

Social and psychological risks are of the main informational punishments that have been identified by a variety of studies. For example, negative emotions such as fear, stress, anger and having bad moods as a result of unhealthy food-product intake leads to families adopting a strong diet and preferring healthy food-product alternatives (Hinote, et al., 2009; Job, et al., 2010). In addition, emotions have recently been found to be one of the main issues that have

been investigated heavily in the healthy food-choice context. This is because positive emotions are responsible for increasing the possibility of healthy food-product eating while negative emotions usually induce the intake of unhealthy-food products (Evers, et al., 2010). Not only this, the scholars have also found that suppression and spontaneous expression led to increased food intake only of comfort foods and also found evidence confirming that the means of controlling or regulating emotions usually affected eating behaviour. In addition, Job, et al. (2010) found that emotional distress partially mediates the relationship between overall motive and eating behaviour. Based on previous explanation, informational punishment's effect can be proposed as:

- Hypothesis 6: Family healthy-food choices are influenced negatively by previously-experienced informational punishment.

The next issue that needs to be considered is checking if a parent's main demographic characteristics impact on family-food choices and manipulate the effect of independent variables. This issue is discussed in Section 4-8.

#### **4 - 8: Do parent demographic characteristics impact on family-food choices?**

Chambers, et al. (2008) claimed that about 25% of the UK population were predicted to be obese by 2010, thus, there is a need to understand what motivates and prevents consumers from eating healthy diet which, in turn, may help in designing specific healthy-food programs to specific society groups. Thus, there is a need to explore the basic variation in motivation, attitude and behaviour which has become a function of different demographic characteristics, especially the gender and age effect on food choice. One of the main issues that need to be highlighted in this study is the need to test the effect of a parent's main demographical characteristics which are age, gender and family income in addition to working status on family-food choices. A large number of studies have been done to measure if food choice differs based on different demographical characteristics within different behaviour settings rather than family food-choice setting. A question that may be asked is whether parents' age, gender and income affect family healthy-food choices?

To research family characteristics, further studies are needed, especially to explore the importance of family meals and even the effect of family characteristics on family healthyfood choices (Videon & Manning, 2003; Neumark-Sztainer, et al., 2003). Usually, consumers buy what they perceive, and what they perceive is heavily-influenced by cues such as brand name,

packaging and colours that marketers use (Silayoi & Speece, 2007; Tom and Barnett, 1987), as well as the quality of products and customer service (Russell, et al., 2007). In addition, two major types of purchasing influences have been identified by Rossiter (1978 cited by Levy and Lee, 2004) as: (1) direct influence which is usually based basically on the choice maker's needs and wants, and (2) indirect influence in which the choice maker takes other opinions into account such as family members' needs and wants or/and takes specific circumstances and/or situations into consideration such as parents' work status and conditions. Neumark-Sztainer, et al. (1999) found that one of the main factors that determine food choice is parents' influences. For parent influences, there are many parent demographic characteristics that require analysis when studying family-food choice such as parents' age, gender, income, working status and family-member interactions.

A study executed by Scarr and McCartney (1983) mentioned that parents' characteristics usually shape the environment in which children live and one of the main their characteristics to do so is the parents' ages. Blaylock, et al. (1999) found that mothers' age may capture the effect of experience and learning history, which in turn play a strong role in increasing nutritional literacy within the time to plan meals and food preparation. Within this view, practical evidence is needed to insure that the mothers' age has a potential effect on their nutrition literacy which, in turn, enhances healthy-product choices and food consumption quality over time.

Moreover, Nu, et al. (1996) studied the effect of age and gender on adolescent food preferences and habits, and found that food habits and tastes were mostly related to age and gender. For example, boys paid less attention to snack and dietetics than girls, and young adolescents who usually preferred bland and familiar food while older adolescents appreciated adult foods more. Also, Chambers, et al. (2008) studied the influence of age and gender in food choice by conducting focus-group exploration. The scholars found that participants whose age was more than 60 years old tended to make their food choice based on healthy considerations while participants aged between 18 and 30 were less concerned with health issues and usually focused on other issues such as food preparation, food knowledge, food products price and time available. Also, the study denoted that there was a notable difference between participants regarding their age as well. Moreover, the study found that younger female participants usually ate healthier diets while the majority of their food was concerned with their appearance more than older female participants. In addition, gender influenced food choice, and Wardle, et al.

(2004) reported that there was a gender difference in health behaviours as well as food choice especially between men and women as the majority of food-related decisions tended to be wife-dominant (Lee & Beatty, 2002). For example, Westenhoefer (2005) found that women usually exerted greater importance on healthy eating, and reported that women tended to have higher fruit and vegetable intakes, lower intake of fat and higher intakes of dietary fibre. Therefore, not just weight control motivation was prominent but also more nutrition knowledge in most cases. Regarding these issues and food-consumption differences, it seems that there is much evidence that the parental gender and age affected food preference patterns and choice. This result has been confirmed by other studies such as Ares and Gámbaro (2007), which adds value to healthy food-choice literature by exploring whether parent gender and age differences affect family-food choices.

Regarding parent income and work status effect on family-food choices, it has been claimed by Dwyer, et al. (2008) that employed parents have a variety of obstacles that do not support them eating healthily. Limited parent resources such as time, money and effort often lowered the chance of eating prepared meals at home and poorer nutritional quality of meals. Based on this, many interrelated family issues, such as family income, need to be better explained and tested within this context. Family income is one of the main food-purchase determinants that affect healthy product selection. Walker, et al. (1995), for example, found that families with low incomes realised the importance of healthy eating, however, they were more concerned about avoiding waste and spending within a budget. Also, some studies have found that if the wife contributed to the family income then her influence in family purchasing choice and behaviour would be greater than those who did not contribute especially for specific items such as expenditure on child care (Phipps & Burton, 1998).

These issues do not mean that a wife who contributes to the family income dominates its behaviour, but this may affect the quality of food-purchasing behaviour and add more equality in the process of purchasing behaviour itself (Martínez & Polo, 1999). The role of husbands and wives changes the family structure and the way of dealing with different aspects of life, such as food choice and intake, and seem to be a useful area to be researched as argued by Lee and Beatty (2002). Moreover, a study that has been done by Devine, et al. (2006) and claimed that parents' spill over (namely, feelings, attitudes, and behaviours) carried over from one to another and can be seen as a phenomenon to be applied especially in connection between health and nutrition. Devine, et al.'s (2006) study considered many strategies to enhance the

quality of parent food-choice decisions. It identified that families preferred to cope with a variety of strategies such as know-how to manage feelings of stress and fatigue, redefine the meaning of food and eating, reduce both time and effort for buying food products and eating, and set priorities in addition to a trade-off between food and eating against other family needs.

According to Desimone (1999), family income is linked directly with parental working status especially when the total family income is generated by the number of family members working. Some studies have considered how parental working status and conditions affect family-food choices. Generally, it is thought that the better the working conditions and occupational levels, the more positively food choices and consumption are impacted. Bates (2009 cited by Devine, et al., 2009) studied and explained the process of food-choice strategies in low-to-middle income families by using low-to-moderate income zip codes in five categories, namely, 1) food prepared out of homes, 2) individualising meals or whether a family eats different types of meals, together or separately, 3) planning, 4) speeding up eating to save time, and 5) missing meals. The study collected the required data from 25 employed mothers and 25 employed fathers by using a three-part telephone survey. Results showed that there was a clear gender difference according to the predetermined strategies. Bates (2009 cited by Devine, et al., 2009) explained the results for employed fathers as fathers who worked for long hours were more likely to miss family meals, use takeaway as a way to eat meals and buy pre-prepared food choices, and eat while working. However, employed mothers were more likely to buy restaurant meals and miss breakfast. In addition to this, 25 % of the study sample reported that they did not have access to healthy food, reasonably-priced healthy products, and good-tasting food. This was a result of working for long hours which meant more time spent at work, less time for cooking and participating in healthy family meals, in addition to difficulty in having regular meal patterns with family members. Therefore, working status, occupation and income consequences directly affected other family members such as children either having a healthy eating environment or missing the chance of being healthy, having healthy food, doing physical activities, having sport accessing and/or minimising social involvement with others (Morrow, 1999; Black, 2008).

In addition, parents usually chose food products to satisfy their children and other family members' different needs and take a variety of family-member demographic characteristics into consideration such as age and gender. Another family dimension that affects healthy-food purchasing and consumption behaviour is the influence of different family members, including

children and adolescents with respect to their demographic aspects. A large number of studies have been done to examine the effect of children on family-purchasing behaviour, but the main dominant view is that children's influences vary by ages, types of products and the decision stages. Belch, et al. (1985) and Foxman and Tansuhaj (1988) claimed that children and adolescents were the most influential family members especially for products including toys, clothes, snacks, breakfast cereal types and school equipment. In addition, they had a huge effect on family behaviour regarding leisure time such as eating out and even restaurant choices, movies, vacations and cable TV (Darley & Lim, 1986; Labrecque & Ricard, 2001; Fulkerson, et al., 2014). As a result, the parent demographic characteristics effect regarding family healthy-food choices can be hypothesised as:

- Hypothesis 7: Family healthy-food choices differ according to the main parents' demographic characteristics (for example, age, gender, education, working status and family average income).

#### **Chapter four summary**

The literature review for this thesis has been discussed in two chapters. Chapter three introduced a set of previous theoretical models and discussed how they had been developed to be used as the main framework for studying healthy food-choice determinants. To do this, the main learning theories were explained, mainly focusing on classical learning theory and operant conditioning theory. Based on the operant-behaviour approaches, the three-term contingency model, which represents the main framework that is used later to develop the BPM, was explained in-depth. The chapter debated not just the models' development but also discussed the rationality of using such models and provided a brief discussion of some of their applications in different marketing paradigms. However, Chapter four provided a comprehensive understanding of the theoretical model applications and the development of its hypotheses. An in-depth discussion of healthy food-choice application within the SM context using the BPM was executed through a systematic approach in Chapter four. The approach started by explaining the main BPM elements, which included the behaviour setting, learning history, utilitarian reinforcement, informational reinforcement, utilitarian punishment as well as informational punishment. The chapter concluded by discussing the effect of the main parental demographic characteristics on family healthy-food choices, and provided the hypothesis for each of these elements. Chapter five provides an understanding of the research methodology and how the data collection approach was planned and applied to elicit the reliable data to test the thesis hypotheses.



## **Chapter Five**

### **Research Design and Methodology**

## **Introduction**

This study targets families with healthy-diet products and provides an understanding of healthy-food product choices. The family healthy-food choice literature was discussed in Chapters three and four. Chapter three provided an overview of the different theoretical approaches for studying consumer behaviour from different perspectives and then introduced the BPM theoretical framework as a suitable approach for family healthy-food choice research. The chapter then provided justifications for using the BPM model supported by identifying some of its applications and limitations. Chapter four addressed the process of applying the BPM conceptual framework in the healthy-diet sector to explain family healthy-food choices and to define food-choice behaviour determinants within environmental psychology and consumer-behaviour analysis literature. Chapter five summarises the main BPM framework applications by examining each element separately. To achieve the study's aim of analysing family-food choices and find its determinants, a clear and organised methodology was needed to ensure that reliable study data was collected.

Chapter five provides an overview of the research design and methodology conducted in this study to achieve a set of planned goals and solve the research problems empirically. The data collection process commenced with reviewing and analysing family healthy-diet and food-choice literature. The process of reviewing healthy-diet adoption and food-purchase behaviour relating directly to the family context was discussed systematically and rigorously in the literature review chapters. Chapter five as the methodology chapter, discusses three main family-food choice research issues. The first issue discusses how the initial family food-choice data was collected by conducting a set of focus-group interviews with parents as the main study items to provide a closer view of the real study sample. The second issue discusses in detail how the study factors were tested, and the survey's main items defined to collect the family's primary food-choice determinant data. The third issue is related to the processes of planning, designing, testing and evaluating the study's survey tool and how this was conducted and clarified in the pilot study stage. Additional explanations of the sampling management, scale design and interrelated ethical considerations are also provided.

The methodology chapter is divided into various sections. Section 5-1 discusses the research design and process, Section 5-2 discusses the main research methodology steps, Section 5-3 describes how the focus group was designed, prepared, conducted and analysed, Section 5-4 discusses the survey development and testing, Section 5-5 explains the sampling techniques

and sample size, Section 5-6 tests the questions and presents the pilot study testing, Section 5-7 provides an idea of the response rate and non-response bias. Section 5-8 considers the measurement of the study constructs supported by the measurement validation in Section 5-9. Many tests were used to purify the model such as the Confirmatory Factor Analysis, which is discussed in Section 5-10, Convergent-Discriminant Validity in Section 5-11, and Common Method Variance testing in Section 5-12. The final section presents some of the essential ethical considerations.

### **5 - 1: Research design and process**

It has been confirmed by many scholars such as Robert and Kristin (2000) that the methodology design and data-collection phase is a critical stage and not less in value than the literature review stage. One of the main issues that leads any research is the research question. The research question is not the starting point of any research; it is the outcome of a researcher's understanding of the research phenomena. The research question generally clarifies that the methodological style and data collection means complying a specific philosophical and theoretical skeleton (Sim & Wright, 2000). The recognition of the research gaps proposed a set of objectives that have been defined in detail based on the research questions; which in this study give a suitable explanation of the family healthy-diet choice from a behavioural perspective. In addition, based on the research question, a researcher cannot continue the study investigation in any other way without a specific design. According to Kerlinger (1986), the research design is defined as “the plan and structure of investigation so conceived as to obtain answers to research questions - the plan is the overall scheme or program of the research” (p.279). Also, for Sekaran (2003), the research design determines and shapes important issues related to any research topic such as the purpose of the study, type of investigation, type of sample, suitable data and the process of analysing the required data. One of the research design objectives has been described to provide the “logical sequence that connects the empirical data to a study's initial research questions and, ultimately, to its conclusions” (Yin, 1994, p.19). Based on this, the main goal of this study design is to draw the fundamental direction of how the research should be conducted in a logical and justifiable manner.

Babbie (2004) and Saunders, et al. (2007) explain that a variety of research designs can be used to lead the way for conducting any study which includes, descriptive, explanatory and exploratory research designs. This study includes both descriptive and exploratory methods to study the healthy food-choice setting within the SM scene targeting families with children. In

the SM sector, studies are conducted to provide closer understanding of different social events and to help make better decisions-making process (Andreasen, 1995). Accordingly, the research design should express two main things within this context, namely, the research problem structure and the investigation plan used to obtain empirical evidence supporting the research argument (Kerlinger, 1986). Therefore, combinations of theoretical and empirical approaches are used based on both primary and secondary data employed in collecting data. A thorough study of the relevant literature was conducted to identify key issues. As a result, this research is expected to follow inductive and deductive approaches to test the hypotheses and the applied theoretical framework (Bryman & Bell, 2007).

From the SM literature overview, this study seeks to investigate the factors that affect parental choice of healthy food and to determine healthy-food selection barriers. To achieve these purposes, this study employs both qualitative and quantitative methods to explain parental healthy-food choices. The collecting of the required data is not a random process, rather, it is quite an organised process. Sekaran (2003) describes the research as “an organized, systematic, and data-based scientific enquiry or investigation into a specific problem with the aim of finding an appropriate solution” (p.5). Therefore, Figure 5-1 provides an overview of the research methods and framework to collect the study's required data.

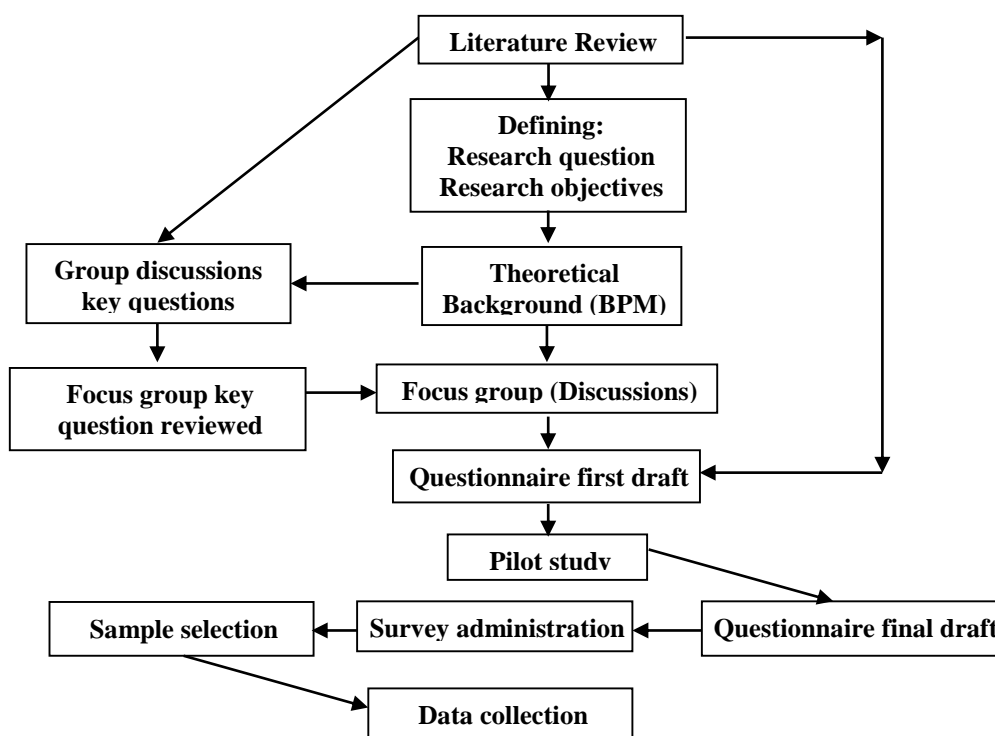


Figure 5-1: Research methodology outline and main steps

In SM studies, studying consumer healthy behaviour using qualitative or quantitative techniques alone to collect the required data is not enough (Anthony, et al., 2009). However, qualitative methods should be initially used and then supported using different quantitative methods. This idea is supported by Weinreich (1996) who claimed “in an ideal SM program, researchers use both quantitative and qualitative data to provide a more complete picture of the issue being addressed” (p.1). Steckler, et al. (1992) has proposed four possible models for combining both qualitative and quantitative methods in SM and health education research. Weinreich (1996) explains these models in Figure 5-2. The first approach explains how qualitative methods (for example, focus group) contribute to designing the quantitative methods (for example, survey). The second approach deals primarily with how quantitative findings help in interpreting qualitative results. The third approach is concerned with quantitative methods that use qualitative results for interpreting the quantitative findings. The last approach is concerned with using both quantitative and qualitative methods together to endorse each other and support findings. As social marketers may operate under one or more of these models, the approaches are not mutually-exclusive.

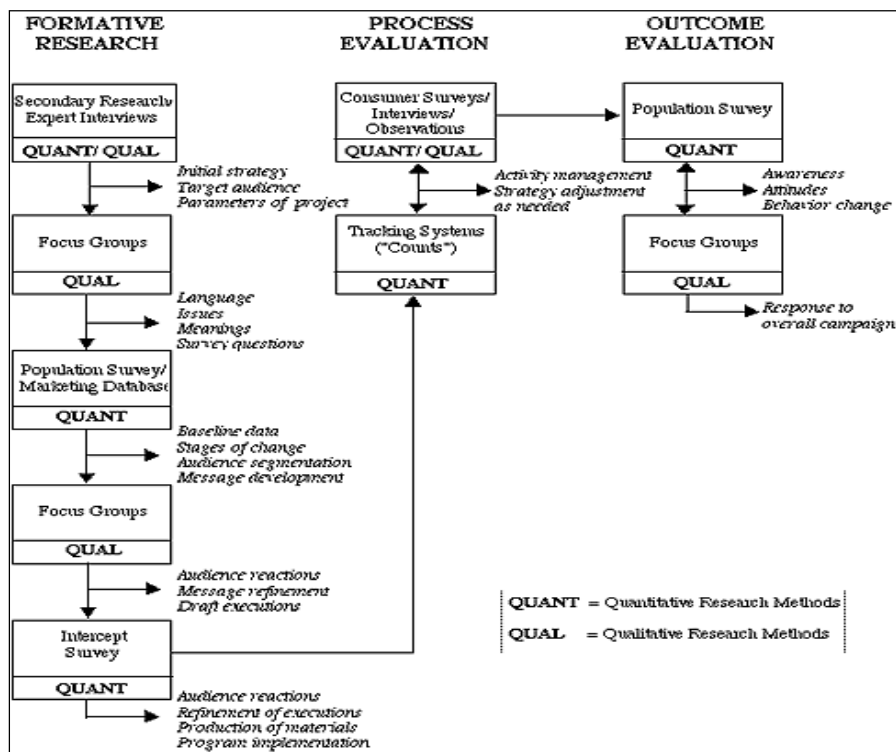


Figure 5-2: Integrative SM Research Model - Weinreich (1996)

This study adopted a rigorous and organised methodology to answer the research question. The methodology is described as the “steps that will be taken in order to derive reliable and valid answers to those questions and ... defines the appropriateness of a given research tool”

(Ellis & Levy, 2008, p.21). In SM studies, combining both qualitative and quantitative techniques to collect the required data is not uncommon (Moffatt, et al., 2006). Some scholars such as (Brown & Lloyd, 2001; Ragsdell, 2009) collected data from customers using both quantitative and qualitative techniques to ensure a fully-detailed sample. This research is led by many studies such as Strolla, et al. (2006) which investigate food choice using both qualitative and quantitative methods. Section 5-2 provides a brief description of the research methodology's main steps.

## **5 - 2: Research methodology steps**

This research has been conducted by using mixed methods to address the research question and to study consumer choice. Both quantitative and qualitative methods of data collection were used under a methodological triangulation paradigm (Collis & Hussey, 2003). Denzin (1978) defined the triangulation term as the “combination of methodologies in the study of the same phenomenon” (p.291). Data for this study was collected using various steps.

First, a review of previous studies regarding family healthy-food choices was conducted and explained in Chapter four. Reviewing previous studies provides many benefits. For example, all research conducted needs to be linked to interrelated studies previously done. Finding logical links between the current study and other studies ensures that the researcher investigates a new phenomenon, makes good contributions and avoids repetition. Researchers usually use previous theoretical implications or methods that have already been done by other scholars within the same or different settings, and build on previous studies to advance further on topics.

One of the main issues related to the literature review pertains not only to having the capacity to develop and have an updated understanding of the theoretical background for investigating a new topic, but also to execute the methodology properly. The literature review helps identify the data field of study and the data sources as well as drawing sampling designs, and defining the study population. It also helps identify the style of writing, avoiding other researchers' errors and pitfalls, and progressing with the research. Secondly, the researcher conducted three focus-group discussion with different sets of families to investigate the study of the phenomenon within a real-behaviour family setting. Focus-group design, execution and analysis are explained in Section 5-3: F.

Finally, after reviewing the related literature and conducting and analysing focus-group

discussions, the study items were identified. Afterwards, the initial draft of a questionnaire was planned and subsequently a pilot study was completed. Then, the final draft of the survey was developed and tested using suitable methods of data collection and analysis. All pilot study steps and circumstances are explained in more details in Section 5-6.

### **5 - 3: First Part: Focus groups**

The term focus group is used to refer to group interviews where the topic is clearly and precisely-defined and where there is a focus on enabling and recording interactive discussions between participants (Carson, et al., 2001). In relation to the increase of interested scholars regarding many SM issues, health care organisations have become more interested in obtaining direct and rich information/feedback through face-to-face contact from people within the social context (Robison, 1999). For this reason, this part was planned before the survey stage.

Section 5-3 provides an in-depth account of the focus-group instrument's design and execution steps. The focus-group execution plan has many dimensions which cover various steps, including, rationale for using this approach supported by the main focus-group advantages and disadvantages, process of creating focus-group questions, focus-group design, participant selection process, conducting the focus group and execution considerations, and, finally, focus-group discussion transcription, coding and analysis processes.

#### **5 - 3: A. Rationale behind using focus groups**

Focus groups act as a data collection method to gather primary and direct data from participants about what they feel, think, express and understand of healthy-food choices. According to Harper and Makatouni (2002), as focus-group discussions place the participants in real-life situations, the dynamic interactions interfere with direct consumer experiences about study objectives. The method has been used by many scholars such as Nicholson, et al. (2002) and Alshurideh (2010) in different behavioural situational contexts such as customer retention. Others used the same methods such as Neumark-Sztainer, et al. (1999), Dianne, et al. (1999), Gehrt (2000), Leek, et al. (2000) and Stephanie, et al. (2008) in food choice and consumption situational contexts.

There are many logical reasons that have been highlighted by various scholars for the use of focus-group techniques. For example, using a focus group can generate a great amount of data as is illustrated by Rozin (1976 cited by Pliner & Mann, 2004) who found that a single question

might elicit a large amount of information about an anonymous family's food preferences and habits. Focus groups and interviews are both more flexible than other data collection methods such as surveys (Gill, et al., 2008). Focus groups are also essential to exploratory research to consider participants' experiences in effectively especially when the topic being investigated is relatively new or linked to a wide range of consumers (Heary & Hennessy, 2002). Using qualitative methods, specifically focus-group techniques, are recommended for many reasons. Focus groups are considered a flexible means for exploring new ideas (Pope et al., 2002). There is also flexibility in the research design and interpretation (Burns & Grove, 2001), and it provides more chance to explain the purpose of the study, ask questions, manage incomplete or insufficient answers, record answers and have direct interactions with participants (O'Sullivan & Rassel, 1989). It also assists in finding some crucial answers to in-depth questions on motivations and food consumption barriers such as "why" and "how" consumers select food (Marshall, 1995). Focus groups are also recommended for when the issues at hand are sensitive (Hardcastle, et al., 2006) and where the theoretical framework dimensions could be redefined during and according to the focus group's execution and analysis (Mary, et al., 1996).

Within the food-choice context, focus groups can be used to find significant data from the study sample especially when the studied target raised the social problem and suggested solutions from their viewpoint. For example, Neumark-Sztainer, et al. (1999) studied and assessed adolescents' perceptions about the factors which influence food choices and eating behaviors using qualitative research methodology. The study found a more than expected number of healthy-food barriers to eating more dairy products, fruits, vegetables, taste preferences for other foods and eating less high-fat food products. These barriers included a lack of a sense of urgency about personal health in relation to other concerns. The scholars also provided some suggestions for helping adolescents to adapt to a more healthy diet. The suggestions included not only making healthy-food products look better but to also have a better flavor, to limit the availability and accessibility of unhealthy food-product options in addition to making healthy options more convincing and available to increase their familiarity to consumers. Based on this, group discussion results including statements and/or numbers are important to be taken into consideration in detail and suitably investigated. For example, group discussions can provide information about how important healthy eating is to the participants and whether it was of interest to them. Their knowledge and understanding of various eating



guidelines for specific products intakes specifically sugar, salt, fat, fruits, vegetables and alcohol intake can also be explored.

One of the main objectives of using focus-group techniques is that it helps provide some planning strategies, intervention programs as well as solutions to change attitudes and behaviours with regard to fast food products. It also helps people turn to healthier food choices. For example, one of the main focus-group solutions for healthy eating is teaching children good and healthy eating habits at an early stage which will help in minimising the consequences at later stages, in addition to changing eating social norms for both children and parents by making it “cool” to eat healthy product options (Neumark-Sztainer et al., 1999; Zeinstra, et al., 2007). Some topics within the SM field in the food context cannot be discovered without deep discussion to provide in-depth insight into needed data, such as child’s knowledge, preference development, child and parental beliefs, healthy education and the relationship between perception and preference (Heary & Hennessy, 2002; Patrick & Nicklas, 2005; Zeinstra, et al., 2007). Such data may not be gained by using other data collection techniques, even interviews. As a proof of this, many scholars such as Frey and Fontana (1991) and Khan and Manderson (1992, cited by Morga, 1997) confirmed that the focus-group technique is more formal than interviews.

Kitzinger (1995) has also confirmed that focus-group techniques are essential in studying the different SM phenomenon such as social work, health services and defining dominant cultural values. This technique is also suitable when there is a need to do exploratory research, program development, program evaluation and questionnaire constructions and adaptation (Heary & Hennessy, 2002). Based on this, the focus-group discussions in this study were designed to achieve several goals, namely, to have direct contact with part of the sample families which the study planned to investigate; to gain primary and exploratory data on the main diet food data from the real behavioural context; to stand for the main survey items; to eliminate some previous literature items that are not suitable or outdated to be used within the UK setting; and, finally, to prepare for the next stage of the main data collection method, namely, the survey.

### **5 - 3: B. Designing of focus-group questions**

The process of designing focus-group questions is one of the main stages required in research. By reviewing consumer-choice literature, many factors that influence healthy food-purchasing behaviour were determined. From this, a set of questions was collected and prepared to test the

study's factors. These factors along with questions were categorised according to the BPM construct by studying and measuring the main factors which affect food choices, namely, learning history, behaviour-setting elements, utilitarian reinforcement, utilitarian punishment, informational reinforcement and informational punishment.

The aim of using the focus-group method at this stage was to have an initial understanding of healthy food-choice determinants using a comprehensive set of consumer behavioural stimuli. The resultant qualitative analysis was to study the situational influences of food choices using a rigorous behavioural framework of analysis and conceptualisation drawn by the BPM (Leek, et al., 2000). Harris, et al. (2008) also claim that the qualitative method approach can be used to strengthen or weaken the value of using and applying theoretical frameworks or theory. For example, Rosenstock, et al. (1997) found that qualitative approaches could be used to validate frameworks such as the Health Belief Model to explain consumer behaviour in different behavioural contexts.

In more detail, investigating the effect of consumers' experiences on food choice is important, and, as a result, many questions were designed to include participant LH (experience) components. In many previous studies, the focus-group data-collection technique was employed as the main means to study the effect of customer experience on food choice in a variety of purchasing-behaviour settings (for example, Loijens, 2008; Kirkup, et al., 2004). Moreover, studying the effects of complex physical surroundings on consumer healthy-food choices was considered an interesting factor (Stroebele & De Castro, 2004). Thus, part of the focus-group discussion focuses on studying the effect of behaviour-setting elements (for example, colours, interior design, light and music) on consumer food choices. As a result, a variety of questions were also designed to investigate participant responses to social, physical, temporal and regulatory stimuli effects on family-food choices. This method is common in studying the behavioural-setting effect on family food-choice behaviour, for example, studies by Marshall (1995), Stroebele and Castro (2004) as well as Stephanie, et al. (2008).

Using the same method, a set of factors affecting behaviour consequences including both benefits and punishments were explored initially using the qualitative method. A set of questions was designed to test these factors. Such techniques have been used by many scholars in similar study contexts such as Basch (1987), Devine, et al. (1999), Makatouni (2002), James (2004) as well as Padel and Foster (2005).

Although some scholars are doubtful about which types of questions are suitable to be used in their studies, generally, open questions are preferred as the main type to be used, especially when the goal is to investigate consumer food-product purchasing behaviour and consumer intakes. Using open questions in studying healthy-food choice is recommended by many scholars in various situations like in critical and unclear situations such as when there is a need to link between more than two issues (for example, ethnicity, religion and food choice habits). For example, Sjöberg, et al. (2003) studied diet history using a cross-sectional study and conducted various interviews about smoking, ethnicity and social factors. The scholars found that meal pattern with omission of breakfast and/or lunch was related to a cluster of less healthy lifestyle factors and food choices leading to a poorer nutrient intake. Such findings and detailed information are not easy to find without using in-depth discussions of homogeneous study units. Furthermore, although some scholars differentiate between using structured and semi-structured questions in conducting focus-group discussions, both types are often used, and the notable issue is how the moderators control and administer the dialogue. Heary and Hennessy (2002) explained that with participants under the age of 18 such as children and adolescents, it is preferable to use open questions to utilise focus groups properly in both exploratory research and for questionnaire construction. Heary and Hennessy (2002) also found valuable evidence to suggest that focus-group data collection means were useful for eliciting children's opinions especially in health-related matters.

In conclusion, the majority of focus-group questions were selected and designed from related literature that was used in later stages to explore opinions of a section of the study sample. The main questions that covered the study elements were reviewed and amended by two marketing scholars to validate their use. The questions were also read and reviewed by five practitioners to enhance them based on content and face validity to fit with the study situation. The main focus-group questions that were used during the execution of the focus-group discussions are listed in Appendix Table 5-3.

In the 1940s, focus-group techniques were developed and seen as one of the valuable means to produce rich detailed data for analysis purposes (Merton, et al., 1956). A focus group is used mainly to obtain qualitative data to explore specific issues by group discussion. Through the discussion, participants generate proper data and new ideas (Kitzinger & Barbour, 1999). For the recognised benefits of using qualitative research, focus groups became widely-used in social science and specifically in marketing research during the 1980s and is used increasingly

for current research applications (Heary & Hennessy, 2002). As a result, the majority of scholars use focus-group techniques to develop research questionnaires to explore the main study items that seem important from participants who are part of the study's target population (Kitzinger, 1995; McLafferty, 2004; Blumberg, et al., 2005). Sections 5-3: C to 5-3: I provide an in-depth discussion of the main focus-group designing elements which include the main focus-group key questions, focus-group participant selection, focus-group discussion duration, conducting the focus groups, recording the discussion data and analysis of focus-group discussions supported by discussing the main focus-group limitations.

### **5 - 3: C. Focus-group key questions**

This study is concerned with studying family healthy-food choices. Therefore, to achieve the study purposes, a number of questions were designed by reviewing most family healthy-food choice literature. The questions were categorised according to the BPM, which represents the theoretical background that was employed to study family healthy-food choices in the natural-buying situation. These questions were subsequently used while conducting three focus-group discussions with the study's target participants, who were young UK families. Participant demographic data was collected from the participants, and Appendix short survey 5-2 illustrates the short questionnaire that was designed for the purpose of providing a clear picture of the participant's usual characteristics (for example, family size, income and age).

The participants initially were contacted personally to request their agreement to be involved in this study stage, and to determine their eligibility to be studied. In the second stage, the participants were contacted formally by using a signed formal letter addressed by Durham University-Durham Business School (see Appendix invitation letter 5-1) to formalise the communication, to give the participants a brief background of the study's purpose, and so that they would be sure about the ethical considerations that the data would be collected for educational and research purposes only.

The discussion began by using general questions about food purchasing and consumption choices. A list of questions was designed for breaking the ice, and starting the discussion by encouraging participants to think about what types of foods they usually bought in a typical week and why. Also, the study administrator directed the focus-group discussions in different ways to include the main factors that affected family healthy-food choices so that the main determinants that helped in eating healthily and adopting healthy-eating styles could be

determined. Part of the group discussion questions were used to obtain the participants' advice about suitable methods and practical approaches that could be used to change family-purchasing behaviour towards healthy products. Also, some of the questions that were used in this stage to discover the main food-purchase consequence drivers were also used in the study data collection method, the questionnaire at a later research stage. The full list of focus-group questions that were prepared for the focus-group execution is provided in Appendix Table 5-3. However, it is important to keep in mind that not all these questions were used in most cases. After preparing a full list of focus-group questions, another issue needed in-depth explanation, namely, how the focus-group participants were to be selected.

### **5 - 3: D. Focus-group participant selection**

A focus-group approach was used mainly to explore factors impacting on eating a healthy diet (particularly in relation to children) in the Durham County, UK. Durham County was chosen for many reasons, in particular, initially, for convenience as it was easy to contact and communicate with the family participants involved in the focus-group discussions and the study survey. Also, it was easy to contact local schools, nurseries and kindergartens to contact children's parents. Choosing this geographic area was aimed at minimising the cost, time and effort in contacting the study's target population and reaching them easily. Andreasen (1995) advocates this type of formative research as a first stage in any SM campaign to discover the knowledge, attitudes, practices and beliefs of the target adopters (in this case, children) and other important publics (in this case, those with a risk in child eating). Many researchers such as Robinson (1999) suggest that using focus groups in such research is vital to understand present knowledge and awareness of the participants, the role of social pressure groups in accelerating or retarding adoption, factors to abandoned or desired behaviour, the shaping of SM programs, as well as the adopter's own perceived self-efficacy. Thus, participants should be chosen with care from the target sample and described in a relatively homogeneous way, as this often prevents biases and unwanted data (Smith, 2003).

There was no general agreement on the number of participants who would take part in each focus-group discussion. Some scholars prefer focus groups of five to eight participants while other scholars prefer not to exceed ten participants (Robinson, 1999). The main issue is not the number of participants in focus-group discussion, but the types study units who selected to participate in such an event. Focus-group participants should be chosen with respect to various factors including, experience, social problem incidence, problem severity, defencelessness

(studied segment can take care of themselves or need help from others), reachability (can be identified and reached), general responsiveness (such as ready, willing and able to participate), time for both research(s) and participants, and cost (Lee & Kotler, 2011). In this study, each focus group involved five to eight parents from various socio-demographic backgrounds and was conducted in three locations across Durham County, UK.

What participants say and discuss during the focus groups determines the type of data to be planned, recorded, collected, analysed and reported. Therefore, careful recruiting of participants was essential for facilitating group discussions (Greenbaum, 2000; Willgerodt, 2003). In some cases, it is recommended that participants be acquainted with one another to promote a warm discussion which would enable the elicitation of essential data (Seymour, et al., 2002).

Regarding the number of focus groups that a scholar tends to execute, there is no general agreement on both the number of focus groups and the number of participants in each discussion group. Some scholars tend to collect initial data to develop the survey items by using a set of focus groups and some scholars tend to conduct three, four or five focus groups for such purpose (Silverman, 2011). This study planned to have three meetings with parents who were usually involved in healthy food-product purchases. The target was a potential study unit of families who participated in three group discussions during the period of February, March and April 2010, in Durham, UK. Participants were selected by making personal invitations only for those who shared similar characteristics and for those who had children as guided by other studies such as Richter, et al. (1991). Each focus group comprised of five to eight participants who had a variety of behaviours and knowledge about healthy diet. The focus-group participant selection process was done in a set of systematic stages. In the first stage, focus-group participants were initially contacted personally to obtain their initial agreement to be involved in this stage and to be sure of their eligibility to be studied. In the second stage, the participants were recruited through email messages that were distributed by the researcher and through personal communication with local families. In the third stage, the participants were contacted formally by using a signed formal letter addressed by Durham University-Durham Business School to formalise the communications, give the participants a brief about the study purpose, and be sure of applying the main ethical considerations that the data would only be collected for educational and research purposes. For more information about the published invitation email/ message, see Appendix letter 5-1.

In the fourth stage, responses from participants who agreed to participate were collected. All information about the selected participants were determined, especially the time and place in which they would be free to participate. In the last stage, selected participants were contacted again to thank them for agreeing to be involved in this process, and they were provided with the initial focus group conducting considerations. These included time, place, number of persons involved, any special requirements needed in advance, transportation and directions to the focus-group venue, compensation and food and beverages provided. Based on the final feedback from the participants, the focus-group discussion proved to be executed within planned time schedules.

### **5 - 3: E. Focus-group discussion duration**

The focus-group discussion duration is considered another point of debate among scholars. A focus group can be defined as “in-depth, open-ended group discussion of 1-2 hours” duration that explores a specific set of issues on a pre-defined and limited topic” (Robinson, 1999, p.905). Based on this definition, the discussion duration is recommended to be between one to two hours long, using a predetermined set of questions and supported by focus-group guidance. Many issues can be raised that affect the data reliability if the focus group continues for longer than two hours such as participants feeling bored, having responses with short answerers, not having deep analytical responses, and not giving the meaningful answers. To overcome the boredom issue and collect real data, many procedures have been taken to assure that the best data is collected such as conducting a focus group with a set of participants who have similar backgrounds and life styles to have deep discussions and dialogues.

Regarding the date of executing the focus group, the choosing of a suitable date is one of the important dimensions that are determined by the participants. The researcher gives the participants the chance to choose both the most suitable date and time. Choosing the most suitable time for participants is recommended by Krueger and Casey (2000) who advice that the suitable time for conducting a focus group is one that has been preferably determined by the participants. All the focus group sessions were planned to be conducted in same venue, which was convenient to the participants as it was easy to reach and was close to the town. The venue was located in the Durham University family accommodation called Keenan House in Old Dryburn Way.

To conduct the focus group, the researcher was prepared and trained to implement the required skills to conduct the focus group discussion in an appropriate manner. For example, free-flow discussions were encouraged and enough time was given to each participant to express his/her opinions. In addition, the moving from one question to another was done smoothly to collect enough data about each study construct.

### **5 - 3: F. Conducting the focus groups**

This research is concerned with studying family healthy-food choices. To achieve the study purposes, a number of questions were prepared by reviewing the related food-choice literature. The questions were categorised according to the Behavioural Perspective Model (BPM), which represents the theoretical background that was employed to study food choice in the natural buying situation. These questions were used to conduct three focus groups with some of the study's target population participants, namely, families in the UK market.

Most of the materials were provided for the focus-group participants such as notebooks, pencils, tissues and a simple participant sheet form. Two recording devices were borrowed from the Business school. In addition, suitable refreshments were provided like fruits, biscuits, juice, coffee and tea to make the participants feel comfortable and to encourage speaking and interacting. The moderator started the welcoming stage by introducing himself to the participants and letting each one of them do the same as part of the preliminary stage. Then, the moderator began to explain the study purposes and the main goal of conducting such discussions. In addition, the main ethical considerations related to focus-group discussions such as securing any personal data and how all study information should be kept confidential were explained to the participants appropriately as guided by Krueger and Casey (2008). Moreover, the moderator explained the process of executing such discussions by organising who started the dialogue, opinion registration, how mobile phones should be switched off, avoiding side chatting, recording procedures, feeling free to move around, providing building direction (for example, toilet and safety exit).

After this, the moderator guided the participants to answer a short questionnaire containing the main demographical characteristics as some participants' demographical data needed to be collected from the participants. The short questionnaire was designed for many purposes such as providing a clear understanding of the participants' usual characteristics such as family members, family income, the number of children and their ages. The questionnaire was



completed anonymously before starting the discussions. For more information about the focus group short questionnaire, see Appendix 5-2. As some of the questions might be sensitive in nature, scholars recommend that such questions are not suitable for discussion. Therefore, the participants were informed that they should avoid sensitive questions during the discussions.

The participants were also asked if they had any questions before the recording of the group discussions started. In addition, enough time was given to participants to think about and express their opinions without any disturbances. The discussion began with general questions about food purchasing and consumption choices. In this stage, many preliminary questions were prepared to be used in the ice-breaking stage to initiate the discussion as recommended by many previous studies (Maddock, et al., 1999; Kubik, et al., 2005; Contento, et al., 2006; Chambers, et al., 2008). Thus, a list of questions was prepared to start the discussion by encouraging participants to think about what types of food they usually buy in a typical week and why. For Chambers, et al. (2008), consumption patterns varied widely among age groups as younger participants are more likely to buy tinned or frozen food varieties. On the other hand, participants over 30 are reported to buy more fresh fruits and vegetables each week. This was true of the participants with children and without children. Therefore, the participants were given time to speak freely about their food-buying experiences. However, the study administrator directed the focus-group discussions in different ways to determine the main factors that affected family healthy-food choices and to determine the main barriers to eating healthily. Parts of the questions were used in the initial stage to discover the main factors that controlled food buying and the reasons. These factors would be used when designing the study survey in a later research stage.

All participants were asked to introduce themselves to one another so that they would feel more comfortable during the discussion, after which the researcher gave a brief talk about the meaning of a healthy diet. The researcher also gave a short introduction about the topic to help families understand the goal of their participation and explain the study purposes to all participants clearly. The participants were informed that the meeting would be recorded and transcribed to facilitate reviewing the discussions. The discussions took the form of open-ended questions, which were designed to encourage participants to explore the study issues which were of importance to them and to express their experiences in their own words (Kitzinger, 1995). A brief description of each focus group is outlined in the following sections.

### **5 - 3: F. 1: Conducting the first focus group**

The first focus group was conducted on the 4 February 2010. Seven families were invited and one apologised as they could not attend. With six parents, five females and one male, the initial discussion was conducted and lasted approximately 90 minutes. The ages of the participants ranged from 31-50 years with two participants being between 41 and 50 years, and the rest were between 31 and 40 years of age. Regarding the participants' education, one had a diploma certificate, one had a bachelor degree, three held master's degrees, and one participant was a PhD degree holder. All participants' monthly incomes varied from 2,000.0 to 11,000.0 Sterling Pounds. The number of people in their households also varied as two families consisted of three family members, three families had four family members, and one family included five family members.

### **5 - 3: F. 2: Conducting the second focus group**

The second focus group was conducted on the 5 March 2010. Eight people were invited to participate, however, two participants apologised, so it was conducted with six parents, namely, three females and three males. The participants' ages ranged from 21 to 60 years of age with one holding a diploma, two held bachelor degrees; one held a master's degree and one participant was a PhD holder. All the participants were working except for one who was a university lecturer but had stopped working for family considerations. All the participants' monthly incomes were distributed between 1,000.0 and 6,000.0 Sterling Pounds. The number of people in their households varied with three families consisting of three family members, two families had four family members, and one family included five family members. The focus-group discussion lasted approximately 90 minutes.

### **5 - 3: F. 3: Conducting the third focus group**

The third focus group was conducted on the 5 May 2010. Five parents participated, and all were females. The participants' ages ranged between 30 to 50 years old with three holding bachelor degrees, one a master's degree, and one participant was a PhD holder. Regarding their jobs, two were housewives, one worked as a university lecturer, one worked as a secretary for a private firm, and the last participant worked as social helper. The participants' monthly incomes varied between 2,000.0 and 6,000.0 Sterling Pounds. The number of people in their households varied with two families consisting of three family members, three families had

two family members, and one family included four family members. The focus-group discussion lasted approximately 90 minutes.

At the end of each focus-group discussion, the moderator thanked all the participants for sharing their thoughts and experiences. Section 5-3 describes the focus-group recording process.

### **5 - 3: G. Recording data**

Audio recording is usually required when conducting focus groups (Wilkinson, 2004). However, as some participants feel shy or self-conscious in the presence of tape recorders, they are usually allowed to record or switch off the recorder at any time. In addition, the participants, in some cases, needed to express their experiences by using their own vocabulary when responding to the focus-group discussion questions. Within the same stream, some of the participants' responses needed to be supported by justifications based on the richness of their experiences, with respect to the issue of confidentiality. One of the advantages of using a tape recorder is leaving the interviewer feeling free to speak naturally and encourage the flow of information (Beskow, et al., 1991). Great value is achieved by recording the verbal chatting with respect to all details mentioned and eliciting the required data based on the analysis stage. It is important to keep in mind that taking notes is not a recommended process by scholars as taking hand notes slows down the procedure of conducting the focus group.

For the focus-group discussion, ethical issues regarding audio recording were taken into consideration such as informing the participants that the recording process was part of the data collection procedure to enable the transcription and analysis of the data. Also, according to Coolican (2004), the recording would be destroyed if requested by the focus-group participants or at the end of the study.

### **5 - 3: H. Analysis of focus-group discussions and findings**

A focus group is considered a useful approach for a variety of reasons especially in pre-testing the study survey stage or before executing any experiments (Blumberg, et al., 2005). Thus, as part of a larger exploratory study into the attitudes and behaviours in relation to the family's healthy-diet consumption, three focus groups were conducted. Stewart, et al. (2007) found that focus-group discussion often lacked suitable attention from scholars in preparation, execution, and analysis in both literature and practice research as a general research tool in social science,

Therefore, much attention was exerted by the scholar to prepare, execute and analysed the planned focus-group discussions.

To manipulate focus-group discussions, a variety of approaches have been adopted. For example, Gordon and Langmaid (1988 cited by Catterall & Maclaran, 1997) differentiated between two ways of analysing focus-group discussions. The first one is the manual approach and the second is the computerised (cut and paste) approach. The first method is the ‘annotating the scripts’ method which involves reading the text after the group discussion has been transcribed (or listening to the audio tapes) and setting out the founded ideas and thoughts behind the textual body of the discussion. The second approach involves breaking the transcript down into many parts then allocating them into a variety of headings and themes classified according to the theoretical backgrounds applied. Nowadays, scholars who have good computer literacy prefer using computer programs to help them in the analysis processes. Social scholars who utilise the focus-group technique as the main data collection method have tended to use computer programs in the analysis stage especially in text segmentation and grouping (Kaplan & Maxwell, 1994; Catterall & Maclaran, 1997).

This study relies mainly on the manual approach to elicit the study factors and their related items (Weitzman & Miles, 1995). All focus-group discussions were recorded then transcribed by the researcher to be documented; and the coding and analysis steps were based on the coding scheme that was recommended by Wesslén, et al. (1999) who claim that it is preferable to transcribe each statement, word by word, into written document formats to encompass phrases, words, and even participant tones of voice (Wesslén, et al., 1999; Shekedi, 2005). The focus-group analysis process passed through a set of steps as shown in Table 5-1 (Morgan, 1997; Kidd & Parshall, 2000; Millward, 2000; Stewart, et al., 2007).

**Table 5-1: Main steps of analysing focus-group discussions**

| <b>Main analysis steps</b> |  |
|----------------------------|--|
| Step 1                     | Review data and prepare the transcript                                   |
| Step 2                     | Create codes and code guides   |
| Step 3                     | Organise data using interview guide questions                            |
| Step 4                     | Categorise focus-group responses   |
| Step 5                     | Interpret data   |
| Step 6                     | Create a final report, which summarises the final elected study elements |

**Step 1 - Review data and prepare the transcript**

Before starting the analysis process, the data needed to be prepared. The focus-group discussion transcripts were reviewed by another scholar to compare the transcript's written

documents with the audiotapes for the three focus-group discussions. In the review, not many differences were found. Everything related to the analysis process was prepared such as the moderator's notes that were taken during the discussion and both cassette and tape-related materials. This preparation stage is important as it facilitates the execution of all the following stages.

**Step 2 - Create codes and codes guidance**

Determining the analysis codes is considered one of the main issues in this stage. This requires the allocating of abbreviations containing two to three letters to represent the main study constructs as shown in Table 5-2. Such a coding process is important as it identifies the study's theme headings, which make the practice of allocating the transcript statements easier, by constructing and addressing them by various and simple codes. According to the BPM, six sections have been defined by Foxall (2007a), including learning history (LH), behaviour setting (BS), utilitarian reinforcement (UR), informational reinforcement (IR), utilitarian punishment (UP), and informational punishment (IP). Also, the behaviour-setting (BS) construct was divided into four sub-domains which were, physical factors (PF), social factors (SF), temporal factors (TF) and regulatory factors (RF). These sub-domains provided further explanation of the healthy-diet purchasing-behaviour setting.

**Table 5-2: List of codes for BPM components**

| No. | Domain or theme name        | Codes |
|-----|-----------------------------|-------|
| 1-  | Utilitarian Reinforcement   | UR    |
| 2-  | Informational Reinforcement | IR    |
| 3-  | Utilitarian Punishment      | UP    |
| 4-  | Informational Punishment    | IP    |
| 5-  | Learning History            | LH    |
| 6-  | Behaviour Setting           | BS    |
| 6-A | Physical Factors            | PF    |
| 6-B | Social Factors              | SF    |
| 6-C | Temporal Factors            | TF    |
| 6-E | Regulatory Factors          | RF    |

**Step 3 - Organise data using interview guide questions**

One of the main issues that needed to be reviewed was that all the focus-group discussions were executed using the same questions. Thus, grouping each construct-related material was important at this stage. This, in turn, helped in finding common threads in the participants' views to be easily recognised and coded in later stages. One of the notable aspects in this stage was that some participant responses were connected to more than one study construct. Thus eliciting a variety of meanings should be allocated properly to each study elements. Also,

another issue that needed to be mentioned here was that the moderator used different colours to facilitate determining and distributing the elicited themes for each BPM constructs.

#### **Step 4 - Categorising focus-group responses**

This step encompassed both collecting and allocating each response to its related construct. The reason for such a stage is to group all responses together to find any commonalities so that the main factors that influenced food-purchasing and consumption behaviour could be determined or identified. This step was conducted after reviewing each sentence and referring it to its construct and then allocated the related codes. Response codes were allocated based on the response's meaning and where it could serve more categories within the study's items. For Sommer and Sommer (1992), this is the main step in the coding process.

#### **Step 5 - Interpreting data**

This stage is related to two main coding processes, namely, coding text segments in a meaningful way and regrouping similar segments to create categories (Côté, et al., 1993). In addition, some text segments needed to be reorganised to fit meaningfully with the study themes. Participants, in most cases, spoke about their incidents and episodes in a narrative way. The coder then needed to check these statements and allocate and summarise them according to the study themes to ensure the full meaning was clearly-coded. Finding links among elicited statements was another important step in this stage. Links between statements helped in finding logical explanations using different approaches, which, in turn, helped in the frequency counting stage afterwards. Finding similar coded statements was crucial to eliminate repetition after counting the main elicited statements.

#### **Step 6 - Creating final construct elements**

This step aimed at summarising the final study items that would be used in the next stage, which was the survey. The elicited study items were organised according to the frequency approach, the more repeated items were the most important ones to be reported and were allocated first. The study's initial coded items from previous study findings were allocated based on the BPM constructs as shown in Tables 5-3 to 5-11. They are also supported by some extracted anonymous quotes that were related closely to the main study constructs.

**Table 5-3: Summary of selected elicited study items - Physical Setting**

| <b>Physical-Setting Items</b> |   | <b>Quotes supporting the focus-group findings</b>   |
|-------------------------------|---|---|
|                               | Food shop's availability  | <p>A-1: I remember a German girl, and we were bragging about the English doorstep milk delivery and how wonderful it was and she said well in my country we go to the farm with our own can.</p> <p>B-3: For me, it is the taste. Lime's doesn't like the strawberry but when I tried them they don't taste like strawberries should taste so I stop buying them because I know the taste isn't good, so now I just go for an apple I know they are less with vitamin c but just because I know if I keep giving him strawberries he'd put of fruit.</p> <p>B-2: The offered facilities are important, for example, Sainsbury they do horrible thing, there is no toilet no restaurant and it is close to my house but I go to Tesco just to avoid them. I do not like the noisy place, and if it is dirty, I will not go there.</p> <p>A-4: I think it's often easier to buy unhealthy food. Whenever you need a snack, there is always something unhealthy that is easy to find, you do not have to cook it and it is very tempting. I know I should not be eating it or feeding it to my kids, but it is easy.</p> <p>C-3: If the atmosphere is bad, I do not buy anything – it is depressing. If I go to Tesco, I can fill the trolley with £200 worth of stuff. However, when stores change their layout I get lost; it is hard to find stuff.</p> <p>C-2: If the atmosphere is good, so I can take the kids.</p> <p>A-1: I feel comfortable shopping where there is a dominant colour scheme like blue or green, but not orange. I feel calm in Tesco- the next choice would be Asda. I would visit an Asda even if it were far away, because of the colour. But not Sainsbury's harsh colours irritate me</p> <p>B-5: Store location is important and it should not be too far away, otherwise I have to spend time and money getting there.</p> |
| 1.                            | Food shop's atmospheric elements (e.g. design, colours)   |   |
| 2.                            | Convenience of accessing healthy food shops (e.g. store number, location-distance, distance and distribution) |   |
| 3.                            | Proximity to home/work  |   |
| 4.                            | Food online shopping services   |   |
| 5.                            | Food delivery services  |   |
| 6.                            | Transportation to food stores   |   |
| 7.                            | Car parking facilities  |   |
| 8.                            | Range of products availability and distribution   |   |
| 9.                            | Providing various services (e.g. Dry-clean, Coffee shop)  |   |
| 10.                           | Food variety  |   |
| 11.                           | Healthy-food products availability  |   |
| 12.                           | Unhealthy-food products availability  |   |
| 13.                           | Availability of healthy-food products alternatives  |   |
| 14.                           | Fast food restaurants and store availability  |   |
| 15.                           | Unhealthy-food stores and restaurant location   |   |
| 16.                           | Food taste  |   |
| 17.                           | Food smell  |   |
| 18.                           | Food quality  |   |
| 19.                           | Food appeal   |   |
| 20.                           | Nutrition labelling and packaging   |   |

**Table 5-4: Summary of selected elicited study items - Social Setting**

| <b>Social Setting's Items</b> |  | <b>Quotes supporting the focus-group findings</b>  |
|-------------------------------|--|--|
| 1.                            | Sales people's friendly behaviour and personal attention           | <p>C-1: I try to avoid going shopping with my children because the peer pressure is unbelievable, how many times you have to say no in the supermarket. I do shop on my own I do try to avoid rubbish in the trolley.</p> <p>A-3: If you've got time it is nice to involve your children in the kitchen. I involve my children in kitchen regularly to eat. They will try what they made, it that the way to get them to eat. That is the way to get them to eat sweet potatoes.</p> <p>C-5: I remember... I... when I was teenager, I was quit sort of B-2 just wanted to play. I have basic things set on the table, we try to sit together, I think the healthy thing for children is to be sat around with family, or to be sat around in a sort of warm environment to feel comfortable then you will get to try thing.</p> <p>B-4: I am effect by my friends and family what they eat, I will copy them, and for example, if any one offers me a nice meal, I will get the recipe.</p> |
| 2.                            | Receiving prompt service from the food-supplier employees          |  |
| 3.                            | Sales person face-to-face communication and recommendations        |  |
| 4.                            | Friends or peer recommendations                                    |  |
| 5.                            | Family recommendations   |  |
| 6.                            | Supermarkets employees and food producers interaction effect       |  |
| 7.                            | Social support and involvement (e.g. clubs, community, peer group) |  |
| 8.                            | Other families food preparers who shape the dietary habits         |  |
| 9.                            | Eating with a group instead of eating alone                        |  |

**Table 5-5: Summary of selected elicited study items - Temporal Setting**

| Temporal Setting's Items |  | Quotes supporting the focus-group findings   |
|--------------------------|--|--|
| 1.                       | Time available to purchase healthy-food products   | B-5: I think it's time factor... I think especially being a busy full time working mum. Realistically, sometimes I simply do not have time to stand in the kitchen and prepare fresh vegetables and things, and it will be just something very quick, you know pulled out of the fridge as easily as possible you know because sometimes the kids are just too hungry... |
| 2.                       | Time of purchase during the day, week, and month   | A-4: if you don't have time you will think of just fish fingers or lasagne.  |
| 3.                       | Time availability to prepare and cook healthy food | C-5: Some mothers would say they do not have time to cook, so that is why they sometimes eat unhealthy food. Yes, that can sometimes happen when you're busy.<br>C-6: Sunday is our day. We sometimes have unhealthy stuff but it's only one day a week  |
| 4.                       | Healthy-food product seasonality                   |  |

**Table 5-6: Summary of selected elicited study items - Regulatory Setting**

| Regulatory-Setting Items |  | Quotes supporting the focus-group findings  |
|--------------------------|--|---|
| 1.                       | Governmental policies towards agriculture and food regulations | B-4: There are no restrictions in my religion on what you can and cannot eat. I am Christian  |
| 2.                       | Health regulations (e.g. doctors instructions)                 | A-3: I usually be careful that the goods should not have passed their expiry date or be close to it. Sometimes, I like it when Tesco have offers on nearly expired goods.<br>C-5: I check labels for protein and nutrition.   |
| 3.                       | Regulation and food policies factors (e.g. expiry date)        | B-6: I usually look at the labels and make a judgment according to whom I am buying from.<br>C-5: The government cannot tell them what to sell, because it is a free market. There are a lot of government brochures, printouts, magazines and stuff on the Internet but in terms of action, you cannot stop people buying things or companies making things. Maybe they could apply high taxes but this never seems to happen. |

**Table 5-7: Summary of selected elicited study items - Learning History**

| Learning History's Items |  | Quotes supporting the focus-group findings   |
|--------------------------|--|--|
| 1.                       | I relay on my experience to evaluate and choose among food products                  | B-2: Today I still choose the orange squash that my mother bought 40 years ago. In addition, everything else as well that I learned along the way. |
| 2.                       | My bad experienced consuming unhealthy-food products makes me switch to healthy ones | C-4: Now I cook with olive oil because the culture.  |
| 3.                       | My good experience consuming healthy-food products makes me stick with them          | B-4: Through the generation, I remember my grand mum made fresh pasta later my mum then me.  |
| 4.                       | My past purchase and shopping experience   | A-3: We are always known about healthy eating. I do not need to go doctor; I just research it on Google.   |
| 5.                       | My healthy food and nutrition awareness  | B-1: I do not for the most times to buy new food staff.  |
| 6.                       | My healthy-food preparation and cooking skills                                       | C-5: I check labels for protein and nutrition.   |
| 7.                       | My nutrition education and knowledge effect  | B-1: I used to cool traditional food such as chicken, fish and rarely pizza.   |
| 8.                       | My accumulated information about healthy food  |  |
| 9.                       | My healthy-food cooking abilities considerations                                     |  |
| 10.                      | My food familiarity and family habits  |  |



|     |   |  |
|-----|---|--|
| 11. | My personal perceptions, belief, attitudes and values | A-4: In general, I think pork has the highest fat content of all red meat, followed by lamb, then beef. However, for religious reasons, I cannot have any big products.<br><br>C-3: Schools also educate children of what to eat.  |
| 12. | My health and nutrition beliefs                       |  |
| 13. | Religion effect                                       |  |
| 14. | Ethnicity effect                                      |  |
| 15. | Culture effect  |  |
| 16. | Education effect                                      | C-7: Experience comes from the food that my mother cooked, and my last four years (being married) have given me a different food experience. If you become accustomed to cooking Mediterranean food, it's difficult to switch to, for example, Chinese food because it's hard to get used to another culture.<br><br>C-3: Yes, but I am a stand-by doctor! I'm trying to educate myself about food, checking vitamins etc. |

**Table 5-8: Summary of selected elicited study items - Utilitarian Reinforcement**

| Utilitarian Reinforcement Items |  | Quotes supporting the focus-group findings  |
|---------------------------------|--|---|
| 1.                              | Benefits of healthy foods (including both long-term and short-term benefits) | C-1: When you have a baby, they gave you information especially when you leave the hospital about good diet for you and for your baby. Also, when you pregnant as well.   |
| 2.                              | Being well and better for overall family health                              | B-12: I think ...they put some supplements in some food. For example, white bread always has folic acid in it to protect babies.  |
| 3.                              | Having a healthy and balanced diet   | A-4: My daughter is eating much more healthily now than before she was...she decided to take responsibility for what she eats for her health.   |
| 4.                              | Health and nutritious value of food  | C-6: Two of my children are vegetarian so that affects what we buy – apart from cutting down on sugary foods to lose weight. So, we have to buy different kinds of food and sometimes there are two shopping baskets. |
| 5.                              | Healthy-food consequences  | B-4: My parents eat quite a healthy diet.   |
| 6.                              | Dieting consideration  | B-3: My husband is very artistic but he cannot cook. Nevertheless, he insists on healthy food because he thinks it is trendy. He insists on all the ingredients being 'just right'!                                   |

**Table 5-9: Summary of selected elicited study items - Informational Reinforcement**

| Informational Reinforcement Items |  | Quotes supporting the focus-group findings   |
|-----------------------------------|--|--|
| 1.                                | Food choice as a means of demonstrating group acceptance, conformity and prestige  | A-7: It is aspiration if you want get better health better mood.   |
| 2.                                | Improving relationships and interactions   | B-3: We know when if you give our children sugar they will become as monsters.   |
| 3.                                | Being good for general appearance, self-image and self-control                     | A-5: Eating healthy products makes you feel better.  |
| 4.                                | Being mentally and emotional healthy and having a good mood                        | A-3: I remember I when I was teenager I was quit sort of I just wanted to play ... I think the healthy thing for children is to be sat around with family, or to be sat around in a sort of warm environment to feel comfortable then you will get to try things such healthy food |
| 5.                                | Improving emotional status (e.g. enjoyment of eating and convenient entertainment) | C-2: Unhealthy food makes you feel happier   |

**Table 5-10: Summary of selected elicited study items - Utilitarian Punishment**

| Utilitarian Punishment Items |   | Quotes supporting the focus-group findings   |
|------------------------------|---|--|
| 1.                           | Cost (price) of healthy-food products                             | <p>A-2: Even soup for instance, the store bought soup is cheaper than the fresh ingredients...so cost for me is important ... I think healthy food is more expensive, and you make a choice about that. I sometimes think should I buy that lovely soup that costs £2.50 or should I make my own. In addition, if you look at the ingredients, it is more expensive to make your own.</p> <p>C-6: I do not have something special unless my mother in law who has diabetic and has heart problem, so I have to cut down on everything. For example, she loves cheesecake, which is terrible for diabetic.</p> <p>B-4: We were not aware about healthy food until my husband get high blood pressure and we started to cut all these kinds of unhealthy food.</p> <p>C-2: When the price is very low - it becomes attractive to buy healthy food.</p> <p>A-6: we consumed fish and meat at the same time. Now my cousin gets Cancer so I stop eat fish and meat at the same time.</p> <p>A-5: My husband cooks for pleasure. I am trying to cut this habit until we get chronic disease my husband get high blood pressure.</p> |
| 2.                           | Payment options   |  |
| 3.                           | Short-term and long-term health risk of eating unhealthy products |  |
| 4.                           | Reducing the current and potential health risk                    |  |
| 5.                           | Time and effort searching for the best food that suits you        |  |
| 6.                           | Over-eating problems (e.g. obesity and overweight)                |  |

**Table 5-11: Summary of selected elicited study items - Informational Punishment**

| Informational Punishment Items |  | Quotes supporting the focus-group findings  |
|--------------------------------|--|---|
| 1.                             | Negative feedback from others                              | B-6: Scientifically sometime, the food should answer you it supposes to make you feel better. Lentils and lettuce apparently makes you feel happy. It is supposed to make you feel better.  |
| 2.                             | Emotional status effect (e.g. mood, stress and depression) | C-5: When I eat unhealthy food, I feel guilty.<br>C-6: Eat unhealthy food makes you feel happier.   |
| 3.                             | Health risk perception                                     | C-5: When I eat unhealthy food – sometimes I feel a bit bloated, I feel fat.  |
| 4.                             | Feeling stressed and being in a bad mood                   | C-4: Unhealthy food fills me up. It fills my heart, my brain. With healthy food, after ten minutes you are ready for something else. Unhealthy food makes you feel happier UR. If you have just one biscuit, it is depressing! I have a sweet tooth anyway.<br>A-6: Some people consider that healthy food is not very tasty.<br>B-1: I get excited when I eat unhealthy after that I will feel guilty. |

To conclude, the focus-group discussions were conducted using open-ended questions and conducted by the researcher (see Appendix Table 5-3). Furthermore, the discussion questions were prepared to encourage participants to explore the main study issues deemed important to them by expressing their experiences using their own words and statements (Kitzinger, 1995). A short questionnaire was prepared (see Appendix 5-2) and discussed in Section 5-3: F to collect the main demographic attributes to describe the focus-group participants briefly. The

questionnaires were completed anonymously before the focus-group discussions. As some of the discussion questions were considered to be sensitive, they were changed and the focus-group members were given the chance to answer such questions freely or not (Chambers, et al., 2008).

Group-discussion coding, analysis and categorisation to elicit the intended factors so that a clear explanation could be provided about how participants communicated and interacted with each other and with their family members regarding the food-related selection process and choices was explained thoroughly to the participants. Conducting the focus-group stage was very important for exploring the initial primary data from the family-member participant perspective. Preparing the main study items and conducting the pilot study could not have been done without the piloting stage.

Before discussing the process of designing the main study's data-collection process and how the pilot study was conducted, the main focus-group limitations which were faced during the process of preparing and conducting the focus-group discussions need to be discussed.

### **5 - 3: I. Focus-groups limitations**

Scholars usually face many limitations, before, during and after conducting the focus-group discussions. These limitations start from the point of preparing the focus-group discussion questions to the analysis of the discussion data.

The first problem encountered was regarding how to prepare and choose a set of questions that would fit with the study's constructs to elicit the needed answers. This was done by reviewing a large number of studies and deciding which questions were suitable. A list of questions was then chosen and prepared to represent each study construct after consulting with experienced scholars on the suitability of the questions. Another problem encountered was deciding which families and parents should be chosen and how they should be contacted. Deciding on a list of families was not an easy process and it was difficult to get parental agreement as the participants who had agreed to participate had different demographic characteristics, different backgrounds and lived in different geographical sites, It was also difficult to find specific dates and places to conduct each focus-group meeting that met with the approval of all the participants.

As was explained in the focus group conducting stage (see Section 5-3: F), three focus groups were executed, and each group had a certain number of parents. Thus, having small groups of participants did in some way affect the quality of the data elicited, because of not having families from different backgrounds or parents from different areas or even different-social classes. As a result, one of the notable limitations in this study was choosing the focus-group participants who volunteered to participate based on convenience. For example, the convenience of choosing participants (for example, meeting some parents who accepted early to participate) usually lead to neglecting different participant social backgrounds and essential demographical characteristics which might have added value to the focus-group discussions and outputs. This selection issue could be addressed in future research by having more venues when conducting focus groups and giving more attention to the parents who shared similar or different demographic characteristics when the family food-choice context is studied.

During the execution of the focus-group discussions, sometimes it was felt that some of the participants were too shy to speak honestly about their experiences and discuss certain family issues especially when no one knew the rest of the group members. While in other situations, it was difficult to follow-up the group discussion especially when such discussions went faster than the usual dialogue. However, the researcher took the role of coordinating and directing the discussion rather than being involved directly, preparing and starting the discussion process and even, in some cases, following-up on essential issues which could be important at a later stage. For example, what families prepared for their children to take to kindergarten or schools?

After the focus groups were conducted, many problems were encountered. One of the problems that was experienced was the transcribing process. It was difficult at times to transcribe the recorded discussions especially when the speaking was fast, and, as a result, the transcription was a lengthy process. Some sections in the recording had to be repeated several times to transcribe what was said accurately. In addition, it was difficult to describe some facial expressions and body language. Also, the problem of finding common and shared meanings that fitted with the study constructs when browsing the transcribed discussions was one of the limitations for the analysis stage. This, in turn, created some difficulty in grouping and coding the elicited meanings that were transcribed directly, for example, clear statements or indirectly, for example, meanings towards the study main constructs. Sometime it was tricky to analyse, especially when some statements and notes were related to more than one of the study's constructs.

Section 5-4 explains the process of designing the main study data-collection means (survey) and how the pilot study was conducted.

#### 5 - 4: Second Part: Survey instrument

Based on the consumer food-choice literature, investigating the factors that affected food product choice using qualitative analysis techniques was done and explained in detail in Section xx of this chapter. In this section, food-choice behaviour is analysed and investigated using a quantitative method. The view of using a quantitative method to study the drivers of family choice in a complex behaviour setting using the BPM as the main study framework is highlighted by Leek, et al. (2000) and validated by scholars such as O'Shaughnessy (1987). Thus, this section tends to focus on the process of measuring the effect of the main study elements that are BS, LH, UR, IR, UP and IP on food choice using the survey instrument.

Figure 5-3 illustrates the systematic approach that provided a clear flow of the survey development stages based on a rigorous research methodology. Research methodology is defined by Leedy and Ormrod (2005) as “the general approach the researcher takes in carrying out the research project” (p.14). In addition, Leedy and Ormrod (2005) define a research tool as “a specific mechanism or strategy the researcher uses to collect, manipulate, or interpret data”. Thus, the second part of this chapter provides more detail about the drafting of the survey questionnaire, the pilot study, survey administration and sample selection, followed by the final draft of the questionnaire and data collection.

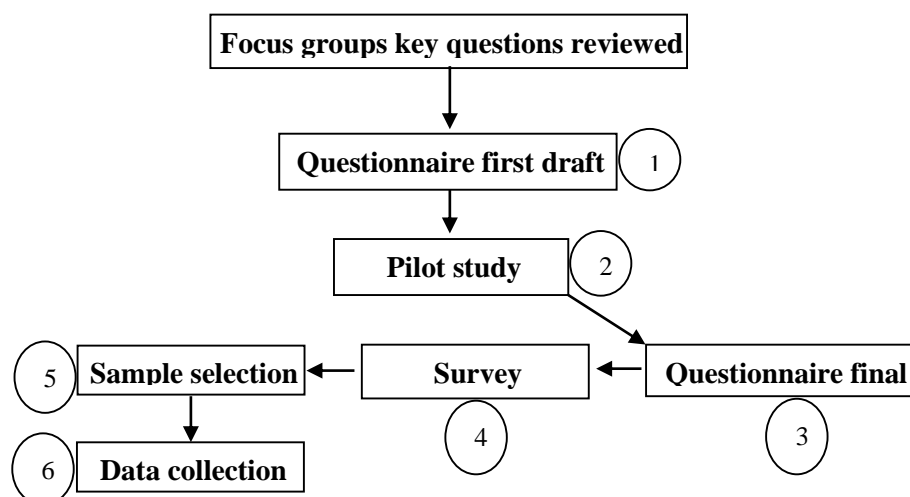


Figure 5-3: Steps of survey development and implementation

The main instrument for data collection in this study was the survey. The goal of employing the survey technique is to seek out primary information from the participant's experiences in

the research area to explore various avenues and identify problem areas and barriers (Blumberg, et al., 2005). The researcher selected the survey technique because it was one of the most common methods for easily collecting data, and responses can be easily coded (Sekaran, 2003). The self-administrated questionnaire was selected as the main method of data collection, as it was useful for collecting data from large numbers of respondents (for example, families), from different geographic regions, and it generally relied on a standard set of prepared questions (Yu & Cooper, 1983). The data was planned to be collected at a single point in time and then examined for patterns or relationships between variables (Bryman & Bell, 2007). Initially, designing the first draft of the questionnaire items was based on creating many focus groups with the parent participants. As a result, the survey used in this study passed through many drafting processes and validation stages as discussed in Sections 5-4: A to D.

Qualitative research methods are flexible in that the conceptual or theoretical frameworks can be refined or redefined during the research process. The reasons for choosing a particular research method, however, require a clear rationale. Just as with dietary-intake methods or survey techniques, focus-group interviews are appropriate for some uses and inappropriate, or less appropriate, for others. For example, they are excellent tools to ascertain awareness of the various aspects of a certain issue, but they are poor tools to assess knowledge, attitudes, or behaviours of individual participants (Betts, et al., 1995). The research was planned to examine the BPM model in relation to the factors that affect parental food-choice behaviour. Thus, using the questionnaire to measure all the elements in the BPM model, for example, behaviour setting and learning history were essential.

The questionnaire was designed, reviewed and distributed to collect suitable data to explain consumer-behaviour consequences and behaviour stimuli regarding family-food choices. A large number of social studies related to healthy food consumption and selection behaviours have employed the same technique (Persson, et al., 2003; Grossbart, et al., 1991; Harper & Makatouni, 2002; Caruana & Vassallo, 2003; Kelly, et al., 2006; Roberts, 2008).

#### **5 - 4: A. Rational of using the survey technique**

Surveys are highly-used by scholars as the main data-collection method. The use of surveys comes from many logical and justifiable reasons such as low cost compared to other data collection means, no need to train or recruit interviewers to elicit the right data, allows study participants to give answers in their own time and place of convenience, provides suitable time

for participants to locate and deliver their responses (Schleifer, 1986; O'Sullivan & Rassel, 1989; Parks, et al., 2006). Also, a survey is preferred to be used when it is hard to use other data collection means such as experiments or with a phenomenon that cannot be directly observed. However, the use of surveys does have some disadvantages such as a low response rate in most cases, lengthy time to collect the needed data, open-closed questions are ignored or poorly answered, does not work well with uneducated study targets or elderly people, some survey questions are unclear and researchers are not available to explain the meaning of the questions, and some questions are not answered which, in turn, contribute to the creation of biased issues (O'Sullivan & Rassel, 1989; Brown, 1997; Lusk & Briggeman, 2009).

The original questionnaire was designed and developed for this study using English. The majority of questionnaires were planned to be collected through face-to-face interaction with parents who participated by completing a questionnaire developed specifically for this study (Köksal, 2007). Such an approach was followed to ensure that all questions were answered and that any item could be explained to the respondents. Section 5-4: B provides more detail about the questionnaire structure and how items were logically-connected.

#### **5 - 4: B. Questionnaire structure**

This study aimed to evaluate parental behaviour through studying the influence of different discriminative stimuli related to food choice. Therefore, a set of questions related to discriminative stimuli, or events, in the behaviour setting that signalled healthy-food choice was prepared. The discriminative stimuli within the behaviour setting was grouped into four dimensions, namely, physical, social, temporal and regulatory. A group of questions were also designed to measure the effect of the parents' learning history that interacted directly with the behaviour-setting elements. Based on the parents' past learning history, a set of questions related to the consequences that were likely to follow each type of response, such as reading labelled products or choosing healthy food were also covered. .

The questionnaire structure consisted of nine sections. Section one was structured to collect data about healthy-food products and included the following questions: what a healthy diet means to parents (Q1), if parents usually buy and eat healthy-food products (Q2), how often parents ate healthy food (Q3), the main food-product categories that parents frequently buy (Q4), how much parents approximately spend on buying healthy-food products per month (Q5), shopping frequency (Q6), the level that both parents influence the family-food choices

(Q7), the level that children influence the family-food choices (Q8), the decision-maker for purchasing family food (Q9), family food buyer (Q10), places where families eat their main meals (Q11), if any of the family members had a special diet (Q12), and specific reasons for having a special diet (Q13).

The second section of the questionnaire was structured to collect data about the food supplier and contained two questions, namely, types of stores where families buy their food (Q1) and an open question to record the main problems and difficulties that a family experienced when buying their food products (Q2). Section three of the questionnaire was structured to collect data for studying the four sub-constructs that related to behaviour setting factor; the first construct was the physical setting. The physical setting construct had nine questions which related to food availability (Q1), convenience of accessing healthy-food shops (for example, store number, location and distance) (Q2), food delivery services and providing various services (for example, Dry-cleaning and Coffee shops) (Q3), food shop's atmospheric elements (for example, design and colours) (Q4), the availability of a range of product tastes (Q5), the availability of a range of product smells (Q6), the availability of a range of products with different qualities (Q7), the availability of a range of food products with different shapes and sizes (Q8), and supplier's website promotions effect (Q9).

The second construct of the behaviour setting factor was structured to collect data for the social-setting construct. The social construct was intended to collect data related to friendly behaviour and personal attention of sales people (Q11), receiving prompt service from the food supplier employees (Q12), sales person's face-to-face communication and recommendations (Q13), friends' recommendations (Q14), family's recommendations (Q15), supermarkets employees and food producer's interaction effect (Q16), social support (for example, clubs, community, peer group) (Q17), other family food preparers who shape the dietary habits (Q18), and eating with a group instead of eating alone (Q19).

The third part of the behaviour-setting factor was planned to collect primary data related to the temporal construct. The temporal construct included important items such as time available to purchase healthy-food products (Q20), purchase time during the day, week and month (Q21), time availability to prepare and cook the healthy-food products (Q22), healthy food-product seasonality (Q23), and social-event participation seasonality (Q24). The last construct of the behaviour-setting factor was the regulatory setting. The regulatory setting was planned to collect data related to social norms, culture, religion and ethnicity standards (Q25), governmental policies



towards agriculture and food regulations (Q26), health regulations (for example, doctors' instructions) (Q27), regulation and food-policy factors (Q28), nutrition labelling and packaging instructions (Q29), and food preparing and cooking instructions (Q30).

The fourth section in the questionnaire was planned to collect data about customer learning history. For learning history, data was collected which related to many items such as the level by which parents relied on their experience to evaluate and choose among food products (Q1), the effect of bad experience in consuming unhealthy-food products (Q2), the effect of good experience in consuming healthy-food products (Q3), healthy-food preparation and cooking skills effect (Q4), nutrition knowledge and awareness (Q5), family habits and familiarity with healthy food-product effect (Q6), family members' personal perceptions of healthy-product buying and consumption effect (Q7), family attitude impact on a healthy diet (Q8), family race and ethnicity attitude impact on a healthy diet (Q9), family culture's approach impact on a healthy diet (Q10), and family religion's approach impact on a healthy diet (Q11).

Section five in the questionnaire was planned to collect data about behavioural consequences or utilitarian reinforcement dimensions which included benefits of healthy foods (including both long-term and short-term benefits) (Q1), being well and better for overall family health (Q2), having a healthy and balanced diet (Q3), health and nutritious value of food (Q4), healthy-food consequences (Q5), and dieting-consideration effects (Q6). In addition, section six in the questionnaire was planned to collect data about behavioural consequences or IR dimensions which related to food choice as a means of demonstrating group acceptance, conformity and prestige (Q1), improve relationship and interaction (Q2), being good for general appearance, self-image and self-control (Q3), being mentally and emotionally healthy, and having a good mood (Q4), and emotional status (for example, enjoyment of eating and convenient entertainment) (Q5).

Section seven in the questionnaire was planned to collect data about behavioural consequences or utilitarian punishment dimensions which related to cost (price) of healthy-food products (Q1), payment options (Q2), short-term and long-term health risk of eating unhealthy products (Q3), reducing the current and potential health risks (Q4), time and effort searching for the best and suitable food (Q5), and over-eating problems (for example, obesity and overweight) (Q6). In addition, section eight in the questionnaire was planned to collect data about behavioural consequences or IP dimensions, which related to negative feedback from others (Q1), emotional-

status effect (for example, mood, stress and depression) (Q2), health-risk perception (Q3), and feeling stressed and being in a bad mood (Q4).

Section nine in the questionnaire was planned to collect data about the dependent variable (family food choice). This section consisted of four questions related to if parents thought affect family healthy food products choice (Q1), if parents usually encourage all family members to choose and buy healthy food products (Q2), if parents believe that food choice and healthy eating affect family being better and having healthy lifestyle (Q3), and if parents nutrition knowledge and attitudes affect choosing healthy food products (Q4). Lastly, section ten in the questionnaire was planned to collect data about the family's main demographic characteristics which consisted of questions related to gender (Q1), age (Q2), marital status (Q3), marriage longevity (Q4), level of education for the participant and his/her partner (Q5+ Q6), occupations of both the participant and his/her partner (if employed) (Q7), working status for the participant and his/her partner (Q8+ Q9), family's average annual income (Q10), a question if the participant had children and the number of children in the household (Q11), a question if any of the children ate at any of the childcare institutions (Q12), types of food the child(ren) ate at nursery (Q13), if the child(ren) ate at school (Q14), types of food the child(ren) ate at school (Q15), and if the participant usually encouraged his/her family and others to buy and eat healthy-food products.

It needs to be noted that all the survey's items and questions were adopted from a large set of previous studies which had already used the majority of these questions for similar and different research purposes. Section 5-4: C discusses the question types that were used in the study survey and explains the wording process that was taken into consideration and given special care while preparing the survey's questions.

#### **5 - 4: C. Question types and wording**

One of the main data collection successes is having a planned questionnaire that includes clear variables represented by accurate questions that can be adequately measured. Types and number of questions are also fundamental issues in the planning and designing of the questionnaire. A questionnaire with easy to answer, short and well-organised questions seems to have a high response rate and needs little effort to complete (O'Sullivan & Rassel, 1989). Preferable questionnaire items are described as being clear, uncluttered and having logically-connected and ordered questions. If these guidelines are not taken into consideration, in later

stages after the data collection, scholars usually find that the survey might have many unnecessary or useless questions.

Question wording helps to add value to the data collection by enhancing the reliability and validity levels in general. That is because the reliability is related to the accuracy or precision of any study's measuring instrument (Roh, et al. 2005). As result, the questions were clustered into groups to represent the defined set of planned factors based on the BPM main elements.

Regarding the types of questions to be used in the study survey, some scholars doubt which to be include and why. O'Sullivan and Rassel (1989) identifies that there are many types of questions that are usually used by many scholars such as factual questions, which tend to elicit information from the study participants such as demographical data (for example, age, gender and level of education). The main purpose of factual questions is to give more detailed data to describe the study sample. The second type of question is the behavioural ones that are usually used to ask the participants about issues or events they usually do or have done such as shopping and consumption questions. The third type of questions are the opinion ones which tend to ask the participants about their opinions regarding an event. Verbal and written expressions are used in most events to determine the participants' viewpoints on various interrelated study topics. Attitude questions rely on the beliefs and the ways of seeing and looking at things. Motive questions are part of such question types such as asking the participants why they behaved in a particular manner based on their attitudes and viewpoints. Another type of question are knowledge questions, which tend to ask about what a participant knows about specific topics such as policies and regulations.

In this study, a variety of question types were employed such as open-closed questions, for example, "What does healthy food means to you?" Such questions gave the participants the chance to state their opinions regarding important issues from their point of view, explain critical studied issues based on their experiences especially when it reflected their eating habits, lifestyles and even culture. Multiple-choice questions were also used such as "How often do you eat a healthy diet?" In addition, questions that expressed the family purchasing and eating habit tendencies were used as separate items measured by the Likert Scale measure such as "My family's choice of food restaurant is based usually on its atmospheric elements (for example, atmosphere, colours, music)". The majority of questionnaire's items were measured using a Likert Scale especially the study factors. Section 5-4: D discusses the scale used and constructs the measurement in more detail.

#### **5 - 4: D. Study scale and constructs measurement**

Determining how to collect suitable data using qualitative and/or quantitative methods and determining which scale to be used in later data collection stages are controversial issues for the majority of researchers (Curry, et al., 2009). In this study, to collect data from parents, a variety of statements were grouped in different blocks within the questionnaire which was prepared and distributed to reach the right target population so that it could be completed in the time convenient to them. Alternatively, scholars such as Caruana and Vassallo (2003) and Brown, et al. (2000) use another method by incorporating group interviews along with the questionnaires. However, this study was conducted using the focus-group technique as a primary stage to receive more in-depth, qualitative information from parents to determine the main survey items that fitted with the identified food choice study items reviewed. As this was an exploratory study, qualitative data was considered necessary to facilitate preparing and using a questionnaire as the sole research instrument. In subsequent data-collection stages, focus groups were used as the main research tool to elicit more in-depth information to prepare the initial draft of the study's questionnaire employing a Likert scale with each item.

In any qualitative research, a set of questions or statements are usually designed to collect answers from participants without giving attention to any scale, whereas in quantitative research answers are collected using one or more of the known measurement scales (for example, ordinal, nominal, interval or ratio). To investigate the parents' responses to each question, the attitudinal Likert scale containing five degrees starting from strongly agree, agree, neutral, disagree and strongly disagree was used in this study. The Likert scale seemed to be the easiest measure to be constructed and used for the reason that parents would find it simple to complete, as all questions would be organised into convenient lists that were logically-connected (Munn & Drever, 1990). This measure has been used for a many social science articles and studies and it has also been applied by a large number of studies, for example, Harper, et al. (2002) and Grossbart, et al. (1991).

The study construct measurement process is illustrated and guided by Table 5-12. The first and main study construct was the behaviour setting which was measured using 34 items that were categorised according to the applied theory (BPM) into four sub-constructs which were physical-setting construct, social-setting construct, temporal-setting construct and regulatory-setting construct. The first physical-setting construct was measured using 11 items, the social-

setting construct was measured using 10 items, the temporal-setting construct was measured using five items and the regulatory-setting construct was measured using eight items

The second study construct in this study was the LH, which was measured using 11 items. In addition, the UR construct was measured using five items; the IR construct was measured using six items, the UP construct was measured using five items and the IP construct was measured using four items. To provide an understanding of how each construct was measured, all construct items have been listed in detail in Appendix Table 5-4 supported by the main reference(s) for each source. All construct items were determined based on reviewing many interrelated previous studies and some of them were modified according to the focus-group discussion outputs sections of these items had been used in different study settings beyond food choice.

**Table 5-12: Questionnaire’s main item distribution**

| <b>Questionnaire main item references</b> |   |                     |              |
|---|---|---------------------|--------------|
| <b>1-</b>                                 | <b>Behaviour-setting key questions</b>  | <b>Item numbers</b> | <b>Scale</b> |
| 1-A                                       | - Physical-setting effect key items   | 1-11                | Likert scale |
| 1-B                                       | - Social- effect key items  | 1-10                | Likert scale |
| 1-C                                       | - Temporal-effect key items   | 1-5                 | Likert scale |
| 1-D                                       | - Regulatory-effect key items   | 1-8                 | Likert scale |
| 2-  | Learning history effect on food choice - key items                                    | 1-11                | Likert scale |
| 3-  | Behavioural consequences effect on food choice: Utilitarian Reinforcement key items   | 1-5                 | Likert scale |
| 4-  | Behavioural consequences effect on food choice: Informational reinforcement key items | 1-6                 | Likert scale |
| 5-  | Behavioural consequences effect on food choice: Utilitarian Punishment key items      | 1-5                 | Likert scale |
| 6-  | Behavioural consequences effect on food choice: Informational Punishment key items    | 1-4                 | Likert scale |

Many scholars, for example, Belk (1984) find that the scale has a direct relation with study validity as it shows good indicators of reliability, marginal discriminant validity, criterion validity, and good convergent validity. Thus, section 5-4: E discusses the validity concept and its importance to the study’s measurement.

**5 - 4: E. Validity**

Scholars in most cases are often not sure how well their research is going from a variety of dimensions such as choosing the right set of variables and variable questions. Thus, it is important for them to establish the appropriateness and take care of all procedures such as

finding the right target sample to elicit suitable data to answer their research questions. The concept that relates to the accuracy and appropriateness in the social science is mainly called 'validity' (Kumar, 2011). The scholar cares a lot about the validity issue, and three types of validity are explained in this section. Initially, much attention was exerted to enhance the face validity which is related to judgment that the questionnaire instrument is measuring what it intends to measure based on finding logical links among questions and objectives (Nevo, 2005). In addition to face validity, content validity was also taken into consideration to ensure that all the survey items and questions addressed the full range of issues being studied and intended to be measured (Kumar, 2011). Moreover, similar and balanced representations in all survey items should be respected and applied. This was achieved when the scholar included all the main related items that represented each factor separately and found logical links not just between each factor item but also between all factors that were represented by the study model which was the BPM which was applied in a justifiable way.

In addition, predictive validity was applied when the main items that represent adequately each factor were selected, and, in total, the instrument could forecast the needed outcomes (Jensen, 2003). More details on the predictive validity and concurrent validity are explained in terms of correlation measures for each construct in the analysis chapter. Moreover, to use the right survey items, the scholar approved all study items with not just her supervisors but also with a set of scholars and practitioners who were social workers and marketers. Also, the survey items and constructs were reviewed and corrected by many employees and managers who worked and interacted directly with healthy-food products such as food shop workers and restaurant employees.

## **5 - 5: Sampling techniques and sample size**

The study targeted a sample represented by parents of families in Durham. The selection was based on two main elements, namely, the sample design and sample size, which were justified according to the study purposes (Forza, 2002).

There are many features that differentiate between primary and secondary data collection procedures. Initially, primary data collection usually takes longer, is more expensive and passes through many complex procedures (Pride & Ferrel, 2008). For lack of time, money, having limited resources, and desiring quick and sufficient results, it is not possible to

investigate all members of the study target (study population). Thus, there was a need for a rigorous sample to be targeted from the study population.

Population has been defined as “all the elements, units, or individuals of interest to researchers for a specific study” (Pride & Ferrel, 2008, p.246). One of the main issues that scholars usually care about is which population is the best to be investigated and which is the best sampling procedures to be used to collect the primary data. Thus, sampling is usually used when it is impractical to study the entire population unit or collect data from the entire population. Saunders, et al. (2009) defines sampling as the process by which a scholar selects representative units from the total target population. As a result, a sample is identified as a specific number of population units that are chosen by scholar(s) to represent the main population characteristics.

However there is no consensus in determining the appropriate and optimum size of the study sample in any social science study (Bailey, 1987; Cohen & Manion, 1989). The correct sample size is often dependent upon many factors including the purpose of the study, the nature and size of the population if it can be defined, variance, precision level, confidence level and the type of analysis type that is planned to be used. In general, it is better to have as large a sample as possible to better reach representative data. For Nwana (1982), “the larger a sample becomes, the more representative of the population it becomes and so the more reliable and valid the results based on it will become” (p.71).

Sampling techniques can be divided into two types, namely, probability and non-probability. Probability sampling is mostly associated with survey and experimental research strategies. It is the sampling technique in which each population unit has a known and equal chance to be chosen for the proposed study, which can be considered representative of the whole population (Pride & Ferrel, 2008; Saunders, et al., 2009). However, the non-probability sample is a technique which cannot be considered scientifically rigorous while the chance or probability of selecting an element from a population to be included in the study sample is not known or not equal (Levine, et al., 1995). The non-probability sample is preferable to be used when it is not be cost effective using the probability sampling technique or even not possible to perform the probability sampling technique practically (Zikmund, 2003). There are different types of non-probability samples such as convenience sample, judgment sample and quota sample. A convenient sample was selected to collect the study’s primary data. A convenient sample is one of the non-probability sampling techniques that are usually widely used by scholars, and

is considered to be the most appropriate sampling technique to study family healthy-food choice. This is because it allows the selecting of the needed sample subjects according to their convenient accessibility, proximity to the researcher and suitability to the study circumstances at hand (Levine, et al., 1995; Sekaran, 2003).

Based on these requirements, the study collected the primary data through contacting a specific number of parents through a well-planned, purposive data-collection method by which the selected candidates who had relevant characteristics were chosen to test the phenomenon appropriately (Harris, et al., 2009). The process of selecting the sample was not systematic and the convenient sampling was chosen because it was fast, inexpensive, needed less time, was easy to be carried out and conducted, was easy to recruit subjects and the subjects were readily available and could be accessed conveniently. Most importantly, the possibility of collecting information and the needed data was better than had the probability sampling technique been employed to study family healthy-food choice especially from those who had children (Lind, et al., 2006). However, it is known for scholars that convenience sampling technique has a set of drawbacks such as limitation in generalisability, not representative for the entire population and cannot be used to make inferences about the population.

The study targeted a convenient sample of family participants who lived in Durham County area, which is a city in the northeast of England. The selection of Durham County was justified and explained in Section 5 - 3: D. There was no special conditions applied when choosing the parent participants but a caution was given to include both mothers and fathers in addition to those parents who had children to serve the research purpose.

To determine the sample size for this study, previous research was examined. Several studies had been conducted to investigate the factors that affected food products choice. In most studies, scholars were not sure of the respondent number that would be targeted and the proper sample size. The proper or appropriate sample size is one that provides a robust result based on many other elements such as the confidence level, population size, accuracy level, and the tendency to participate, which was directly related to the study. Thus, a large sample might waste time and effort and a small sample might lead to inaccurate and non-representative results. There are various sample size views, with scholars such as Gorsuch (1983) recommending applying a 5:1 ratio (number of respondents to each item). Comfrey and Lee (1992) suggest general guidelines for setting a proper sample size using a scale of questionnaire responses, namely, 50 questionnaires is very poor, 100 is poor, 200 is fair, 300 is good, 500 is



very good, and 1000 questionnaires or more is excellent. For this study, the researcher attempted to collect data from as many respondents as possible to study healthy-food product choices. To achieve this aim, the researcher distributed 73 questionnaires to a convenient sample of families who seemed to be the appropriate target to collect primary data from as part of the population for the purposes of the pilot study. More details about the pilot study execution purposes and results are presented in the Section 5-6.

**5 - 6: Pre-testing the questions and the pilot study**

Having structured the research instrument, it is important to test it out before using the instrument to collect the actual data (Kumar, 2011). Pilot testing is an important stage recommended by the majority of scholars. This is because it entails a critical examination of the understanding of all the questions and their meaning from the respondents’ viewpoint. The pilot testing should be done in the real world under real circumstances and collecting real data from part of the study’s population.

Demiris, et al. (2004) and Kumar (2011) claim that a pilot test is conducted for many purposes. Firstly, the aim of this stage is not to collect data but to stand for the main problems that the respondents might face such as understanding related issues, the way of questioning, interpretation, question wording and ordering. Secondly, the pilot study helps confine the proper influence factors that affect parent food choice. A set of influence factors or related items could be found in the previous studies, which seem to be inappropriate and need to be deleted or amended which, in turn, will help to reduce the questionnaire length and subjects’ fatigue. Thirdly, the pilot study also requests critical feedback from participants to improve the final set of questions. This helps in ensuring the validity, normality, reliability and proposed correlations of the survey and the data.

For the pilot study, 73 questionnaires were sent out to a convenience selection sample of families. During four weeks, 49 questionnaires were collected. Eight questionnaires were found to be invalid for use in this stage owing to the lack of some essential information. The response rate of 56.2% was considered acceptable regarding data collected from family households is illustrated in Table 5-13.

**Table 5-13: Pilot sample size and response rate**

| Questionnaires sent | Questionnaires received | Questionnaires accepted for analysis | Response rate |
|---------------------|-------------------------|--------------------------------------|---------------|
| 73                  | 49                      | 41                                   | 56.2%         |

Regarding the initial data analysis, it was found that the Cronbach's Alpha for the total questionnaire items was 87.6% and for the study items related to the BPM was 86.6%, which were both seen as having very good reliabilities. Regarding the study's theoretical framework, it was found that the behaviour-setting factor (Q: 1-35) was 88.4%. For each sub-factor related to the behaviour-setting factor, it was found that the reliability values were as follows: physical setting (Q: 1-10) was 80.3%, promotion (Q: 11-16) was 85.0%, social setting (Q: 17-25) was 81.7%, temporal setting (Q: 26-29) was 84.8%, and regulatory factors (Q: 30-35) were 74.7% (see Table 5-14). In addition, the LH reliability (part five, Q: 1-18) was 66.3%, UR (part six, Q: 1-6) was 81.6%, IR (part seven, Q: 1-5) was 61.3%, UP (part eight, Q: 1-6) was 51.3%, IP (part nine, Q: 1-4) was 70.5%, and all other factors (part ten, Q: 1-18) were 66.9% as seen in Table 5-14.

**Table 5-14: Initial data analysis – Reliability**

| No: | Categories   | Part No.   | Items    | Items Quantity | Questionnaire Reliability |
|-----|--|------------|----------|----------------|---------------------------|
|     | All factors  | All        | All      | 82             | 87.6%                     |
|     | All BPM factors                                      |            |          | 64             | 86.6%                     |
| 1-  | Behaviour settings                                   | Part four  | Q: 1-35  | 35             | 88.4%                     |
| 1-A | Physical setting                                     |            | Q: 1-10  | 10             | 80.3%                     |
| 1-B | Promotion  |            | Q: 11-16 | 6              | 85.0%                     |
| 1-C | Social factors                                       |            | Q: 17-25 | 9              | 81.7%                     |
| 1-D | Temporal factors                                     |            | Q: 26-29 | 4              | 84.8%                     |
| 1-E | Regulatory factors                                   |            | Q: 30-35 | 6              | 74.7%                     |
| 2-  | Learning History                                     | Part five  | Q: 1-8   | 8              | 66.3%                     |
| 3-  | Behavioural Consequences: Utilitarian Reinforcements | Part six   | Q: 1-6   | 6              | 81.6%                     |
| 4-  | Behavioural Consequences: IR                         | Part seven | Q: 1-5   | 5              | 61.3%                     |
| 5-  | Behavioural Consequences: Utilitarian Punishment     | Part eight | Q: 1-6   | 6              | 51.3%                     |
| 6-  | Behavioural Consequences: Informational Punishment   | Part nine  | Q: 1-4   | 4              | 70.5%                     |
| 7-  | Other factors  | Part ten   | Q: 1-18  | 18             | 66.9%                     |

After conducting the pilot study, many essential issues were reconsidered to enhance the quality of the questionnaire. These can be summarised as, firstly, the promotion factor was eliminated from the behaviour-setting factor but was recommended to be kept in the BPM including just the physical, social, temporal and regulatory elements in the behaviour-setting factor. Secondly, some items of the physical setting factor were deleted such as food variety, unhealthy food-product availability, healthy food-product alternatives availability, fast food restaurants and stores availability, unhealthy-food stores, restaurants availability and healthy food-cooking abilities considerations. Other items were added such as food shop variety and availability, healthy food-product availability, food quality, food appeal, food taste, and food smell. Some of the items were reallocated to other closely-related factors such as moving

nutrition labelling and packaging to the regulatory factor and food familiarity and family habits to the learning history factor. Some of the items were deleted such as the education item. Thirdly, the order of questions was changed. For example, many scholars recommended starting with what does healthy food means. In addition, the first part that included the main demographical family aspects was moved to the final questionnaire part to facilitate the completing of the questionnaire. Finally, two additional questions were added, namely, the healthy food-seasonality effect on food choice in the temporal factor and fearing or feeling stress item on the informational punishment factor. One added value was recommended to be added which was related to measuring the mutual effect between children and parents regarding food choice. Measuring both the effect of parents on children food choice and the effect of children on family-food choices were essential to be explained in the study of such a topic.

In summary, according to the pilot study testing results, a set of demographical factors and interrelated sample description questions were amended and re-organised. Then, fifty questions were divided into nine constructs distributed according to the main BPM after refining, amending, and dropping some questions that might minimise both the internal validity and reliability when collecting and analysing the final data. Thus, the pilot study object was achieved by collecting critical feedback from participants to improve the final questionnaire. Also, the pilot study ensured survey data validity, normality, reliability and proposed correlations. Based on this, the final draft of the study questionnaire was prepared and allocated (see Appendix 5-5), and ready to be used to collect the primary data from the study sample. The initial pilot study analysis report was also reviewed and approved by many scholars to ensure the instrument's validity. At last, the questionnaires were distributed and data collected accordingly. Section 5-7 describes the response rate and potential response bias.

### **5 - 7: Response rate, non-response rate and response bias**

The majority of scholars are unsure regarding the number of questionnaires to distribute and the response rate. Survey's quality is often indicated by the proportion of the study sample expected to respond to the study subject, and their response to a variety of related questions.

Response rate (RR) consists of the number of completed returned questionnaires divided by the total number of questionnaires sent out (Rada, 2005). Researchers have been divided regarding the effect of RR on the precision of survey results. Some authors such as Church

(1993) argued that low response rates affect the reliability of the study. Others, such as Dillman (1991) do not support this idea. In any case, scholars in general support the idea that efforts to increase the response rate should not be undermined. To facilitate data collection, a plan regarding how and where to contact the study sample according to a timetable and to geographical distribution was implemented. The plan in this study was developed to segment the study field into categories and organise the distribution of the survey accordingly.

Regarding the RR and how to increase it, Scott and Seechrest's (1994) recommendation was followed. For Scott and Seechrest (1994), the best way to handle and minimise the non-response rate was to minimise it from the beginning while the majority of the reasons were within the scholar's control such as minimising the survey length and both wording and item numbers. Based on this, many procedures and recommendations to increase the response rate and minimise the non-response rate were followed including:

- i. Full and detailed lists of parents (who were seen as suitable targets for data collection) were prepared. The lists contained mainly mail and email addresses as contact details.
- ii. Beginning the data collection process with cooperative parents. Cooperative parents usually tend to give honest and clear data that fit more with the study's purposes.
- iii. All prospective sample units were briefed about the research objectives and aims.
- iv. Participants were informed that the data would be collected for scientific purposes and all ethical issues (such as confidentiality and privacy in all data collection and analysis steps) were guaranteed.
- v. Most questionnaires were distributed personally. Those that were not, were posted and supported with post-paid envelop, or were emailed.
- vi. Reminders were sent out to those who delayed in completing the study questionnaire. Different communication means were used in the reminding stage such as emails, phone calls and written letters. Some sample units were reminded electronically to complete the study survey while others were asked to send another copy of study questionnaires because the first copy had been lost.

RR affects survey data accuracy (Holbrook, et al., 2007), and the extent to which the respondents took action to complete the questionnaire. Table 5-15 illustrates that 600 questionnaires were distributed, of which 217 were returned. After assessing the returned questionnaires, 13 were rejected, for reasons such as non-inclusion of data essential for study analysis, or for study sample categorisation or description. Two hundred and four

questionnaires were accepted to be analysed to test the study factors. Accordingly, within study considerations, the final sample size was sufficient to run statistical tests suitable to investigate the study objectives. The RR in this study was 36.2%; which was relatively low compared to some food-choice studies using the same method but different study samples (for example, Neumark-Sztainer, et al. (2004) whose RR from a student study sample exceeded 80%). However, other food selection studies achieved similar or lower response rates such as Frank, et al. (2004) with an overall RR of 30.4%.

**Table 5-15: Questionnaire response rate**

| Questionnaires sent | Questionnaires returned | Questionnaires accepted for analysis | Response rate |
|---------------------|-------------------------|--------------------------------------|---------------|
| 600                 | 217                     | 204                                  | 36.2%         |

Researchers usually consider many issues to achieve a high-quality data. One of the main issues that scholars usually care about and need to be discussed in this stage is the potential response bias. It is important to explain what the response bias means, its reasons and how to minimise its effect. Response bias usually occurs during the data collecting stages and specifically through responding to the study survey. According to Zikmund (2003), response bias occurs when the study respondents tend to give their answers via self-administrative questionnaires in certain ways that consciously or unconsciously misrepresent the truth. Also, response bias occurs when the respondents feel that the survey questions want them to respond in a way different from their belief or experience. In addition, such issues might occur when respondents misrepresent or falsify the answers, or even give false answers. Keeping in mind that from one study to another, the reasons of response bias might differ, thus there are many reasons recorded by scholars such as Babor, et al. (1987), Zikmund (2003) and Smith (2004) to explain why some respondents deliberately give false answers intentionally or inadvertently. These reasons include appearing to be intelligent, or concealing personal information, avoiding embarrassment, increasing social acceptance when expressing and talking about sensitive information or appearing as an aspect of different cultural communication style.

One of the main issues that needed to be highlighted in this research stage was how to minimise the response bias effect in this study and what was done to manage this issue. To avoid the response bias, the survey explained the purpose of conducting the study, which was supported by a clear definition of what healthy food means, and respondents were asked to answer all questions according to their own experience. This was to minimise the effect of non-response bias occurring when data collection from qualified or suitable samples was difficult. This may also happen owing to an inability to contact an eligible segment of the sample, so all eligible

segments were contactable in this study. Non-response bias can also be a result of refusing to participate in the study. The overall non-response rate in this study was 63.8% which was relatively high compared to other food choice studies such as Lowry, et al. (2000), who received a 92.0% response rate through targeting school students. In addition, high non-response rates may occur for many reasons such as respondents' unwillingness, lack of time, lack of experience completing such questionnaires and language barriers.

Part of the test process that some scholars use to test the response bias is using positive and negative statements on the study survey instruments. For Schriesheim and Hill (1981), this is not reliable enough and gives proper ability of subjects to respond accurately to needed statements. Thus, this issue did not apply in this study. Also, some scholars tend to estimate and use a corrective measure to allow amending the response bias in cases when the possibility of recording the respondent answers differs from the real ones or the estimated ones.

Another notable issue to be discussed in this stage was determining what the main methods were that scholars usually adapt and follow to measure the effect of response bias and minimise its effect in giving accurate and honest answers to both the study survey and focus-group questions. Thus, this study adopted a number of elements throughout its process, namely:

- i. Using clear language by selecting phrases and words with care when designing the study items
- ii. Employing the weight number and suitable research answer alternatives and clear options in addition to framing the study questions in a suitable manner
- iii. Choosing participants who were ready to give clear and honest answers to the majority of the study items
- iv. Employing a clear questionnaire structure within a set of parts and keeping the question design within the same style and rhythm
- v. Avoiding question styles which pushed the participants to give unclear views such as “not sure”, “don't know” and “undecided”.
- vi. Using a screening process for the study's participants, which helped in avoiding some characteristics that did not fit the study's circumstances and requirements such as avoiding single (not married) participants in both research stages, namely, when choosing the focus-group participants and when choosing the study units that would complete the self-administrative questionnaires
- vii. Avoiding questions that fitted the likelihood of social desirability, which might cause the

- creation of bad images for the participants especially within the focus-group stage
- viii. Avoiding sensitive questions that might cause embarrassment and awkwardness for the participants such as buying and consuming alcoholic beverages while some participants might consider them as unhealthy products

While a large number of procedures were included to avoid and minimise the response bias effect, however, some of the actions that were usually used in some cases from other scholars to measure the response bias such as giving the received questionnaires serial numbers and measuring whether the early received questionnaires from early respondents differed from the late one answers were missed. These omissions are explained in more detail in the study limitations in Chapter seven (see Section 7-2). Moreover, while after collecting the data, it was a problem having a full list of potential respondents. Having a full list of survey respondents and having the chance to order the received questionnaires would help in having a greater chance to minimise the occurrence of the sampling framing error. While all potential respondents did not have an equal chance to be chosen, in a random way, equal chances of all participants did not exist while the convenience sampling method was employed. Also, there was no chance to record and number the received questionnaires in an ordered base because the self-administrated questionnaires were collected from different areas within the same time and the scholar missed the point of ordering the received questionnaires and putting them in order. There was no chance, therefore, to compare both early and late received questionnaire reliabilities. This issue was recorded and explained in the study limitations.

Another issue that needed to be addressed in this research stage which made the possibility of assessing the response bias not possible was not having full statistical records of the study population. There was no chance of obtaining a clear data about the study's population, and, even in previous studies, there was no indication of the correct population statistical census that indicated who choose or buy healthy-food products that needed to be addressed and compared with the study participants' targets. Thus, defining the exact number of study group or the sample size who could participate and represent the whole population was a problem. Thus, choosing some participants instead of choosing more suitable ones missed the chance of having more honest and clear views regarding the study issues.

## **5 - 8: Measurement of the study constructs**

After the main data was collected, it was important to describe how the study constructs were operationalised and measured, and which items were already used. Then the main study construct items, scale used and their related reliability values are also shown in Table 5-16.

The first construct in this study was behaviour-setting, which encompassed four sub-constructs, namely, the physical-setting, social-setting, temporal-setting and regulatory-setting. The reliability value for the behaviour-setting construct was 82.9% through using 30 items. The physical-setting construct, nine items were used employing a five-point Likert scale based on a set of previous studies. For example, Steptoe, et al. (1995), Duncan Herrington (1996), Morland, et al. (2002), Stead, et al. (2003), Stroebele and De Castro (2004) and Grunert (2005). The reliability value for this construct in this study was 72.2% as seen in Table 5-16. In addition, for the social-setting construct, ten items were used employing a five-point Likert scale based on a set of previous studies, for example, Mela, et al. (1997), Nestle, et al. (1998), ChanGim and YoungSook (2000), Stroebele and De Castro (2004), Dodd, et al. (2005), Martens, et al. (2005) , Halford, et al. (2007), Mattila and Wirtz (2008), and Darmon and Drewnowski (2008). The reliability value for this construct in this study was 74.9% as seen in Table 5-16. .

Regarding the temporal-setting construct, five items were used employing a five-point Likert scale based on a set of previous studies, for example, Warde and Martens (2000), Stroebele and De Castro (2004), Kubik, et al. (2005) and Hunt (2007). The reliability value for this construct in this study was 74.8% as seen in Table 5-16. While the regulatory-setting construct was tested using eight items employing a five-point Likert scale based on a set of previous studies, for example, Glanz, et al. (1998), Sztainer, et al. (1999), Ockene, et al. (1999), Martens, et al. (2005), Honkanen, et al. (2006), Stockley, et al. (2007), Silayoi and Speece (2007) and Maubach, et al. (2009). The reliability value for this construct in this study was 66.1% as seen in Table 5-16.

The second construct in this study was the learning history, and eleven items were used employing a five-point Likert scale based on a set of previous studies, for example, Neumark-Sztainer, et al. (1999), Bolton, et al. (2000), Wardle, et al. (2000), Magnusson, et al. (2001), Wenrich and Cason (2004), Block, et al. (2004), Radder and Le Roux (2005), O'Dea and Wilson (2006) and Meehan, et al. (2008). The reliability value for this construct in this study



was 78.7% as seen in Table 5-16. The third construct was the utilitarian reinforcement which was measured using five items employing a five-point Likert scale based on a set of previous studies, for example, Steptoe, et al. (1995), Neumark-Sztainer, et al. (1999), O'dea (2003), Grunert (2005) and Raghunathan, et al. (2006). The reliability value for this construct in this study was 85.5% as seen in Table 5-16.

The fourth construct in this study was informational reinforcement which was measured using six items employing a five-point Likert scale based on a set of previous studies, for example, Neumark-Sztainer, et al. (1999), Edson and Bettman (2003), Martens, et al. (2005), Gibson (2006) and Moreno, et al. (2008). The reliability value for this construct in this study was 75.3% as seen in Table 5-16. While, the fifth construct in this study was the utilitarian punishment which was measured using five items employing a five-point Likert scale based on a set of previous studies, for example, Neumark-Sztainer, et al. (1999), Knuth, et al. (2003), Davis, et al. (2004), Buckley, et al. (2007) and Van Kooten, et al. (2007). The reliability value for this construct in this study was 77.2% as seen in Table 5-16. The last construct in this study was informational punishment which was measured using four items employing a five-point Likert scale based on a set of previous studies, for example, Oliver, et al. (2000), Cartwright, et al. (2003) and Martens, et al. (2005). The reliability value for this construct in this study was 75.7% as seen in Table 5-16. For more information about how each construct was measured and its interrelated items were elicited, see the Appendix Table 5-4, which provides details of the constructs' names, the actual questionnaire items and the original references for the sources.

The study constructs have employed a large number of items that were collected from a variety of studies. This might indicate low reliability values for some constructs in this study. Moreover, the promotional construct was removed from being one of the main study constructs as recommended by some scholars because it was not part of the behaviour setting sub-constructs. Accordingly, not that much change occurred regarding the main study construct analysis while the reliability value was raised from 86.6% to 87.7%.

**Table 5-16: Data analysis after piloting - Reliability**

| No. | Types of constructs                                | Number of items | Item sequence          | Reliability % |
|-----|--|-----------------|------------------------|---------------|
| 1-  | All BPM constructs                                 | 64              |                        | 86.6          |
| 2-  | Behaviour-setting construct                        | 30              | Part 3: from 1-30      | 82.9          |
| 2-A | Physical-setting construct                         | 9               | From q1 to q9          | 72.2          |
| 2-B | Social-factor construct                            | 9               | From q10 to q18        | 74.9          |
| 3-C | Temporal-factor construct                          | 5               | From q19 to q23        | 74.8          |
| 4-D | Regulatory-factor construct                        | 7               | From q24 to q30        | 66.1          |
| 3-  | Learning-history construct                         | 11              | Part 4: from q1 to q11 | 78.7          |
| 4-  | Utilitarian-reinforcement construct                | 5               | Part 5: from q1 to q5  | 85.5          |
| 5-  | Informational-reinforcement construct              | 6               | Part 6: from q1 to q6  | 75.3          |
| 6-  | Utilitarian-punishments construct                  | 5               | Part 7: from q1 to q5  | 77.2          |
| 7-  | Informational-punishments construct                | 4               | Part 8: from q1 to q4  | 75.7          |
| 8-  | Reliability after removing the promotion construct | 61              |                        | 87.7          |
| 9-  | The dependent variable                             | 4               | From q1 to q4          | 76.1          |

As seen in Table 5-16, the main study construct items were determined and the reliability for the whole study model and each construct and sub-construct were counted. To purify the study model, there was a need to determine the best construct items to be used for further analytical statistical tests to validate the study's model (see Section 5-9).

### 5 - 9: Measurement validation

The measurement validation for the main study constructs was done using both the Exploratory Factor Analysis (EFA) through using the Principle Component Analyses (PCA) and the Confirmatory Factor Analysis (CFA). Each are discussed in detail in this section.

Factor analysis is considered one of the analysis tests that are used to summarise the information contained in a large number of study items into a smaller number of factors through proposing that the study items are somewhat interrelated in a complex fashion and there is a need to unpack the proposed relationships into a set of separated patterns (Zikmund, 2003).

One of the main issues that usually might be good to be explained at this stage is how to conduct the FA. As recommended by many scholars such as Zikmund (2003), Sekaran and Bougie (2009) and Pallant (2010), FA in this study was conducted for a variety of reasons. Firstly, the study employed the BPM in a new situation which was the family healthy-food choice and there was a need to validate and test this model. Secondly, the main items that were chosen from previous studies and amended were based on both the researcher's notes and focus

group elicited items, which need to be tested to ensure that they fitted with the main BPM constructs. Thirdly, this study was conducted within the UK family context and, therefore, items and scales needed to be validated. Fourthly, the study employed a large number of construct items, and FA was one of the main statistical tests that was used to purify the study model through reducing the number of used items, if possible, as factors used could give better analytical and statistical outputs. Lastly, the FA test usually used by scholars to prepare the study scales and items were used in further analysis such the CFA.

This research started by explaining the PCA approach to execute the extraction approach to reduce unneeded items to ensure better statistical output indicators. For this approach, researchers need to compromise between two conflict issues, namely, the best and simple way to find a solution using a simple number of factors (a few factors as possible) that provide a better explanation for issues and allow for the possibility of explaining as much of the variance using the set of collected data (Pallatnt, 2010). To do so, Pallatnt (2010), recommended that there are two issues that need to be discussed and should be taken into consideration before starting the FA analysis, namely, the sample size and the strength of the relationship among the items. Regarding the sample size, as discussed by many scholars such as Green (1991), the larger the sample size the better the correlation coefficient among the study variables. In addition, scholars such as Tabachnick and Fidell (2007) suggest that there is a need for 300 cases to be sufficient to run the factor analysis, while Pallatnt (2010) recommended that 150 cases and above is sufficient. In this study, there were 204 questionnaires (cases) that were collected from parents from the targeted families to represent the whole family issue as a single data collection unit, which would be adequate to run the PCA test.

Regarding the correlation among the study items, many scholars recommended that the Kaiser-Meyer-Oklin measure of sample adequacy (KMO) value of data adequacy is 0.6 or above and the Bartlett’s test of Sphericity values are sufficient (Significant value should be 0.05 or less). In this study, Table 5-17 shows that the KMO value was 76.7% and the Bartlett’s test for the independent variables was statistically-significant while the p value was 0.00. This indicated that the FA was appropriate to be used.

**Table 5-17: KMO and Bartlett Test outputs**

|  |      |          |
|--|------|----------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. |      | .767     |
| Approx. Chi-Square                               |      | 6634.972 |
| Bartlett's Test of Sphericity                    | DF   | 2080     |
|  | Sig. | .000     |

After checking the suitability of the study data using the FA test, there was a need to determine to what level the study items were better representing of the data. This issue is known as the factor extraction and usually done by using the Principal Component Analysis (PCA) (Petroni & Braglia, 2000). In addition, there are two approaches for factor rotation, which are Orthogonal and Oblique methods. Both methods are different from each other while the first rotation method keeps factors that un-correlate while there is any possibility to increase the factors' meanings. However, the second rotation method allows as much of the factors to correlate leading to the best clear picture but using a complex method that is usually hard to interpret. In this study, the Oblique rotation technique was used to give an easier a clearer way to report and interpret the data and how the study factors were correlated (Pallant, 2010).

In this study, the complete sample unit of families was (N=204). Based on this, the PCA was tested for the main food-choice determinants, which represented the main independent variables. Eigenvalues values, which exceed 1, were extracted with a cut-off loading of 0.30 to ensure that only strong factors were retained (Pallant, 2010). The PCA test's results revealed that with respect to the initial Eigenvalues values that exceeded 1, 18 factors were extracted and they explained about 70% of the total variance. Table 5-18 summarises the total variance that explained each factor and the Eigenvalues for each component.

**Table 5-18: Eigenvalues and Total Variance**

| Component | Initial Eigenvalues |               |              |
|-----------|---------------------|---------------|--------------|
|           | Total               | % of Variance | Cumulative % |
| 1         | 10.081              | 15.509        | 15.509       |
| 2         | 6.113               | 9.404         | 24.913       |
| 3         | 3.378               | 5.197         | 30.110       |
| 4         | 3.300               | 5.077         | 35.187       |
| 5         | 2.795               | 4.299         | 39.487       |
| 6         | 2.294               | 3.530         | 43.016       |
| 7         | 2.056               | 3.163         | 46.180       |
| 8         | 1.793               | 2.759         | 48.939       |
| 9         | 1.724               | 2.653         | 51.591       |
| 10        | 1.604               | 2.468         | 54.059       |
| 11        | 1.457               | 2.242         | 56.301       |
| 12        | 1.412               | 2.173         | 58.474       |
| 13        | 1.362               | 2.095         | 60.569       |
| 14        | 1.221               | 1.879         | 62.448       |
| 15        | 1.150               | 1.768         | 64.217       |
| 16        | 1.090               | 1.676         | 65.893       |
| 17        | 1.061               | 1.633         | 67.526       |
| 18        | 1.000               | 1.537         | 69.063       |

The next step in this study was to determine to what level the main study factors were loaded into dimensions that were more logical. Factor loading is a process that is used to determine how many components (factors) to extract from a set of items and that is usually prepared to

test all the study's independent variables. In this stage, the PCA test would be tested for each of the study constructs separately.

### **5 - 9: A. Physical-setting construct**

Regarding verifying to what level that the physical-setting construct data was suitable for factor analysis, many scholars such as Field (2009) recommend that there is a need to look at the Kaiser-Meyer-Olkin measure of sample adequacy (KMO), which is preferable to be 0.6 or above, and that the Bartlett's test of Sphericity value is sufficient (Sig. value should be 0.05 or less). In this construct, the KMO value was 77.4% and the Bartlett's test for the physical setting construct was statistically-significant while the p value was 0.00. This indicated that the FA was appropriate to be used. In addition, by looking at the correlation matrix table output, it was noted that a large number of correlation coefficients values were above 3.0, which indicated that the PCA could be used in this case. Based on this, the PCA test was done for the physical-setting construct and a set of output tables resulted and needed further explanation. Initially, based on the communalities table output that resulted from the Principle Component Analysis test for the physical-setting construct and which gave an idea of how much of the variance was explained by each item, it was noted that all physical-setting items fitted well with each other in this component while their communality values were more than 30%, and their loading values were distributed between 0.394 and 0.763. Some scholars indicated that it is better if the researcher removes all items so that their communalities value is below 50%. Thus, item number four was removed in the second round. The KMO value was then 78.3% and the Bartlett's test for the physical-setting construct was still statistically-significant while the p value was 0.00. As a result, all the communality loading values were distributed between 0.577 and 0.765. In addition, by employing Kaiser's criterion as discussed by Pallant (2010) and by considering the total variance (see Table 5-19), it was noted that all Eigenvalues for each component should be listed especially those above 1. Results showed that the first three components recorded Eigenvalues were above 1 (2.978, 1.234 and 1.057) and such components explained a total of 65.855% of total variance.

**Table 5-19: Physical-Setting Total Variance**

| Component | Initial Eigenvalues |               |              |
|-----------|---------------------|---------------|--------------|
|           | Total               | of Variance % | Cumulative % |
| 1         | 2.978               | 37.222        | 37.222       |
| 2         | 1.234               | 15.426        | 52.648       |
| 3         | 1.057               | 13.207        | 65.855       |
| 4         | .866                | 10.825        | 76.681       |
| 5         | .642                | 8.019         | 84.700       |
| 6         | .503                | 6.289         | 90.989       |
| 7         | .426                | 5.319         | 96.308       |
| 8         | .295                | 3.692         | 100.000      |

In addition, in this stage, there was a need to consider the Scree Plot shape to determine if there was a clear break between the proposed components (looking for any change (or elbow) in the shape of the plot). It seemed that there was quite a clear break between the second and third components. This indicated that component 1 and 2 captured most of the physical-setting construct variance than the remaining components, and initially three components could be elicited or retained. Furthermore, by considering the component matrix analysis outputs, which showed the loading of each of the physical-setting constructs, it was noted that the loading was done mainly on two components and that most of items loaded quite strongly on the first one while their loading values were above a cut-off loading of 0.30. Six items of the physical-setting construct were loaded into the first component and two items were loaded into the second component. Moreover, to make a final decision regarding the number of components, there was a need to look at the pattern matrix analysis table outputs. Based on the analysis, it was noted that three items were loaded on the first components, three items were loaded on the second component and two items were loaded on the third component. Keeping in mind that some scholars such as Hair, et al. (2010) and Pallant (2010) declared that it is preferable that at least three or more items should be loaded on each component. However, the FA was conducted to make sure that the loading process was done within a fixed number of factors, which were two in this case. The result provided a better meaning for the physical-setting items distribution. Items numbers eight and nine were removed because their communality loading values were less than 30%.

As a result, the KMO value now was 79%, and all communality loading values were distributed between 0.568 and 0.766. Furthermore, by looking at the pattern matrix Table 5-20 output, two main components were found suitable to be loading to and renamed as food-accessibility related items (1, 2, 3) and food-atmospheric related items (5, 6, 7 and 7).

**Table 5-20: Physical-Setting Pattern Matrix**

|        | Component |      |
|--------|-----------|------|
|        | 1         | 2    |
| Item 1 |           | .814 |
| Item 2 |           | .684 |
| Item 3 |           | .750 |
| Item 4 | Deleted   |      |
| Item 5 | .728      |      |
| Item 6 | .846      |      |
| Item 7 | .842      |      |
| Item 8 | Deleted   |      |
| Item 9 | Deleted   |      |

One of the factor analysis outputs that also needed to be considered was the Component Correlation Matrix which is an indication of the relationship strength between the determined components. This relationship helped in deciding whether it was suitable to evaluate to what level the components were not related to each other especially when the correlation values were more than 0.30 (Pallant, 2010). In this case, results showed that the correlation values between the main physical-setting's three components were quite low, which was not an issue especially when considering that their values were less than 0.30.

#### **5 - 9: B. Social-setting construct**

For the data analysis, the social-setting construct needed to be verified as the KMO value was 78.0%, which was more than 0.60. The Bartlett's test for the social-setting construct was statistically-significant while the p value was 0.00, which was less than 0.05 (Field, 2009). This indicated that the FA was appropriate to be used. Also, by considering the correlation matrix table output, it was noted that a large number of correlation coefficient values were above 3.0, which indicated that the FA could be used in this case. Based on this, the PCA test was done for the social-setting construct and a set of output tables resulted, which needed further explanation. Initially, based on the communalities table output that resulted from the Component Analysis test for the social-setting construct gave an idea of how much of the variance was explained by each item. However, it was noted that all social-setting's items fitted well with each other in this component while their communality values were more than 30%, and their loading values were distributed between 0.614 and 0.804. In addition, by employing Kaiser's criterion as discussed by Hair, et al. (2010) and Pallant (2010), and by looking at the total variance illustrated in Table 5-21, it was noted that all Eigenvalues for each of the components were listed especially those above 1. Results showed that the first three components recorded Eigenvalues above 1 (3.730, 1.468 and 1.260) and such components

explained a total of about 71.752% of total variance. Also, by considering the Scree Plot shape, it seemed that there was a clear break between the first and second components. This indicated that components 1, 2 and 3 captured most of the social-setting construct variance than the remaining components. Thus, just three components could be elicited.

**Table 5-21: Social-Setting Total Variance**

| Component | Initial Eigenvalues |               |              |
|-----------|---------------------|---------------|--------------|
|           | Total               | of Variance % | Cumulative % |
| 1         | 3.730               | 41.442        | 41.442       |
| 2         | 1.468               | 16.311        | 57.753       |
| 3         | 1.260               | 13.998        | 71.752       |
| 4         | .679                | 7.550         | 79.302       |
| 5         | .643                | 7.146         | 86.448       |
| 6         | .370                | 4.111         | 90.559       |
| 7         | .352                | 3.908         | 94.467       |
| 8         | .276                | 3.064         | 97.531       |
| 9         | .222                | 2.469         | 100.000      |

Moreover, by looking at the components matrix analysis outputs (see Table 5-22), it was noted that the loading was done mainly on two components. Most of items loaded strongly on the first component while their loading values were above 0.40 and just three items were loaded into the second. Moreover, to make a final decision regarding the number of social-setting main components, the pattern matrix test output showed that seven items loaded on the first component, one item loaded on the second component and one item loaded on the third component. It was important to keep in mind that some scholars such as Pallant (2010) declare that it is preferable that at least three or more items loaded on each component. As a result, the last two items were deleted and the process repeated twice. Thus, one main component was found to be suitable for loading and its indicators were the KMO value of 82.7%, the communalities values were distributed between 0.580 and 0.773, and one components recorded Eignvalues above 1 (3.380). Therefore, this component explained a total of about 67.594% of total variance.

**Table 5-22: Social-Setting Pattern Matrix**

|         | Component |      |      | Second round components |      | Last round component        |
|---------|-----------|------|------|-------------------------|------|-----------------------------|
|         | 1         | 2    | 3    | 1                       | 2    | 1                           |
| Item 10 | .508      |      |      |                         | .738 | Deleted in the second round |
| Item 11 | .525      |      |      |                         | .768 | Deleted in the second round |
| Item 12 | .744      |      |      | .748                    |      | .783                        |
| Item 13 | .800      |      |      | .804                    |      | .834                        |
| Item 14 | .836      |      |      | .837                    |      | .879                        |
| Item 15 | .822      |      |      | .821                    |      | .848                        |
| Item 16 | .782      |      |      | .782                    |      | .761                        |
| Item 17 |           |      | .724 | Deleted                 |      | Deleted in the first round  |
| Item 18 |           | .649 |      | Deleted                 |      | Deleted in the first round  |



One of the factor analysis outputs that also needed to be considered was the Component Correlation Matrix which would give an idea of the strength of relationship between the social-setting determined components. This would help in deciding whether it was suitable to evaluate to what level the components were not related to each other especially when the correlation values were more than 0.30 (Pallant, 2010). Results showed that the correlation values between the main two social-setting components were low while the correlation value was less than 0.30.

**5 - 9: C. Temporal-setting construct**

The temporal setting needed to be verified as the KMO value was 79.1%, which was more than 60%, and the Bartlett’s test for the temporal-setting construct was statistically-significant while the p value was 0.00. In this case, based on Pallant (2010), there was a need to consider the correlation matrix table output, and it was noted that the majority of correlation coefficients values were above 3.0, which indicated that the FA could be used in this case. Based on this, the PCA test was run for the temporal-setting construct and a set of table outputs resulted that needed further explanation. Initially, based on the communalities table output that resulted from the Component Analysis test for the temporal-setting construct, an indication was given of how much of the variance was explained by each item. It was noted that all temporal-setting items fitted well with each other in this component while their communality values were more than 30%, and their loading values were distributed between 0.051 and 0.689. The process was repeated after removing the last item which had the lowest communality value of 0.051. The new KMO value was 78.8% and the communality values for the rest of items were distributed between 0.587 and 0.697.

In addition, by employing Kaiser’s criterion as discussed by Pallant (2010) and by looking at the total variance (see Table 5-23), it was noted that all Eigenvalues for each of the components were listed especially those above 1. Results showed that just the first component recorded Eigenvalues above 1 (2.615) and this component explained a total of 65.346% of total variance.

**Table 5-23: Temporal-Setting Total Variance**

| Component | Initial Eigenvalues |               |              |
|-----------|---------------------|---------------|--------------|
|           | Total               | of Variance % | Cumulative % |
| 1         | 2.615               | 65.364        | 65.364       |
| 2         | .570                | 14.238        | 79.601       |
| 3         | .471                | 11.766        | 91.367       |
| 4         | .345                | 8.633         | 100.000      |
| 5         |                     | Deleted       |              |

Furthermore, by looking at the components matrix analysis outputs (see Table 5-24), it was noted that the loading was done mainly on one component and all their loading values were above 0.7. To make a final decision regarding the number of components, the pattern matrix analysis test outputs showed that all items were loaded on the first component.

**Table 5-24: Temporal-Setting Pattern Matrix**

|         | Component |
|---------|-----------|
|         | 1         |
| Item 19 | .799      |
| Item 21 | .835      |
| Item 20 | .832      |
| Item 22 | .766      |
| Item 23 | Deleted   |

As a result, the PCA was repeated after determining the loading factor into one component and found that item number 22 had no loaded value. The results provided an improved meaning for the temporal-setting item distribution and just one component was found and its loaded values in the component matrix were distributed between .835 and .766.

**5 - 9: D. Regulatory-setting construct**

The regulatory-setting construct needed to be verified as its KMO value was 64.7%, while the Bartlett’s test for the regulatory-setting construct was statistically-significant, and the p value was 0.00. This indicated that the FA was appropriate to be used (Pallant, 2010). Also, by considering the correlation matrix table output, it was noted that a large number of correlation coefficient values for the regulatory-setting items were above 3.0, which indicated that the FA could be used in this case. Based on this, the PCA test was done for the regulatory-setting construct and a set of table outputs resulted that needed further explanation. Initially, based on the communalities table output that resulted from running the PCA test for the regulatory-setting construct gave an idea of how much of the variance was explained by each item. It was noted that all temporal setting items fitted well with each other in this component while their communality values were more than 30%, and their loading values were distributed between 0.379 and 0.673. In addition, by employing Kaiser’s criterion as discussed by Hair, et al. (2010) and Pallant (2010) and by looking at the total variance in Table 5-25 , it was noted that all Eigenvalues for each of the component should be listed especially those above 1. Results showed that the first two components recorded Eignvalues above 1 (2.39 and 1.241) and these components explained a total of 51.90 per cent of total variance. Also, by looking at the Scree Plot shape, it seemed that there was a clear break between the first and second components. This indicated that components 1 and 2 captured most of the regulatory-setting construct

variance, which was more than the remaining components. Thus, just two components could be elicited.

**Table 5-25: Regulatory-Setting Total Variance**

| Component | Initial Eigenvalues |               |              |
|-----------|---------------------|---------------|--------------|
|           | Total               | of Variance % | Cumulative % |
| 1         | 2.391               | 34.163        | 34.163       |
| 2         | 1.241               | 17.733        | 51.896       |
| 3         | .970                | 13.859        | 65.755       |
| 4         | .808                | 11.542        | 77.297       |
| 5         | .604                | 8.629         | 85.926       |
| 6         | .575                | 8.209         | 94.135       |
| 7         | .411                | 5.865         | 100.000      |

Furthermore, as discussed by Field (2009) and by looking at the components matrix analysis outputs, it was noted that the loading was done mainly on two components. Most of items loaded strongly on the first component while their loading values were above 0.4 and just two items were loaded into the second component. It was important to keep in mind that some scholars such as Pallant (2010) declare that it is preferable that at least three or more items should be loaded on each component. Thus, to make a final decision regarding the number of components, the pattern matrix analysis outputs showed that four of regulatory-setting items (29, 28, 25 and 24) were loaded on the first components and named as governmental food regulation, and three items (27, 30 and 26) were loaded on the second component and named as packaging and labelling food regulations as seen in the pattern matrix Table 5-26.

**Table 5-26: Regulatory-Setting Pattern Matrix**

|         | Component |      |
|---------|-----------|------|
|         | 1         | 2    |
| Item 29 | .752      |      |
| Item 28 | .729      |      |
| Item 25 | .680      |      |
| Item 24 | .572      |      |
| Item 27 |           | .819 |
| Item 30 |           | .693 |
| Item 26 |           | .520 |

One of the factor analysis outputs that also needed to be considered was the Component Correlation Matrix, which gives an idea of the strength of relationship between the regulatory-setting determined components. This issue would help in deciding whether it was suitable to evaluate to what level that the components were not related to each other especially when the correlation values were more than 0.30 (Pallant, 2010). Results showed that the correlation value between the regulatory-setting two components was low and was not a problem especially when its value was less than 0.30.

### 5 - 9: E. Learning-history construct

The LH construct needed to be verified as the KMO value was 80.7%, the Bartlett’s test for the LH construct was statistically-significant while the p value was 0.00 (Field, 2009). This indicated that the FA was appropriate to be used. In addition, by looking at the correlation matrix table output, it was noted that a large number of correlation coefficients values were above 3.0, which indicated that the FA could be used in this case. Based on this, the PCA test was done for the LH construct and a set of output tables resulted that needed further explanation. Initially, based on the communalities table output that resulted from running the Principle Component Analysis test for the LH construct gave an idea of how much of the variance was explained by each item, and it was noted that four items (2, 3, 4 and 11) had low communalities values of less than 30% . The analysis was repeated after removing the previous items and it was found that the KMO value was 76.5%. Now, the rest of the LH items fitted well with each other in this component while their communality values were more than 30%, and their loading values were distributed between 0.322 and 0.582. Also, by employing Kaiser’s criterion as discussed by Pallant (2010) and by looking at the total variance in Table 5-27, it was noted that all Eigenvalues for each of the components were listed especially those above 1. Results showed that the two components recorded Eignvalues above 1 (3.152 and 1.360) and both components explained a total of 64.460% of total variance. In addition, by looking at the Scree Plot shape to determine if there was a clear break between the proposed components, it seemed that there was one clear break between the first and second component. This indicated that components 1 and 2 captured most of the LH construct variance rather than the remaining components. Thus, two components could clearly be elicited.

**Table 5-27: Learning History Total Variance**

| Component | Initial Eigenvalues |               |              |
|-----------|---------------------|---------------|--------------|
|           | Total               | of Variance % | Cumulative % |
| 1         | 3.152               | 45.026        | 45.026       |
| 2         | 1.360               | 19.434        | 64.460       |
| 3         | .693                | 9.899         | 74.359       |
| 4         | .572                | 8.175         | 82.534       |
| 5         | .529                | 7.552         | 90.086       |
| 6         | .429                | 6.134         | 96.221       |
| 7         | .265                | 3.779         | 100.00       |

Furthermore, as discussed by Hair, et al. (2010), the components matrix analysis outputs showed the un-rotated loadings of each of the LH construct’s items, and it was noted that all items loaded strongly on one component while their loading values were above 0.3 as seen in the LH pattern matrix (see Table 5-28).

**Table 5-28: Learning History Pattern Matrix**

|         | Component |
|---------|-----------|
|         | 1         |
| Item 1  | .653      |
| Item 5  | .701      |
| Item 6  | .763      |
| Item 7  | .696      |
| Item 8  | .677      |
| Item 9  | .567      |
| Item 10 | .622      |

**5 - 9: F. Utilitarian-reinforcement construct**

The UR construct needed to be verified as the KMO value was 83.4% and the Bartlett's test for the UR construct was statistically-significant while the p value was 0.00 (Field, 2009). This indicated that the FA was appropriate to be used. In addition, by taking a look at the correlation matrix table output, it was noted that the majority of correlation coefficients values were above 3.0 which indicated that the FA could be used in this case. Based on this, PCA test was done for the UR construct and a set of output tables resulted that needed further explanation. Initially, based on the communalities table that resulted from the PCA test for the UR construct gave an indication of how much of the variance was explained by each item. It was noted that all UR items fitted well with each other in this component while their communality values were more than 30%, and their loading values were distributed between 0.475 and 0.746. Also, by employing Kaiser's criterion as discussed by Pallant (2010) and by looking at the total variance in Table 5-29, it was noted that all Eigenvalues for each of the components was listed especially those above 1. Results showed that just one component recorded Eignvalues above 1 (3.246) and this component explained a total of 64.926%t of the total variance. Additionally, by considering the Scree Plot shape to determine if there was a clear break between the proposed components, and it seemed that there was just one clear break between the construct's items. This indicated that one component captured most of the UR construct variance than the remaining components. Thus, one component could be elicited.

**Table 5-29: Utilitarian Reinforcement Total Variance**

| Component | Initial Eigenvalues |               |              |
|-----------|---------------------|---------------|--------------|
|           | Total               | of Variance % | Cumulative % |
| 1         | 3.246               | 64.926        | 64.926       |
| 2         | .628                | 12.552        | 77.478       |
| 3         | .503                | 10.055        | 87.532       |
| 4         | .367                | 7.337         | 94.869       |
| 5         | .257                | 5.131         | 100.000      |

In addition, as discussed by Hair, et al. (2010), the component matrix analysis outputs showed the un-rotated loadings for each of the UR items, and it was noted that the loading was done

strongly on just one component while its loading values were above 0.6. As is seen in the component matrix analysis illustrated in Table 5-30, it was noted that all UR items (2, 4, 3, 5 and 1) were loaded on one component.

**Table 5-30: Utilitarian Reinforcement Component Matrix**

|        | Component |
|--------|-----------|
|        | 1         |
| Item 2 | .864      |
| Item 4 | .839      |
| Item 3 | .817      |
| Item 5 | .809      |
| Item 1 | .691      |

**5 - 9: G. Informational-reinforcement construct**

The IR construct needed to be verified as the KMO value was 82.4%, and the Bartlett’s test for the IR construct was statistically-significant while the p value was 0.00 (Field, 2009). This indicated that the FA was appropriate to be used. In addition, by looking at the correlation matrix table output, it was noted that the majority of correlation coefficients values were above 3.0, which indicated that the FA could be used in this case.

A factor analysis test was done for the IR construct and a set of output tables resulted which needed further explanations. Initially, the communalities table that resulted from the Principle Component Analysis test for the IR construct gave an indication of how much of the variance was explained by each item, and it was noted that all IR construct items fitted well with each other in this component while their communality values were more than 30%, and their loading values were distributed between 0.570 and 0.984. Also, by employing Kaiser’s criterion as discussed by Pallant (2010) and by considering the total variance illustrated in Table 5-31, it was noted that all Eigenvalues for each of the components were listed especially those above 1. Results showed that two component recorded Eignvalues above 1 (3.010 and 1.010) and explained a total of 66.994% of total variance.

**Table 5-31: Informational Reinforcement Total Variance**

| Component | Initial Eigenvalues |               |              |
|-----------|---------------------|---------------|--------------|
|           | Total               | % of Variance | Cumulative % |
| 1         | 3.010               | 50.167        | 50.167       |
| 2         | 1.010               | 16.827        | 66.994       |
| 3         | .645                | 10.752        | 77.747       |
| 4         | .549                | 9.146         | 86.893       |
| 5         | .439                | 7.315         | 94.207       |
| 6         | .348                | 5.793         | 100.000      |

In addition, by considering the Scree Plot shape to determine if there was a clear break between the proposed components, it seemed that there was just one clear break between the construct’s

items. This indicated that just one component captured most of the IR construct variance rather than the remaining components. Thus, one component could be elicited. In addition, as discussed by Hair, et al. (2010), the components matrix analysis outputs showed the un-rotated loadings of each of the IR constructs, and it was noted that the all the items loaded strongly on one component while their loading values were above 0.5. As seen in the component matrix analysis illustrated in Table 5-32, it was noted that all IR items (1, 2, 3, 4 and 5) loaded on one component. Therefore, the last item could be removed and the new values could be used as the KMO value was 83.2%, the communality values were distributed between 0.556 and 0.699, and the new component values were distributed between 0.745 and 0.836. Results showed that one component recorded Eigenvalues above 1 (3.002) and explained a total of 60.031% of the total variance.

**Table 5-32: Informational Reinforcement Component Matrix**

|        | Component |      | New component |
|--------|-----------|------|---------------|
|        | 1         | 2    | 1             |
| Item 1 | .752      |      | .754          |
| Item 2 | .838      |      | .836          |
| Item 3 | .748      |      | .751          |
| Item 4 | .785      |      | .784          |
| Item 5 | .744      |      | .745          |
| Item 6 |           | .986 | Deleted       |

**5 - 9: H. Utilitarian-punishment construct**

The UP construct needed to be verified as the KMO value was 79.1% which was slightly less than the preferable value, and the Bartlett’s test for the UP construct was statistically-significant while the p value was 0.00 (Field, 2009). This indicated that the FA was appropriate to be used. Also, by considering the correlation matrix table output, it was noted that the majority of the correlation coefficients values were above 3.0, which indicated that the FA could be used in this case. Based on this, the PCA test was done for the UP construct and a set of tables resulted that needed further explanation. Initially, the communalities table that resulted from the PCA test for the UP construct gave an idea of how much of the variance was explained by each item, and it was noted that all utilitarian items fitted well with each other in this component while their communality values were more than 30%, and their loading values were distributed between 0.383 and 0.629. Moreover, by employing Kaiser’s criterion as discussed by Pallant (2010) and by looking at the Total Variance illustrated in Table 5-33, it was noted that all Eigenvalues for each of the components were listed especially those above 1. Results showed that the first component recorded Eigenvalues above 1 (2.620) and this

component explained a total of 52% of the total variance. This indicated that component 1 captured most of the UP construct variance rather than the remaining components.

**Table 5-33: Utilitarian Punishment Total Variance**

| Component | Initial Eigenvalues |               |              |
|-----------|---------------------|---------------|--------------|
|           | Total               | % of Variance | Cumulative % |
| 1         | 2.620               | 52.392        | 52.392       |
| 2         | .731                | 14.629        | 67.021       |
| 3         | .714                | 14.277        | 81.298       |
| 4         | .515                | 10.306        | 91.604       |
| 5         | .420                | 8.396         | 100.000      |

Additionally, by considering the Scree Plot shape to determine if there was a clear break between proposed components, it seemed that there was just one clear break between the construct's items. This indicated that one component captured most of the UP construct variance than the remaining components. Thus, one component could be elicited. Furthermore, the components pattern matrix analysis outputs illustrated in Table 5-34, showed the un-rotated loadings of each of the UP constructs, and it was noted that the loading was done mainly on one component and all items loaded strongly on the first component keeping in mind that their loading values were above 0.6.

**Table 5-34: Utilitarian Punishment Component Matrix**

|        | Component |
|--------|-----------|
|        | 1         |
| Item 1 | .619      |
| Item 2 | .772      |
| Item 3 | .738      |
| Item 4 | .793      |
| Item 5 | .683      |

### **5 - 9: I. Informational-punishment construct**

The IP construct needed to be verified as in this construct the KMO value was 57% which was within the acceptable level, and the Bartlett's test for the IP construct was statistically-significant while the p value was 0.00 (Field, 2009). This indicated that the FA was appropriate to be used. In addition, by considering the correlation matrix table output, it was noted that the majority of the correlation coefficients values were above 3.0, which indicated that the FA could be used in this case. Based on this, the PCA test was run for the IP construct and a set of output tables resulted which needed further explanation. Initially, the communalities table that resulted from the PCA test for IP construct gave an idea of how much of the variance was explained by each item, and it was noted that all the IP items fitted well with each other in this component while their communality values were more than 30%, and their loading values were



distributed between 0.777 and 0.945. Additionally, by employing Kaiser’s criterion as discussed by Pallant (2010) and by looking at the Total Variance illustrated in Table 5-35, it was noted that all Eigenvalues for each of the components were listed, especially those above 1. Results showed that the first two components recorded Eigenvalues above 1 (2.337 and 1.117) and such components explained a total of 86.356% of total variance.

**Table 5-35: Informational Punishment Total Variance**

| Component | Initial Eigenvalues |               |              |
|-----------|---------------------|---------------|--------------|
|           | Total               | % of Variance | Cumulative % |
| 1         | 2.337               | 58.433        | 58.433       |
| 2         | 1.117               | 27.923        | 86.356       |
| 3         | .438                | 10.951        | 97.307       |
| 4         | .108                | 2.693         | 100.000      |

In addition, by considering the Scree Plot shape to determine if there was a clear break between the proposed components, it seemed that there was a clear break between the first and second components. This indicated that components 1 and 2 captured most of the IP construct variance rather than the remaining components. Thus, just two components could be elicited. Furthermore, by looking at the components matrix analysis outputs which showed the unrotated loadings of each of the IP constructs, it was noted that the loading was done mainly on two components, the first two items loaded strongly on the first component and the second two items loaded strongly on the second component, while all the item loading values were above 0.6. To make a final decision regarding the number of components, there was a need to look at the pattern matrix analysis test outputs as seen in Table 5-36. Result showed that just two items (1 and 2) loaded on the first components with values of (.835 and .826) and named as emotional punishment, and just two items (3 and 4) loaded on the second component with values of (.807 and .800) and named as social punishment. It is important to note that scholars such as Pallant (2010) declare that it is preferable that at least three or more items are loaded on each component. This could not be applied in this case as there were just four items for the IP construct and they were categorised into two different components.

**Table 5-36: Informational Punishment Pattern Matrix**

|        | Component |      |
|--------|-----------|------|
|        | 1         | 2    |
| Item 1 | .835      |      |
| Item 2 | .826      |      |
| Item 3 |           | .807 |
| Item 4 |           | .800 |

However, the FA was done to make sure that the loading process was done within a fixed number of factors, which was one component in this case as seen in the final pattern matrix

illustrated in Table 5-37. The result provided an improved meaning for the physical-setting items distribution. Items number eight and nine were removed because their communality loading values were less than 30%. The KMO value now was 57%, and all communality-loading values were distributed between 0.408 and 0.755. Furthermore, by looking at the pattern matrix illustrated in Table 5-37, one main component was found to be suitable to load (5, 6, 7 and 7).

**Table 5-37: Informational Punishment Final Pattern Matrix**

|        | Component |
|--------|-----------|
|        | 1         |
| Item 1 | .639      |
| Item 2 | .670      |
| Item 3 | .869      |
| Item 4 | .852      |

Hair, et al. (2010) supports the use of the Component Correlation Matrix which gives an idea of the strength of relationship between the determined components. This relationship would help in deciding whether it was suitable to evaluate to what level the components were not related to each other especially when the correlation values were more than 0.30 (Pallant, 2010). Results showed that the correlation value between the IP two components was quite low and were not a problem especially when its value was less than 0.30.

**5 - 10: Confirmatory Factor Analysis (CFA) test**

The Confirmatory Factor Analysis (CFA) was used to check the properties of instrument items and to confirm the relationships between the study variables. Cole (1987) denoted that the CFA measure is used to validate measuring the set of constructs to authenticate the used model. In addition, the CFA is a more sophisticated test and is not just used to test the quality of the study model but also used to test the independent variable structures and to confirm each structure that emerged from the Exploratory Factor Analysis (Hair, et al., 2010). The CFA test in this study was conducted using the SPSS (20.0) and AMOS (20.0) software that used the maximum likelihood techniques. The outcomes of the model test using the SEM technique are presented in in this section and illustrated in Tables 5-38 and 5-39 to include a number of items that were included for the analysis of each construct, the standardised factor leading values, standard error values, square multiple correlations, measures of reliability and composite reliability for each construct and the Average Variance Extracted (AVE) supported by the validity of both the initial and final models. Usually, in CFA, there is no ideal rules guiding how the model fits

properly, but there are some indices that relate to the model fit that need to be explained (Hooper, et al., 2008).

At the start, there is a need to explain what model fit means. Model fit relates to the degree to which the study model reproduces the data through employing the variance and covariance matrix (Hair, et al., 2010). In this stage, there was a set of metrics that needed to be explained to test the goodness fit of the model with respect to the fact that the data was quite acceptable and had been collected from 204 family representatives. Concerning the CFA, the bigger the sample size, the better the model fit and the larger the correlations, preferably to be above 300 (Suhr, 1999). For the study, the CFA output showed that the CMIN/DF value was 1.490 and the p-value was 0.0. Regarding these values, there is no consensus among scholars of the acceptable ratios of these statistics. Recommendations from scholars such as Marsh and Hocevar (1985) explain that the model indicates a reasonable fit when the CMIN/DF value is even high (up to 5.0) while it is acceptable as declared by Tabachnick and Fidell (2007) and Hair, et al. (2010) when the CMIN/DF value is 3.0 or less. Based on this, it was noted that the model fit was acceptable while the CMIN/DF value was less than 3.

One of the main CFA output metrics is the Comparative Fit Index (CFI), which was first introduced by Byrne (1990) and is usually equal to the discrepancy function adjusted for the sample size (Suhr, 1999). This statistic assumes that all latent variables are uncorrelated and usually provides a comparison of sample covariance matrix with the null model (Hooper, et al, 2008). The CFI usually ranges between 0 and 1, and the higher the value, the better the model fit. According to Hu and Bentler (1999), if the CFI value is 0.90 or more then the model fit is acceptable and the closer to 1, the better the indicator of a good fit. In this study, the CFI value was 0.90, which indicated that the model fitted.

The Root Mean Square Error of Approximation (RMSEA) relates to residual or unexplained variance (Hooper, et al, 2008). The RMSEA value ranges from 0 to 1, and the smaller the value, the better model fit (Hu & Bentler, 1999). If the RMSEA value of the model fit is equal to 0 or less than 0.05, the model is a closer fit, from 0.05 to less than 0.08, the model is a moderate fit, from 0.08 to less than 0.10 the model is mediocre, and if the value is more than 0.10, then the model is a poor fit. In this study, the RMSEA value was 0.049, and as seen in the measurement final model fit indices Table 5-38, the model fitted and was within the acceptable level (Brawn, 2011).

The General Fit Index (GFI) is another approach to check the Chi-Square test, and calculates the proportion of variance that is accounted for by the estimated population covariance (Hooper, et al., 2008 cited by Tabachnick & Fidell, 2007). The statistics range from 0 to 1, as the sample size increases, both GFI and AGFI values increase (Rahim, 2015). While the number of degrees of freedom increases in relation to sample size, the GFI should have a downward bias. Traditionally, it is recommended that both GFI and AGFI loading values are preferable to have a cut-off point of 0.90 and more than 0.95 when the sample size increases (Marsh, et al., 1988). In this study, the results denoted that the GFI value was 0.910 and the AGFI value was 0.872, which was within the acceptable levels and denoted a well-fitted model. As both GFI and AGFI statistics should be used with caution (Hooper, et al., 2008). Their values can fall outside the 0 - 1 range because of the number of parameters and the sample size issue.

In addition, the Standardized Root Mean Square Residual (SRMR) represents the square root average of the residuals sample covariance matrix and the hypothesised covariance model (Hooper, et al., 2008). According to Brawn (2011), the model fits well when the SRMR value is less than 0.06, acceptable if the SRMR value is less than 0.08, and rejected if the SRMR value is more than 0.08. However, some scholars such as Hu and Bentler (1999) explain that the SRMR with a high value up to 0.09 is deemed to be acceptable. In this study, the results showed that the SRMR value was 0.051, which indicated that the model fitted well.

**Table 5-38: Measurement Model Fit Indices**

| Model         | $\chi^2$ | df  | p     | $\chi^2/df$ | IFI  | TLI  | CFI  | RMSEA |
|---------------|----------|-----|-------|-------------|------|------|------|-------|
| Initial Model | 1094.002 | 160 | 0.000 | 2.371       | 0.91 | 0.93 | 0.95 | 0.061 |
| Final Model   | 1094.002 | 734 | 0.000 | 1.490       | 0.90 | 0.89 | 0.90 | 0.049 |

**Table 5-39: Properties of the Final Measurement Model**

| Constructs and Indicators | Std. Loading | Std. Error | Square Multiple Correlation | Error Variance | Cronbach Alpha | Composite Reliability | AVE         |
|---------------------------|--------------|------------|-----------------------------|----------------|----------------|-----------------------|-------------|
| <b>Physical Setting</b>   |              |            |                             |                | <b>0.793</b>   | <b>0.82</b>           | <b>0.53</b> |
| V2                        | 0.634        | ***        | 0.402                       | 0.733          |                |                       |             |
| V5                        | 0.836        | 0.138      | 0.699                       | 0.333          |                |                       |             |
| V6                        | 0.794        | 0.123      | 0.631                       | 0.343          |                |                       |             |
| V7                        | 0.597        | 0.135      | 0.357                       | 0.380          |                |                       |             |
| <b>Social Setting</b>     |              |            |                             |                | <b>0.879</b>   | <b>0.87</b>           | <b>0.89</b> |
| V12                       | 0.722        | ***        | 0.521                       | 0.505          |                |                       |             |
| V13                       | 0.798        | 0.108      | 0.637                       | 0.429          |                |                       |             |
| V14                       | 0.866        | 0.102      | 0.750                       | 0.259          |                |                       |             |
| V15                       | 0.791        | 0.102      | 0.626                       | 0.394          |                |                       |             |
| V16                       | 0.679        | 0.102      | 0.461                       | 0.570          |                |                       |             |
| <b>Temporal Setting</b>   |              |            |                             |                | <b>0.823</b>   | <b>0.83</b>           | <b>0.54</b> |
| V19                       | 0.710        | ***        | 0.504                       | 0.511          |                |                       |             |
| V20                       | 0.764        | 0.114      | 0.584                       | 0.443          |                |                       |             |
| V21                       | 0.768        | 0.110      | 0.590                       | 0.404          |                |                       |             |

|                                    |       |       |       |       |              |             |             |
|------------------------------------|-------|-------|-------|-------|--------------|-------------|-------------|
| V22                                | 0.698 | 0.105 | 0.487 | 0.472 |              |             |             |
| <b>Regulatory Setting</b>          |       |       |       |       | <b>0.610</b> | <b>0.76</b> | <b>0.51</b> |
| V24                                | 0.631 | ***   | 0.399 | 0.339 |              |             |             |
| V25                                | 0.545 | 0.206 | 0.297 | 0.255 |              |             |             |
| V26                                | 0.578 | 0.209 | 0.335 | 0.367 |              |             |             |
| <b>Behaviour Setting</b>           |       |       |       |       | <b>0.834</b> | <b>0.95</b> | <b>0.55</b> |
| <b>Learning History</b>            |       |       |       |       | <b>0.786</b> | <b>0.87</b> | <b>0.60</b> |
| LH1                                | 0.533 | ***   | 0.285 | 0.484 |              |             |             |
| LH5                                | 0.722 | 0.178 | 0.521 | 0.249 |              |             |             |
| LH6                                | 0.738 | 0.160 | 0.544 | 0.187 |              |             |             |
| LH7                                | 0.657 | 0.168 | 0.431 | 0.288 |              |             |             |
| LH8                                | 0.640 | 0.160 | 0.409 | 0.278 |              |             |             |
| <b>Utilitarian Reinforcement</b>   |       |       |       |       | <b>0.855</b> | <b>0.93</b> | <b>0.75</b> |
| UR1                                | 0.598 | ***   | 0.357 | 0.378 |              |             |             |
| UR2                                | 0.835 | 0.133 | 0.697 | 0.123 |              |             |             |
| UR3                                | 0.767 | 0.121 | 0.588 | 0.150 |              |             |             |
| UR4                                | 0.799 | 0.116 | 0.638 | 0.116 |              |             |             |
| UR5                                | 0.750 | 0.125 | 0.562 | 0.172 |              |             |             |
| <b>Informational Reinforcement</b> |       |       |       |       | <b>0.832</b> | <b>0.83</b> | <b>0.50</b> |
| IR1                                | 0.683 | ***   | 0.467 | 0.564 |              |             |             |
| IR2                                | 0.777 | 0.112 | 0.603 | 0.357 |              |             |             |
| IR3                                | 0.674 | 0.117 | 0.454 | 0.569 |              |             |             |
| IR4                                | 0.747 | 0.121 | 0.558 | 0.477 |              |             |             |
| IR5                                | 0.658 | 0.106 | 0.433 | 0.486 |              |             |             |
| <b>Utilitarian Punishment</b>      |       |       |       |       | <b>0.763</b> | <b>0.80</b> | <b>0.50</b> |
| UP2                                | 0.695 | ***   | 0.483 | 0.496 |              |             |             |
| UP3                                | 0.623 | 0.111 | 0.388 | 0.395 |              |             |             |
| UP4                                | 0.755 | 0.119 | 0.570 | 0.429 |              |             |             |
| UP5                                | 0.607 | 0.107 | 0.368 | 0.478 |              |             |             |
| <b>Informational Punishment</b>    |       |       |       |       | <b>0.941</b> | <b>0.77</b> | <b>0.63</b> |
| IP3                                | 0.946 | ***   | 0.895 | 0.511 |              |             |             |
| IP4                                | 0.940 | 0.069 | 0.883 | 0.532 |              |             |             |
| <b>Consumer Choice</b>             |       |       |       |       | <b>0.761</b> | <b>0.80</b> | <b>0.50</b> |
| DV1                                | 0.716 | ***   | 0.512 | 0.485 |              |             |             |
| DV2                                | 0.653 | 0.137 | 0.427 | 0.392 |              |             |             |
| DV3                                | 0.686 | 0.125 | 0.471 | 0.443 |              |             |             |
| DV4                                | 0.624 | 0.117 | 0.389 | 0.470 |              |             |             |

To conclude, based on these explanations and taking into consideration the translation of CFA outputs that have a set of indices, namely, the CMIN/DF value was 1.490, which was less than 3.0 (implying that the model fitted), the CFI value was 0.90, which indicated that the model fitted well, the RMSEA value was 0.049, which was less than 0.05 ( indicating that the model fitted), both the GFI and the AGFI values (0.910 and 0.872 respectively) were about 0.90, (denoting that the model properly fitted while both values were within the acceptable levels). Finally, the SRMR value was 0.051, which was less than 0.060 (indicating that the model reasonably fitted). The results also indicated that the model reasonably fitted while the majority of CFA indices were above acceptable levels. Based on this, the CFA procedures gave an idea about the ability to investigate to what level the measure performed as intended. Thus, many

trials were performed to enhance the CFA indices values to make the model fit better and to avoid any doubt that the study constructs measured what they claimed to measure.

After achieving this goal, and because of the simplicity of the study model, the study approached another statistical test, which was the regression analysis to test the study's hypotheses. The simplicity of the study model was that there were a set of independent variables that occurred and interrelated with each other at the same time to influence one dependent variable. Before doing the regression analysis, there was a need to explain both the convergent-discriminant validity and the common method variance tests while the study data was collected using a single-source research design method.

### **5 - 11: Convergent-discriminant validity**

The convergent-discriminant validity in this study shows whether the concepts or constructs measures were related to each other or if there was a chance of convergence or correspondence between similar constructs. However, the Discriminant Validity (DV) shows whether the concepts or constructs measures are unrelated to each other or if there is a chance to discriminate between dissimilar constructs. By other means, the Convergent Validity (CV) tests if the study constructs are expected to be related to each other while they are already related to each other. The Discriminant Validity tests if the study's constructs have no relationship while in fact they have no relationship (Trochim, 2008; Zait & Berteau, 2011). Thus, a good construct validity occurs if both CV and DV scores are within the acceptable levels.

According to Kalema, et al. (2012), Convergent Validity determines the proportion of variance for each factor and is computed from the Composite Reliability (CR) and Average Variance Extracted (AVE). The CR of a scale relates to the reliability measurement of a set of analogous items while the AVE refers to the level of variance that can be denoted by a construct in comparison to the variance owing to a random measurement error (Hair, et al., 2010). Based on this, and as seen in Table 5-40, the CR values for all constructs scales exceeded 0.70 as explained by Hair, et al. (2010). Within the same line, it is important to establish convergent validity (CV). To do so, it is preferable that the CR scores are bigger than AVE values for all the independent variables. In this study, the results seen in Table 5-40 illustrate that the CR values for all independent variables were more than the AVE scores. Also, according to Hair, et al. (2010), it is preferable that the AVE scores are more than 0.50 for the majority of independent variables. In this analysis, all AVE values were even more than 0.50. Even so, the

Cronbach’s Alpha scores for all independent variables were within the acceptable levels in addition to some of them having good loading scores. Therefore, the research circumstances tended to retain these factors to be used in further tests.

**Table 5-40: Composite Reliability (CR) and the Average Variance Extracted (AVE)**

| <b>Constructs</b> | <b>CR</b> | <b>AVE</b> |
|-------------------|-----------|------------|
| BS                | 0.95      | 0.55       |
| LH                | 0.87      | 0.60       |
| UR                | 0.93      | 0.75       |
| IR                | 0.83      | 0.50       |
| UP                | 0.80      | 0.50       |
| IP                | 0.77      | 0.63       |
| DV                | 0.80      | 0.50       |

DV can also be tested not only by investigating both AVE or CR, it can also be checked by testing the correlations among the study main constructs by checking if there are any extreme correlation values which in turn lead to problems in the model discriminant validity. As seen in Table 5-41, the AVE value for each construct exceeded the square correlations between each individual construct with the other constructs. Accordingly, the discriminant validity occurred according to Fronell and Larcker (1981).

**Table 5-41: AVE and Square of Correlations between Constructs**

| <b>Constructs</b> | <b>BS</b>   | <b>LH</b>   | <b>UR</b>   | <b>IR</b>   | <b>UP</b>   | <b>IP</b>   | <b>CC</b>   |
|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>BS</b>         | <b>0.55</b> |             |             |             |             |             |             |
| <b>LH</b>         | 0.44        | <b>0.60</b> |             |             |             |             |             |
| <b>UR</b>         | 0.34        | 0.33        | <b>0.75</b> |             |             |             |             |
| <b>IR</b>         | 0.48        | 0.19        | 0.39        | <b>0.50</b> |             |             |             |
| <b>UP</b>         | 0.36        | 0.25        | 0.65        | 0.29        | <b>0.50</b> |             |             |
| <b>IP</b>         | 0.39        | 0.38        | 0.50        | 0.27        | 0.27        | <b>0.63</b> |             |
| <b>CC</b>         | 0.52        | 0.46        | 0.55        | 0.32        | 0.40        | 0.33        | <b>0.50</b> |

Note: Diagonal elements are the Average Variance Extracted (AVE) for each of the seven constructs. Off-diagonal elements are the Squared Correlations between constructs

Based on these results, there was no golden rule revealing that a specific score indicated a good correlation among measures, but it was noted that in general the convergent correlations were preferable to be as high as possible and the discriminant correlations as low as possible or by other means, the convergent correlation values should always be higher than discriminant correlation values (Floyd & Widaman, 1995). In social science, it seems that there is a weak evidence of validity in this situation while it is too complex to separate and even isolate some independent variables from each other, while some items correlate to each other by some means or others such as family purchasing time and place. Linked to this, there was a need to test the Common Method Variance as the study data was collected using a single-sources research design. This test is explained in Section 5-12.

## **5 - 12: Common Method Variance Testing**

One of the main issues that need to be discussed in this stage after considering both the PCA and CFA is the Common Method Bias (CMB). The CMB is usually used to test if there is any bias that usually comes out between variables as a result of using a single source of research design especially if the data was collected through self-report methods from the same sample (Conway & Lance, 2010). To do so, two tests were used to check the common methods for bias as recommended by Chang, et al. (2010). These are the Harman's single-factor test (1976) which is usually used by scholars to test the un-rotated factor analysis with respect to the fact that the test is constrained to one factor. By reviewing the output of the Harman's single-factor test, the concern appears if the single factor accounts for the majority of the variance. For the study, the Harman's single-factor test value was very low with a value of about 15%, which was less than 50% as discussed by Podsakoff, et al. (2003). Also, to confirm the previous results of CVB, a common latent factor was also executed using the AMOS (20.0) software analysis. In this analysis, the test used a common factor to test the CVB of all study variables. The results showed that the Common Latent test value accounts for about 10.0%, which was also less than 50%. The value of CVB test confirmed the result of the Harman's single-factor test results. Based on this, the results indicated that the study framework was designed using a scientific approach that was followed by designing the study survey which ensured that the respondents answered all the study items freely and without any pressure.

## **5 - 13: Ethical considerations**

Regarding the conducting of the focus-group discussions, the participant agreements were required to participate in the data-collection process. The study objectives and theme were explained to all participants before conducting the focus groups as the research was exclusively for academic purposes and that all collected data would be treated anonymously.

Prior, during and after distributing the study questionnaire, many ethical considerations were reviewed and applied. For example, the ethical approval was taken and granted to question parents who lived in Durham County and who had been chosen conveniently, as this captured the parents' views of children in the appropriate age group. The ethical approval was approved by the ethical committee at Durham Business School. Also, the research's title, objectives and additional ethical issues were explained, for example, the collected data would be used anonymously and just for the purpose of this study. Data was collected from parents instead of



gaining the actual views of children, therefore, the findings might carry the bias of parents, which might overemphasise the influence they had over their children (Kelly, et al., 2006).

### **Chapter summary**

Chapter five as the research methodology and the data-collection design chapter followed three main steps to define different pre-behaviour stimuli and post-behaviour consequence stimuli that drive family-food choices. In the first step, the researcher analysed and reviewed related food-choice literature. In the second step, three focus groups were conducted and analysed to define the study factors from the family's viewpoint. In the final stage, the study factors collected directly from literature review and focus-group discussions were used to design the survey data-collection tool. The survey was then utilised to study the factors that affected the family-food choices.

In this research, the study of family healthy-food choices was initially done by conducting three focus groups. The participating families were chosen from United Kingdom. Each focus group included five to seven family-member participants. The duration of the focus-group discussions was within the suggested guidelines, which ranged between 60 to 90 minutes. The place and time of conducting the three focus groups were determined as based on what was convenient to the participants. All procedures needed to conduct the focus groups successfully were prepared sufficiently. The focus group was conducted by explaining the study purposes to participants, choosing proper venues, providing refreshments, reporting participant demographical characteristics, and caring about participant harmonisation. Group discussions were audio taped, and the tapes were transcribed into written documents to facilitate reviewing the discussion content in a way to increase the study's validity. The next stage of the data-collecting process was the development of the survey instrument. The instrument had many development stages starting with reviewing the consumer behaviour and SM literature, which related directly to food choice and defined the main behaviour drivers of healthy-food products. In the second stage, the process of analysing the three focus groups was designed to explore the effect of behaviour stimuli. By transcribing, coding and analysing the focus-group discussions, the healthy food-product selection behaviour drivers were defined, amended and categorised according to the BPM. Based on this, the questionnaire structure consisted of nine sections (see Section 5-4: B).

The survey administration process included the collecting of data, types and number of participants, pilot study and proposed questions. These were discussed and agreed on with many scholars and practitioners. One of the main steps in developing the study instrument was reviewing the survey questions by many scholars who were involved in the consumer-behaviour arena. In addition to the scholars, some practitioners who interacted directly with consumer food choice such as sales people, and healthy-food shop employees. After the review, the second essential step was conducting the pilot study and preparing the first draft of the questionnaire. Both were used to ensure the proper data collection instrument items were used to collect data from potential families to achieve definite goals. The process of reviewing the study survey instrument was aimed to add, remove, and amend any item which related to any study factors that needed to be used in the behaviour explanation after conducting the initial statistical analysis.

Secondly, it was important to enhance the study instrument based on any critical feedbacks from the study target before going ahead with distributing the study survey in a large scale, in addition to checking the survey's validity, reliability, proposed correlations and measurement validation. As a result, one of the essential steps in this chapter was distributing and collecting the final study survey to collect the primary data after refining the last draft of study instrument. Based on this, Chapter five outlines the study sample's response rate (RR), which was 36.2%. This percentage was found to be a slightly-low but suitable justification was provided when collecting data from the families.

The chapter concludes with checking the data and scale measurement validity through applying the Exploratory Factor Analysis (EFA), using the Principle Component Analyses (PCA), Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) technique, Convergent-Discriminant validity then providing an idea of the main ethical issues that were taken into consideration throughout this thesis.

## **Chapter Six**

### **Data Analysis, Results and Discussion**

## **Introduction**

In the UK, food choice has been widely-studied. However, most studies have failed to provide a suitable explanation of how and why families choose their healthy-food products especially within a real behaviour setting. As a result, Chapter five as the methodology chapter described the research design and data collection. This included a variety of data-collection methods, firstly, the conducting of three focus-group discussions to collect the qualitative data. The second step included using surveys with a suitable sample setting to collect the quantitative data. The focus group and survey techniques used questions that were prepared according to the five main conceptual elements of the Behavioural Perspective Model (BPM). All focus groups and survey questions were chosen based on relevant studies (see Chapters three and four) and tested for suitability and reliability by many scholars and practitioners (within the initial focus group or later within the pilot study stage).

The methodology chapter comprehensively explained both the focus group and survey data collection methods with justifications for each. The chapter also explained the pilot study that aimed at testing the study instrument which usually preceded disseminating the formal survey, whose objectives included testing the reliability of the main data collection methods, and the suitability and correlation of the items. Additional explanations of the pilot study's initial results were also discussed. The chapter concluded with the process of testing and purifying the measurement of the study constructs using a set of statistical tests such as FA, CFA, SEM, DV, CV, and CMB.

Chapter six as the analysis chapter provides a comprehensive insight into the data analysis and tests the study hypotheses. This chapter is divided into various sections and commences with providing an overview of the study's framework in Section 6-1. Section 6-2 presents the study's hypotheses, and Section 6-3 provides a complete description of the study's sample and identifies the main family demographic characteristics. Section 6-4 provides a brief description of family purchasing behaviour analysis while Section 6-5 provides a concise explanation of family food-intake behaviour analysis. Section 6-6 discusses parent-children mutual effects in relation to food products purchased by families. Section 6-7 identifies the analysis test used then provides a full analysis of testing the study's model and explains the suitability of using the BPM in studying choice of healthy food. Section 6-8 presents an analysis of study factors and sub-factors supported by explaining the study items' reliability, correlation, normality and testing of the study's hypothesis for each individual factor. Section 6-9 measures the effect of

the main parent demographic characteristics on family-food choices. Before beginning the data analysis, the study’s framework and main hypotheses is overviewed.

### 6 - 1: Study framework

Figure 6-1, which illustrates the Behavioural Perspective Model (BPM) of consumer purchase and consumption is the model often used to provide a clarification of consumer behaviour in different behavioural contexts. It is also employed in different food choice and consumption situations. For example, Saygi and Hekimoglu (2011) studied the factors that influence consumption of fishery products and Leet et al. (2000) studied situational determinants of fish consumption. The model gives an operant explanation of how a choice may occur within a real behavioural context, relying on the interaction of a set of pre-behaviour and post-behaviour elements. Although, the behaviour consequences stem from the behaviour situation and choice, the consequences that a family needs to achieve through a specific food purchasing usually shapes such choice and changes it. The choice’s consequences have been divided into four elements, namely, UR, IR, UP and IP.

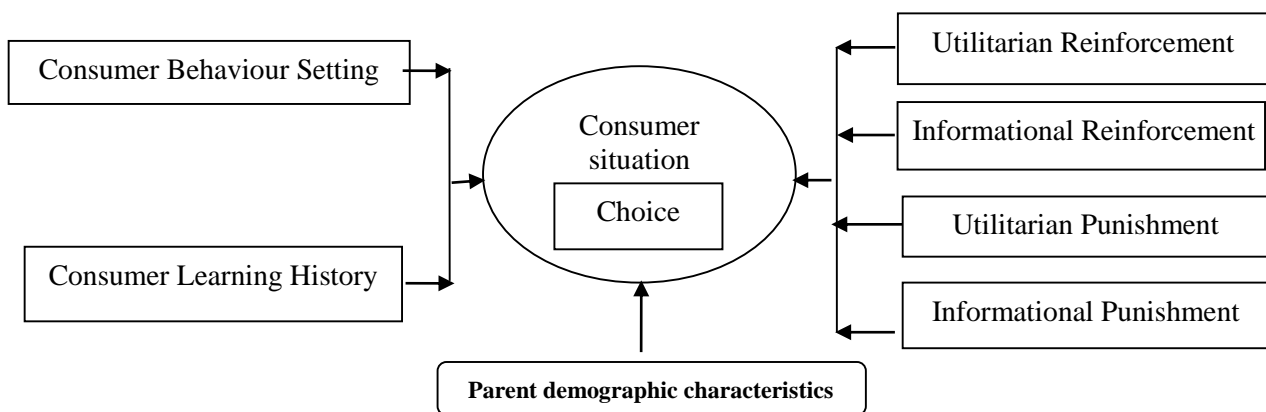


Figure 6-1: Summative Behavioural Perspective Model (BPM) - Foxall, et al. (2007)

Based on this model, the study hypotheses were developed.

### 6 - 2: Study hypotheses

Based on the study’s framework, seven main hypotheses and four sub-hypotheses were as follows:

- Hypothesis 1: Family healthy-food choices are influenced positively by behaviour-setting determinants.
  - Sub-Hypothesis H1-A: Family healthy-food choices are influenced positively by

physical-setting determinants.

- Sub-Hypothesis H1-B: Family healthy-food choices are influenced positively by social-setting determinants.
- Sub-Hypothesis H1-C: Family healthy-food choices are influenced positively by temporal-setting determinants.
- Sub-Hypothesis H1-D: Family healthy-food choices are influenced positively by regulatory-setting determinants.
  
- Hypothesis 2: Family healthy-food choices are influenced positively by accumulated-learning history.
- Hypothesis 3: Family healthy-food choices are influenced positively by previously-experienced utilitarian reinforcement.
- Hypothesis 4: Family healthy-food choices are influenced positively by previously-experienced informational reinforcement.
- Hypothesis 5: Family healthy-food choices are influenced negatively by previously-experienced utilitarian punishment.
- Hypothesis 6: Family healthy-food choices are influenced negatively by previously-experienced informational punishment.
- Hypothesis 7: Family healthy-food choices differ according to the main parents' demographic characteristics (for example, age, gender, education, working status and family average income).

After overviewing the study's model and its main hypotheses, the analysis discusses the main sample characteristics.

### **6 - 3: Sample descriptions analysis**

The descriptive analysis of the study sample consists of 11 characteristics, namely:

- i. Sex
- ii. Age
- iii. Marital status
- iv. Marriage longevity
- v. Educational level
- vi. Working status
- vii. Family income
- viii. Parent education level
- ix. Parent occupation
- x. Parent working status
- xi. Family average annual income

### 6 - 3: A. Sex

Table 6-1 illustrates that the majority of the study sample who participated in this study were female (73.5%). This gives an indication that the majority of parents involved in choosing family-food products and cooking behaviour were mothers.

**Table 6-1: Sex categories**

| Categories | Frequency | Percent | Cumulative Percent |
|------------|-----------|---------|--------------------|
| Male       | 54        | 26.5    | 26.0               |
| Female     | 150       | 73.5    | 100.0              |
| Total      | 204       | 100.0   | 100.0              |

### 6 - 3: B. Age

Table 6-2 shows that the majority of participants' ages were scattered between 30 and 60 years. About 77% of the study's sample were aged between 30 and less than 60 years and about 19% of the study sample were aged between 18 and less than 30 years.

**Table 6-2: Age categories**

| Categories        | Frequency | Percent | Cumulative Percent |
|-------------------|-----------|---------|--------------------|
| 18 - less than 30 | 39        | 19.1    | 19.1               |
| 30 - less than 60 | 156       | 76.5    | 95.6               |
| 60>               | 6         | 2.9     | 98.5               |
| Prefer not to say | 3         | 1.5     | 100.0              |
| Total             | 204       | 100.0   |                    |

### 6 - 3: C. Marital status

Having a partner is one of the essential issues that should be taken into consideration when studying family food-choice behaviour. Table 6-3 shows that the majority of the study's sample (76%) were married and about 13% of them had one partner. As a result, about 89% of the study sample could be considered full families (with two parents), while about 9% of the study sample could be considered single parents.

**Table 6-3: Marital status categories**

| Categories    | Frequency | Percent | Cumulative Percent |
|---------------|-----------|---------|--------------------|
| Married       | 154       | 75.5    | 75.5               |
| Have partners | 27        | 13.2    | 88.7               |
| No partner    | 19        | 9.3     | 98.0               |
| Missing Value | 4         | 2.0     | 100.0              |
| Total         | 204       | 100.0   | 100.0              |

### 6 - 3: D. Marriage longevity- relationship longevity (Years)

Each family has a structure that decides the roles of its members. The family habits, styles and systems are affected by many factors especially the time that has elapsed since it was

established. Table 6-4 shows that about 41% of the study's families had been established for more than 10 years and less than 2% had a relationship duration of less than one year. The one to less than three years and from three to less than five-year relationship duration categories had close percentages (10.8% and 10.3% respectively). The five to less than seven year and from seven to less than nine-year categories also had close percentages (13.2% and 13.7% respectively). According to Simpson (1987) and Feinberg and Kan (2008), relationship durations help in predicting family-relationship stability, establishing a family foundation, enhancing parent/child relations, and parent/infant well-being.

**Table 6-4: Marriage longevity categories**

| Categories         | Frequency | Percent | Cumulative Percent |
|--------------------|-----------|---------|--------------------|
| Less than one year | 3         | 1.5     | 1.5                |
| 1 - less than 3    | 22        | 10.8    | 12.3               |
| 3 - less than 5    | 21        | 10.3    | 22.5               |
| 5 - less than 7    | 27        | 13.2    | 35.8               |
| 7 - less than 9    | 28        | 13.7    | 49.5               |
| 9 >                | 83        | 40.7    | 90.2               |
| Separated          | 16        | 7.8     | 98.0               |
| Missing Values     | 4         | 2.0     | 100.0              |
| Total              | 204       | 100.0   |                    |

### **6 - 3: E. Parent level of education**

The foundation of healthy-behaviour adaptation is generally related to knowledge, and more specifically, to health education. Studies find that knowledge acquisition is not only important for reducing people poverty but also for enhancing public-health experiences (Marmot & Commission on Social Determinants of Health, 2007). This indicates that adopting healthy behaviour is related to applying knowledge in a set of settings such as the complicated contexts of culture, social norms, and even social influences. Appendix Table 6-3. E1 shows that 82% of the study sample were parents with a university level education, and about 17% of them had a school-level education. In addition, regarding the spouse's education, Appendix Table 6-3. E2 shows that about 72% of the parents were partners with a university-level education, and about 19% had a school-level education.

### **6 - 3: F. Parent working status**

Working status is an important issue when studying the family-food choices especially when the majority of working parents find it difficult to balance work and family demands (Gutek, et al., 1981). This is because working status affects food selection and consumption patterns such as decreased family shopping time and frequency, increased adoption of fast-food



consumption and lack of food preparation at home as a result of time scarcity which leads to a less healthful diet (Jabs & Devine, 2006). Appendix Table 6-3. F1 shows that 50% of the study respondents worked as full-time employees, which indicated that about a third of their days were reserved for work. Also, about Twenty-six percent of the study’s sample worked as part-time employees and 24% did not work. In addition, it is important to explain the working status for partners. As shown in Appendix Table 6-3. F2, 50% of the partners worked as full-time employees which indicated that about a third of their day was reserved for work. Also, about 9% of the partners worked as part-time employees and more than 18% were not working.

**6 - 3: G. Family average annual income**

Family income is considered one of the main determinants of their behaviour regarding food choices as claimed by Glanz, et al. (2007) and Klohe-Lehman (2007). Table 6-5 shows family annual income for the study’s sample. It shows that 11% of the study subjects reported an income of less than £10,000 a year. Low-income families face critical problems regarding choosing healthy-food products, especially higher-cost products. According to Leibtag and Kaufman (2003), low-income shoppers usually spend less on food purchases and low-income households economise through various means such as purchasing discounted food products, settling for less expensive food products within a product class, volume discount, asking and buying more generic (private-labelling) food products over branded ones. In addition, around 24% of the sample subjects reported an income between £10,000 and £29,000. Also, about 19% of the study’s sample respondents earned more than £50,000 a year. High-income families are not just willing to buy a variety of healthy-food products but are also willing to practice a healthy life style as they are less price sensitive (Steptoe, et al., 1995).

**Table 6-5: Family average annual income (£)**

| Income Categories        | Frequency | Percent | Cumulative Percent |
|--------------------------|-----------|---------|--------------------|
| <10.000                  | 23        | 11.3    | 11.3               |
| 10.000- less than 20.000 | 35        | 17.2    | 28.4               |
| 20.000- less than 30.000 | 13        | 6.4     | 34.8               |
| 30.000- less than 40.000 | 28        | 13.7    | 48.5               |
| 40.000- less than 50.000 | 14        | 6.9     | 55.4               |
| >50.000                  | 38        | 18.6    | 74.0               |
| Prefer not to say        | 53        | 26.0    | 100.0              |
| Total                    | 204       | 100.0   | 100.0              |

**6 - 4: Family purchasing behaviour analyses**

Observation of family shopping behaviour has been a primary resource for studying various health phenomena such as food choice and parent-child interactions or decision-making. Thus,

information regarding family shopping behaviour include how, why, when and where this behaviour occurs.

This section has been divided into the following family-shopping behaviour determinants:

- i. How often a family shopped for and buys healthy-food products?
- ii. How often a family ate healthy-food products?
- iii. How much a family spent on buying healthy-food products?
- iv. How parents made their decisions?
- v. From whom families usually bought their food products?
- vi. Where families usually bought their food products?

#### **6 - 4: A. Family shopping frequency**

To determine the main family-shopping motives and food-shopping drivers, the route and number of family shopping visits were studied. It is especially relevant when all the members of the family go shopping together, described as a ‘family shopping trip’ by Clark, et al. (1977) and Kahn and Schmittlein (1989). Food-shopping habits and frequency are often influenced by family-purchase behaviour, especially when advising parents to read food labelling during each shopping trip (Clark, et al. 1977). Shopping trips are also motivated by the shopping process itself (and other factors), and not only by the expected consumption (Tauber, 1972). Table 6-6 shows that about half of the study’s sample respondents went shopping once a week and more than a third of the respondents went shopping once every two to three days.

**Table 6-6: Family-shopping behaviour categories**

| Categories                | Frequency | Percent | Cumulative Percent |
|---------------------------|-----------|---------|--------------------|
| Once a day                | 13        | 6.4     | 6.4                |
| Once in two to three days | 64        | 31.4    | 37.7               |
| Once a week               | 93        | 45.6    | 83.3               |
| Once a month              | 6         | 2.9     | 86.3               |
| Irregular                 | 29        | 13.7    | 100                |
| Total                     | 204       | 100.0   | 100.0              |

#### **6 - 4: B. Family healthy-food intake frequency**

As this study is focused on the question of healthy diets question, this has assisted in the collecting of data on the frequency of eating healthy meals. Table 6-7 shows that 33.3% of study respondents claimed that they tried their best to prepare and eat healthily in every meal while around 28% explained that at least two healthy meals were consumed every day. In addition, at least 24% of the study sample claimed that they tried to eat at least one healthy

meal daily. As explained, people who try to eat at least one healthy meal each day can be described as “healthy eaters” (Anderson, et al., 1994), and they were about 85% of the study’s sample.

**Table 6-7: Family healthy-food intake categories**

| Categories  | Frequency | Percent | Cumulative Percent |
|-------------|-----------|---------|--------------------|
| Every meal  | 68        | 33.3    | 33.3               |
| Twice a day | 57        | 27.9    | 61.3               |
| Once a day  | 48        | 23.5    | 84.8               |
| 3-4 day     | 18        | 8.8     | 93.6               |
| Never       | 2         | 1.0     | 94.6               |
| Missing     | 11        | 5.4     | 100.0              |
| Total       | 204       | 100.0   | 100.0              |

#### **6 - 4: C. Average spending on healthy food-product purchases/month**

Family income is considered one of the main factors that need to be taken into consideration when studying the main healthy-food choices and consumption drivers (Kearney, 2010). This is because the cost of healthy food has risen dramatically. For example, according to Williams, et al. (2009), the total cost of the Illawarra Healthy-Food Basket in 2007 was \$242.49, an increase of 20.4% since 2000, with an increase in the price of vegetables by 55.7% and the price of fruits by 46.7%. Also, it has been found that high-income families enable parents to buy expensive healthy-food products even if their prices are high while low-income families will usually find it hard to buy expensive food products. Table 6-8 shows that 16.2% of study respondents spent less than £100.0 each month on buying healthy-food products while about a quarter of them spent between £100.0 and £200.0. It was notable that more than a third of the respondents paid between £200.0 and £300.00 when buying healthy-food products. Only 16.7% of them paid more than £400.0 on healthy-food product purchases.

**Table 6-8: Average spending on buying healthy-food products/month**

| Categories         | Frequency | Percent | Cumulative Percent |
|--------------------|-----------|---------|--------------------|
| <100               | 33        | 16.2    | 16.2               |
| 100- less than 200 | 48        | 23.5    | 39.7               |
| 200- less than 300 | 63        | 30.9    | 70.6               |
| 300-less than 400  | 26        | 12.7    | 83.3               |
| 400-less than 500  | 20        | 9.8     | 93.1               |
| 500-less than 600  | 6         | 2.9     | 96.1               |
| 600-less than 700  | 2         | 1.0     | 97.1               |
| 700-less than 800  | 2         | 1.0     | 98.0               |
| 800-less than 900  | 1         | .5      | 98.5               |
| Missing            | 3         | 1.5     | 100.0              |
| Total              | 204       | 100.0   | 100.0              |

#### 6 - 4: D. Parent and family-centred decision-making

Exploring family decision-making helps to understand who takes the major responsibility for family food-purchase decisions, namely, mother or father? Table 6-9 shows that fathers alone took 6.4% of decision-making processes without sharing it with other family members whereas 57.4% were made by mothers. A notable percentage was that 30.9% of decisions were made jointly by both the mother and father. Decisions taken by both children and older relatives were 2.5% and 0.5% respectively. While both adolescents and children heavily affected the family decision-making processes, as claimed by many researchers such as Beatty and Talpade (1994), it was noted in this study that decisions that were taken jointly by parents and children had the lowest percentage (8.8% of the study sample). According to Campbell, et al. (2007), it is important to get children involved in healthy-food choice behaviour which facilitates adopting healthy-eating habits.

**Table 6-9: Parent and family-centred decision-making categories**

| Categories             | Frequency | Percent | Cumulative Percent |
|------------------------|-----------|---------|--------------------|
| Father                 | 13        | 6.4     | 6.4                |
| Mother                 | 104       | 51.0    | 57.4               |
| Both father and mother | 63        | 30.9    | 88.2               |
| Parents and children   | 18        | 8.8     | 97.1               |
| Older relatives        | 1         | .5      | 97.5               |
| Children               | 5         | 2.5     | 100.0              |
| Total                  | 204       | 100.0   | 100.0              |

While family members influence food-product choices, the decision-maker is usually different from the buyer. Thus, it is essential to explain who usually buys food products.

#### 6 - 4: E. Family food buyers

The family food buyers usually play an essential role in choosing which food products to buy from fresh, canned, dried or frozen. Also, food buyers will usually determine where to buy and how to choose food products inside the store. Some buyers have the tendency to choose ready-to-eat or pre-prepared food over cooking meals, and this tendency might be transferred to other family members such as children or husbands/wives (Sidenvall, et al., 2001). Table 6-10 shows that about 50% of family shopping was done by mothers and about 15% was done by fathers. Moreover, about 30% of family-food buying was done jointly by both parents while just 5% involved the whole family. Some food buyers, especially women, have the authority to change some life-style determinants regarding food choice or food shopping behaviour by looking for new and different products to serve their families (Roberts & Wortzel, 1979).

**Table 6-10: Family food buyers**

| Categories             | Frequency | Percent | Cumulative Percent |
|------------------------|-----------|---------|--------------------|
| Father                 | 31        | 15.2    | 15.2               |
| Mother                 | 101       | 49.5    | 64.7               |
| Both father and mother | 59        | 28.9    | 93.6               |
| Whole Family           | 10        | 4.9     | 98.5               |
| Others                 | 3         | 1.5     | 100.0              |
| Total                  | 204       | 100.0   | 100.0              |

#### **6 - 4: F. Where do families usually buy their food products?**

It is not only a food product's taste, freshness, country of origin and other social concerns that determine food choice, but a shopping centre's design, service availability, distance and range of high-quality food products within a suitable price-quality trade-off. Understanding shopping centres would help give a better understanding of food shoppers, especially when some of them provide an advanced food retail system containing, in many cases, online shopping (Geuens, et al., 2003).

As shown in the Appendix Table 6-4.F, the main two stores where the study's families usually shopped were Tesco (65 families representing 25% of the study sample) or Sainsbury (60 families representing 23% of the study sample). In addition, reasonable percentages of the study sample shopped for their food products at supermarkets and local shops with percentages of 10.4% and 10% respectively. Results showed that few families shopped at other malls such as Asda (9.6%), Lidle (3.8%), Iceland (2.3%), Morrison (2.3%), the Co-Operative food store (2.3%), Marks and Spencer (2%) and Aldi (2%). Many scholars such as Zafar, et al. (2007) determined the importance of shopping from malls and assessed mall-directed shopping habits and shopping orientations in different behaviour contexts. The goals of shopping at malls have also been investigated by many scholars, and many drivers have been determined, for example, social drivers such as social interaction and chatting, entertainment drivers such as games availability, physical drivers such as retail landscape and interior design, and convenient one-stop shopping (Howard, 1993; Parsons, 2003; Zafar, et al., 2007).

#### **6 - 5: Family food-intake behaviour analysis**

The analysis of family food-intake behaviour has been divided into the following classification

- i. What did a healthy diet mean to the study's sample?
- ii. What were the main categories of the healthy-food products that families usually bought?
- iii. What were the percentages of children usually ate at nurseries and schools?

- iv. What were main healthy-food shopping obstacles?
- v. What were main healthy food-cooking obstacles?
- vi. Where did study families usually ate their main meals?
- vii. Which family members had a special diet?
- viii. What were the main reasons for having a special diet?

#### **6 - 5: A. What did a healthy diet mean to the study's sample?**

Currently, some people still experience difficulties in determining what 'healthy food' and 'eating healthily' mean to them, as well as determining how to meet healthy eating recommendations and/or standards (Scarpello, et al., 2009). This section contains a comprehensive list of views explaining what the respondents knew or understood of the meaning of a healthy diet. A study was also done by Gamboa-Acuña, et al. (2008) who investigated self-efficacy, beliefs, environment, social support and barriers of Hispanic Women of South Carolina with respect to healthy foods. The results of this study found that the majority of the participants (73%) thought that healthy foods meant fruits and vegetables, and about 86% of the study sample had a misconception that eating healthy foods could prevent all diseases.

Moreover, there is not any agreement on what 'healthy food' means. As a result, the study tries to investigate the respondents' understandings of healthy-food products. Results showed that 107 families (25.2% of the study sample) believed in having a balanced food/diet. Ninety respondents (20% of the families) believed that healthy food meant eating fruits and vegetables, while 45 families (9.6% of the study sample) thought that healthy food meant not to eat too much sugar. Forty-one families thought that it meant eating meat, 27 families thought that it meant eating low-fat products and 21 families thought that it meant eating food with less salt. Sixteen families thought that it meant eating carbohydrate, 14 families that it meant eating whole grains, while eight families thought that it meant not eating fast food and just seven families thought that it meant eating homemade food. However, the following views gained low percentages (1.3% - 0.22%), namely, having slim and exercised bodies, eating fresh-food products, eating organic-food products, drinking suitable amount of water, eating suitable amounts of minerals, eating local food products, eating fewer calories, and eating less artificially-flavoured food products (see Appendix Table 6-5. A).

### **6 - 5: B. What were the main categories of the healthy-food products that families usually bought?**

Taking a closer look at the main food categories that families usually bought and consumed was essential in this study's context. Videon and Manning (2003) studied the importance of family meals and the influences of adolescent eating patterns. The study focused on studying the main food-product categories that were usually consumed by families and tried to find an estimation of such categories. The study found that a large percentage of adolescents reported eating vegetables, fruits and dairy foods but also found that 71% consumed less than the recommended amount of vegetables, 55% consumed less than the recommended amount of fruits, and 47% consumed less than the recommended amount of dairy products. Based on data analyses that is shown in Appendix Table 6-5. B that encompasses the main views on healthy food-product intake, revealed that fruits and vegetables were used by about 20.7% of families, while meat was used by about 18.9%. In addition, eating carbohydrates (such as rice, bread and pasta) was found to be an essential part of family meals (used by 17.8%).

Dairy products were found to be essential for UK families' main meals with 11.3% of study sample, whereas fish products were found to be only 9% of the study sample. Cereal products were used by 7.6% of study families, low-fat products and plants had the same percentage of 2.2%, and organic food products represented 2.0% of the family intakes.

### **6 - 5: C. What were the percentages of children usually ate at nurseries and schools?**

Appendix Tables 6-5. C1 and 6-5. C2 show that about 17% of children ate at nurseries, therefore, the majority of children did not eat at nurseries at all while more than 57% of children ate at schools. Some nurseries and schools helped families organise what to bring to schools for lunch, and what to eat. Next to the family, schools and nurseries were the main institutions to educate on the principles of healthy-food intake and consumption. Also, part of the education mission was to educate children on the principles of healthy-food intake and the consequences of unhealthy-food intake that might affect children in the short- and long-term.

### **6 - 5: D. What were main healthy-food shopping obstacles?**

Studying family healthy-food choices cannot be discussed effectively without discussing the main obstacles to healthy-food shopping. Obstacles to food shopping has been discussed by scholars such as Mooney (1990) and Codron, et al. (2006). Many obstacles were found such as food-product availability, accessibility, cost, freshness and time available for shopping. One

of the main food-product purchase barriers which constrain healthy-food adoption by children is the food product's packaging. Gelperowic and Beharrell (1994) studied the relation between mothers' purchase of perceived healthy foods, packaging characteristics and the children's 'pester power' in obtaining attractive or appealing packaging. The findings suggest that mothers will not buy perceived healthy foods if the packaging is not acceptable. Thus, an understanding of obstacles will help the adoption of new ways of selling such goods or finding solutions for customer and seller shopping methods, which, in turn, facilitate adopting new shopping attitudes and behaviours concerning healthy foods (Guldan, 1996).

By counting the main shopping problems as shown in Appendix Table 6-5. D, results reported that about 21% of the study sample found no problems in shopping and purchasing healthy-food products. However, about 19% of the families reported that healthy-food product's high cost was the main obstacle. This finding was not new as the majority of studies reached the same result. Healthy food-product availability was considered the second problem with more than 13% of families finding it a problem. Between 7% and 8% of the study's families reported that food products were quickly depleted at stores, low-quality food products were usually presented and the lack of fresh-food variety were essential problems in their shopping. Moreover, the lack of fresh-food products, transportation to food shopping malls and stores were also problems that families faced while shopping. In addition, other problems were reported by families such as trusting labels, time available to shop, car parking availability and having pets.

Section 6-5: E discusses the main problems families faced when cooking and consuming healthy-food products.

#### **6 - 5: E. What were main healthy food-cooking obstacles?**

Discussing healthy food-cooking obstacles is an important issue when studying healthy food-purchase behaviour. This is because cooking obstacles prevent food-product purchasing and in later stages, prevent healthy-lifestyle adoption. Overcoming obstacles to cooking is the main step to eating healthily. From Appendix Table 6-5. E, the data analyses shows that the main issue preventing healthy-food cooking was a lack of time available for families. Twenty-one percent of families reported that they did not have enough time to cook for many reasons such as being employed in both full-time and part-time jobs. This increases the value of restaurant food, as it significantly decreases preparation time (Neumark-Sztainer, et al., 1999). Moreover,



some fresh food products are unappetising to children. This issue was confirmed in this study as more than 15% of the study's families reported that one of the main obstacles to home-cooked food consumption was that it was considered tasteless by children. Next to this, the high cost of good quality, fresh-food products was seen as one of the major obstacles to purchasing such food. This finding is not new as many scholars such as Belisle (1984) and Franzen and Smith (2010) who reached the same result. Other problems determined by the study respondents included a lack of knowledge of how to cook (5.4%), food-product's short life (4.4%), unavailability of healthy-food products (4.4%), lack of time available for shopping (3.8%), lack of social support such as friends (3.2%), liking and enjoying unhealthy-food products (3.2%), and the bad taste of healthy-food products and lack of appeal of healthy-food products (both 3%).

#### **6 - 5: F. Where did study families usually ate their main meals?**

Where the family eats plays a critical role in the amount of food eaten, food types eaten and food quality eaten. Some families, for example, like to eat inside the home and others outside the home. This section presents where families like to eat and place their meal such as in front of the TV or not and in the kitchen or not. A study targeting the modern UK family was conducted by Murph (2009), which discussed the place where families ate their main meals. The study found that most respondents (61%) reported that they usually ate at a table, about a quarter (24%) ate at the kitchen table, almost a third (30%) ate at the dining table, and just 7% ate at a table in another room. However, more than a third (36%) of family respondents reported that they usually ate their main meals on the sofa in front of the TV.

Considering where families usually eat their main meals provides gives an indication of the situational and environmental effects on food intake. Appendix Table 6-5. F shows that about 29% of the study's families ate their main meal in the living room in front of the TV, while about 24% ate their meals in the living room and not in front of the TV. On the other hand, around 4% of families ate their meals in the kitchen in front of the TV, while more than a third of the study's sample ate their meals in the kitchen and not in front of the TV. Hence, 56.3% of study's families did not eat their main meals in front of the TV, while 33% ate their food in front of the TV.

### 6 - 5: G. Which family members had a special diet?

It was important to determine the proportion of families from the study sample who had a special diet, and to discover if a family's purchasing of specific goods was influenced by one of its members having a special diet. In such situations, some families prepare two main meals, one for those following the special diet, and one for those who do not. Alternatively, they will cook something that is suitable for both. Data analysis in Table 6-11 shows that just 20% of the study sample had special diets which influenced food selection and/or cooking methods and ingredients while about 80% of families did not have any specific diet types.

**Table 6-11: Family members who had a special diet**

| Categories | Frequency | Percent | Cumulative Percent |
|------------|-----------|---------|--------------------|
| Yes        | 41        | 20.1    | 20.1               |
| No         | 163       | 79.9    | 100.0              |
| Total      | 204       | 100.0   | 100.0              |

### 6 - 5: H. What were the main reasons for having a special diet?

Some people usually make small changes to their eating plan or have special diets. These changes often include those made to ensure good health.

The use products for a special diet is widespread, especially when the reasons for it vary such as having special surgery, wanting to gain or lose weight and having specific diseases. Weight control diets, for example, vary from one person to another and are characterised by their nature and duration. They are also affected by many factors such as demographic profile, knowledge of diet and health, types and sources of information on diet and health, motivation to lose weight and individual characteristics such as weight-loss history and current weight (Levy & Heaton, 1993). The main reasons for having a special diet is shown in Appendix Table 6-5. H. The data analysis results show that there were a variety of important reasons that could be elicited from the respondents' answers, such as having good health in the long-term, which, in turn, helped prevent a variety of diseases such as heart problems and cancers. The respondents indicated that there were also many short-term reasons such as allergies, which were a reason for having special diets. In addition, losing or gaining weight was seen important for respondents by watching what they ate. A notable issue was that the for the majority of the study sample more than 71.0% did not express their special reasons for having diets nor they have any type of diet.

While discussing the effect of the main interrelated healthy food-product choices and intake elements such as shopping and cooking obstacles, there was a need to discuss the mutual effect

between parents and their children and explain the dynamic interactions that related to food choice.

## 6 - 6: Parents-children mutual effects

To provide a clear analysis of family food-purchasing and consumption behaviour, family decision-making and its members' interactions as well as mutual influences or support need to be discussed. This section is based on studies by Maccoby (2000) and Solomon, et al. (2001) to ensure a comprehensive understanding of parent-child mutual influence. This section commences by providing an estimation of the number of children in the study's households, followed by assessing parental influence on child decision-making and, finally, the impact of children on parent decision-making in family food-purchasing and consumption behaviour.

### 6 - 6: A. Number of children in households

Table 6-12 illustrates the number of children in the study's households. This introduces the mutual influence of parents on their children and vice versa. Results showed that 23% of the study family sample had one child while about 38% had two children. In addition, about 17% of families had three children while about 6% had four children. Having more than one child in the family makes the process of managing them and controlling their behaviour more difficult, for example, preventing them from becoming involved in risky behaviours (Furstenberg, et al., 1999) or family violence (Gelles, 1979). Researchers such as Becker and Lewis (1974) investigated the interaction between quality and quantity of children in households while researchers such as Dishion, et al. (1991) studied the effect of family size on child behaviour based on a child-to-parent ratio, which is based on the number of children in the family divided by the number of parents.

**Table 6-12: Number of children in households**

| Categories     | Frequency | Percent | Cumulative Percent |
|----------------|-----------|---------|--------------------|
| One child      | 47        | 23.0    | 23.0               |
| Two children   | 77        | 37.7    | 60.8               |
| Three children | 34        | 16.7    | 77.5               |
| Four children  | 12        | 5.9     | 83.3               |
| Five children  | 2         | 1.0     | 84.3               |
| No children    | 27        | 13.2    | 97.5               |
| Missing Values | 5         | 2.5     | 100.0              |
| Total          | 204       | 100.0   | 100.0              |

## **6 - 6: B. Parental effect**

There is clear evidence that both parents and children can and do influence each other (Davison, 1983; Pelletier & Brent, 2002). Oliveria, et al. (1992) found that parent eating habits had an impact on the nutrient intake of their children. One of the main issues regarding the parent-child mutual effect is how both influence each other in choosing food products.

To measure the effect of both parents on family-food choices, a 100-point constant scale was used to make the study sample distribute the influence level between mothers, fathers and their children. This scale has used by scholars such as Roshan and Kandi (1993) to measure the parent-child mutual effect. From the study, results showed that only 2% of family purchases were controlled fully by fathers while about 11% of family purchases were controlled fully by mothers. A notable issue was that more than 31% of family purchases were equally-influenced by both parents. This indicated that the choice of purchased food was a joint decision. Generally, the data analyses showed that mainly mothers influenced the food choice with about 28% of families reporting that mothers had directed and controlled this purchasing issue carefully. This provides an understanding of parental preference of food products and how they could make their children adopt such products. Benton (2004) explained that the parents' role was essential in many food choice issues such as determining the food preference of children, collecting information and having skills and tactics to force their children to try novel foods (Benton, 2004). Based on this influence, food-preference association is often determined by studying the mutual child-parent effect. Oliveria, et al. (1992) found that there was a strong association with children values for parents consuming more meals at home. The results of this study confirmed that parental eating habits had an impact on the nutrient intake of their preschool children.

## **6 - 6: C. Children effect**

In parent-child relationships, there is clear evidence that children's genetic makeup influence their behaviour and also influence the way they treat and interact with their parents (Maccoby, 2000). The level of effect mothers have on their children is often different in most cases from the level of effect fathers have on their children. For example, Oliveria, et al. (1992) found that there was a stronger relation between the nutrient intake of mothers and children than between fathers and children.

To study the effect of children on family food-purchase decisions, a 100-point constant sum scale was used. Results showed that about 14% of families reported that their children had no influence at all on family food-product choices. About 22% of the families reported that their children influenced about 10% of their food purchases. Repeatedly, about 16% of families identified that their children controlled between 20% and 30% of their total food-product purchase situations. A noted matter was that just less than 3% of families identified that their children controlled more than 80% of their usual daily-food choices. Benton (2004) found that some families offered specific types of food to control their children's behaviour not just by encouraging children to eat but also used it to reward or control their emotional stress.

## 6 - 7: Structural model and hypotheses testing

The study's methodology (see Chapter five, Sections 5-9 and 5-10) discusses the use of the Factor Analysis (FA) test and Confirmatory Factor Analysis (CFA) test to purify and justify the BPM model constructs. The main and final indices of AMOS output are shown in Table 6-13. This table illustrates the number of items involved in the analysis of each construct, Standardised Loading values, Standard Error values, Square Multiple Correlation values and Error Variance values for each item used. Also, the output Table 6-13 shows the Cronbach Alpha, Composite Reliability and even the shared Average Variance Extracted (AVE) by the latent constructs for each predetermined factor and sub-factor in this thesis.

**Table 6-13: Properties of the Final Measurement Model**

| Constructs and Indicators | Std. Loading | Std. Error | Square Multiple Correlation | Error Variance | Cronbach Alpha | Composite Reliability | AVE         |
|---------------------------|--------------|------------|-----------------------------|----------------|----------------|-----------------------|-------------|
| <b>Physical Setting</b>   |              |            |                             |                | <b>0.793</b>   | <b>0.82</b>           | <b>0.53</b> |
| V2                        | 0.634        | ***        | 0.402                       | 0.733          |                |                       |             |
| V5                        | 0.836        | 0.138      | 0.699                       | 0.333          |                |                       |             |
| V6                        | 0.794        | 0.123      | 0.631                       | 0.343          |                |                       |             |
| V7                        | 0.597        | 0.135      | 0.357                       | 0.380          |                |                       |             |
| <b>Social Setting</b>     |              |            |                             |                | <b>0.879</b>   | <b>0.87</b>           | <b>0.89</b> |
| V12                       | 0.722        | ***        | 0.521                       | 0.505          |                |                       |             |
| V13                       | 0.798        | 0.108      | 0.637                       | 0.429          |                |                       |             |
| V14                       | 0.866        | 0.102      | 0.750                       | 0.259          |                |                       |             |
| V15                       | 0.791        | 0.102      | 0.626                       | 0.394          |                |                       |             |
| V16                       | 0.679        | 0.102      | 0.461                       | 0.570          |                |                       |             |
| <b>Temporal Setting</b>   |              |            |                             |                | <b>0.823</b>   | <b>0.83</b>           | <b>0.54</b> |
| V19                       | 0.710        | ***        | 0.504                       | 0.511          |                |                       |             |
| V20                       | 0.764        | 0.114      | 0.584                       | 0.443          |                |                       |             |
| V21                       | 0.768        | 0.110      | 0.590                       | 0.404          |                |                       |             |
| V22                       | 0.698        | 0.105      | 0.487                       | 0.472          |                |                       |             |
| <b>Regulatory Setting</b> |              |            |                             |                | <b>0.610</b>   | <b>0.76</b>           | <b>0.51</b> |
| V24                       | 0.631        | ***        | 0.399                       | 0.339          |                |                       |             |
| V25                       | 0.545        | 0.206      | 0.297                       | 0.255          |                |                       |             |
| V26                       | 0.578        | 0.209      | 0.335                       | 0.367          |                |                       |             |
| <b>Behaviour Setting</b>  |              |            |                             |                | <b>0.834</b>   | <b>0.95</b>           | <b>0.55</b> |

|                                    |       |       |       |       |              |             |             |
|------------------------------------|-------|-------|-------|-------|--------------|-------------|-------------|
| <b>Learning History</b>            |       |       |       |       | <b>0.786</b> | <b>0.87</b> | <b>0.60</b> |
| LH1                                | 0.533 | ***   | 0.285 | 0.484 |              |             |             |
| LH5                                | 0.722 | 0.178 | 0.521 | 0.249 |              |             |             |
| LH6                                | 0.738 | 0.160 | 0.544 | 0.187 |              |             |             |
| LH7                                | 0.657 | 0.168 | 0.431 | 0.288 |              |             |             |
| LH8                                | 0.640 | 0.160 | 0.409 | 0.278 |              |             |             |
| <b>Utilitarian Reinforcement</b>   |       |       |       |       | <b>0.855</b> | <b>0.93</b> | <b>0.75</b> |
| UR1                                | 0.598 | ***   | 0.357 | 0.378 |              |             |             |
| UR2                                | 0.835 | 0.133 | 0.697 | 0.123 |              |             |             |
| UR3                                | 0.767 | 0.121 | 0.588 | 0.150 |              |             |             |
| UR4                                | 0.799 | 0.116 | 0.638 | 0.116 |              |             |             |
| UR5                                | 0.750 | 0.125 | 0.562 | 0.172 |              |             |             |
| <b>Informational Reinforcement</b> |       |       |       |       | <b>0.832</b> | <b>0.83</b> | <b>0.50</b> |
| IR1                                | 0.683 | ***   | 0.467 | 0.564 |              |             |             |
| IR2                                | 0.777 | 0.112 | 0.603 | 0.357 |              |             |             |
| IR3                                | 0.674 | 0.117 | 0.454 | 0.569 |              |             |             |
| IR4                                | 0.747 | 0.121 | 0.558 | 0.477 |              |             |             |
| IR5                                | 0.658 | 0.106 | 0.433 | 0.486 |              |             |             |
| <b>Utilitarian Punishment</b>      |       |       |       |       | <b>0.763</b> | <b>0.80</b> | <b>0.50</b> |
| UP2                                | 0.695 | ***   | 0.483 | 0.496 |              |             |             |
| UP3                                | 0.623 | 0.111 | 0.388 | 0.395 |              |             |             |
| UP4                                | 0.755 | 0.119 | 0.570 | 0.429 |              |             |             |
| UP5                                | 0.607 | 0.107 | 0.368 | 0.478 |              |             |             |
| <b>Informational Punishment</b>    |       |       |       |       | <b>0.941</b> | <b>0.77</b> | <b>0.63</b> |
| IP3                                | 0.946 | ***   | 0.895 | 0.511 |              |             |             |
| IP4                                | 0.940 | 0.069 | 0.883 | 0.532 |              |             |             |
| <b>Consumer Choice</b>             |       |       |       |       | <b>0.761</b> | <b>0.80</b> | <b>0.50</b> |
| DV1                                | 0.716 | ***   | 0.512 | 0.485 |              |             |             |
| DV2                                | 0.653 | 0.137 | 0.427 | 0.392 |              |             |             |
| DV3                                | 0.686 | 0.125 | 0.471 | 0.443 |              |             |             |
| DV4                                | 0.624 | 0.117 | 0.389 | 0.470 |              |             |             |

By following the two-phase Structural Equation Modelling (SEM) technique, the results of the model measurement were used to test the structural study model using path analysis representing the proposed association among the main thesis constructs. To examine the structural model, it was essential to inspect the statistical significance of the Standardised Regression Weights to test both the thesis hypotheses and sub-hypotheses as seen in the summary of proposed results in Table 6-14. Table 6-14's contents showed the outputs for testing each hypotheses and sub-hypotheses in this study using path analysis technique.

**Table 6-14: Summary of Path Analysis for Proposed Results for the Theoretical Model**

| Research Proposed Paths                       | Coefficient Value | t-Value | p-Value | Empirical Evidence |
|---|-------------------|---------|---------|--------------------|
| H1: Behaviour Setting → food choice           | 0.271             | 2.917   | 0.004   | Supported          |
| H1A: Physical Setting → food choice           | 0.288             | 4.874   | 0.000   | Supported          |
| H1B: Social Setting → food choice             | 0.040             | 0.690   | 0.490   | Not Supported      |
| H1C: Temporal Setting → food choice           | 0.122             | 1.99    | 0.046   | Supported          |
| H1D: Regulatory Setting → food choice         | 0.006             | 0.091   | 0.928   | Not Supported      |
| H2: Learning History → food choice            | 0.061             | 0.653   | 0.514   | Not Supported      |
| H3: Utilitarian Reinforcement → food choice   | 0.140             | 1.445   | 0.149   | Not Supported      |
| H4: Informational Reinforcement → food choice | 0.037             | 0.581   | 0.561   | Not Supported      |
| H5: Utilitarian Punishment → food choice      | 0.213             | 3.303   | 0.000   | Supported          |
| H6: Informational Punishment → food choice    | 0.096             | 1.964   | 0.049   | Supported          |

## 6 - 7: A. Measurement model fit indices

The Confirmatory Factor Analysis (CFA) was used to test the properties of the study's instrumental items. AMOS version 20.0 was used in the CFA test to assess both the initial and final measurement model fits and elicit a set of indices that enabled assessing a set of issues such as the Comparative Fit Index (CFI) and Root Mean Square Error of Approximation (RMSEA). According to scholars such as Hu and Bentler (1999), the CFI is preferable to be ranged from 0 to 1, with a larger value indicating a better model fit such as being 0.90 or more. In this study, the CFI value was 0.95 for the initial model before removing some items and the final CFI value was 0.90, which was within the acceptable ranges. However, the RMSEA is related to the residual in the structural model and for its value, 0.06 or less is preferable (Hu & Bentler, 1999). In the analysis output, the RMSEA value was 0.061 for the initial model and 0.049 for the final model. This indicated that the model had an acceptable fit while the RMSEA was less than 0.06. All outcomes that resulted from the measurement model are shown in Table 6-15. The analysis outputs of the measurement model fit indices showed that the model was valid for use while the overall percentages of statistical values were found to be significant because the p values for both models was 0.00 (less than 5%).

**Table 6-15: Measurement Model Fit Indices**

| Model         | $\chi^2$ | df  | p     | $\chi^2/df$ | IFI  | TLI  | CFI  | RMSEA |
|---------------|----------|-----|-------|-------------|------|------|------|-------|
| Initial Model | 1094.002 | 160 | 0.000 | 2.371       | 0.91 | 0.93 | 0.95 | 0.061 |
| Final Model   | 1094.002 | 734 | 0.000 | 1.490       | 0.90 | 0.89 | 0.90 | 0.049 |

Section 6-7: B discusses the main statistical tests (for example, reliability and correlation) that were used to analyse the main independent variables before testing the study hypotheses.

## 6 - 7: B. Reliability and Correlation and the Multi-collinearity

The Cronbach's Alpha analysis was used to test the study's reliability for all items and for all study factors separately. Reliability was assessed by calculating the coefficient of Cronbach's Alpha which measures the internal consistency of each item of the questionnaire (Chadha & Kapoor, 2009). The Cronbach's Alpha computed values are usually distributed between 0 (no internal reliability) and 1 (perfect internal reliability) (Bryman & Bell, 2003). Kumar, et al. (2010, p.27) identifies that "the Cronbach's Alpha coefficient is an indicator of internal consistency of the scale". A high Cronbach's Alpha coefficient value suggests that the items that make up the scale "hang together" and measure the "same underlying construct" (what is the reference?). Sekaran (2003) argued that the higher the coefficient value, the better the

measuring instrument. Nunally (1987 cited by Eze, et al., 2008) stated that if Cronbach's Alpha coefficient is more than 0.7 then it can be reasonably used as a test of scale reliability. Reliability can be used in another purpose to minimise the lack of consistency coming from subjective judgments when more than one scholar is involved in research observations or answer reporting (Bryman & Bell, 2003).

In this study, the researcher was the only scholar who was involved in the analysis process and data handling to minimise the percentage of inconsistency and biased judgement. Also, the study used an inter-item reliability test to measure to what level the reliability value changed if continuously each factor's element was deleted. Furthermore, the study used the item-total correlation test to check the relationship among each factor's elements. The item-total correlation is considered one of the best measures used to check if any of the factors' elements are inconsistent with the average behaviour of other items within the same set. The correlation coefficient values were determined and evaluated based on Sekaran (2003) who found that correlation values between 30% and 80% are moderated.

Regarding the multi-collinearity issue, it was important remember that the study had one dependent factor and it was measured using the Likert scale which was considered continuous for this study. In addition, there were more than two independent factors for this study, which were measured using a continuous scale as well. Moreover, the multi-collinearity issue for this study was measured and tested. Such issues occurred when at least two independent factors were highly correlated to each other. This issue gave an understanding of how each independent factor contributed to the total variance of the dependent factor. In this study, the tolerance values (which represent the percent of variance) were distributed between 0.599 and 0.925, with all values being less than 1. Such values were considered acceptable and the multi-collinearity issue had no effect (Levine, et al., 1995). The collinearity diagnosis test was illustrated in the Appendix table 5-6 which showed that the collinearity statistics VIF (Variance Inflationary Factor) values were distributed between 1.081 and 1.668. In this situation, and while the VIF values were less than 3, there was no matter of the collinearity issue (Liu, et al., 2003). In this study, it was important to test the study's model before testing the study hypotheses.

The study's methodology recommended which analytical tests to use, and, as a result, the SEM test was used to test both the study's model and hypotheses. Testing the study's model and explaining to what extent it was valid in this context was recommended. This was because one



of any study’s analysis strengths was seeing and finding the extent to which the independent factors explained the changes and effects of the dependent factor (Sekaran & Bougie, 2009). Before testing the study model, there was a need to test the reliability and correlation first as seen in Section 6-8. The reliability and correlations analyses for the study constructs started with the behaviour-setting factor.

**6 - 8: Analysis of study factors**

As the study focused on family-food choices of healthy-food products, a set of independent factors were identified in accordance with the BPM to analyse the main food choice pre-behaviour and post-behaviour drivers. This section discusses the analysis of the dependent factor that was related to family-food choices. The study had one dependent factor which was presented by four items, each of which was measured using the five-point Likert Scale (see Table 6-16).

**Table 6-16: The dependent variable – food-choice reliability statistics**

| Cronbach's Alpha | Number of items |
|------------------|-----------------|
| %76.1            | 4               |

As seen in the reliability Table 6-16, four item were used to test the reliability of the dependent factor. Cronbach's Alpha coefficient was about 76.1% which was found to be reliable (Cronbach’s Alpha coefficient was above the acceptable range) as explained by Sekaran (2003). Also, the Cronbach's Alpha coefficient was used to test the reliability importance for such factors if each item was deleted. The reliability values were distributed between 0.686 and 0.728. Based on this explanation, the reliability of the dependent factor was seen to be good and acceptable as the Cronbach’s Alpha coefficient was more than 60% (Gerber & Finn, 2005). Also, the correlation test was performed and it was found that the correlation values among the dependent factor’s main items were distributed between 0.341 and 0.498. Such values were seen to be within acceptable ranges (Harris, 1995).

Furthermore, item-total correlation was used to test the correlation among the main dependent variable’s items to check to what extent these items that tested the food choice factors were interrelated and if each construct was consistent with the rest of the items. If any item had a correlation value of less than 30% then it was not consistent with the rest and could be dropped safely (Churchill, 1979). The item-total correlation coefficient values were distributed between 0.515 and 0.599, this was more than 30%, and indicated that the set of dependent variable’s items performed well (Flynn, 1993).As a result, there was an internal consistency for this factor

while all its correlation values were more than 50% (Saunders & Munro, 2000). After explaining the dependent variable main statistical tests, it was important to discuss the main independent variables statistical tests before testing the study's hypotheses.

**6 - 8: F1. Behaviour Setting (BS) – Reliability, correlation, normality and hypothesis testing**

The behaviour-setting factor consisted of four main sub-factors as explained in the BPM which included physical, social, temporal and regulatory factors. Sixteen items were used in these sub-factors to test the reliability of the behaviour-setting factors. The Cronbach's Alpha coefficient was 83.4% (as shown in the reliability Table 6-17) which was considered acceptable.

**Table 6-17: BS Reliability statistics**

| Number of items | Cronbach's Alpha |
|-----------------|------------------|
| 16              | 83.4%            |

These four sub-factors were considered important for studying the BS factor. The Cronbach's Alpha was used to test the reliability importance for the behaviour-setting variable if each of its items were deleted. This test aimed to give a more precise estimation for each of the study's factor items and to check to what extent each item contributed to the total internal consistency. The reliability values were distributed between 0.817 and 0.842 and were found to be reliable (the Cronbach's Alpha coefficient was more than the acceptable range). The reliability of the BS items were within acceptable levels if the Cronbach's Alpha coefficient was distributed between 60 and 80% (Gerber & Finn, 2005). Furthermore, the item-total correlation was used to test the correlation among the main behaviour-setting items and variables to check to what extent these constructs/items were interrelated and if each construct/item was consistent with the rest of the BS constructs/items. If any item had a correlation value of less than 30% then it was not consistent with the rest and could be dropped safely (Churchill, 1979). The item-total correlation coefficient values for the 16 BS items were found to be distributed between 0.310 and 0.671, and more than 30% indicated that the set of BS items were performed well (Flynn, 1993). In addition, there was an internal consistency for this factor while all correlation values were more than 30% (Saunders & Munro, 2000).

Also, as shown in the correlation Table 6-18, the item-total correlation was counted for the main BS sub-constructs, and the correlation values were moderate as described by Sekaran (2003).

**Table 6-18: BS Reliability and correlation statistics**

| Behaviour setting factors                                   |                    | Cronbach's Alpha            | Item-total   |
|---|--------------------|-----------------------------|--------------|
|   |                    | coefficient if Item Deleted | correlations |
|   |                    | Percentages                 |              |
| 1-  | Physical factors   | 0.429                       | .406(**)     |
| 2-  | Social Factors     | 0.435                       | .399(**)     |
| 3-  | Temporal factors   | 0.408                       | .433(**)     |
| 4-  | Regulatory factors | 0.627                       | .320(**)     |
| ** Correlation is significant at the 0.01 level (2-tailed). |                    |                             |              |

Moreover, both Mean (M) and Standard Deviation (SD) were calculated for the BS factor. First of all, the mean is the most frequently used test to measure the central tendency for numerical values and it provides an initial reading to both location and variation of the BS data set (Gerber & Finn, 2005). Secondly, SD is one of the main dispersion measures that is widely-used because it offers an index of the spread of a distribution or the variability in the sample data used (Sekaran, 2003). Both were calculated for the BS factor and their values were M=3.270 and SD=0.553 as shown in the histogram normality Figure 6-8: F1 in the Appendix and Table 6-8: F1 in the Appendix. Results indicated that the BS factor was normally-distributed based on the Kolmogorove-Smirnov (K-S) test where its value was 0.0. Based on the K-S test, the Asymp. Significant value was less than 5%. The step of testing the behaviour setting factor was delayed until its main sub-factors were explained and their sub-hypotheses tested (see the last part in Section 6-8:F1-D).

#### **6 - 8: F1-A. Behaviour-setting factor – Physical-Setting (PhS) construct**

Four items were used to test the reliability of the PhS factor as shown in the reliability Table 6-19. The Cronbach's Alpha coefficient was 79.3% which was found to be reliable (the Cronbach's Alpha coefficient was within an acceptable range) as explained by Sekaran (2003). The reliability of the PhS construct is acceptable when the Cronbach's Alpha coefficient is more than 60% (Gerber & Finn, 2005). Also, the Cronbach's Alpha coefficient was used to test the reliability importance for the PhS variable if each item had been deleted. The reliability values were distributed between 0.685 and 0.795. Some factors were found important to the PhS factor and included the variety and availability of high-quality fresh food products inside food stores which could be noted by food product taste and smell, and convenience of accessing food-shop elements such as store distance and location were considered important to the study of this variable. Furthermore, the item-total correlation test was counted to test the correlation among the main physical setting elements. The correlation coefficient values were

distributed between 0.501 and 0.712, which were considered acceptable as described by Sekaran (2003) when compared with other studies' correlation results such as that conducted by Johansson and Andersen (1998). Before testing the effect of the behaviour-setting factor, it was important to test each of its sub-factor influences on family-food choices separately.

**Table 6-19: PhS Reliability statistics and interrelated measurement indicators**

| Constructs and Indicators | Std. Loading    | Std. Error | Sq- M Correlation | Error Variance | Cronbach Alpha | Composite Reliability | AVE  |
|---------------------------|-----------------|------------|-------------------|----------------|----------------|-----------------------|------|
| Physical Setting          |                 |            |                   |                | 0.793          | 0.82                  | 0.53 |
| V2                        | 0.634           | ***        | 0.402             | 0.733          |                |                       |      |
| V5                        | 0.836           | 0.138      | 0.699             | 0.333          |                |                       |      |
| V6                        | 0.794           | 0.123      | 0.631             | 0.343          |                |                       |      |
| V7                        | 0.597           | 0.135      | 0.357             | 0.380          |                |                       |      |
| 4                         | Number of items |            |                   |                |                |                       |      |

### Physical-setting factor hypothesis testing

The physical-setting effect was planned to be examined through testing the HI-A hypothesis:

- Sub-Hypothesis H1-A: Family healthy-food choices are influenced positively by physical-setting determinants.

After using the SEM test, the results were used to test the study's structural model using path analysis to reflect the anticipated associations among the study's proposed constructs. Path analysis is a powerful method used for testing the multivariate regression models with both direct and indirect effect outcomes. To test the structural study model, it was important to check a set of indices such as the statistical significance of Standardised Regression Weights (SRW) (for example, t-value) of all research hypotheses and the Coefficient of Determination ( $R^2$ ) for the study's Endogenous Constructs. Regarding the PhS factor, it was found that the PhS coefficient was statistically-significant while its p-value was 0.00 which was less than the 5% level of significance. Thus, the effect of the PhS factor on family healthy-food choices was approved statistically and found to play an essential role on family choice of healthy-food products. This was because the Coefficient of Determination for the PhS indicated that the model efficiently accounted for some of the variation of projected study's model. Also, as shown in the proposed path analysis result in Table 6-20, the PhS hypothesis result indicators (path coefficient value= 0.288, t-value=4.874, p-value = 0.000) denoted that the PhS determinant affected family healthy-food choices positively.

**Table 6-20: Proposed analyses results for the PhS independent variable**

| Research Proposed Paths        | Coefficient Value | t-Value | p-Value | Empirical Evidence |
|--------------------------------|-------------------|---------|---------|--------------------|
| Physical Setting → Food choice | 0.288             | 4.874   | 0.000   | <b>Supported</b>   |

Researchers such as Leek, et al. (2000) discovered that the factors that influence consumer choice were predominantly environmental. According to Stroebele and De Castro (2004) who confirmed that studying the effect of environment ambience on food choice and intake were not often studied and, as a result, the environmental effect might be underestimated. For Stroebele and De Castro (2004), eating that usually takes place in a context of environmental stimuli is known as ambience. Thus, Stroebele and De Castro (2004) found that there were many physical and social surrounding factors that played critical roles in both food choice and intake. These factors included temperature, sound, smell, colour, time and presence of other people. In addition, these results were also confirmed by the study's findings while the physical setting was considered to be one of the family food-choice determinants. In addition, Patrick and Nicklas (2005) found that recent family research started by focusing on families changing children's eating patterns. This was because children eating behaviours were strongly influenced by both physical and social environments. According to the research finding of family-food choices, it was discovered that the physical-setting influences mainly came from the availability of healthy-food products and the accessibility of such healthy-food stores. To conclude, within the same stream, this study's findings demonstrated that physical factors affect and enhance healthy-food product choices, purchase and consumption. This behaviour-setting component effect was approved in different behaviour situations such as mobile supplier choice, repeat-purchase behaviour situation and mobile phone brand choice, (Alshurideh, 2010; Alshurideh, 2014; Alshurideh, et al., 2015). The next behaviour-setting determinant that needed to be tested was the social-setting effect on family-food choices.

#### **6 - 8: F1-B. Behaviour-setting factor – Social-Setting (SS) construct**

Five items were used to test the reliability of the SS factor as shown in the reliability Table 6-21. The Cronbach's Alpha value was 87.9% which was found to be reliable (the Cronbach's Alpha was within an acceptable range) as explained by Sekaran (2003). The reliability of the SS construct is acceptable when the Cronbach's Alpha value is more than 60% (Gerber & Finn, 2005). In addition, the Cronbach's Alpha was used to test the reliability importance for the SS variable if each item was deleted. The reliability values were distributed between 0.834 and 0.871. Some items were found to be important for the SS factor, for example, social pressures from others and both friend and family recommendations. Furthermore, the item-total correlation test was used to test the correlation among the main SS elements. The correlation coefficient values were found within the acceptance levels and distributed between 0.634 and 0.791 as described by Sekaran (2003).

**Table 6-21: SS Reliability statistics and interrelated measurement indicators**

| Constructs and Indicators | Std. Loading    | Std. Error | Sq- M Correlation | Error Variance | Cronbach Alpha | Composite Reliability | AVE  |
|---------------------------|-----------------|------------|-------------------|----------------|----------------|-----------------------|------|
| Social Setting            |                 |            |                   |                | 0.879          | 0.87                  | 0.89 |
| V12                       | 0.722           | ***        | 0.521             | 0.505          |                |                       |      |
| V13                       | 0.798           | 0.108      | 0.637             | 0.429          |                |                       |      |
| V14                       | 0.866           | 0.102      | 0.750             | 0.259          |                |                       |      |
| V15                       | 0.791           | 0.102      | 0.626             | 0.394          |                |                       |      |
| V16                       | 0.679           | 0.102      | 0.461             | 0.570          |                |                       |      |
| 5                         | Number of items |            |                   |                |                |                       |      |

### Social-setting factor hypothesis testing

The social-setting effect was planned to be examined through testing the HI-B hypothesis:

- Sub-Hypothesis H1-B: Family healthy-food choices are influenced positively by social-setting determinants.

After using the SEM test, the results were used to test the study's structural model using path analysis to reflect the anticipated associations among the study's proposed constructs. Path analysis is a powerful method used for testing the multivariate regression models with both direct and indirect effect outcomes. To test the structural study model, it was important to check a set of indices such as the statistical significance of Standardised Regression Weights (SRW) (for example, t-value) of all research hypotheses and the Coefficient of Determination ( $R^2$ ) for the study's Endogenous Constructs. For the SS factor, it was found that the SS coefficient was not statistically-significant while its p-value was 0.490, which was more than the 5% level of significance. Thus, the effect of the SS factor on family healthy-food choices was not approved statistically and played no essential role on family choice of healthy-food products. This was because the Coefficient of Determination for SS indicated that the SS construct did not efficiently account for some of the variation of the projected study's model. Also, as shown in the proposed path analysis result in Table 6-22, the SS hypothesis results indicators (path coefficient value= 0.040, t-value=0.690, p-value= 0.490) denoted that the SS determinant did not affect family healthy-food choices positively.

**Table 6-22: Proposed analyses results for the SS independent variable**

| Research Proposed Paths      | Coefficient Value | t-value | p-Value | Empirical Evidence   |
|------------------------------|-------------------|---------|---------|----------------------|
| Social Setting → Food choice | 0.040             | 0.690   | 0.490   | <b>Not Supported</b> |

From a social perspective, while eating in most cases takes place within a set of environmental stimuli, and although the social effect is considered one of the main behaviour-setting variables, as proposed in this study. Hennig-Thurau, et al. (2006) studied customer-employee interaction and found that employees who delivered a service with a smile increased the emotional status of positive interaction for customers and increased the possibility of purchase

and repeat purchase behaviour. Thus, expressing employees positive emotions helped to express consumers' positive emotions as well. However, in the family healthy-food choice context, it might be the case where family members could express their positive feelings regarding the interaction process with others but not to the level where they could change their choice or their purchasing object. In addition, Sidenvall, et al. (2001) reported additional benefits that women usually gained when they went shopping such as physical exercise and social contacts. Thus, the researchers recommended that older women who lived alone should go shopping frequently and make it a routine process. An issue could be raised in this situation that social contact is something which differs from social influence while contacting others especially within a non-continues basis is not enough to make some families adapt or buy healthy meals or products while it might works in other purchase situations. To conclude, this study's findings demonstrate that the social-setting effect was not proved statistically to the level that influenced family healthy-food product choices and purchases.

The next behaviour-setting determinant that needs to be tested is the temporal-setting effect on family-food choices.

#### **6 - 8: F1-C. Behaviour-setting factor – Temporal-Setting (TS) construct**

Four item were used to test the reliability of the temporal-setting (TS) factor as shown in the reliability Table 6-23. The Cronbach's Alpha value was 82.3% which was found to be reliable (the Cronbach's Alpha was within an acceptable range) as explained by Sekaran (2003). The reliability of the TS construct is acceptable when the Cronbach's Alpha value is more than 60% (Gerber & Finn, 2005). In addition, the Cronbach's Alpha used to test the reliability importance of each item of the TS variable was deleted, and the reliability values were distributed between 0.761 and 0.801. Some items were considered important to the TS factors, including time of purchase during the day, week, and month, as well as time available to parents at home to prepare and cook healthy meals. Moreover, the item-total correlation test was used to explore the correlation among temporal-setting elements. The correlation coefficient values were found within the acceptable levels and their values were distributed between 0.594 and 0.682 (Sekaran, 2003).

**Table 6-23: TS Reliability statistics and interrelated measurement indicators**

| Constructs and Indicators | Std. Loading    | Std. Error | Sq- M Correlation | Error Variance | Cronbach Alpha | Composite Reliability | AVE  |
|---------------------------|-----------------|------------|-------------------|----------------|----------------|-----------------------|------|
| Temporal Setting          |                 |            |                   |                | 0.823          | 0.83                  | 0.54 |
| V19                       | 0.710           | ***        | 0.504             | 0.511          |                |                       |      |
| V20                       | 0.764           | 0.114      | 0.584             | 0.443          |                |                       |      |
| V21                       | 0.768           | 0.110      | 0.590             | 0.404          |                |                       |      |
| V22                       | 0.698           | 0.105      | 0.487             | 0.472          |                |                       |      |
| 4                         | Number of items |            |                   |                |                |                       |      |

### Temporal-setting factor hypothesis testing

The temporal-setting effect was planned to be examined through testing the HI-C hypothesis:

- Sub-Hypothesis H1-C: Family healthy-food choices are influenced positively by temporal-setting determinants.

After using the SEM test, the results were used to test the study's structural model using path analysis to reflect the anticipated associations among the study's proposed constructs. Path analysis is a powerful method used for testing multivariate regression models with both direct and indirect effect outcomes. To test the structural study model, it was important to check a set of indices such as the statistical significance of Standardised Regression Weights (SRW) (for example, t-value) of all research hypotheses and the Coefficient of Determination ( $R^2$ ) for the study's Endogenous Constructs. For the TS factor, it was found that the TS coefficient was statistically-significant while its p-value was 0.046, which was less than the 5% level of significance. Thus, the effect of the TS factor on family healthy-food choices was approved statistically and played an essential role on family choice of healthy-food products. This was because the Coefficient of Determination for the TS indicated that the TS construct efficiently accounted for some of the variation of the projected study's model. Also, as shown in the proposed path analysis result in Table 6-24, the TS hypothesis result indicators (path coefficient value= 0.122, t-value=1.99, p-value= 0.046) denoted that the TS determinant affected family health-food choices positively.

**Table 6-24: Proposed analyses results for the TS independent variable**

| Research Proposed Paths        | Coefficient Value | t-Value | p-Value | Empirical Evidence |
|--------------------------------|-------------------|---------|---------|--------------------|
| Temporal Setting → Food choice | 0.122             | 1.99    | 0.046   | <b>Supported</b>   |

Based on the study's result for the temporal-setting variable, it was proved statistically that the temporal variable affected family-food choices. There may be many reasons for these findings including that food choices, purchasing and cooking behaviours could be performed on a regular basis, and any family could choose a convenient time to perform these activities. In addition, even employed parents could choose and buy healthy-food products during working



times. It is important to keep in mind that time availability (for buying food products, preparing the food and even cooking) might be one of the food-shopping determinants for some families while it might be not for others (Dubowitz, et al., 2007). In addition, healthy food-product production and availability is not a matter of seasonality any more. This is because different shopping malls and food stores usually import a large number of healthy products from different food retailers around the world. Thus, healthy-food products can easily be purchased out of the season while agricultural products are becoming more durable and are easily transportable these days (Stagl, 2002). The next behaviour-setting determinant that needs to be tested was the regulatory-setting effect on family-food choice.

**6 - 8: F1-D. Behaviour-setting factor – Regulatory-Setting (RS) construct**

Three items were used to test the reliability of the regulatory-setting factor, as shown in the reliability Table 6-25. The Cronbach’s Alpha value was 61.0% which was found to be reliable (Sekaran, 2003). The reliability of the RS construct was acceptable while the Cronbach’s Alpha value was more than 60% (Gerber & Finn, 2005). In addition, the Cronbach’s Alpha was used to check the reliability importance if each item of the RS variable was deleted. The reliability values were distributed between 0.489 and 0.540. Some items considered important for the RS factors were different health regulations (for example, NHS publications or health visitors), governmental policies and regulations regarding food product planting, preparation, distribution and marketing, doctors’ advice and instruction as well as family nutritional directions. Furthermore, the item-total correlation test was used to test the correlation among the main RS elements. The correlation coefficient values were found to be accepted and distributed between 0.397 and 0.435 (Sekaran, 2003).

**Table 6-25: RS Reliability statistics and interrelated measurement indicators**

| Constructs and Indicators | Std. Loading    | Std. Error | Sq- M Correlation | Error Variance | Cronbach Alpha | Composite Reliability | AVE  |
|---------------------------|-----------------|------------|-------------------|----------------|----------------|-----------------------|------|
| Regulatory Setting        |                 |            |                   |                | 0.610          | 0.76                  | 0.51 |
| V24                       | 0.631           | ***        | 0.399             | 0.339          |                |                       |      |
| V25                       | 0.545           | 0.206      | 0.297             | 0.255          |                |                       |      |
| V26                       | 0.578           | 0.209      | 0.335             | 0.367          |                |                       |      |
| 3                         | Number of items |            |                   |                |                |                       |      |

**Regulatory-Setting factor hypothesis testing**

The regulatory-setting effect was planned to be examined through testing the HI-D hypothesis:

- Sub-Hypothesis H1-D: Family healthy-food choices are influenced positively by regulatory-setting determinants.

After using the SEM test, the results were used to test the study’s structural model using path analysis in a way to reflect the anticipated associations among the study’s proposed constructs. Path analysis is a powerful method used for testing the multivariate regression models with both direct and indirect effect outcomes. To test the structural study model, it was important to check a set of indices such as the statistical significance of Standardised Regression Weights (SRW) (for example, t-value) of all research hypotheses and the Coefficient of Determination ( $R^2$ ) for the study’s Endogenous Constructs. Regarding the RS factor, it was found that the RS coefficient was not statistically significant while its p-value was 0.928 which was more than the 5% level of significance. Thus, the effect of the RS factor on family healthy-food choice was not approved statistically and played no essential role on family choice of healthy-food products. This was because the Coefficient of Determination for RS indicated that the RS construct did not efficiently account for some of the variation of projected study model. Also, as shown in the proposed path analysis result in Table 6-26, the RS hypothesis result indicators (path coefficient value= 0.006, t-value=0.091, p-value= 0.928) denoted that the RS determinant did not affect family healthy-food choices positively.

**Table 6-26: Proposed analyses results for the RS independent variable**

| <b>Research Proposed Paths</b>   | <b>Coefficient Value</b> | <b>t-Value</b> | <b>p-Value</b> | <b>Empirical Evidence</b> |
|----------------------------------|--------------------------|----------------|----------------|---------------------------|
| Regulatory Setting → Food choice | 0.006                    | 0.091          | 0.928          | <b>Not Supported</b>      |

As a result, it was found that the regulatory-setting variable had no effect on family-food choices. The regulatory effect might appear in different forms such as governmental and nongovernmental bodies which support healthy-food production, distribution and marketing which ensure the possibility of choosing healthy-food products and even adopting a healthy diet through regulations and policies easily especially in both urban and rural areas (Brown & Jameton, 2000). These bodies should ensure that regulatory implications are brought into practice through food product classification, labelling, packaging and programs, for example, specialised healthy-diet programs for different demographical target groups especially the younger ones. In addition, recommendations are needed to encourage food policies and apply food standards that help in creating healthy eating environments in different food-behaviour settings such as schools, work sites, retail stores and restaurants (Story, et al. 2008). Christenson and Sheridan (2001) went beyond studying the direct effect of behaviour-setting elements and found that institutions and families should work on creating and enhancing every means and connection to learning, such as enhancing healthy-food behaviour patterns and collaboration group work. In summary, it might be the case where the majority of food products have been organised by preparing suitable regulations and standards. However, such

a regulation effect might be well organised from the supplier side but not from the consumers' demand side and practically not brought into practice enough to organise the process of making it convenient for families to choose and adapt to healthy-food products. Thus, practically, the regulatory effect does not statistically-influence family-food choices as found in this study.

After testing the main behaviour setting sub-hypotheses and explaining briefly the effect of its main four elements separately, it was important to test their effect jointly represented by the BS factor as being one of the main family food-choice determinants. Thus, the effect of BS factor on family-food choices needed to be tested.

### **Behaviour-setting factor hypothesis testing**

The behaviour-setting effect was planned to be examined through testing the first hypothesis:

- Hypothesis 1: Family healthy-food choices are influenced positively by behaviour-setting determinants.

After using the SEM test, the results were used to test the study's structural model using path analysis to reflect the anticipated associations among the study's proposed constructs. Path analysis is a powerful method used for testing multivariate regression models with both direct and indirect effect outcomes. To test the structural study model, it was important to check a set of indices such as the statistical significance of Standardised Regression Weights (SRW) (for example, t-value) of all research hypotheses and the Coefficient of Determination ( $R^2$ ) for the study's Endogenous Constructs. Regarding the BS factor, it was found that the BS coefficient was statistically-significant while its p-value was 0.00 which was less than the 5% level of significance. Thus, the effect of the BS factor on family healthy-food choice was approved statistically and played an essential role on family choice of healthy-food products. That was because the Coefficient of Determination for BS indicated that the BS construct efficiently accounted for some of the variation of projected study's model. Also, as shown in the proposed path analysis result in Table 6-27, the BS hypothesis result indicators (path coefficient value= 0.271, t-value=2.917, p-value=0.004) denoted that the BS determinant affected family healthy-food choices positively.

**Table 6-27: Proposed analyses results for the BS independent variable**

| <b>Research Proposed Paths</b>  | <b>Coefficient Value</b> | <b>t-Value</b> | <b>p-Value</b> | <b>Empirical Evidence</b> |
|---------------------------------|--------------------------|----------------|----------------|---------------------------|
| Behaviour Setting → Food choice | 0.271                    | 2.917          | 0.004          | <b>Supported</b>          |

Pollard, et al. (2002) who studied the factors affecting food choice in relation to fruit and vegetable intakes found that the main drivers of food choice were food availability, sensory

appeal, social interactions, time constraints, familiarity and habit, cost, personal ideology, media and advertising, as well as health. Based on this, families should work on creating and finding healthy physical eating surroundings that are conducive to healthy eating such as encouraging family members to eat together, encouraging the eating of different foods, allowing members to serve themselves during meals especially children whose ages range from 2-5 years old, minimising the chance of TV-viewing during meals and caring about the source of the food such as avoiding fast food shops (Patrick and Nicklas, 2005; Story, et al. 2008; Story, et al., 2009).

In addition, Stroebele and Castro (2004) studied the effect of ambience on food intake and food choice and found that a variety of external factors such as social stimuli, represented mainly by the presence of others, and physical stimuli represented mainly by temperature, sound, smell, time, colour and distraction, affect food choice and intake. Stroebele and Castro (2004) also explained that changes in healthy-food intake can be detected with different aspects of social and physical surroundings such as changing the number of people present, eating location, food colour, food accessibility, ambient lighting and temperature, food temperature, time of consumption, smell of the food and ambient sound. Within the behavioural-setting situational stimuli, some studies give attention to the effect of promotional stimuli on food choice (Gupta, 1988; Stead, et al., 2003). To ensure a definite healthy-eating message which differed based on demographical characteristics and level of involvement, Maddock, et al. (1999) suggested that “care must be taken to produce clear, simple and positive healthy eating messages to the public if trends towards a more nutritious diet are to continue” (p.270).

Based on the BPM, Alshurideh (2010) also explained that consumer choice is determined by the interaction between a consumer’s LH and the behaviour-setting factors. Thus, the effect of the LH factor on family-food choices need to be determined.

#### **6 - 8: F2. Learning history (LH) – Reliability, correlation, normality and hypothesis testing**

Five items were used to test the reliability of the LH factor as shown in the reliability Table 6-28. The AVE value was 0.60, the CR value was 0.87 and the Cronbach's Alpha value was 78.6%, which was found to be reliable (Sekaran, 2003). The reliability of the LH construct is acceptable when the Cronbach’s value is more than 60% (Gerber & Finn, 2005). In addition, the Cronbach’s Alpha was used to check the reliability importance if each item of the LH variable was deleted. This test tends to give a more precise estimation for each study factor’s

item to check to what extent each item contributes to the total internal consistency. The Cronbach's Alpha, if item-deleted values were distributed between 0.729 and 0.785, and found to be reliable (the Cronbach's Alpha was above the acceptable range). The reliability of all LH items are considered to be within a very good level when the Cronbach's value is above 70% (Gerber & Finn, 2005). Some items were found to be important to the LH factor, such as family previous experiences of purchasing and consuming, family nutrition knowledge, family habits and familiarity with healthy-food products and family attitude towards healthy diets. Furthermore, the item-total correlation used to test the correlation among the main LH items to check to what extent these constructs were interrelated with each other and if each construct was consistent with the rest of the LH constructs. If any item has correlation values less than 30%, then it is not consistent with the rest and can be dropped safely (Churchill, 1979). The item-total correlation coefficient values were calculated and found to be distributed between 0.464 and 0.625 (more than 30%), which indicated that the set of LH items performed well (Flynn, 1993), and that there was an internal consistency for this factor when all correlation values were more than 30% (Saunders & Munro, 2000; Sekaran, 2003).

**Table 6-28: LH Reliability statistics and interrelated measurement indicators**

| Constructs and Indicators | Std. Loading    | Std. Error | Sq- M Correlation | Error Variance | Cronbach Alpha | Composite Reliability | AVE  |
|---------------------------|-----------------|------------|-------------------|----------------|----------------|-----------------------|------|
| Learning History          |                 |            |                   |                | 78.6%          | 0.87                  | 0.60 |
| LH1                       | 0.533           | ***        | 0.285             | 0.484          |                |                       |      |
| LH5                       | 0.722           | 0.178      | 0.521             | 0.249          |                |                       |      |
| LH6                       | 0.738           | 0.160      | 0.544             | 0.187          |                |                       |      |
| LH7                       | 0.657           | 0.168      | 0.431             | 0.288          |                |                       |      |
| LH8                       | 0.640           | 0.160      | 0.409             | 0.278          |                |                       |      |
| 5                         | Number of items |            |                   |                |                |                       |      |

In addition, both Mean (M) and Standard Deviation (SD) were calculated for the LH factor. Firstly, the mean is the most frequently used test to measure the central tendency for numerical values and it provides an initial reading for both location and variation of the LH data set (Gerber & Finn, 2005). Secondly, the SD is one of the main dispersion measures that are widely used because it offers an index of the spread of a distribution or the variability in the sample data used (Sekaran, 2003). Both were calculated for the LH factor and their values were M=4.00 and SD=0.529 as shown in the histogram normality figure and Table 6 - 8: F2 in the Appendix. These results indicated that the LH factor was normally distributed based on the Kolmogorove-Smirnov (K-S) test where its value was 0.00. Based on the K-S test, results revealed that the Asymp. Significant value was less than 5%.

## Learning-history factor hypothesis testing

The learning-history effect was planned to be examined through testing the second Hypothesis:

- Hypothesis 2: Family healthy-food choices are influenced positively by accumulated-learning history.

After using the SEM test, the results were used to test the study's structural model using path analysis to reflect the anticipated associations among the study's proposed constructs. Path analysis is a powerful method used for testing multivariate regression models with both direct and indirect effect outcomes. To test the structural study model, it was important to check a set of indices such as the statistical significance of Standardised Regression Weights (SRW) (for example, t-value) of all research hypotheses and the Coefficient of Determination ( $R^2$ ) for the study's Endogenous Constructs. Regarding the family accumulated LH factor, it has been found that the LH coefficient is not statistically significant while its p-value is 0.514 which is more than the 5% level of significance. Thus, the effect of the LH factor on family healthy-food choice was not approved statistically and played no essential role on family choice of healthy-food products. This was because the Coefficient of Determination for LH indicated that the LH construct did not efficiently account for some of the variation of projected study model. Also, as shown in the proposed path analysis result in Table 6-29, the LH hypothesis result indicators (path coefficient value= 0.061, t-value=0.653, p-value=0.514) denoted that family LH construct did not affect family healthy-food choices positively.

**Table 6-29: Proposed analyses results for the LH independent variable**

| Research Proposed Paths        | Coefficient Value | t-Value | p-Value | Empirical Evidence |
|--------------------------------|-------------------|---------|---------|--------------------|
| Learning History → Food choice | 0.061             | 0.653   | 0.514   | Not Supported      |

While it becomes known and has been approved in different studies (Alshurideh, 2012) LH plays an essential role on consumers buying behaviour and repeated choice, proper justification needs to be clarified to explain the opposite finding in this study. Experience has been described by Meyer and Schwager (2007) as the internal and subjective reaction a customer holds to any direct or indirect contact with any of the interrelated purchase objects such as a product or a company. Dholakia and Bagozzi (2001) and Hoyer (1984) find that consumers usually recall previous experiences to the existing purchase context in a way to employ their knowledge and accumulated information within similar situations continuously. Thus, experience plays an essential role in each purchase situation and its effect should be tested within family food-purchase behaviour.

Devine (2005), Gillespie (2008) and Sjoberg, et al. (2003) have highlighted the importance of LH (experience, food choice history and food learning) on healthy-food choice. This is because the quality and quantity of early food experiences provide learning about a variety of food options and other interrelated issues such as poverty level (Nestle, et al., 1998). Gillespie (2008), for example, explained that family goals are shaped by preferences, shared values and experiences. In addition, other scholars have linked the experience of food choice with learning. For instance, Birch (1999) has addressed how early learning and experience affect the development of choice and preference. Birch (1999) found that a child has the ability to learn food preferences based on associations with the contexts and consequences of eating various foods. Furthermore, Sjoberg, et al. (2003) highlighted the link between cognition and learning. These studies found that skipping breakfast usually interfered with cognition and learning and consumer meal patterns were clustered as less healthy lifestyles and their food choices lead to poor nutritional intake. In addition, scholars have made a link between previous experience and future food choice. Hursti and Sjöden (1997), for example, have explained that there is a relation between taste and earlier experience, and the likelihood of future tasting of specific foods. Thus, Hursti and Sjöden (1997) claimed that more exposure to healthy-food products and cooking would help in adopting such products. Pollard, et al. (2002) also confirmed that healthy-food rejection for some products (for example, fruits and vegetables) could be overcome by repeated exposure or forced exposure to such products directly or indirectly (Rozin & Vollmecke, 1986). However, this is not might be the case when studying the family accumulated learning effect on healthy-food product choices. Many reasons might support this findings. Pollard, et al. (2002), for example, found that both familiarity and habit were some of the main barriers to adopting healthy-food products.

With respect to the effect of LH, scholars should keep in mind the effect of both positive and negative experiences. Kahneman and Tversky (1979 cited by Bolton, 1998) suggested that when studying consumers' experiences, customers usually weigh negative experience more heavily than positive experience. Alshurideh, et al. (2012) also found that positive experience has a direct effect on future repeat-purchase behaviour and mainly increases the probability of purchasing the same purchased object. On the other hand, negative experience has a direct link with switching purchase behaviour and promptly increases the probability of switching to other products and/or suppliers. All such studies explain the importance of experience on consumer choice within an individual purchasing incident in different purchase situations. Regarding the family experience, Hopia, et al. (2005) denoted and concluded that family experience has a

positive effect on family health. However, there was no statistical effect of LH found on family healthy-food choices in this study. This might be the case where a family learns and acknowledges the utilitarian benefits of buying healthy-food products but usually prefers buying unhealthy-food products for a set of reasons such as the availability of low-cost food product items (for example, fast food products) and the high cost of healthy-food product items.

Study factors that also need to be discussed and tested are the family healthy-food utilitarian and punishment consequences based on food-purchase decisions.

### **6 - 8: F3. Utilitarian Reinforcement (UR) – Reliability, correlation, normality and hypothesis testing**

Five items were used to test the reliability for the UR factor as shown in the reliability Table 6-30. The Cronbach's Alpha value was 85.5%, which is considered very good (Sekaran, 2003). The reliability of the UR construct was acceptable while the Cronbach's Alpha value was more than 60% (Gerber & Finn, 2005). Also, the Cronbach's Alpha was used to check the reliability importance if each item of the UR variable were deleted. This test tends to give a more precise estimation of each study factor item to check to what extent each item contributed to the total internal consistency. The reliability values were distributed between 0.805 and 0.866 and found to be reliable (the Cronbach's Alpha was above the acceptable range). The reliability values of the UR items are within a very good level when the Cronbach's Alpha value is distributed above 70% (Gerber & Finn, 2005). Some items were found to be important to the UR factor, such as physically wellbeing gained from healthy-food benefits, positive healthy-diet consequences, having a healthy and balanced diet and gaining nutritious food values and benefits. Furthermore, the item-total correlation used to test the correlation among the main UR items to check to what extent these constructs were interrelated and if each construct was consistent with the rest of the UR constructs. If any item has a correlation value of less than 30%, then it is not consistent with the rest and can be dropped safely (Churchill, 1979). The item-total correlation coefficient values were counted and found to be distributed between 0.550 and 0.747 (more than 30%), which indicated that the set of UR items performed well (Flynn, 1993), and there was an internal consistency for this factor while all correlation values were more than 30% (Saunders & Munro, 2000: Sekaran, 2003).



**Table 6-30: UR Reliability statistics and interrelated measurement indicators**

| Constructs and Indicators | Std. Loading    | Std. Error | Sq- M Correlation | Error Variance | Cronbach Alpha | Composite Reliability | AVE  |
|---------------------------|-----------------|------------|-------------------|----------------|----------------|-----------------------|------|
| UR                        |                 |            |                   |                | %85.5          | 0.93                  | 0.75 |
| UR1                       | 0.598           | ***        | 0.357             | 0.378          |                |                       |      |
| UR2                       | 0.835           | 0.133      | 0.697             | 0.123          |                |                       |      |
| UR3                       | 0.767           | 0.121      | 0.588             | 0.150          |                |                       |      |
| UR4                       | 0.799           | 0.116      | 0.638             | 0.116          |                |                       |      |
| UR5                       | 0.750           | 0.125      | 0.562             | 0.172          |                |                       |      |
| 5                         | Number of items |            |                   |                |                |                       |      |

In addition, both Mean (M) and Standard Deviation (SD) were calculated for the UR factor. First of all, the mean is the most frequently used test to measure the central tendency for numerical values and it provides an initial reading for both location and variation of the UR data set (Gerber & Finn, 2005). Secondly, SD is one of the main dispersion measures that is widely used because it offers an index of the spread of a distribution or the variability in the sample data used (Sekaran, 2003). Both were calculated for the UR factor and their values were M=4.118 and SD=0.513 as shown in the histogram normality figure and Table 6 - 8: F3 in the Appendix. These results indicated that the UR factor was normally-distrusted based on Kolmogorove-Smirnov (K-S) test where its value was 0.00. Based on the K-S test, the results revealed that the Asymp. Significant value was less than 5%.

### **Utilitarian-reinforcement factor hypothesis testing**

The utilitarian-reinforcement effect was planned to be examined through testing the third Hypothesis:

- Hypothesis 3: Family healthy-food choices are influenced positively by previously-experienced utilitarian reinforcement.

After using the SEM test, the results were used to test the study's structural model using path analysis to reflect the anticipated associations among the study's proposed constructs. Path analysis is a powerful method used for testing multivariate regression models with both direct and indirect effect outcomes. To test the structural study model, it was important to check a set of indices such as the statistical significance of Standardised Regression Weights (SRW) (for example, t-value) of all research hypotheses and the Coefficient of Determination ( $R^2$ ) for the study's Endogenous Constructs. Regarding the UR factor, it has been found that the UR coefficient is not statistically significant while its p-value is 0.149 which is more than the 5% level of significance. Thus, the effect of the UR factor on family healthy-food choices was not approved statistically and played no essential role on family choice of healthy-food products. This was because the Coefficient of Determination for UR indicated that the UR construct did

not efficiently account for some of the variation of the projected study model. Also, as shown in the proposed path analysis result in Table 6-31, the UR hypothesis result indicators (path coefficient value= 0.140, t-value=1.445, p-value= 0.149) denoted that the UR determinant did not affect family healthy-food choices positively.

**Table 6-31: Proposed analyses results for the UR independent variable**

| <b>Research Proposed Paths</b>                 | <b>Coefficient Value</b> | <b>t-Value</b> | <b>p-Value</b> | <b>Empirical Evidence</b> |
|--|--------------------------|----------------|----------------|---------------------------|
| <b>Utilitarian Reinforcement → Food choice</b> | <b>0.140</b>             | <b>1.445</b>   | <b>0.149</b>   | <b>Not Supported</b>      |

As described by Foxall and Greenley (1999), UR refers to features representing the functional, practical, and useful consequences of consumer behaviour because of purchasing, owning and consuming products or services. Also, Foxall (2004, p.239) describe UR as “the practical outcomes of purchase and consumption, that is, functional benefits derived directly (rather than mediated by other people) from product and service possession and application”. For the study purposes, UR can be re-described as the positive benefits and constructive consequences that a family tries to gain from healthy-food product choices and consumption. Results showed that healthy-food UR had no effect on the family food-purchase choices. Thus, the effect of the UR factor on healthy-food choice was not approved and there was no a statistical approval showing that a family's healthy-food choices were determined practically by the UR effect. Based on this finding, UR was not able to elect and maintain the appropriate family response to choose and consume healthy-food products.

Nowadays, some people are paying more attention to what they choose to eat, and are trying to change their eating habits by including more healthy-food items in their daily meals, as they understand that the food choices they make affect their overall health and well-being in both the short-term as well as the long-term (Sallis, et al., 1987; Chandon & Wansink, 2007). In SM, there is uncertainty on how scholars usually differentiate between long-term and short-term benefits. To provide a clear meaning of benefits, Andreassen (1995) has differentiated between long- and short-term benefits, identifying that short-term refers to one year or less while long-term refers to three to five years. Many studies have shown that there are certain types of foods that can prevent many diseases, and that choosing the right food product can help in reducing a variety of unwanted health consequences such as obesity. This justifies why some people prefer to choose one product over another based on the benefits obtained from that kind of food. Despite the fact of well thought of healthy-eating importance, this importance can differ from one product to another and even within the same product class. For Leek, et al. (2000), UR has been found to be important in addition to situational factors in choosing and

consuming healthy-food products (for example, fish). In addition, consumers' choice differed when purchasing fresh, frozen and canned types of food products. However, this study found no effect for UR on healthy-food choices. Many reasons may be attributed to this finding such as some customers being hesitant to try unfamiliar foods even when they believed these foods had healthy consequences. Thus, organisations should work on linking consumers' knowledge of a food product attributes to personal health-related consequences to enhance the adopting of these products (Wansink, 2005). This tends to increase the consumption habits of healthy-food products for today and future generations as well as in the adopting of a healthy lifestyle for gaining short-term and long-term benefits. Unseen or unclear tangible benefits (such as having a healthy appearance or avoiding negative consequences such as preventing chronic diseases) that have resulted from buying and consuming healthy-food items especially in the short-term may contribute to the study's findings regarding the effect of UR.

IR as a healthy-food determinants also needs to be tested.

#### **6 - 8: F4. Informational Reinforcement (IR) – Reliability, correlation, normality and hypothesis testing**

Five items were used to test the reliability for the IR factor as shown in the reliability Table 6-32. The Cronbach's Alpha value was 83.2% which was seen reliable (Sekaran, 2003). The reliability of the IR construct is acceptable when the Cronbach's Alpha value is more than 60% (Gerber & Finn, 2005). In addition, the Cronbach's Alpha was used to check the reliability importance if each item of the IR variable was deleted. This test tends to give more precise estimation for each study factor item to check to what extent each item contributes to the total internal consistency. The reliability values were distributed between 0.775 and 0.807 and found to be reliable (the Cronbach's Alpha was within an acceptable range). The reliability of IR items is considered to be within a very good level when the Cronbach's Alpha value is above 60% (Gerber & Finn, 2005). Some items were found important to the IR factor such as feeling good for eating healthy-food products, enhanced social circumstance feelings (for example, social acceptance, conformity, and prestige), and improved family general appearance and self-image. Furthermore, the item-total correlation was run to test the correlation among the main IR items to check to what extent these constructs were interrelated with each other and if each construct was consistent with the rest of the IR constructs. If any item has a correlation value less than 30% then it is not consistent with the rest of the items and can be dropped safely (Churchill, 1979). The item-total correlation coefficient values were

calculated and found to be distributed between 0.599 and 0.715, which indicated that the set of IR items performed well (Flynn, 1993), and there was an internal consistency for this factor when all correlation values were more than 30% (Saunders & Munro, 2000; Sekaran, 2003).

**Table 6-32: IR Reliability statistics and interrelated measurement indicators**

| Constructs and Indicators | Std. Loading    | Std. Error | Sq- M Correlation | Error Variance | Cronbach Alpha | Composite Reliability | AVE  |
|---------------------------|-----------------|------------|-------------------|----------------|----------------|-----------------------|------|
| IR                        |                 |            |                   |                | 0.832          | 0.83                  | 0.50 |
| IR1                       | 0.683           | ***        | 0.467             | 0.564          |                |                       |      |
| IR2                       | 0.777           | 0.112      | 0.603             | 0.357          |                |                       |      |
| IR3                       | 0.674           | 0.117      | 0.454             | 0.569          |                |                       |      |
| IR4                       | 0.747           | 0.121      | 0.558             | 0.477          |                |                       |      |
| IR5                       | 0.658           | 0.106      | 0.433             | 0.486          |                |                       |      |
| 5                         | Number of items |            |                   |                |                |                       |      |

In addition, both Mean (M) and Standard Deviation (SD) were calculated for the IR factors. Firstly, the mean is the most frequently used test to measure the central tendency for numerical values and it provides an initial reading for both location and variation of the IR data set (Gerber & Finn, 2005). Secondly, SD is one of the main dispersion measures that is widely used because it offers an index of the spread of a distribution or the variability in the sample data used (Sekaran, 2003). Both were calculated for the IR factor and their values were M=3.295 and SD=0.768 as shown in the histogram normality figure and Table 6 - 8: F4 in the Appendix. The results indicated that the IR factor was normally-distributed based on the Kolmogorove-Smirnov (K-S) test where its value was 0.00. Based on the K-S test, the results revealed that the Asymp. Significant value was less than 5%.

### **Informational-Reinforcement factor hypothesis testing**

The informational-reinforcement hypothesis effect was planned to be examined through testing the forth Hypothesis:

- Hypothesis 4: Family healthy-food choices are influenced positively by previously-experienced informational reinforcement.

After using the SEM test, the results were used to test the study’s structural model using path analysis to reflect the anticipated associations among the study’s proposed constructs. Path analysis is a powerful method used for testing multivariate regression models with both direct and indirect effect outcomes. To test the structural study model, it was important to check a set of indices such as the statistical significance of Standardised Regression Weights (SRW) (for example, t-value) of all research hypotheses and the Coefficient of Determination (R<sup>2</sup>) for the study’s Endogenous Constructs. Regarding the IR factor, it was found that the IR coefficient was not statistically-significant while its p-value was 0.561 which was more than the 5% level

of significance. Thus, the effect of the IR factor on family healthy-food choices was not approved statistically and played no essential role on family choice of health- food products. That was because the Coefficient of Determination for IR indicated that the IR construct did not efficiently account for any of the variation of the projected study model. Also, as shown in the proposed path analysis result in Table 6-33, the IR hypothesis result indicators (path coefficient value= 0.037, t-value=0.581; p-value=0.561) denoted that the IR determinant did not affect family healthy-food choices positively.

**Table 6-33: Proposed analyses results for the IR independent variable**

| <b>Research Proposed Paths</b>                   | <b>Coefficient Value</b> | <b>t-Value</b> | <b>p-Value</b> | <b>Empirical Evidence</b> |
|--|--------------------------|----------------|----------------|---------------------------|
| <b>Informational Reinforcement → Food choice</b> | <b>0.037</b>             | <b>0.581</b>   | <b>0.561</b>   | <b>Not Supported</b>      |

Foxall (2007c) has described IR as a symbol that is most mediated by the responsive actions of others and strongly-related to exchange values. IR usually results from a variety of dimensions such as prestige, positive feedback and recommendations from others. However, results did not confirm that IR played an essential role in maintaining a family's healthy-food choices. Based on this, the IR factor was not able to elect and maintain the appropriate consumer response to choose and consume healthy-food products.

Consumer IR elements are regarded as important (Sherman, et al., 1997). Sherman, et al., (1997) identify that the consumers' emotional status (as part of IR elements, for example) can be considered as one of the determinants of purchase behaviour and can be used as a mediating factor in the purchase process. Study results also show that healthy-food IR has a positive effect on consumer purchase choices. For example, Hurth (2010) explained that there are more salient benefits of food intake such as social support that enhances self-esteem rewards. In addition, in a study that differentiated between the IR effect of food recognition on males and females, Rappoport, et al. (1993) found that females give higher healthy-food pleasure and convenience ratings to healthy meals than do males.

Foxall and Greenley (1999; 2000) also found that pleasure was expected to increase with the UR of consumer situations. This issue has been confirmed by Yani-de-Soriano, et al. (2013) who claimed that “an interaction between pleasure and arousal in high-pleasure environments, which leads to increased approach behaviour seems to confirm the synergistic effect of UR and IR on behaviour” (p.148). Thus, food and eating generally lead to ambivalent feelings. Both the necessity of eating and the eating pleasure are contrasted by concerns regarding weight, appearance and the risk of consuming an imperfect diet (Rozin, et al., 2003). In addition, as the majority of families face daily pressure, Willett, et al. (1995) noted that

carefully-prepared and delicious meals would help in stimulating enjoyment of healthy diets and contribute to excellent health that also provided a sense of pleasure. However, the relationship between the IR factor and family healthy-food choices was not approved in this study and there was no statistical support showing that family healthy-food choices were influenced by IR. Foxall and Yani-de-Soriano (2005) also found that IR represented the symbolic indirect benefits that a consumer gained such as social status and self-esteem. Thus, indirect and symbolic consequences were issues that might prevent the direct and positive effect of IR on family purchase of specific healthy-food products. One of the main special natures of SM determined by Anderasen (1995) was that healthy-food products had invisible and intangible benefits. In commercial use, it has been suggested that, it usually has clear benefits for both a customer and supplier who are involved in an exchange process. On the other hand, in SM, social marketers usually encourage healthy behaviour where nothing happens in the short-run. For example, immunisations are supposed to prevent specific diseases in the future. However, after many years, the non-occurrence of some disease outcomes is a sign of success. Thus, invisible IR consequences make the mission harder especially in the case of intangible consequences that should be certainly acknowledged, such as having a good mood. Added to this, both theoretical and practical proofs were identified in many cases but there was a lack of practical studies using a variety of IR elements (for example, self-esteem rewards) as healthy food-products indicators that could maintain family healthy-food purchasing and consumption behaviours. Thus, additional studies are needed to test if positive informational utilities may increase the chance of repeat healthy-food purchasing and consumption based on the value of health.

While food choice, purchase and consumption behaviours has a large number of UR and IR consequences, such behaviours also cause a large number of punishment consequences. Thus, family healthy-food choices and consumption determinants that are related to the UP and IP need to be tested and discussed.

#### **6 - 8: F5. Utilitarian Punishment (UP) – Reliability, correlation, normality and hypothesis testing**

Four items were used to test the reliability of the UP factor as shown in the reliability Table 6-34. The Cronbach's Alpha value was 76.3% which is considered reliable (Sekaran, 2003). The reliability of the UP construct is acceptable when the Cronbach's Alpha value is more than 60% (Gerber & Finn, 2005). In addition, the Cronbach's Alpha was used to check the reliability

importance if each item of the UP variable was deleted. This test tends to give a more precise estimation for each study factor item to check to what level each item contributes to the total internal consistency. The reliability values were distributed between 0.688 and 0.747 and found to be reliable (Cronbach's Alpha was within an acceptable range). The reliability of UP items is within a very good level when the Cronbach's Alpha value is above 60% for most items (Gerber & Finn, 2005). Some items were found important to the UP factor including lack of family time and effort for buying and cooking healthy-food products, unpleasant consequences of unhealthy-food consumption such as over-eating, obesity and being overweight, as well as reducing both current and potential health risks such as cardiovascular disease and cancer. Furthermore, item-total correlation used to test the correlation among the main UP items to check to what level these constructs were interrelated to each other and if each construct was consistent with the rest of the UP constructs. If any item has a correlation value less than 30% then it is not consistent with the rest and can be dropped safely (Churchill, 1979). The item-total correlation coefficient values were calculated and found to be distributed between 0.483 and 0.629, which indicated that a set of UP items performed well (Flynn, 1993), and there was an internal consistency for this factor when all correlation values were more than 30% (Saunders & Munro, 2000; Sekaran, 2003).

**Table 6-34: UP Reliability statistics and interrelated measurement indicators**

| Constructs and Indicators | Std. Loading    | Std. Error | Sq- M Correlation | Error Variance | Cronbach Alpha | Composite Reliability | AVE  |
|---------------------------|-----------------|------------|-------------------|----------------|----------------|-----------------------|------|
| UP                        |                 |            |                   |                | 0.763          | 0.80                  | 0.50 |
| UP2                       | 0.695           | ***        | 0.483             | 0.496          |                |                       |      |
| UP3                       | 0.623           | 0.111      | 0.388             | 0.395          |                |                       |      |
| UP4                       | 0.755           | 0.119      | 0.570             | 0.429          |                |                       |      |
| UP5                       | 0.607           | 0.107      | 0.368             | 0.478          |                |                       |      |
| 4                         | Number of items |            |                   |                |                |                       |      |

In addition, both Mean (M) and Standard Deviation (SD) were calculated for the UP factors. Firstly, the mean is the most frequently used test to measure the central tendency for numerical values and it provides an initial reading for both location and variation of the UP data set (Gerber & Finn, 2005). Secondly, SD is one of the main dispersion measures that are widely used because it offers an index of the spread of a distribution or the variability in the sample data used (Sekaran, 2003). Both were calculated for the UP factor and their values were M=3.487 and SD=0.7699 as shown in the histogram normality figure and Table 6-8: F5 in the Appendix. The results indicated that the UP factor was normally-distributed based on the Kolmogorove-Smirnov (K-S) test where its value was 0.00. Based on The K-S test, results revealed that the Asymp. Significant value was less than 5%.

## Utilitarian-punishment factor hypothesis testing

The utilitarian-punishment effect was planned to be examined through testing the fifth Hypothesis 5:

- Hypothesis 5: Family healthy-food choices are influenced negatively by previously-experienced utilitarian punishment.

After using the SEM test, the results were used to test the study's structural model using path analysis to reflect the anticipated associations among the study's proposed constructs. Path analysis is a powerful method used for testing multivariate regression models with both direct and indirect effect outcomes. To test the structural study model, it was important to check a set of indices such as the statistical significance of Standardised Regression Weights (SRW) (for example, t-value) of all research hypotheses and the Coefficient of Determination ( $R^2$ ) for the study's Endogenous Constructs. Regarding the UP factor, it was found that the UP coefficient was statistically-significant while its p-value was 0.00 which was less than the 5% level of significance. Thus, the effect of the UP factor on family healthy-food choices was approved statistically and played a negative role on family choice of healthy-food products. That was because the Coefficient of Determination for UP indicated that the UP construct efficiently accounted for some of the variation of the projected study model. Also, as shown in the proposed path analysis result in Table 6-35, the UP hypothesis result indicators (path coefficient value= 0.213, t-value=3.303, p-value= 0.00) denoted that the UP determinant affected family healthy-food choices negatively.

**Table 6-35: Proposed analyses results for the UP independent variable**

| Research Proposed Paths              | Coefficient Value | t-Value | p-Value | Empirical Evidence |
|--------------------------------------|-------------------|---------|---------|--------------------|
| Utilitarian Punishment → Food choice | 0.213             | 3.303   | 0.000   | Supported          |

Foxall (1992) highlighted the importance of investigating aversive consequences that arise from buying products or services. Aversive consequences are described by Foxall (1998a) as the main distinct behaviour outcomes that harmfully affect consumers and, in most instances, reduce the chance of repeating such behaviours. Regarding explaining consumer choice and behaviour, Foxall, et al. (2011) differentiated between two main types of aversive consequences which were the Utilitarian Punishment (UP) and the Informational Punishment (IP). Based on this, UP tested particularly within the family-purchase behaviour context. Therefore, the effect of the UP factor on healthy-food choices was approved statistically and there was a negative influence of UP on the family healthy-food choices. Based on this, the amount of UP (especially if increased) is able to elect and maintain the appropriate consumer response to choose and consume healthy-food products negatively. For example, if food



product prices increase, the possibility of buying and choosing such products decreases. In addition, any cost a family pays to buy and choose healthy-food products as well as any unwanted consequences that are usually faced based on food choice and intake comes within the UP element. For Sidenvall, et al. (2001), Silayoi and Speech (2007) and Buckley, et al. (2007), a consumer usually sacrifices his/her time, physical energy, mental effort, and monetary values (healthy-food cost) in searching of the healthy-food products. Sidenvall, et al. (2001) found that economical thinking related to money is one of the main factors that guide a family's choice of food. In addition, Powell and Chaloupka (2009) identify that the higher the price of healthy-food products, the lower the possibility and frequency of purchasing and consumption.

Pollard, et al. (2002) have studied the main factors affecting healthy-food choice (in relation to fruits and vegetables intake) and found that there are many factors affecting a family's choice such as familiarity and habit, time constraints, personal ideology, social interactions, cost, media and advertising, as well as health. Pollard, et al. (2002) confirmed that 'price' is seen as an important barrier to healthy eating. Many other scholars such as Barratt (1997) and Darmon, et al. (2002) came up with similar results identifying that the cost of healthy food was one of the main barriers of food choice and nutrition density. Thus, some researchers such as Tomlinson (2008) also identify that healthy-food product programs (for example, adapted organic-food products) should be supported by government terms and conditions or supervision to make healthy-food products cheaper to the public. Foxall, et al. (2004) who explained that the cheapest brands available could be assumed to take full advantage of UR since consumer behaviour is particularly price-sensitive or elastic, in most cases, confirms this issue. While this factor takes the part of tangible punishments that determine family-food choices and affect healthy-food adoption negatively, there is a need to take the intangible punishments that affect family-food choices into consideration and test them practically.

#### **6 - 8: F6. Informational punishment (IP) – Reliability, correlation, normality and hypothesis testing**

Two items were used to test the reliability of the IP factor as shown in the reliability Table 6-36. The Cronbach's Alpha value was 94.1%, which was considered reliable (Sekaran, 2003). The reliability of the IP construct is acceptable when the Cronbach's Alpha value is more than 60% (Gerber & Finn, 2005). The rest of the IP items were removed because their reliability values were very low. Just two items were found important for the IP factor relating to unpleasant affective outcomes such as bad temper and depression, unhealthy-food

consumption risks such as social criticism and psychological risks and fear of feeling stressed and having bad moods. For special consideration and while the IP construct was important component in the BPM, the IP was measured using two items. Furthermore, item-total correlation was used to test the correlation among the main IP items to check to what level these constructs were interrelated with each other and if each construct was consistent with the rest of the IP constructs. If any item has a correlation value less than 30% then it is not consistent with the rest and can be dropped safely (Churchill, 1979). The item-total correlation coefficient values were calculated and found to be between 0.889 for both items, which indicated that the set of IP items performed well (Flynn, 1993), and there was an internal consistency for this factor when all correlation values were more than 30% (Saunders & Munro, 2000; Sekaran, 2003).

**Table 6-36: IP Reliability statistics and interrelated measurement indicators**

| Constructs and Indicators | Std. Loading    | Std. Error | Sq- M Correlation | Error Variance | Cronbach Alpha | Composite Reliability | AVE  |
|---------------------------|-----------------|------------|-------------------|----------------|----------------|-----------------------|------|
| IP                        |                 |            |                   |                | 0.941          | 0.77                  | 0.63 |
| IP3                       | 0.946           | ***        | 0.895             | 0.511          |                |                       |      |
| IP4                       | 0.940           | 0.069      | 0.883             | 0.532          |                |                       |      |
| 2                         | Number of items |            |                   |                |                |                       |      |

In addition, both Mean (M) and Standard Deviation (SD) were calculated for the IP factor. Firstly, the mean is the most frequently test used to measure the central tendency for numerical values and provides an initial reading for both location and variation of IP data set (Gerber & Finn, 2005). Secondly, SD is one of the main dispersion measures that are widely used because it offers an index of the spread of a distribution or the variability in the sample data used (Sekaran, 2003). Both were calculated for the IP factor and their values were M=3.083 and SD=1.019 as shown in the histogram normality figure and Table 6-8: F6 in the Appendix. The results indicated that the IP factor was normally distributed based on the Kolmogorove-Smirnov (K-S) test where its value was 0.00. Based on the K-S test, the results revealed that the Asymp. Significant value was less than 5%. As noticed in Table 6-36, two items were used to measure the effect of IP. Within the model purification stage using SEM, just two items were loaded efficiently in the IP factor. Pallant (2010) declared that it is preferable that at least three or more items are loaded on each component. However, while such a model is a core in the BPM and in shaping family-food choices, it was decided to measure this construct by using two items after removing the rest of the construct's items. This decision is discussed in the research limitations in section 7-2 in Chapter seven.

### Informational-punishment factor hypothesis testing

The informational-punishment effect was planned to be examined through testing the sixth Hypothesis:

- Hypothesis 6: Family healthy-food choices are influenced negatively by previously-experienced informational punishment.

After using the SEM test, the results were used to test the study’s structural model using path analysis to reflect the anticipated associations among the study’s proposed constructs. Path analysis is a powerful method used for testing multivariate regression models with both direct and indirect effect outcomes. To test the structural study model, it was important to check a set of indices such as the statistical significance of Standardised Regression Weights (SRW) (for example, t-value) of all research hypotheses and the Coefficient of Determination (R2) for the study’s Endogenous Constructs. For IP factor, it was found that the IP coefficient was statistically-significant while its p-value was 0.049 which was less than the 5% level of significance. Thus, the effect of the IP factor on family healthy-food choice was approved statistically and played a negative role on family choice of healthy-food products. This was because the coefficient of determination for IP indicated that the IP construct efficiently accounted for some of the variation of the projected study model. Also, as shown in the proposed path analysis result in Table 6-37, the IP hypothesis result indicators (path coefficient value= 0.096, t-value=1.964, p-value=0.049) denoted that the IP determinant affected family healthy-food choices negatively.

**Table 6-37: Proposed analyses results for the IP independent variable**

| Research Proposed Paths                | Coefficient Value | t-Value | p-Value | Empirical Evidence |
|--|-------------------|---------|---------|--------------------|
| Informational Punishment → Food choice | 0.096             | 1.964   | 0.049   | Supported          |

Foxall (1998a) categorised the behaviour aversive outcomes into two main categories which are UP and IP. IP can be illustrated as the direct and indirect intangible negative functions of family healthy-food product buying and consuming behaviour which comes in a variety of forms such as negative feedback and regret (Ratchford, 1982 ; Foxall, 1999b). Based on this, IP was tested particularly within the family choice context. Thus, the effect of the IP factor on healthy-food choices was approved and there was statistical proof showing that a family's healthy-food choices were influenced by the IP factor and IP was able to elect and maintain the appropriate consumer response to choose and consume healthy-food products. To add clarification, when a family receives negative feedback and criticism from others when

choosing and consuming food products (even when such criticisms increase), this will affect food choice negatively. This effect might need further explanation to check this relationship.

By considering similar research, many scholars explain that consuming unhealthy food usually creates many direct or indirect intangible health issues. For example, social criticism encourages individual consumers to change their consumption behaviour towards adopting healthy-food intakes (Grier & Bryant, 2005). This criticism is seen as negative feedback and usually comes from social surroundings as well as friends and families. Obesity, for example, is one of the main health problems that consumers usually receive negative feedback about from others. This issue has been confirmed by Forman, et al. (2009) who considered unpleasant status from gaining more weight as an example of IP that usually individuals try to avoid or minimise (Forman, et al., 2009). Experiencing unpleasant food intake's indirect outcomes such as bad temper, bad mood and depression are considered to be some of the main outcomes that consumers face when eating unhealthy products (Daniels, et al., 2004). Some customers care about regulating their mood by eating healthily and doing regular exercises to avoid negative consequences (Thayer, 2003). In addition, unhealthy-food consumption risks (for example, social risks and psychological risks) are important reasons for families to carefully choose what to buy and eat. Some criticism comes from others when somebody follows family and community institution (such as churches) instructions that do not usually support proper healthy-food choices and give prominence to social events with a wide array of unhealthy-food products, which in general contribute to poor diets that increase disease risks (Hargreaves, et al., 2002). This is because repeated individual exposure to dislike or unhealthy foods (for example, fast food) can breakdown resistance to eating such products (Benton, 2004). Thus, fear of feeling stressed and having bad moods usually leads families to adopt a healthy diet and have preferences for healthy-food products.

One of the contributions for this study was to test if the family healthy-food choices differed according to the main parent characteristic (for example, age, gender and education) while parents usually had the responsibility to choose, purchase and cook healthy-food products. These issues are discussed in Section 6-9.

## **6 - 9: Main parent demographic characteristics effect on family-food choices**

This section tests if family food-choice determinants differ according to the parent demographic characteristics. Chapter four, Section 4-1.8 discussed how family-food choices

differed according to the main parents' demographic characteristics. The potential parent demographic effect was examined through testing the seventh Hypothesis:

- Hypothesis 7: Family healthy-food choices differ according to the main parents' demographic characteristics (for example, age, gender, education, working status and family average income).

To test this hypothesis, the Hierarchical Multiple Regression (HMR) was used which enabled the testing of both experimental and non-experimental data (Petrocelli, 2003). In addition, the Hierarchical Regression (HR) is recommended to be used when there are a set of independent variables that need to be tested with a set of control variables (Field, 2009). Not just this, HR gives the chance to evaluate the effect of each set of variables and measures its contribution separately or within groups (Pallant, 2010). In addition, HMR allows determining a specific order or entry for specific variables into the statistical test which enables controlling the effect of some covariate variables' effect in order or tests the effect of some predictor independent variables of the effect of other variables within specific situations (Cohen, et al., 2013).

For this HMR test, the main parents' demographic characteristics were inserted into the test then followed by the main independent variables to determine the different of variances that were caused by each of the control variables. The HMR analysis results showed which variables were entered into the analysis, in the first model, a set of control variables of the main parents' demographical characteristics that were entered alone to determine their effect separately on family-food choices. These factors were age, gender, education, working status and family average income. In the second model, all independent variables were entered in addition to the set of the previous demographic characteristics that were used in the first model. The object of this analysis was to show the percent of variability in the family-food choices (dependent variable) that could be accounted for by the set of control variables together (all needed demographical variables) in the first stage then by the overall model (control variables and original predictor variables). This issue was interpreted by the amount of  $R^2$  change. The change of  $R^2$  was one of the methods that could be used to count how much the prediction power was added to the same model by adding another set of variables in the second model (second step).

In this study, as seen in the model summary Table 6-38, the percent of variability in the dependent variable that could be accounted for by introducing the main parent's demographic characteristics in the first case was only explained 1.2% of the total variances. In addition,

there was a statistically-significant contribution as indicated by the Sig. F change values, which were 0.777 and 0.00 for both models. By considering the ANOVA table in the Table 6-39, the first model (a set of the demographic characterises) and the second model (all demographic variables and all independent variables) predicted statistical scores on the dependent variable (family-food choices). The output indicated that the second model as a whole (usually included both blocks of variables) was significant while  $F(11, 192)=9.514$ ,  $p=0.00$  was less than 0.05. However, the output indicated that the first model (usually included just the block of parent demographic characteristics) was not significant while  $F(5, 196)=0.499$ ,  $p=0.777$  was more than 0.05. Based on this, it was found that the statistically-significant values indicated that the family healthy-food choices did not differ based on the first set of predictors which was the parents' demographic characteristics as seen in the first model. However, it was statistically confirmed that the family healthy-food choices differed according to the second set of independent variables (which included both the demographic variables and the original set of independent variables) as seen in the second model.

**Table 6-38: Model Summary – Effect of parent demographic characteristics**

| Model  | R     | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics |          |     |     |               |
|--|-------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|
|  |       |          |                   |                            | R Square Change   | F Change | df1 | df2 | Sig. F Change |
| 1  | .111a | .012     | -.013             | .91048                     | .012              | .499     | 5   | 198 | .777          |
| 2  | .594b | .353     | .316              | .74850                     | .340              | 16.828   | 6   | 192 | .000          |
| a. Predictors: (Constant), What is your family's average annual income? (£), What is your highest level of education? What is your age? What is your working status? , What is your sex?                         |       |          |                   |                            |                   |          |     |     |               |
| b. Predictors: (Constant), What is your family's average annual income? (£), What is your highest level of education? What is your age? What is your working status? , What is your sex?, BS, LH, UR, IR, UP, IP |       |          |                   |                            |                   |          |     |     |               |
| c. Dependent Variable: DV  |       |          |                   |                            |                   |          |     |     |               |

**Table 6-39: ANOVA -Testing the study model including effect of parent demographic characteristics**

| Model | Sum of Squares | df      | Mean Square | F     | Sig.  |
|-------|----------------|---------|-------------|-------|-------|
| 1     | Regression     | 2.066   | 5           | .413  | .499  |
|       | Residual       | 164.136 | 196         | .829  |       |
|       | Total          | 166.202 | 203         |       |       |
| 2     | Regression     | 58.634  | 11          | 5.330 | 9.514 |
|       | Residual       | 107.568 | 192         | .560  | .000c |
|       | Total          | 166.202 | 203         |       |       |

In addition, to know which variable contributed more in the prediction of the dependent variable, there was a need to consider the output table labelled coefficient. The standardised coefficient and Beta column indicated how each value for each variable had been converted and contributed to the same scale then the option of comparing such values was possible. The more the Beta value increased, the more the contribution in explaining the dependent variables

(Pallant, 2010). It was found that the largest standardised coefficient (Beta) values were (7.5 and 6.6), which both referred to the parents’ level of education and parents’ average annual income. To be sure whether the variables were statistically-significant and provided unique contributions, the Sig values for both variables (level of education and average annual income) were 0.294 and 0.359. Both values were more than 0.05, and this indicated that both factors (from the set of control variables) were not as significantly effective as the rest of variables but they contributed more to the dependent variable variances than other parent demographic aspects.

The effect of each parents’ demographic characteristics needed to be tested separately. The analysis was done by entering these characteristics separately including age, then gender, then parent education, then working status, then family income, then all independent variables into the HMR test. As seen in the analysis Tables 6-40 output and by focusing on the R square change column, it was found that age explained an additional 1% of the model variance, gender explained an additional 1.0%, parent education explained an additional 0.5% of the model variance, working status added nothing to the model variance, and family income explained an additional 5% of the model variance. In addition, there were no statistical significant contributions for such variables as denoted by the Sig. Change values for age, gender, education, working status and annual average income separately, while their values were 0.661, 0.806, 0.665, 0.800 and 0.777 constitutively, which all were more than 0.5. Furthermore, by looking at the Anova table output Table 6-41, it was indicated that the model was significant which included both parent demographic characteristics and all the independent variables since the Sig value was 0.0, less than .05.

**Table 6-40: Model summary for the effect of parent demographic characteristics separately**

|   | Model | R                 | R Square | Adjusted R Square | R Square Change | Sig. F Change |
|---|-------|-------------------|----------|-------------------|-----------------|---------------|
| Age   | 1     | .031 <sup>a</sup> | .001     | .004              | .001            | .661          |
| Gender  | 2     | .046 <sup>b</sup> | .002     | .008              | .001            | .806          |
| Education                                       | 3     | .088 <sup>c</sup> | .008     | .007              | .005            | .665          |
| Working Status                                  | 4     | .091 <sup>d</sup> | .008     | .012              | .000            | .800          |
| Family's Income                                 | 5     | .111 <sup>e</sup> | .012     | .013              | .005            | .777          |
| All – All independent and demographical factors | 6     | .594 <sup>f</sup> | .353     | .316              | .330            | .000          |

**Table 6-41: ANOVA for the effect of parent demographic characteristics separately**

|   | <b>Model</b> | <b>Sum of Squares</b> | <b>df</b> | <b>Mean Square</b> | <b>F</b> | <b>Sig.</b> |
|---|--------------|-----------------------|-----------|--------------------|----------|-------------|
| 1 | Regression   | .158                  | 1         | .158               | .193     | .661b       |
|   | Residual     | 166.044               | 202       | .822               |          |             |
|   | Total        | 166.202               | 203       |                    |          |             |
| 2 | Regression   | .356                  | 2         | .178               | .216     | .806c       |
|   | Residual     | 165.846               | 201       | .825               |          |             |
|   | Total        | 166.202               | 203       |                    |          |             |
| 3 | Regression   | 1.299                 | 3         | .433               | .525     | .665d       |
|   | Residual     | 164.903               | 200       | .825               |          |             |
|   | Total        | 166.202               | 203       |                    |          |             |
| 4 | Regression   | 1.366                 | 4         | .342               | .412     | .800e       |
|   | Residual     | 164.836               | 199       | .828               |          |             |
|   | Total        | 166.202               | 203       |                    |          |             |
| 5 | Regression   | 2.066                 | 5         | .413               | .499     | .777f       |
|   | Residual     | 164.136               | 198       | .829               |          |             |
|   | Total        | 166.202               | 203       |                    |          |             |
| 6 | Regression   | 58.634                | 11        | 5.330              | 9.514    | .000g       |
|   | Residual     | 107.568               | 192       | .560               |          |             |
|   | Total        | 166.202               | 203       |                    |          |             |

### Chapter summary

Chapter six was divided into a number of sections. The first section provided an overview of the study's framework supported by the main study hypotheses in the second section. The main sample demographic characteristics were discussed briefly in section three which included sex, age, marital status, marriage longevity, parent education levels, parent working status and family average annual income. It was found that the majority of the study's participants were females, representing about 74% of the study's sample. The participant's ages varied between 30 and 59 years-of-age and represented about 77% of the total sample. A notable issue concerning marriage longevity, was that about 41% of the parents who completed the questionnaire had been married for more than 10 years and 27% of them had been married for five to nine years. In addition, around 24% of the sample's subjects reported an income of between £10,000 and £30,000 a year, while around 19% earned more than £50,000 a year. There was a good link between high income and healthy food-products purchases and intake from the literature, while low-income families usually purchased low-quality health products.



Family purchase behaviour and family intake behaviour regarding healthy-food choices were discussed in sections four and five. The results showed that about half of the study sample shopped once a week and more than a third of the parents shopped once every two to three days. In addition, the data analysis showed that 33.3% of the study respondents claimed that they tried their best to prepare and eat healthily at every meal while around 28% explained that at least two healthy meals were consumed every day. Regarding the amount spent on healthy-food products monthly, figures showed that more than a third of the respondents spent between £201.0 and £300.0 on healthy-food products each month whereas just 16.7% of them paid more than £400.0 on healthy-food products.

To acknowledge what healthy food meant to UK families, the data showed that 107 of the participants (25.2%) thought that healthy food meant eating balanced food/diet, and about 74.8% of the study sample had a different conception that eating healthy foods were foods such as fresh meat. Fruits and vegetables were found to be an important choice as it was used by about 21% of families. While meat represented about 19% of the total sample's consumption, carbohydrates like rice, bread and pasta were found to be used by about 18% of the study's sample. Although some scholars are unsure of the main food-choice obstacles, it was found that about 19% of families reported that the high cost of healthy-food products was the main obstacle to healthy-food choices, while healthy food-product availability was reported as the second problem by about 13% of families.

To provide a clear analysis of family food-purchasing and consumption behaviour, family decision-making and its members' interaction and mutual influence deserved some attention in this context. Thus, the parent-child mutual effect regarding food choice and intake was discussed in section six. Data analyses showed that the food choice were influenced mainly by mothers. With a percentage of about 30%, studied families reported that mothers carefully directed and controlled food choice and purchases. Moreover, section seven provided a brief overview of the analysis tests used and summarised the main analysis outputs. Furthermore, the extent to which the BPM was appropriate to be used in the food choice context, showed that the model was valid when the overall percentages of statistical values were found to be significant as discussed in section seven. Moreover, a set of hypotheses that translated the effect of predetermined independent factors on family-food choices was discussed in section eight supported by testing the effect of parent demographic characteristics in manipulating the family food-choice process as discussed in section nine. The results denoted that there were

statistical proofs declared and confirmed the effect of BS, UP and IP on family-food choices but the proposed hypotheses that related to LH, UR and IR were not approved.

The final chapter provides an overview of the thesis and is divided into five sections. The first section briefly reviews the main study findings. The second section addresses the research limitations, and the third section highlights future research prospects. Some of the research theoretical and managerial implications are discussed in section four. In the final section, conclusion remarks are made.

## **Chapter Seven**

### **Conclusion**

## **Introduction**

As analysing family healthy-food choices and purchase behaviours were the main purposes of this study, a systematic research framework was needed to ensure a reliable and valid research outcome. The first chapter provided an overview of the background to family-food choices as a research problem. As a result, the research was planned to provide an explanation for daily family food-choice activities by providing both a theoretical explanation and research findings relating to healthy-food product choices. After conceptualising the research problem, the research questions summarised healthy-food choice issues supported by the main research objectives. Chapter one then highlighted how this study contributed to marketing knowledge and addressed the research gap by exploring and explaining how family-food choices took place, and how family behaviour could be manipulated and changed to select healthier food options. The chapter ended with an outline that justified the structure of the thesis.

Chapter two overviewed the literature relating to the study's problem so that the main factors and barriers affecting family healthy-food choices could be investigated. The chapter then reviewed literature relating to healthy-food choices in various chapter sections. After the chapter's introduction, the review addressed the issue of healthy-food meanings and reasons for its importance in food selection (see Section 2-1). This was followed by justifying the selection of family healthy-food choices for the study (see Section 2-2). While this study mainly focused on parent food purchases and consumption behaviour, the main family characteristics were explained in Section 2-3. Also, as investigating family healthy-food purchases and its consumption context was closely-connected with the SM approach, the SM approach as a field of study was highlighted in Sections 2-4 and 2-5. In addition, a definition of SM was provided in Section 2-6. In Section 2-7, the key principles and practices of SM as a discipline were explained. Furthermore, the last section presented and explained the SM problem supported by relevant behaviour-change theories that could be applied to SM approaches (see Section 2-8).

Chapter three provided the theoretical background to the research problems and was divided into ten sections. Sections 3-1 to 3-5 discussed the main theoretical models that had been used previously to study consumer behaviour change followed by a brief criticisms for such models in Section 3-6. Then, the chapter discussed what both behaviourism and behaviour change meant supported by their relationship to both classical and operant learning theories in Section 3-7. Section 3-8 explained the theoretical model that represented the study's skeleton or

framework, namely, the Behavioural Perspective Model (BPM). In addition, the justifications for using the BPM model for studying healthy-food choices was provided in Section 3-9 and followed by brief overviewed of its criticisms in Section 3-10. Chapter four presented the BPM's application within the SM context by providing an approach to explain family-food choices. This application was divided into sections to include the BPM's main themes, each of which were supported by its interrelated hypothesis. The chapter also comprehensively discussed and explained the main model component effects on family-food choices, namely, behaviour-setting categories (physical-setting effect, social-setting effect, temporal-setting effect, and regulatory-setting effect) supported by describing the study's related scope, family-learning history, both the utilitarian and the informational reinforcements, and concluded with both utilitarian and informational punishments. Finally, the chapter added further value by assessing if family-food choices impacted by the main parent demographic characteristics.

Chapter five provided an overview of the research design and the methodology steps that enabled the research problem to be solved empirically. The chapter commenced by providing a framework that shaped the research design's main steps and their logical links. The research's data collection started with collecting initial qualitative data from parent participants by conducting a set of focus groups to represent the main study's data-collection instrument items. The processes of designing and conducting parent focus groups and all interrelated main issues were explained such as preparing focus-group questions, contacting the appropriate parent target, preparing discussion venues and recordings as well as transcribing and analysing written data. In the second stage, the chapter reviewed the quantitative data collection methods, which started by developing the initial survey draft which passed through various steps to ensure validity in the process of planning, designing, testing and evaluating the survey tool through the pilot stage. Additional issues were discussed such as the sampling management, scale design and the measurement of the study constructs. In addition, Chapter five discussed the study's measurement validation using PCA tests, CFA tests, SEM tests, convergent-discriminant validity tests and the common method variance testing. The chapter was concluded by outlining the main ethical considerations required for the data collection.

Chapter six explained the practical testing of the thesis data including providing suitable discussions of study sample characteristics and testing the main study hypotheses. The chapter started by describing the study's framework in Section one and the main study hypotheses in Section two. Section three provided a suitable description of the study sample's demographic

characteristic analysis, with Section four providing a brief description of the family food-product purchasing behaviour analysis. Section five provided a concise explanation of family-food intake interrelated issues analysis, and Section six outlined parent-child mutual effects in relation to food-product purchase behaviour. Section seven described the analysis test that was used supported by providing a full details of the study model testing in addition to a overviewing some of the necessary tests usually used in this stage such as reliability and correlation tests. Section eight provided a understanding of analysing both the dependent variable in addition to the main study independent variables in relation to reliability, correlation, standard deviation and normality for each single variable separately supported by testing the main study hypotheses and sub-hypotheses. The final section investigated whether family food-choice determinant effects differed according to the parents main demographic characteristics.

Chapter seven summarises this thesis and is divided into various sections. Section 7-1 outlines the main study findings, identifying the study's sample descriptive analysis, the main healthy food-product purchasing behaviour's interrelated issues and the main healthy-food consumption behaviour interrelated issues. Section 7-1 then explains the mutual parents-children influences and, finally, ends with testing the study hypotheses guided by the BPM use as the rigorous theoretical framework. Furthermore, Section 7-2 addresses the study's limitations, which are the main obstacles that scholars face when conducting research. These limitations identify the main situations that minimise the chance of enhancing and validating research studies. Section 7-3 sheds light on future research avenues, which might assist and encourage scholars to explore new research issues using more developed approaches. Some of the research's theoretical and practical applications which, in turn, lead scholars, managers, marketers and social workers to provide improved healthy food-choice options is provided in Section 7-4. Finally, the thesis ends with concluding remarks in Section 7-5.

### **7 - 1: Main findings**

For the study sample's main demographical elements, the data showed that the majority of participants who completed the study instrument were female (73.5%) and only 26.5% were male. In addition, the majority of the participant ages ranged between 30 and 59 years, as a result, about 77% of the study's sample came from young families. Exploring the participants' ages was essential for the study as it gave more insight into who adopted the process of buying and consuming healthy-food products. Etzel, et al. (2007) identified that groups of American

citizens aged 50 years and over tended to spend more on different health products and/or services such as medical services and medical insurance. For the targeted younger UK families, the data showed that the majority of the study's sample (76%) were married and about 13% had one partner. As a result, about 89% of the study's sample could be considered a complete family with two parents who often have different lifestyles from a single consumer. For example, a family with two parents usually has more income and can manage their responsibilities better, whereas single parents often find it harder to manage household and childcare responsibilities (Jabs & Devine, 2006).

Each family had its own structure, which was often affected by many factors especially the marriage longevity. Results showed that about 41% of the study's families were well-established and their marriage longevity was more than 10 years, whereas just less than 2% of the families had relationships of less than one year. In addition, parent education was found to be an important factor influencing food choices. Burgess-Champoux, et al. (2006), found that the higher the parent's education levels, the greater their awareness and adaptation of healthy food-product purchases. The analysis showed that the majority of the study's sample were university graduates (82%) and only 17% of them had a school level education. In addition, regarding the spouse's education, 72% were university graduates and about 19% had a school level education. In addition, about 50% of the study's sample worked as full-time employees, about 26% worked as part-time employees while about 24% did not work. In addition, about 56% of the study's sample worked as full-time employees, about 9% worked as part-time employees while about 18% did not work. Blake, et al. (2011) studied the relationship between working status and food choice and found that family meal frequency and diet quality were not just related to the parent working hours but also to their employment status.

Explaining families' income in relation to food choice is essential. That is because high-income families tend to practice and have different lifestyles which mostly differ from low-income families. According to Mayer (1997), high-income parents usually have more cars, spend more money eating out, most likely to have health insurance and usually have better living conditions. In this study, about 20% of the study's sample earned more than £50,000 a year. On the other hand, low-income families face critical problems regarding choosing and eating healthy-food products especially more expensive options. Results showed that around 11% of the study's respondents earned less than £10,000 a year. Leibtag and Kaufman (2003) found that low-income shoppers usually spent less on food purchases and that low-income

households economised using different methods such as purchasing more discounted food products, settling for less expensive food products within a product class, pursuing volume discount, asking for and buying more generic (private-labelling) food products over branded ones.

The second family food-purchase behaviour analysis relates to shopping frequency (see Section 6-4). Clark, et al. (1977) and Park, et al. (1989) found that shopping trips should be studied and given more attention, especially when shoppers were motivated not only by both shopping and consumption utilities but also by the shopping process and other factors such as time availability. In this study, 77% of the participants made one shopping trip at least once each week and around 31.5% did their shopping twice a week. These shopping practices enabled shopper families to have more access fresh products.

Regarding the family healthy-food shopping frequency, Anderson, et al. (1994) explained that people who tried to follow special-diet meals and who ate at least one diet meal each day could be described as “healthy eaters”. This group comprised about 85% of the study’s sample. For the study, it was also important to determine the monetary value that families usually spent on buying healthy-food products every month, especially as Williams, et al. (2009) identified that the total cost of healthy-food baskets had risen dramatically. For the study, 16.2% of the study’s respondents spent less than £100.0 each month on buying healthy-food products, about a quarter disbursed between £101.0 and £200.0, while more than a third of the respondents spent between £201.0 and £300.0 and just 16.7% spent more than £400.0 on buying healthy-food products monthly.

Considering parent and family-centred decision-making was essential. The study found that mothers were often the decision-makers regarding food choices with 51% of the study’s sample whereas just 7% of the fathers determined what to buy and 31% of the study’s participants expressed that both fathers and mothers determined food choices jointly. As a result, this study added value by identifying which family members usually bought the family-food products. Data showed that mothers did about 50% of the family shopping trips, fathers did about 15% whereas both parents did about 31% of family food-product buying trips jointly. Some studies focus on food-product purchase settings, especially where families usually buy their food products. The study found that families usually bought their food products from a variety of malls, shopping centres and even small food shops. Particularly, it was found that within the County of Durham, Tesco stores were the first preference for 65 respondents



representing 25% of the study's sample while Sainsbury stores were the second preference for 60 respondents representing about 23% of the study's sample.

The third family food-intake behaviour analysis, provides more insight into various food-purchasing considerations (see Section 6-5). Initially, the results described what healthy eating meant to the family respondents especially when it was found that the majority had different views and different meanings of what a healthy diet was. To understand what healthy food meant to UK families, the data showed that 107 of the participants (25.2%) thought that healthy food meant eating a balanced diet, but about 74.8% of the study's sample had different views and described healthy food as eating fresh meat. Practically, the analysis found that 90 respondents who represented about 19% of participants believed that healthy food meant eating fruits and vegetables. Whereas, just 27 participants who represented about 6% of the study sample thought that healthy food meant low fat and the same percentage thought that it meant not eating too much sugar.

Regarding the main food categories that participants usually bought and consumed was essential in this study. The study's revealed that the main food-product categories that were usually consumed by UK families in the Durham County were fruits and vegetables for about 21% of the study participants. Fresh beef and poultry were also an important food choice for about for 19% of the total sample. Including rice, bread and pasta with meals were found to be essential for about 18% of the study's sample. Results also showed that about 17% of the respondent's children ate at nurseries while more than 57% of the children ate at schools. In addition, Mooney (1990) and Codron, et al. (2006) identify that food-shopping obstacles such as food-product availability, accessibility, cost, freshness, and time availability for shopping impact on food purchases. However, this study found that there were many more problems faced by the respondents, for example, the high price of buying healthy-food products, for about 19% of the sample. In addition, healthy food-product availability was found to be an obstacle by 13% of respondents, and low-quality food products which went off quickly were considered problems by 8% and 7% of the study's respondents. Moreover, it was found that there were many other problems that families faced regarding healthy-food cooking obstacles. The data analyses showed that the main problem facing the respondents adopting healthy-food cooking practices was the lack of time available to do so. Not having enough time to cook was found to be an obstacle for 21% of the respondents. Also, more than 15% of the study's respondents reported that one of the main food-cooking obstacles was that the food was

perceived to be tasteless by their children. Other problems that were found to be important included the high cost of good quality and fresh-food products, lack of knowledge of how to cook, unavailability of healthy-food products, and lack of time available for shopping.

Although eating in or out of homes has been discussed by many scholars such as Warde and Martens (2000), this study found that where a family usually eats its main three meals was unique. The study found that the participants mainly ate their meals in the kitchen and living rooms with 56.3% not eating their main meals in front of the TV, while 33.3% ate their food in front of the TV. Moreover, the study discovered that some family members had special diets, which, in turn, affected the whole family's eating behaviour. Results found that just 20% of the study's sample had special diets and controlled food and/or cooking types and ingredients while about 80% of families did not have any special diets.

To fully understand the study's family member interactions, especially between parents and children, this analysis assesses parent-child mutual influences (Maccoby, 2000; Solomon, et al., 2001). Initially, regarding the number of children in the study's households, the results showed that 23% had one child while about 38% had two children, and about 17% had three children. Clear evidences were found by Davison (1983) and Pelletier and Brent (2002), that both parents and children can, and do, affect each other. This mutual influence was confirmed by Oliveria, et al. (1992) who found that parents eating habits had an impact on the nutrient intake of their children. For the study, a notable finding was that more than 31% of family purchases were equally influenced by both parents. This indicated that the purchased food choice was taken jointly. Whereas, food choice that was strongly chosen by mothers was reported by 28% of the respondents. Regarding the child effect, results showed that 14% of families reported that there was no influence at all from their children on their food-product choices while just about 16% identified that their decision-making was fully-controlled by children in 20% and 30% of total food-product purchase situations.

For the study there were seven main hypotheses and four sub-hypotheses based on the study's framework. From the data analysis, it was found that the relationship between the behaviour setting (BS) factor and healthy-food choices was approved as there was a statistically-significant value showing that a family's healthy-food choice was a function of BS and determined by its main elements. Therefore, BS played an essential role in family choice of healthy-food products.

The effect of behaviour setting on family-food choices was categorised into four main sub-elements, which were the effect of physical-setting (PhS), social-setting (SS), temporal-setting (TS) and regulatory-setting (RS) according to the study's framework. These effects were converted into four sub-hypotheses. Therefore, it was important to summarise each sub-hypothesis comprehensively. Regarding testing the PhS effect on family-food choices, the path analysis outputs denoted that the PhS variable coefficient was statistically-significant while the p-value was 0.00 which was less than 0.5%. This indicated that there was statistical support for the sub-hypothesis and confirmed the effect of PhS on family-food choices. In addition, the main effect of the PhS influence comes from the convenience of accessing food shops (for example, store's location, distance and accessibility of transportation) which impacted on family-food shopping. Within the main stream, the SS effect was tested, and the path analysis outputs found that the SS variable coefficient was statistically not significant while the p-value was 0.490, which was more than 0.5%. This indicated that there was no statistical support for the SS sub-hypothesis that confirmed the positive effect of the SS on family-food choices.

Regarding testing the effect of TS influence on family-food choices, results showed that the TS variable coefficient was statistically-significant while its p value was 0.046, which was less than 0.5%. This indicated that there was statistical support for the TS sub-hypothesis within 5% of confidence, which, in turn, confirmed the effect of TS on family-food choices positively. The main TS influence came from the time available to parents to purchase their family-food products and time available to parents at home to prepare and cook healthy meals. The last element of the BS determinants was the RS. The path analysis results showed that the RS variable coefficient was statistically not significant while its p-value was 0.928, which was more than 0.5%. This indicated that there was no statistical support for the RS sub-hypothesis that confirmed the positive effect of RS on family-food choices. The majority of the regulatory effect came from offering different health regulations (for example, NHS publications), governmental policies and regulations regarding food-product planting, preparing and marketing, and doctors' advice and instructions that helped families to adapt healthy dietary requirements. The output of testing review of the BS effect on family-food choices revealed that these findings have been approved by scholars such as Pollard, et al. (2002). Pollard, et al. (2002) also studied factors affecting food choice in relation to fruit and vegetable intake and found that the main drivers of food choice were food availability, sensory appeal, social interactions, time constraints, familiarity and habit, cost, personal ideology, media and advertising, and health issues. Stroebele and De Castro (2004) also found that food choice and

eating took place in a set of environmental stimuli (known as ambience). The study also found that there were a variety of external factors affecting food choice and intake such as social and physical surroundings as well as the temperature, time, colour, smell, presence of other people and distraction. In addition, it was found that food choice and intake might differ based on the number of people present, eating locations, food accessibility, food colour, location temperature and lighting, smell of food, temperature of food, time consuming and ambient sounds. The surroundings' effect on family-food choices has often been underestimated by scholars and this study has filled in this gap and provided a deeper understanding of this BS effect.

Regarding the second hypothesis, which related to testing the effect of LH on family-food choices, the relationship between the accumulated LH factor and healthy-food choice was not approved and there was no statistical significant value showing that a family's healthy-food choices was affected by a family accumulated LH. Based on this, it could not be confirmed that a family's LH played an essential role in the family choice of healthy-food products. The main items used in testing the LH construct were family nutritional knowledge, attitude about healthy diet, family habits and familiarity towards healthy-food products. Dholakia and Bagozzi (2001) and Hoyer (1984) found that consumers usually recalled previous experience to the existing purchase context in a way to employ their knowledge and accumulated information within similar situations continuously. This experience-recall process was also confirmed by Alshurideh, et al. (2012) who practically-confirmed that previous positive experience had a direct effect on future repeat-purchase behaviour and would mainly increase the chance of purchasing the same purchasing object in the forthcoming future or within similar settings. However, if diet knowledge was not available or low, the experience-recall process would be unwelcome or not secure. Thus, enhancing family accumulated diet-knowledge and healthy-food purchase and consumption comprehension would be the solution.

The third hypothesis was related to testing the UR effect on family-food choices. Based on the study's analysis results, the relationship between the UR factor and healthy-food choices was not approved and there was no statistical significant value showing that a family's healthy-food choice was determined by the UR variable. Based on this, the UR effect was not able to elect and maintain the appropriate family response to choose and consume healthy-food products. This finding was contrary to the findings of some scholars who declared that positive consequences of eating food products were one of the main food-choice drivers (Leek, et al.,

2000). Leek, et al. (2000) also found that the UR was important in addition to situational factors in choosing and consuming healthy-food products (for example, fish). Other scholars also found that a consumer's food choice differs among fresh, frozen and canned food types.

The fourth hypothesis was related to testing the IR effect on family-food choices. Based on the study's analysis output, the relationship between the IR factor and family healthy-food choices was not approved. There was no statistical significant value showing that a family's healthy-food choice was influenced by the IR factor. Based on this, the IR was not able to elect and maintain the appropriate family response to choose and consume healthy-food products. In addition, the main IR influence usually resulted from a variety of dimensions such as prestige, positive feedback and recommendations from others. Studying the IR construct added value to the literature as the majority of studies were conducted to test the tangible consequences of food choice and consumption while not that much attention was exerted on studying and testing the IR consequences. Steenkamp (1997) describes the IR consequences as the psychological consequences that involve less-tangible and less-direct personal and/or social outcomes of product choice and consumption.

The fifth hypothesis was related to testing the effect of the UP consequences on family-food choices. Based on the study's analysis result output, the relationship between healthy-food choice and UP was tested and approved and there was a negative influence of UP consequences on family healthy-food choices. According to this, the amount of UP (especially if increased) was not able to elect and maintain the appropriate family response to choose and consume healthy-food products. Many scholars have approved this issue, for example, Sidenvall, et al. (2001) found that economical thinking related to money was one of the main factors limiting a family's choice of food shopping and cooking. Also, Powell and Chaloupka (2009) found that the higher the price of healthy-food products, the lower the possibility and frequency of purchasing and consuming such healthy-food products.

The sixth hypothesis was related to testing the effect of the IP consequences on family-food choices. Based on the study's analysis, the relationship between the IP factor and healthy-food choice was approved and there was a statistical significant value showing that a family's healthy-food choice was influenced by the IP consequences. Thus, the IP factor could be considered able to elect and maintain the appropriate consumer response to choose and buy family healthy-food products. A criticism of IP is that negative feedback usually comes from social surroundings such as friends and brothers. This social criticism should encourage

individual consumers to change his/her consumption behaviour towards buying and adopting healthy-food intakes. Forman, et al. (2009) confirmed this issue by considering unpleasant status. For example, gaining more weight is an example of the IP that individuals usually try to avoid or minimise to avoid social criticism.

Studying the effect of parent main characteristics was essential in this study while the majority of the family's food choices were made mainly by one of the parents or by both of them. Thus, the last hypothesis was related to testing whether the main parent's demographic characteristics could manipulate the effect of the family food-choice determinants. The study's results showed that the family-food choices did not differ according to the main parents' demographic characteristics (for example, age, gender, education and income). It was important to note that parent characteristics were entered one by one into the analysis test during the first analysis round. Then, the effect of the main parent demographic characteristics were tested together, followed by entering all the main study independent variables together in the second round of analysis. The results showed that none of the parents tested demographical aspects (separately or jointly) manipulated the effect of independent variables on the dependent variable and controlled the family-food choices. This findings was in line with other study findings that demographic characteristics did not affect healthy-food choices in most cases but that food choice and intake levels and motives varied considerably according to such demographic characteristics (Steptoe, et al., 1995; Pollard, et al., 2002).

## **7 - 2: Research limitations**

The research planned to study UK family-food choices, in turn, added valuable insights to tackling new phenomenon. However, the researcher faced many obstacles, which affected in conducting this study.

This study tackled a relatively new phenomenon that aimed to explain how families choose their food products. Thus, the first limitation related to finding literature to support the conducting of this study and designing the study instruments. This was difficult as not many similar studies had been conducted investigating family-food choices and healthy-food purchasing behaviour. As a result, gathering suitable information and other related data from previous literature was difficult. The second limitation was related to finding volunteers to participate in the planned focus groups. This was also difficult as the refusal rate was high due to many factors such as being busy or connected with full- or part-time jobs. However, the

actual conducting of the focus-group discussion was an easy process. The third limitation was related to preparing and conducting the focus-group discussions. For example, agreeing with participants on a specific time and place was complex especially when the focus-group participants were more than six members. Choosing the best time and place depended mainly on the participant's convenience and time availability, which was not usually controlled by the researcher. In addition, it was difficult and time-consuming to transcribe the recordings, code the data and elicit the relevant study items from the written documents especially when transcribing native speaker interview recordings as their speaking pace was fast, with lengthy and intricate dialogues in most situations and speakers not taking turns.

The fourth limitation was related to the data analysis and the type of statistical tests used and especially the study items that were employed by the study constructs to collect the primary data. Preparing the study survey relied on a set of items that were mainly identified from the focus-group discussion outputs and not based on what was available from literature and used directly by other research studies. This was because some of previous studies used a variety of items which were used for research conducted in different situations, subjects, countries, cultures and different time perspectives. Thus, the study did not rely mainly on construct items of previous research and use them with a new phenomenon like family-food choices. The study's aim was to create and find suitable item constructs from the family UK citizen participants that were part of the study sample and to rely on their experience when preparing the study survey. Another aim was to use items that really reflected the real situation and not items that had served other research situations. This might be the case where the correlations values among some constructs' items were a little low. Afterwards, the main construct items were supported by a set of previous studies that had used the same or similar items and tested them practically. This item-construct process was considered important and could be one of the main contributions that this study makes especially when exploring a new phenomenon such as family healthy-food choices.

The fifth limitation was related to the process of collecting data from the suitable participants which was difficult especially when facing a low response rate. The refusal rate was high and parents were unable to complete the study instrument because of many reasons such as being busy or having too many family responsibilities. Food product purchase and choice were mainly connected with parents and it was not possible to collect data from anyone else. Other research phenomena can be considered easy to study as the process of data accessing and data

collecting from a specific respondents is easier especially when the phenomenon is known and anyone can complete the study instrument such as mobile phone use or mobile brand phone choice studies.

The sixth limitation related to the use of the convenience sampling method. The study participants were selected because they were considered easily accessible. However, not all possible families were suitable to be studied as an appropriate target population was essential. In addition, there were limitations regarding the distributing and collecting of the study survey as a large number of questionnaires were collected personally. As a result, the response rate was a little low and many procedures were required to increase the response rate such as sending reminder emails, making phone calls and sending text messages to some respondents.

Some scholars prefer collecting data from different sources to avoid a variety of problems that might arise such as the common method variance especially when discussing the measurement methods rather than the measurement construct interrelated issues (Podsakoff, et al., 2003; Brannick, et al., 2010). When using a single-source research design or using same methods, the common method bias is a potential problem especially when data is collected through self-report methods. Although the common method bias was tested in the methodology chapter and results showed that it was not a concern in this thesis. However, the seventh constraint for this study, as other studies, was that the study relied on a self-reporting method in collecting the study data through a prepared survey for such a purpose. It was preferable that the researcher used more than one method such as completing the study survey through other means such as online surveys or collecting data from different sources such as respondents from different areas or from food product producers or retailers. The eighth limitation for this study was related to using a large number of items that were taken out from the focus-group discussion analyses as well as constructs elicited from a large number of previous studies (see Chapter five, Section 5-3). This might indicate low reliability values for a few of the study constructs such as the regulatory-setting construct. This issue could be avoided in other studies by employing a set of items that were taken from other studies with high-reliability values.

Nevertheless, the response rate and sample size seemed to be acceptable for this study as discussed in the methodology chapter (see Chapter five, Section 5-6). However, the ninth study's limitation was that the researcher missed the issue of ordering the received questionnaires and numbering them. This point may have created a problem regarding the potential of response biases. In this case, there was no possibility of discussing and comparing



late and early respondent views. This omission might not just help in increasing the scale measurement validity but also it missed the chance of adding value to the study and it might be claimed that the response bias was a serious concern (Miller and Smith, 1983; Dalecki, et al., 1993).

The last study limitation was related to measuring the effect of IP on food choice within the model purification stage using SEM, as just two items were loaded efficiently in the IP factor. For scholars such as Pallant (2010), it is preferable that at least three or more items are loaded on each component. However, just two items were loaded on the IP component and used to test its effect on family-food choices. While such a component is a core in the BPM and has a significant role in shaping family-food choices, the researcher proposed to measure this construct by using two items after removing the rest as explained in the analysis chapter in Section 6-8: F6.

### **7 - 3: Prospects for future research**

Regarding future research, the study provides many future research suggestions which might be worthy to be taken into consideration seriously from scholars. For example, this study sheds an understanding on the mutual influence effect between parents and children. Thus, more analysis needs to be explored especially discussing the effect of family size on healthy-food choices. The relationship between children number and quality of life or healthy lifestyle is an issue that needs to be addressed. This study found as did other studies (for example, Oliveria, et al., 1992) that parent eating habits have an impact on the nutrient intake of their children. Thus, more studies may be needed to explore the effect of parent eating habits on specific healthy-food products such as fruits and vegetables on children eating habits and nutrition types. Moreover, the study found a notable issue in that more than 31% of family purchases were equally influenced by both parents jointly and found that about 28% of families reported that mothers had directed and controlled food choice carefully and solely. These findings need in-depth investigation regarding the mothers' characteristic effects and what factors shape their behaviour and, specifically, healthy-food products.

Many items were addressed and investigated regarding food-choice behaviour setting. Some of these items were related to public transportation availability and cost effects on food choice. Not many studies have been done to research such behaviour-setting element effects on food choice especially those that link food product accessibility, conveniences and availability. In

addition, one of the notable contributions of this study is that it examined practically the effect of behaviour-setting drivers on family healthy-food choices. The study found that such constructs influenced family healthy-food choices. Accordingly, this study suggests that other scholars and practitioners should give more attention to the scope of these behaviour-setting constructs. The scope of behaviour-setting has suggested that both consumer-purchasing behaviours and choice activities occurred within a range of relatively-open to relatively-closed behaviour settings (Foxall & Greenley, 2000). An open-behaviour setting occurs when a consumer can choose freely among several options while a closed-setting occurs when a consumer has little or no choice to choose. In addition, Foxall, et al. (2006) illustrated four types of consumer-activity categories, viewed as a hierarchy or sequence of clusters. Termed operant classes, they can be described according to the types and levels of reinforcement (namely, high/low utilitarian and high/low informational).

The four operant classes of consumer behaviour named maintenance, accumulation, hedonism and accomplishment were based on Foxall and Yani-de-Soriano's (2005) behaviour-setting categories. These four operant classes a needed to be tested practically. In addition, the previous four operant classes could be expanded and operationalised alongside the scope of the behaviour-setting to produce eight separate contingency categories. These categories could be used to further classify the operant classes taking into consideration a broad range of behaviour based on relatively-open behaviour settings or relatively-closed behaviour settings. These contingency categorisations could be discussed further and/or applied at a later stage even within the scope of this study in future research. As a result, studying family healthy-food choices would be a rich of values when taking these four operant classes into consideration in new practical research settings especially from a parent's point of view.

In addition, part of the behaviour-setting elements are the regulatory and social settings, which have both been proposed in this study to influence positively family-food choices as supported by previous studies. However, the study found no effect for these constructs on family-food choices. Thus, further research is suggested to test both constructs and more practical research studies should be planned to explore reasons for these occurrences.

Furthermore, a family-learning history has been proposed to have positive effect on family healthy-food choices by previous studies. However, the analyses of data showed that the accumulated family-learning history had no influence on healthy-food choices. However, previous studies confirmed the positive effect of learning history on buying and repeat buying

in different purchase occasions. Alshurideh, et al. (2012), for example, suggested that a consumer usually recalls previous experience to the existing purchase situation and uses his/her knowledge and accumulated information within similar situations continuously to buy the same or similar food products. Moreover, Birch (1999) found that early-learning and experience affected the development of food choice and preference. Thus, deep analysis is needed to explain contradictory results and investigate why parent learning history seems to have no effect on healthy-food buying and explore why other interrelated issues such as education, training and acknowledge effects vary for different family characteristics especially for families with different age-group children.

It has been proposed in this study that both food consumption informational and utilitarian reinforcements affect positively family-food choices. However, from the study's findings, these constructs had no effect on family-food choices. More exploration of these findings is required especially when food purchasing is related to daily activities and expected or perceived benefits of food consumption, which, in most cases, are the core of food-product selection (Magnusson, et al., 2003). As a result, it seems that the perceived benefits of food types and consumption should receive more attention and be highlighted when advertising and promoting food products (Harris, et al., 2009b). Thus, more studies are needed to explain the relationship between buying specific food products and their perceived benefits and how this relationship could be the core of food purchasing and selection. Furthermore, as these reinforcements are mainly related to health benefits, the study discussed the effect of these benefits without considering both short-term and long-term consequence perspectives. As it is important to keep in mind that food benefits are shaped more by long-term perspectives such as adopting a healthy life style diet, it is suggested that future research investigates the relationships between healthy-food benefits, food-purchase decisions and food-benefit awareness with respect to both perspectives.

Moreover, the study discussed how healthy-food consumption consequences that related to informational reinforcements affect family food-purchasing choices theoretically and practically. Hurth (2010) explains that there are more salient benefits of food intake such as social support that enhances self-esteem rewards. In a study that differentiates between the informational reinforcement's effect between males and females on food recognition, Rappoport, et al. (1993) found that females gave higher healthy-food pleasure and convenience ratings to healthy meals than males. Thus, the investigating of the main salient benefits and

symbolic informational reinforcements that affect family-food choices are needed, and if these effects are evident and differ according to the family members.

In addition, Blades (2001) indicates the need to explore various research topics including determining the socio-cultural eating-pattern effect, and facets of nutrition especially where there are a limited number of socio-cultural eating-pattern studies that can be found within the literature (Blades, 2001). This thesis has also addressed family food-choice determinants and presented important information regarding parent-child mutual interaction and the effect of parent on children nutrition. This, in turn, highlights new opportunities for intervention researches that focus more the parents' roles within the family contexts (Story, et al., 2002a). Moreover, the effect of social-setting requires more attention in family-behaviour settings. Few studies have explored the relationship between nutrition disparities and socio-contextual factors. Thus, more attention needs to be given to both the social effect and social environment in family-behaviour settings.

A notable finding in this thesis was that family healthy-food choices do not differ according to a parent's major demographic characteristics (namely, age, gender, education level, working status and family average income) separately and jointly. This finding is noticeable as a large number of previous studies found a practical link between parent demographic characteristics such as education, employment, income and awareness and both eating behaviour and food-product choices, even for different customer groups. These contradictory findings could help in adding more research options especially when studying children food-choice determinants that relate to different parental aspects, especially with respect to their backgrounds, cultures, religions and lifestyles. For example, De Bourdeaudhuij (1997), found that the father's occupation had a significant effect on food choice. Also, Hofferth and Sandberg (2001) found that children spent more time in day care if they lived with an employed mother. These issues and circumstances need more research and testing. In addition, the thesis provided a simple idea of the mutual parent-child nutrition effect. However, more investigation is needed to explain the parent's support in the design of both healthy lifestyles and healthy food-choice habits and define the variety of parental support effects on children and adolescences nutritional choices. While parents are considered the first teachers for their children and can educate them on how to make healthy-food choices and establish healthy eating patterns. Therefore, parental support needs to be explored in-depth from different facets such as parental

level of control, parental flexibility levels and parental counselling as confirmed by Eiser and Morse (2001), O'Neil and Nicklas (2002) and Jenkins and Horner (2005).

The conclusion chapter also needs to discuss the study's contribution to knowledge and provide a set of managerial implications.

#### **7 - 4: Theoretical and managerial thesis implications see email section**

This part discusses as to what extent the thesis's findings bring implications for both - scholars and practitioners in the context of family food choice.

Primarily, the thesis provides a logical and justifiable link between family healthy-food choices as part of consumer-behaviour analysis and SM knowledge. The established link that was tested on the BPM model, not only brings a new insight on the selected topic but also provides an opportunity for further research utilising the results from this study. The model consists of a set of pre-purchase (situational-behaviour) dimensions and post-purchase (operant-behaviour) dimensions to analyse consumer choices in family-purchase contexts.

The majority of earlier studies which were conducted on healthy-food choices, purchasing and consumption were done at the individual consumer level. However, the current study adds to this knowledge a significant issue by considering all family members as the main study unit for analysis. Targeting family members makes sense because it takes a group of consumer interests into consideration at once. These members usually share similar norms, habits and thoughts regarding what to choose and buy especially from food products. A lack of studies focusing on group choices, triggered this study to be planned and executed. However, analysing family-food choices is more complex than that of an individual because many interrelated elements need to be taken into consideration to generate a clearer understanding of the family food-choice phenomenon. These elements may include family-member interaction, parent effect on children, children effect on parents, eating-behaviour patterns, family habits, places where families eat their main meals, number of children at home as well as culture/religion effects. Tackling practically the family healthy-food choice from an operant-behaviour perspective is important for researchers because it fills a research gap, which, in turn, may lead scholars to investigate similar social problems in different behavioural situations. In addition, this topic is important for practitioners in developing marketing programs to influence family-purchasing habits and consumption behaviours. Also the study

provides significant insights for governments to create intervention programs for the betterment of its citizens' health.

The study provides a clear understanding of family healthy-food choices especially in a new setting and in a new geographical area, namely, Durham County in the United Kingdom of Britain. By conducting this study and testing it practically provided a clear understanding and analysis of complex behaviours. This perspective will assist both managers and scholars to understand operations and processes in a factual purchase situation using a rigorous theoretical framework. For instance, the study found that the majority of food product decision-makers, buyers, and influencers were mothers. Precisely, in more than 50% of the cases, the mothers would make food-buying related decisions followed by another 31% of the participants consisting of both parents making a decision. More attention should be given to study such targets to understand mothers as food influencers and how mothers could support or promote the desired changes that enable the family members to adopt healthier life styles gradually by developing tailored nutrition programs (Byrd-Bredbenner & Abbot, 2008). In addition, practitioners, such as retailers and marketers, may focus their marketing food programs to target parents and specifically mothers who are the core in food-choice process. This requires targeting the appropriate target market to sell healthy-food products and to provide complete healthy-food packages, which are the best solutions to ensure families adopt healthy life-styles. The study provides a platform for identifying and targeting various market segments especially parents who generally plan their children's diet.

Another interesting finding of the study for practitioners is related to the perceived meaning of "healthy food". Respondents were found to be confused whether healthy food meant a balanced diet, fresh foods and vegetables, fresh meat, or low-fat food. This is because, the concept of healthy food is vague and its selection might differ based on different customer target groups. Wayler and Chauncey (1983) who studied healthy-food choices in an ageing men sector also highlighted this and suggested that this market segment needs advice on daily nutrition food programs so that their daily nutrition requirements could be met. Similarly, the current study has strong implications for the practitioners to not just simply focus on selling or promoting food products but, firstly, creating an awareness of their products and why they fall under the healthy-food category. This would enable the target market to better understand the meaning of healthy-food products.

Additionally, this study offers the literature a practical model that explains the behaviour of family healthy-food buying based on an operant-conditioning instrumental-learning perspective. The study identifies the main consequences that drive healthy-food product buying supported by solid research on main food-choice situational-driver effects based on the family member's accumulated learning history. One of this study's notable propositions is that it used a different combination of factors (for example, behaviour-setting factors and consumption-consequences factors), for the first time. The majority of previous studies were conducted by targeting one or fewer factors such the effect of specific ambience aspects on food intake and food choice (Stroebele & De Castro, 2004), societal-factor effect on food choice (Booth, et al., 2001) and peer influences on fruit, juice and vegetable consumption (Cullen, et al., 2001). This study, however, takes into consideration more than the effect of situational food-buying determinants by studying the effect of prospective food-consumption benefits in the short-term and/or in the long-term before the purchase action takes place, by using a set of pre-behaviour situational drivers and a set of post-behaviour expected consequences drivers.

Although the issue of behaviour-setting (open or closed) contexts has been explained and discussed, it needs more attention especially within the family context. From managerial perspectives, helping consumers adopt healthy-food choices, needs more planning in terms of providing a wide array of healthy-food options, which are readily available at stores. These issues are discussed in-depth in this study by considering healthy-food physical settings, by increasing the number of healthy-food stores and by making the purchasing process of healthy-food items more convenient. The same could be done by increasing the number of stores offering healthy-food products, creating their availability online and even offering online payment process, catering to more geographic locations with effective distribution.

Moreover, the effect of the behaviour-setting construct on healthy-food choices was tested in this study and was found to influence family healthy-food choices. This construct was categorised into four parts, namely, physical-setting, social-setting, temporal-setting and regulatory-setting. Each setting was tested separately to check if it influenced food choices, adding value to the existing literature. For the physical-setting construct, this study provided practical proof that explained the physical-setting effect and how such an effect impacted on family healthy-food choices. Furst, et al. (1996) found that the physical-setting factor was significant as it shaped the behaviour choice environment. In spite of this, when analysing the

FA and SEM tests for this factor, the output denoted that the physical-setting items were loaded into two dimensions. These dimensions were categorised into “food-accessibility” related items and “food-atmospheric” related items. This categorisation denoted new research areas that require further investigation within the family healthy-food product-choice situations. This implies that practitioners might exert more effort to enhance accessibility of healthy-food products. For example, Wing, et al. (2001) found that there was limited access to healthy-food products at important sites such as schools. In addition, there was a need to limit access to unhealthy-food product buying as it had been found that consumers who had limited access to fast-food restaurants usually had healthier diets and lower levels of obesity (Larson, et al., 2009).

The practitioners in this field would also benefit from the study’s findings as a result of the second aspect of physical-setting construct, namely, “food atmospheric”. For instance, practitioners could focus on family-style eating environments by coming up with novel restaurant ideas with nutrition-focussed menus. This might create positive environmental stimuli that could enhance the chance of ordering healthy meals and eating healthy-food products. This recommendation can be further improvised by adding tangible evidence (for example, restaurant atmosphere dimensions such as design and colour) and facilitating parents to persuade young children to eat healthily (Colby, et al., 1986). Gibson (2006) found that these physical-setting elements affected a consumer’s psychological status and confirmed that a consumer’s emotional status and mood impacted on food choices.

However, the study found that the informational reinforcement did not affect family-food choices of healthy-food products. The informational reinforcement for families is that healthy-food eating generally leads to the creation of good feelings and pleasure, which is usually guided by high-pleasure environments (Yani-de-Soriano, et al., 2013). Thus, creating an eating environment is a matter that requires further investigation followed by programs to be implemented practically within family food-behaviour settings (for example, restaurants) from practitioners and marketers perspectives.

The practitioners might also be interested in knowing the impact of relevant factors such as the seasonality effect, cooking-time effect and meal preparation time, in the context of healthy-food choice purchasing. These factors were grouped together under temporal-setting, which is considered to be one of the antecedent factors that affect food-buying behaviour and eating experiences. Attention has been given to studying the food-purchase contexts and eating



environments, for example, Meiselman (1996) studied the temporal-setting effect on food choice. This study also found that the main factors affecting purchase behaviour were time availability and cooking time. It is suggested that practitioners in this field focus on how to offer products which are quicker to cook or ready to eat, yet possessing nutritious value.

One of the major implications of this study is related to negating the effect of the social-setting construct which was not found to be significant in shaping family-food choices. The social effects usually came from different social groups such as family friends, neighbours and parents' friends at work (Sampson, et al., 2002). The impact of these groups needs further investigation within the family healthy-food choice situation. However, the study's results found that the social-setting main items could be categorised into two types, namely, "social attention" and "social pressure". Types of social effect need further analysis within the family healthy-food choice context especially when the situation is changed from formal to informal groups (Festinger, et al., 1950). Although not empirically proven in this study, managers could easily control and minimise this pressure by treating customers in a friendly manner and designing more convenient eating environments that create pleasant buying atmospheres. Another notable implication for the social-setting construct is to encourage the all family members to eat together regularly. Eating together has an effect on changing children's eating patterns positively and helping them adopt healthy-food choice habits (Patrick & Nicklas, 2005; Stroebele & De Castro, 2004). The same effect could be catalysed during a gathering of people like group meetings and social events such as Christmas and birthday parties. It is suggested that practitioners create awareness and marketing plans for encourage serving healthy-food items at such occasions and motivate family-style dining (Nicklas, et al., 2001; Pollard, et al., 2002).

Another relevant implication of the current study would be for governments who are responsible for implementing food regulations. It was observed in the study that food regulatory-setting constructs did not affect family-food choices, thus encouraging the selling and buying of unhealthy-food items. Although unhealthy-food purchasing may be controlled when accompanied by parents, this is uncontrolled at places such as school canteens. Having a healthy society does not materialise by chance. It needs effective preparations and planning especially how to minimise the chance of buying unhealthy-food options through controlling the food-behaviour settings such as the regulatory ones. A similar recommendation was highlighted by Hayne, et al. (2004) who suggested regulating the environment to reduce

obesity. Generally, the food-purchase environment is bombarded with unhealthy food-product advertising, and consumers usually receive inadequate nutrition information. Andreyeva, et al. (2011) targeted food-retailer practices, attitudes and beliefs about what to offer, supply and sell with regard to healthy-food products. Results indicated that until now, food retailers observed significant weaker demand for healthy-food products compared to a high demand for unhealthy ones. In addition, retailers also perceived less healthy-food products as more profitable than healthy ones. Thus, this study suggests that to control food demand types and accessibility, mutual nutrition programs need to be established by both governmental and nongovernmental bodies. Such programs could be planned to limit the food channels supplying unhealthy-food products while supporting ones which encouraged the consumption of healthy foods. It is possible creating new store policies could encourage families to adopt healthy-food alternatives. Andreyeva, et al. (2011) found that a similar issue was addressed by the USA Special Supplemental Food program for Woman, Infant and Children (WIC) in October 2009 and the results showed that under such a program, subsidies had the power to influence the adoption of healthy-food consumption practices positively.

Moreover, the regulatory bodies should also take into consideration food indicators by which consumers usually gauge food-product quality. Stroebele and De Castro (2004) found that the main healthy-food indicators were food colour, food taste, food shape and food smell, all of which affected food choice. For this reason, regulatory clues could be developed to gauge the quality of healthy-food product items based on these indicators. As consumers mainly rely on brand name, price, physical appearance and retail reputation to assess a product's quality (Dawar & Parker, 1994; Brucks, et al., 2000), health institutions should be required to frame policies that force marketers to inform people of exactly what they need to eat, especially if such quality guides were unified globally (Keane & Willetts, 1994). Thus, healthy-food taste, for example, is still a challenge when buying and adopting healthy-food items and yet it is seen as one of the main eating barriers especially for children (O'dea, 2003). These issues present a challenge for food institutions to manage and correct this issue by offering tasty healthy-food items particularly for children. As it was found that the regulatory-setting construct did not drive family choice towards buying healthy-food products, additional studies are needed to explore reasons for this. Subsequently, the food safety instructions should be clearly reconsidered regarding healthy-food product packages that guide consumers on how to use, store, handle and even cook various products. This issue was confirmed by Cushen, et al.

(2012) who concludes that there was a need to radically change the way that the food products are perceived, packaged, stored and even transported.

For the family accumulated learning (experience) construct, results showed that such construct had no effect on family healthy-food choices. The experience construct could be classified into three components, namely, nutritional experience, culture experience (habitual learning) and cooking experience. This experience categorisation needs further exploration as not that much attention has been given to these aspects in studies especially within a real behaviour setting such as family-food choices. The experience that comes from the accumulated cooking learning may differ from that coming from the habitual ones and even differ from one family to another.

The current study has another implication of providing a platform to study the family healthy-food environment (such as schools) which influences a child's selection process from an early age, in term of choosing healthy-food options or family healthy-style dining. Thus, the study findings are quite relevant to groups who plan children's learning process through rigorous society programs. This study found that accumulated learning was a core driver in determining what to buy and what consequences were expected to be gained after consumption. Concerning this result, much care should be exerted especially in preparing a careful nutrition information and data that could be delivered to children through schools. Freedman and Connors (2011) provided evidence that such nutrition information affects food-purchase behaviour of customers such as college students.

The thesis also revealed the need for project intervention programs to change family behaviour and to make them favour healthy-buying habits as well as target specific experience dimensions such as cooking skills and proficiency. The same was deliberated and concluded by Rose (2007). This could be done by reinforcing healthy-food buying behaviour while highlighting the consumption consequences (Verplanken & Wood, 2006). To achieve this, there is a need to implement educational and informational programs that offer informational input at times when it is possible to change habits especially within everyday actions such as food-product purchasing.

The thesis also provided an analysis on family food purchase based on its possible consumption consequences. Interestingly, it was found in the study that the utilitarian consequences were not considered by families when buying food items. However, previous studies found that the

key benefits, such as having better physical and cognitive performance, production of energy, physical sensation, psychological benefits, endurance and fitness did affect food choices (O’Dea, 2003). Thus, it is important to investigate these consequence types further. This is because it is important to educate children and students at an early stage on the prospect of food-consumption benefits and how to make them familiar with healthy-food items in a way to amend their behaviour toward adopting both healthy-eating habits and healthy-food lifestyles (Boutelle, et al., 2015). According to O’Dea (2003) and Verbeke, et al. (2005), ensuring that these benefits are acknowledged by children needs better planning, employing more effective communication programs, self-motivation, using better nutrition educational programs, utilising planned intervention programs to increase customer awareness and beliefs, pleasing to eye physical surroundings for both buying and eating healthy food, and trying to provide support from parents and educational institution staff such as teachers for targeting such issue.

The main healthy-food consumption expected benefit that was found to be driving family-food choices was utilitarian reinforcement. In such instances, researchers such as Bindra (1978) denoted that the levels of reinforcement might differ from high to low to produce different levels of behaviour. Also, these reinforcements have been classified into internal or external according to Rotter (1966), and informational or utilitarian according to Foxall, et al. (2004). These reinforcements can all be studied in more detail with regard to family-food choices. This is especially so when different types of informational reinforcements do not pay much attention to scholars and need extra analysis such as studying the effect of emotional reactions based on family-choice analysis (Yani-de-Soriano, et al., 2013).

Additionally, the result of this study has another implication regarding the point-of-purchase food promotion and nutrition information. These issues were found to be important by many scholars (Colby, et al., 1986; Freedman & Connors, 2011) regarding their influence on family and parents buying behaviour especially when choosing healthy-food products items. However, more planning is needed to use such promotional techniques in publishing and advertising family healthy-food product buying especially when more tangible incentives programs are applied in the point-of-purchase stage (Seymour, et al., 2004).

Results in the current study showed that the healthy-food utilitarian punishment had a negative effect on family-food choices. The study categorises the utilitarian punishment main items into two components which are food-cooking punishments (for example, preparing food for

cooking, cooking duration and meal preparation) and the food-purchase punishments (for example, food cost, time consumed shopping and shopping effort). It was observed in the study that with an increase in the level of food-choice punishment (for example, food product prices), the possibility of buying healthy-food products decreased. More quantitative and qualitative studies are needed to measure the opposite relationships between food buying utilitarian punishment and healthy-food purchase behaviour. In addition, such categorisation needs exhaustive investigation.

The informational-punishment consequences were found to be influencing family healthy-food choices in this study. Thus, there is a need to investigate and analyse this construct more in-depth. Although this factor has been discussed in studies, it was found that both social criticism and negative feedback from others usually encouraged individual consumers to change their consumption behaviour towards adopting food intake (Grier & Bryant, 2005), but this has not been tested before in the context of healthy-food choices. The current study adds value to knowledge in this context though these elements need to be discussed more thoroughly within the study's theme.

In summary, the thesis provides a rigorous explanation of a daily life exercise, which is the family choice in the healthy-food product buying situation, using a mix of factors that were used for the first time together. In this context, the study not only assisted in studying family healthy-food choice behaviour from a situational perspective but it also helped in studying this behaviour from the purchase-object consequences that were expected to be gained or avoided after the consumption stage by considering the effect of family accumulated learning. In this thesis, all possible expected food-eating consequences influencing family-food choices were discussed and analysed in both short-term and in long-term perspectives, which, in turn, helped to bridge the link between purchase determinants and consequence determinants in a justifiable way. Investigating food-choice determinants in this manner added value to the literature and enables both scholars and practitioners to employ the BPM as a suitable model to change family-food purchase behaviour to become healthier. The BPM structure was used to include operant family-food choices. The model also provides rigorous operant explanation by finding a logical link between pre-behaviour factors (such as behaviour-setting elements) and the post-behaviour factors (such as behaviour-consequence elements). Managers, marketers and others could also benefit from family food-behaviour analysis in designing better family diet

programs to enhance healthy-eating habits by carefully planning what to buy and choose to eat from a variety of food items.

## **7 - 5: Concluding remarks**

This study investigated the main determinants that affected family healthy-food choices to provide a clear understanding of how to adopt healthy-product purchases. The focus of this thesis was to find an answer to the research question, What are the main factors that affect a family's choice of healthy-food products? and to investigate reasons behind these factors. To answer the research question required a knowledge of how a family behaved in relation to food choice from two combined perspectives based on food-choice behaviour settings (situational perspective) and food-expected consumption consequences (operant perspective). To achieve this aim, family-food choices were approached theoretically and empirically by using the BPM as the suitable framework to answer the research question for this study. The new application of the BPM utilised the SM arena in which the model was explained, justified and tested. In addition, by using this model to analyse the daily family activity (food choice) was important and represented a relevant guide for scholars and practitioners in this field. The reason for using the BPM model was that family-food choices are performed based on reinforcements and/or punishments that are controlled and maintained by environmental stimuli signalled by a family's learning history.

The literature review was divided into two parts. In the first part (Chapter three), the literature reviewed the main theoretical models that discussed the issue of behaviour change and consumer choice. In Chapter four, the study applied the BPM in the food-choice context and developed the thesis's hypotheses accordingly. Chapter five was the methodology chapter and discussed the various steps that were planned to review the literature to develop a set of questions that needed to be used in the focus-group stage. A set of focus groups were planned, constructed and executed to elicit the main survey items from a real or actual study sample. These items were then tested through many stages, but mainly the pilot study and face validity. The data was then collected and the main study constructs were tested and purified using a set of techniques such as FA, CFA and SEM to test the study's hypotheses. In Chapter six, the analysis chapter, was divided into various sections mainly to identify the study's sample main demographic aspects, family purchase-behaviour analysis, food-intake behaviour analysis and ended by testing the main study's hypotheses.

The pre-behaviour choice determinants, the behaviour-setting factors, which included physical, social, regulatory and temporal elements, interacted directly with a family's learning history. The study's findings denoted that the behaviour-setting determinants affected family healthy-food choices. This issue could be divided into two parts, firstly, the behaviour-setting factors were discussed, investigated and tested statistically through designing a set of sub-hypotheses. The results showed that although both the physical-setting and the temporal-setting factors affected family healthy-food choices, both the social-setting and the regulatory-setting factors did not. Secondly, there were no statistical indicators found for family accumulated experiences affecting family healthy-food choices. This might suggest additional research areas to investigate the effect of learnability of healthy-food choices and consumption consequences and how such learning should be programmed and planned so that family healthy diets could be adopted positively.

In addition, the process of food choice is usually determined based on the mutual interaction between behaviour-setting elements and what was learned before through accumulated learning history. This provides a suitable stimuli to maximise the potential reinforcements and/or minimise the potential punishments. Relationships between pre-behaviour determinants and post-behaviour determinants were explained, designed and tested based on the knowledge of operant-behaviour arena where a family's choice is directed usually by achieving/avoiding specific consequences. Thus, family food-choice determinants that related to food consumption consequences were investigated and tested reasonably. It was found that for family-food choices that both informational and utilitarian reinforcements of food-consumption consequences did not influence family healthy-food choice behaviour, but both the informational and utilitarian punishments of food-consumption consequences did. Thus, these findings denoted that, within family food-choice contexts, families usually take the effect of food-consumption interrelated punishment consequences into consideration more than other food-consumption interrelated benefit consequences when choosing what to buy and eat. These consequences were supported from both utilitarian and punishment perspectives.

Finally, Chapter seven summarises the study's main findings and limitations, and discusses briefly some of the future research areas as well as outlining both theoretical and managerial implications. Based on previous studies, the results suggested that the BPM could be used as an effective tool in planning healthy family food-choice behaviour. The family food-choice behaviour setting and prospective consequence determinants were also discussed, explained

and tested by providing suitable justifications to answer the research question practically through proposing a set of hypotheses.



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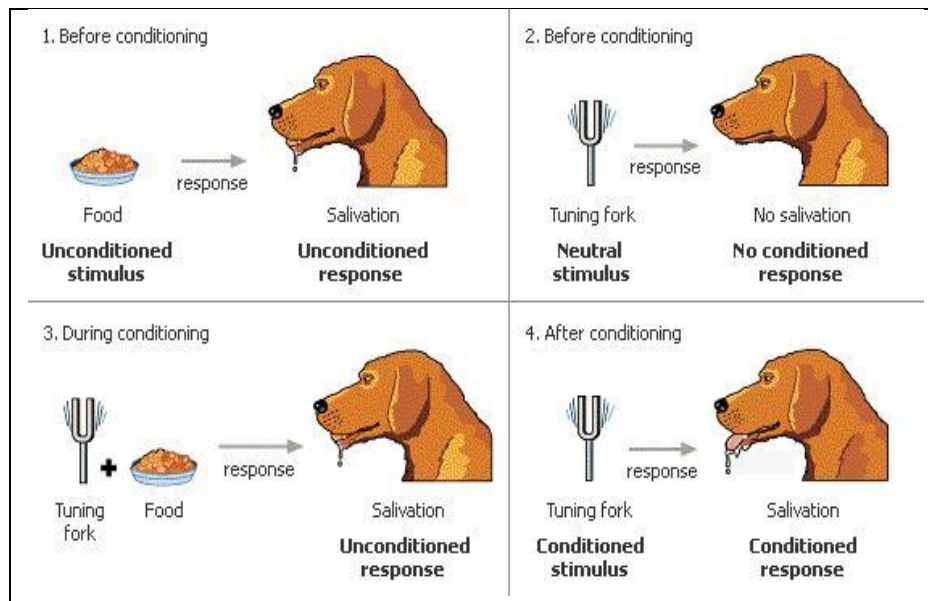
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## Appendixes

### Chapter three Appendixes



**Figure 3-1: Salivation Experiments**

**Source: Ivan Pavlov's dogs- classical conditioning**

Available online at: <http://www.age-of-the-sage.org/psychology/pavlov.html>. [Accessed on 8-7-2010].



## **Chapter five Appendixes**

### **Appendix 5-1: Focus group invitation to participate**



#### **Family healthy food choice study**

My name is Barween Al Kurdi. I'm a PhD student in the Durham Business School. I am currently engaging in a study about families and healthy-food choices in the UK consumer market. This study will be conducted in several stages. In the first stage, three focus groups will be conducted.

I request your help by participating in one of the focus-group discussions. Each group will consist of five to eight participants. The purpose of this session is to discuss your thoughts on healthy-food choices. This will take approximately one to one and a half hours. If you are interested or would like to ask more about this study, please don't hesitate to contact me at [b.h.alkurdi@dur.ac.uk](mailto:b.h.alkurdi@dur.ac.uk). You can also contact my supervisor Dr. Mike Nicholson at [mike.nicholson@durham.ac.uk](mailto:mike.nicholson@durham.ac.uk) if you have any further questions or concerns.

All Durham University ethical research considerations will be taken into account. Thus, your responses will be kept confidential and will not be connected with any personal data or any information that could be used to identify you. All data will be used for research purposes only and will be deleted upon completion of the study.

I appreciate your help and look forward to hearing from you.

Regards

Barween AlKurdi

## Appendix 5-2: Focus-group participant questionnaires

My name is Barween Alkurdi. I am a PhD student of the University of Durham.

This questionnaire is aimed to collect basic demographical data about the families involved in the focus-group discussion data-collection stage concerning family healthy-food choices. This study is purely-designed for academic research purposes. Please answer the following questions based upon your personal experience. The questionnaire takes about two minutes. Your honest answers to each of the questions below are greatly appreciated.

Thank you very much for your time and effort

.....

1- Name:.....

2- Contact details:

Mobile..... Email.....

3- Gender:

|                          |      |                          |        |
|--------------------------|------|--------------------------|--------|
| <input type="checkbox"/> | Male | <input type="checkbox"/> | Female |
|--------------------------|------|--------------------------|--------|

4- Age group:

|                          |                 |                          |                 |
|--------------------------|-----------------|--------------------------|-----------------|
| <input type="checkbox"/> | < 15 years old  | <input type="checkbox"/> | 15-less than 20 |
| <input type="checkbox"/> | 20-less than 30 | <input type="checkbox"/> | 30-less than 40 |
| <input type="checkbox"/> | 40-less than 50 | <input type="checkbox"/> | 50-less than 60 |
| <input type="checkbox"/> | 60-less than 70 | <input type="checkbox"/> | 70 or more      |

5- Educational level:

|                          |                 |                          |                     |
|--------------------------|-----------------|--------------------------|---------------------|
| <input type="checkbox"/> | PhD             | <input type="checkbox"/> | DBA                 |
| <input type="checkbox"/> | MBA             | <input type="checkbox"/> | Master              |
| <input type="checkbox"/> | Bachelor degree | <input type="checkbox"/> | Diploma Certificate |
| <input type="checkbox"/> | High school     | <input type="checkbox"/> | Others.....         |

6- Occupation:.....

7- Nationality:.....

8- Your family total monthly income (£)... ..

|                          |                         |                          |                       |
|--------------------------|-------------------------|--------------------------|-----------------------|
| <input type="checkbox"/> | <1000                   | <input type="checkbox"/> | 1000-less than 2000   |
| <input type="checkbox"/> | 2000-less than 3000     | <input type="checkbox"/> | 3000-less than 4000   |
| <input type="checkbox"/> | 4000-less than 5000     | <input type="checkbox"/> | 5000-less than 6000   |
| <input type="checkbox"/> | 6000-less than 7000     | <input type="checkbox"/> | 7000-less than 8000   |
| <input type="checkbox"/> | 8000-less than 9000     | <input type="checkbox"/> | 9000-less than 10,000 |
| <input type="checkbox"/> | 10,000-less than 11,000 | <input type="checkbox"/> | 11,000 or more        |

9- How many children in your family?.....Please complete the table below.

| No. | Ages | Female | Male |
|-----|------|--------|------|
| 1-  |      |        |      |
| 2-  |      |        |      |
| 3-  |      |        |      |
| 4-  |      |        |      |

10- Do any of your children attend child-care nurseries.....

11- How many hours per week.....

12- Can you list what types of food your child/ren eat in the nurseries?

|    |  |    |  |
|----|--|----|--|
| 1- |  | 3- |  |
| 2- |  | 4- |  |

13- Do/Does your child/ren eat at school?.....If no, please go to question number 15

14- Please list the types of food your son(s) eat(s) at school?

- A-.....
- B-.....
- C-.....

15- How much do you spend on buying different types of healthy-food products every month (approximately / pounds)?

|                          |                        |                          |                     |
|--------------------------|------------------------|--------------------------|---------------------|
| <input type="checkbox"/> | <100                   | <input type="checkbox"/> | 100-less than 200   |
| <input type="checkbox"/> | 200-less than 300      | <input type="checkbox"/> | 300- less than 400  |
| <input type="checkbox"/> | 400-less than 500      | <input type="checkbox"/> | 500- less than 600  |
| <input type="checkbox"/> | 600- less than 700     | <input type="checkbox"/> | 700- less than 800  |
| <input type="checkbox"/> | 800- less than 900     | <input type="checkbox"/> | 900- less than 1000 |
| <input type="checkbox"/> | 1,000- less than 1,100 | <input type="checkbox"/> | >1,100              |

16- What does healthy food means to you?

- A-.....
- B-.....
- C-.....

17- What are the main healthy food-product categories you usually buy?

|    |  |    |  |
|----|--|----|--|
| 1- |  | 4- |  |
| 2- |  | 5- |  |
| 3- |  | 6- |  |

18- What types of problems do you experience when buying healthy food?

- A-.....
- B-.....
- C-.....
- D-.....
- E-.....
- F-.....

### Appendix 5-3: Focus-group questions

| <b>Key questions centred on factors that influenced the participant food choices</b>  |  |
|---|--|
| <b>Introductory questions</b>   |  |
| Many preliminary quotations were prepared to be used in the ice-breaking stage to initiate the discussion based on many previous studies such as Maddock, et al. (1999); Kubik, et al. (2005); Contento, et al. (2006); Baker, et al. (2007) and Chambers, et al. (2008).   |  |
| What did you eat yesterday and from where did you buy your food?<br>What do you think that healthy food means?<br>What do you think healthy eating is?<br>What do you usually eat in your main and minor food courses?<br>What fruits and vegetables do you eat every day?<br>Do you have specific rules for choosing foods?<br>What factors do you think influence what foods you buy and eat? (e.g. cost, location)<br>What is your favourite healthy-food choice?<br>What foods do you think people of your age group need to eat to stay fit and healthy?<br>What factors prevent you from eating healthy foods such as fruit and vegetables?<br>What are your family's motives for eating unhealthily? (e.g. enjoyment, habit) |  |
| <b>A- Behaviour-setting key questions</b>   |  |
| <b>1- Physical effect</b>   |  |
| 1-  | Do physical environments affect learning and behaviour?  |
| 2-  | Do healthy-food store choice and availability affect your healthy-food choices?  |
| 3-  | Could you explain how food supplier shop numbers, distribution, and location affect your decision of buying healthy food?  |
| 4-  | Do you think transportation helps with healthy-food store accessibility and product delivering?  |
| 5-  | Does the online service affect your choice of your shopping store? Can you explain how?  |
| 6-  | To what extent does a supplier's store appearance (like store atmosphere, decoration, colure and environment) affect your purchase of healthy food?                                      |
| <b>2- Regulatory effect</b>   |  |
| 1-  | Does your culture affect you when you buying healthy food?   |
| 2-  | Does your ethnicity influence your eating choices?   |
| 3-  | Does your religion influence what you eating?  |
| 4-  | Are there any groups whose views on healthy eating you would particularly value (e.g. health professionals, governmental bodies)?  |
| 5-  | Do you have an idea about any governmental policies that affect healthy-product choices? (e.g. Tax refund for healthy food, tax for unhealthy food, and any stamps and labels required). |
| 6-  | Does the Government have a role in intervening to promote healthier eating centered on the issue of personal choice?   |
| 7-  | Does the Government have a role influencing healthier eating?  |
| 8-  | Does the Government have a role influencing unhealthier-eating (like fast food)?   |
| 9-  | Do you have specific rules for choosing foods?   |
| <b>3- Social effect: (Social-environment effect)</b>  |  |
| 1-  | Who influences your decision to purchase healthy food?   |
| 2-  | Are there any individuals or groups whose views on healthy eating you would particularly value (e.g. relatives, friends, family)?  |
| 3-  | Does your family influence what you eat?   |
| 4-  | How much influence do you think your family and friends have on what you eat?  |
| 5-  | To what extent would your friends and family strongly approve of you changing your diet or becoming healthier?   |
| 6-  | If you ate more meals with your family, would you eat more healthily? Why or why not?  |
| 7-  | Does your social group influence your eating?  |
| 8-  | Does your social categories influence your eating?   |

|  |   |
|--|---|
| 9-   | Does peer pressure influence your eating?   |
| 10-  | Does your reference group influence your eating?  |
| 11-  | Do you think that your social class affects your diet quality?  |
| 12-  | Are there particular individuals or groups that hold strong views regarding healthy eating? (e.g. supermarkets sales persons, food producers)             |
| 13-  | Do you think that food store employees or food producers affect your choice of healthy food?  |
| <b>4- Temporal effect</b>  |   |
| 1-   | What is the best time for you to shop from the food store?  |
| 2-   | How often do you purchase healthy-food products from the food store?  |
| 3-   | Is there any effect of healthy-food product seasonality on your food choice?  |
| 4-   | Do you have enough time to prepare and cook healthy food?   |
| 5-   | Do you think that a lack of parent time or time constraints affect a parent purchasing healthy-food products?   |
| 6-   | Do you think that healthy food is not easy and quick to cook and needs more cooking time?   |
| <b>B- Learning-history effect</b>  |   |
| 1-   | Do you think consciously about your food choices before you make them? How?   |
| 2-   | Does your purchasing experience and years of consumption affect what food to choice?  |
| 3-   | To what level does your purchase experience affect your purchase of healthy-food?   |
| 4-   | How has your life experiences affected your healthy-food choices?   |
| 5-   | Do you have enough nutrition and healthy-food awareness?  |
| 6-   | Can you explain to what level you are aware of healthy foods, nutrition and preparation?  |
| 7-   | To what level does your education affect your healthy-food choices?   |
| 8-   | Do you think that poor cooking skills affect or reduce the effect of eating healthily?  |
| 9-   | Is there enough information about healthier eating options and what are the sources you trust most?   |
| 10-  | Do you have enough knowledge about how to cook healthy meals?   |
| <b>C- Behavioral situation: Key factors and questions</b>                  |   |
| 1-   | If you want to shop for your family, what types of products do you usually buy?   |
| 2-   | What are the factors taken into consideration when you shop what to eat or cook for your family?  |
| 3-   | Does fast food restaurant availability affect your choice of what to eat?   |
| <b>D- Behavioral consequences- Utilitarian reinforcement key questions</b> |   |
| 1-   | Why is healthy eating important?  |
| 2-   | What benefits do you think you will gain if you keep eating healthily?  |
| 3-   | Do you think that eating healthy food products benefits your health?  |
| 4-   | How do you feel about being well and better overall as a result of your eating healthy food?  |
| 5-   | Can explain why having a balanced healthy diet is essential?  |
| 6-   | Do you have a healthy diet? Why do you think that people are concerned about having a healthy diet?   |
| <b>E- Informational Reinforcement key questions</b>                        |   |
| 1-   | What does it means for you to be mentally and emotional healthy?  |
| 2-   | What do you think about when you talk about healthy eating?   |
| 3-   | What can you recommendation about choosing and consuming healthy-food products?   |
| 4-   | Have you received any medical recommendations from others such as doctors or medical centres?   |
| 5-   | How do you find out more about healthier eating and which sources do you trust the most?  |
| 6-   | How do you feel about having a good for general appearance/self-image, self-control?  |
| <b>F- Utilitarian punishment key questions</b>                             |   |
| 1-   | Do you think that people usually eat for health or for pleasure? Why?   |
| 2-   | How does price affect your own food choices?  |
| 3-   | How do healthy-food product prices affect your choice of buying healthy-food products?  |
| 4-   | Do you think that eating a healthy diet is considered to be cheaper than eating an unhealthy diet?  |
| 5-   | Do you feel that healthier foods cost more than less-healthier foods?<br>To what level do you evaluate eating unhealthy food in the short- and long-term? |

|  |   |
|--|---|
| 6-   | To what level do you try to reduce current and any potential health risks of eating unhealthy food?   |
| <b>G- Informational punishment key questions</b> |   |
| 1-   | Do you think that negative emotional status affects your stress levels and signal negative feedback?  |
| 2-   | What types of advice do you usually get to enhance healthy-food choices?  |
| 3-   | Do you experience any negative feedback from others regarding unhealthy-food choices and consumption?   |
| 4-   | What things would make you switch your behaviour towards eating healthy-food products?  |
| <b>H- Other factors</b>                          |   |
| 1-   | How do you evaluate personal traits in your decision-making?  |
| 2-   | How can parents encourage their family members to eat healthily?  |
| 3-   | Can you recommend any potential intervention to enhance healthier-food choices?   |
| 4-   | Do you sometimes find it difficult to eat healthily?  |
| 5-   | What barriers do you perceive that limited healthy-food choices?  |
| 6-   | What are the main barriers that prevent family members eating healthily?  |
| 7-   | What are the main factors that influence healthy-food choices?  |
| 8-   | What factors are taken into consideration when you go shopping for healthy-food products? (e.g. healthy food availability, time, health, risk, price) |
| 9-   | What changes have you made in what you eat over the last few years? What triggered this change? What brought it about?                                |

## Appendix 5-4: Questionnaire main item references

| <b>Behaviour-setting key questions</b>   |                                 |
|--|---------------------------------|
| <b>Physical-setting key items</b>  |                                 |
| Healthy food availability effect on food choice  | Steptoe, et al. (1995)          |
| Convenience of accessing healthy food, store effect on food choice (e.g. location and distribution)              | Steptoe, et al. (1995)          |
| Measuring the effects of shopping at food stores that offer different facilities and services (e.g. car parking) | Morland, et al. (2002)          |
| Measuring the effect of food restaurant choice that is based on its atmospheric elements (e.g. lightening)       | Duncan Herrington (1996)        |
| Food taste effect on food choice   | Steptoe, et al. (1995)          |
| Food smell effect on food choice   | Stroebele and De Castro (2004)  |
| Food quality effect on food choice   | Grunert (2005)                  |
| Food appeal effect on food choice  | Steptoe, et al. (1995)          |
| Supplier's website promotions effect on food choice  | Stead, et al. (2003)            |
| <b>Social-factor effect key items</b>  |                                 |
| Shopping from stores that have friendly sales people effect on food choice                                       | Mattila and Wirtz (2008)        |
| Salespersons' (face-to-face) communication and recommendations effect on food choice                             | Dodd, et al. (2005)             |
| Effect of buying healthy-food products that are recommended by friends   | Nestle, et al. (1998)           |
| Effect of buying healthy-food products that are recommended by extended families                                 | ChanGim and YoungSook (2000)    |
| Effect of buying healthy-food products that are recommended by social support bodies (e.g. peer groups)          | Martens, et al. (2005)          |
| Social pressure -presence of other people effect in what to buy and eat on different occasions (e.g. parties)    | Stroebele and De Castro (2004)  |
| Eating with others instead of eating alone effect on food choice   | Stroebele and De Castro (2004)  |
| Food promotions through media (e.g. TV, Newspapers, and Internet) effect on food choice                          | Halford, et al. (2007)          |
| Shop promotional offers effect on food choice  | Mela, et al. (1997)             |
| Social group, social class, social reference group effect on food choice   | Darmon and Drewnowski (2008)    |
| <b>Temporal-effect key items</b>   |                                 |
| Time available to purchase healthy-food products effect on food choice   | Stroebele and De Castro (2004)  |
| Time of purchase during the day effect on food choice  | Stroebele and De Castro (2004)  |
| Time availability to prepare, and cook healthy-food products effect on food choice                               | Kubik, et al. (2005)            |
| Seasonality of healthy-product availability effect on food choice  | Hunt (2007)                     |
| Social events (e.g. parties during holidays and at weekends) effect on food choice                               | Warde and Martens (2000)        |
| <b>Regulatory-effect key items</b>   |                                 |
| Governmental food policies and regulations effect on food choice (food rules)                                    | Martens, et al. (2005)          |
| Health professionals, or doctors instructions effect on food choice  | Stockley, et al. (2007)         |
| Food product packaging effect on food choice   | Silayoi and Speece (2007)       |
| Nutritional labelling instructions effect on food choice   | Maubach, et al. (2009)          |
| Doctors or physicians nutrition instructions effect on the adoption of healthy dietary requirements              | Ockene, et al. (1999)           |
| Family nutritional instructions influence on what to buy and cook  | Glanz, et al. (1998)            |
| Ethical concerns (e.g. packaged in an environmentally-friendly way) effect on food choice                        | Honkanen, et al. (2006)         |
| Social norms, culture, religion and ethnicity effects on food choice   | Sztainer, et al. (1999)         |
| <b>Learning-history effect on food choice key items</b>  |                                 |
| Family nutrition knowledge and experience effect on healthy-food product choices                                 | Wardle, et al. (2000)           |
| Bad experience's effect on consuming unhealthy-food products   | Bolton, et al. (2000)           |
| Good experiences of consuming healthy-food products impact   | Bolton, et al. (2000)           |
| Healthy food preparation and cooking skills impact on what to buy and cook                                       | Meehan, et al. (2008)           |
| Family nutritional knowledge (education) about a healthy diet impact on what to buy and cook                     | O'Dea and Wilson (2006)         |
| Family habits and familiarities with healthy-food products impact on what to buy and cook                        | Radder and Le Roux (2005)       |
| Family member personal perceptions impact on what to buy and cook  | Wenrich and Cason (2004)        |
| Families attitudes towards healthy-food product consumption impact on what to buy and cook                       | Magnusson, et al. (2001)        |
| Families race/ethnicity (e.g. Asian, white) impact on what to buy and cook                                       | Block, et al. (2004)            |
| Families culture impact on what to buy and cook  | Neumark-Sztainer, et al. (1999) |
| Families religion impact on what to buy and cook   | Neumark-Sztainer, et al. (1999) |
| <b>Behavioural-consequences effect on food choice: Utilitarian reinforcement key items</b>                       |                                 |
| Choosing healthy recipes effect in gaining food benefits   | Steptoe, et al. (1995)          |

|  |                                 |
|--|---------------------------------|
| Eating a healthy diet effect on physical wellbeing (e.g. having a good appearance)   | Grunert (2005)                  |
| Eating healthy food effect on enjoying a healthy and balanced diet   | Raghunathan, et al. (2006)      |
| Healthy-eating benefit effect on food choice such as nutritious food values  | O'dea (2003)                    |
| Positive healthy-diet consequences effect (food benefits) on food choice   | Neumark-Sztainer, et al. (1999) |
| <b>Behavioural-consequences effect on food choice: Informational Reinforcement key items</b>   |                                 |
| Eating healthily effect such as making family members feel good about themselves and others  | Neumark-Sztainer, et al. (1999) |
| Effect of healthy-food product choices to enhance social circumstances (e.g. social acceptance)  | Martens, et al. (2005)          |
| Healthy eating effect in achieving a healthy lifestyle which improves social relationships and interactions                                | Moreno, et al. (2008)           |
| Effect of adopting a healthy meal program in improving general appearance (e.g. body image)  | Neumark-Sztainer, et al. (1999) |
| Effect of positive feedback on eating healthily which makes a consumer emotionally healthy   | Edson and Bettman (2003)        |
| Healthy-eating consequence effect which enhances having positive emotional status (e.g. enjoyment)   | Gibson (2006)                   |
| <b>Behavioural-consequences effect on food choice: Utilitarian punishment key items</b>  |                                 |
| High prices (cost) of buying healthy-food products   | Neumark-Sztainer, et al. (1999) |
| Effect of food value to avoid short-term and long-term health risks  | Van Kooten, et al. (2007)       |
| Effect food value to reduce both current and potential health risks (e.g. cancer)  | Knuth, et al. (2003)            |
| Lack of time and effort effect in searching for, buying and cooking healthy-food products  | Buckley, et al. (2007)          |
| Unhealthy food consumption cause unpleasant consequence effect (e.g. obesity)  | Davis, et al. (2004)            |
| <b>Behavioural-consequences effect on food choice: Informational punishment key items</b>  |                                 |
| Social criticism effect on food choice   | Martens, et al. (2005)          |
| Unpleasant affective outcomes such as depression   | Oliver, et al. (2000)           |
| Unhealthy food consumption risks such as bad temper  | Martens, et al. (2005)          |
| Fear of feeling stress resulting from adopting a special diet  | Cartwright, et al. (2003)       |
| <b>The dependent variable – food choice</b>  |                                 |
| To what level parents thought that foods choice, buying and eating are important   | Magnusson, et al. (2001)        |
| To what level parents encourage their families to choose, buy and eat healthy-food products  | Glanz, et al. (1998)            |
| To what level healthy food choice and healthy eating affect families in living better and getting a healthy lifestyle                      | Moreno, et al. (2008)           |
| To what level that parents' nutritional knowledge and attitudes towards healthy-food product choice impact on what to choose, buy and cook | Wardle, et al. (2000)           |



## Appendix 5 - 5: Questionnaire

Hi, I am a researcher and I am conducting a survey about healthy family diet choices. I would like to take a few minutes of your time to complete this questionnaire about healthy-food purchasing. Please answer the following questions based on your personal experiences and according to the definition below, except question number one. This study is designed for academic research purposes only. Your honest answers will be greatly appreciated. Thank you for taking the time to participate in this study.

Based on NHS-UK, a Healthy Diet denotes a correct balance: eating a wide variety of foods in the right proportions of starchy foods such as rice and pasta, plenty of fruit and vegetables, some protein-rich foods such as meat, fish and lentils, and some milk and dairy foods (and not too much fat, salt or sugar) that will give you all the nutrients that you need.

### Part One: Healthy-Food Product Data

1. What does "healthy diet" mean to your family?

.....  
 .....

2. Do you usually buy and eat healthy-food products?

Yes  No

3. How often do you eat a healthy diet?

Every meal  Twice a day  
 Once a day  3-4 times a day  
 Never  Others, please specify.....

4. What are the main categories of healthy-food products you usually buy?

|    |  |    |  |
|----|--|----|--|
| 1- |  | 4- |  |
| 2- |  | 5- |  |
| 3- |  | 6- |  |

5. How much approximately does your family spend on healthy-food products per month (Pounds)?

|  |   |
|--|---|
| <input type="checkbox"/> <100                  | <input type="checkbox"/> 100-less than 200  |
| <input type="checkbox"/> 200-less than 300     | <input type="checkbox"/> 300-less than 400  |
| <input type="checkbox"/> 400-less than 500     | <input type="checkbox"/> 500-less than 600  |
| <input type="checkbox"/> 600-less than 700     | <input type="checkbox"/> 700-less than 800  |
| <input type="checkbox"/> 800-less than 900     | <input type="checkbox"/> 900-less than 1000 |
| <input type="checkbox"/> 1,000-less than 1,100 | <input type="checkbox"/> 1,100 or more      |

6. How often does your family shop?

Once a day  Once every two/three days  
 Once a week  Once a month  
 Irregularly  Others, please specify.....

7. On a 100-point constant scale, please tick the level at which both parents influence the family-food choices?

(Father) 50.....40.....30.....20.....10.....0.....10.....20.....30.....40.....50 (Mother)  
 50=Total influence by father (0=Jointly-Equal influence) 50=Total influence by mother  
 (Example, if you think that the mother influences by 60% and the father by 40%, ticks will be 30 from mother side and 20 from father side)

8. On a 100-point constant sum scale, please tick the level at which your children influence your family-food choices?

(No Influence) 0.....10.....20.....30.....40.....50.....60.....70.....80.....90.....100 (100=Total influence by children)

9. Who do you think is mainly the decision-maker when purchasing family food?

- |   |  |
|---|--|
| <input type="checkbox"/> Father                 | <input type="checkbox"/> Mother                      |
| <input type="checkbox"/> Both father and mother | <input type="checkbox"/> Parents and Children        |
| <input type="checkbox"/> Older relatives        | <input type="checkbox"/> Others, please specify..... |

10. Who mainly buys the family food?

- |   |   |
|---|---|
| <input type="checkbox"/> Father                 | <input type="checkbox"/> Mother                       |
| <input type="checkbox"/> Both father and mother | <input type="checkbox"/> Whole family                 |
| <input type="checkbox"/> Older relatives        | <input type="checkbox"/> Others - please specify..... |

11. Where does the family usually eat the three main meals?

- |  |  |
|--|--|
| <input type="checkbox"/> Living room,-in front of TV     | <input type="checkbox"/> Living room, not in front of TV |
| <input type="checkbox"/> Kitchen, in front of television | <input type="checkbox"/> Kitchen, not in front of TV     |
| <input type="checkbox"/> In the garden                   | <input type="checkbox"/> Others, please specify.....     |

12. Do you or does anyone in your family have a special diet? If not, please skip to question1 Part Two

- Yes                       No

13. Are there specific reasons for having a special diet?

- |   |  |
|---|--|
| <input type="checkbox"/> Health (long-term such as heart or cancer) | <input type="checkbox"/> Health (short-term such as allergies) |
| <input type="checkbox"/> Social environment (moving out of home)    | <input type="checkbox"/> To lose or gain weight                |
| <input type="checkbox"/> Personal reason (e.g. getting older)       | <input type="checkbox"/> Others, please specify.....           |

**Part Two: Food Supplier Data**

- Where do you mainly buy your family food? Please specify.....
- What types of problems does your family usually experience when purchasing healthy-food products from stores and/or shops?
  - A-.....
  - B-.....
  - C-.....

**Part Three: Behaviour-Setting Dimensions**

Please rate the extent to which you agree with the following statements that affect your family’s choice of what healthy-food products to buy and eat

| No.                            | Items  | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|--------------------------------|--|-------------------|----------|---------|-------|----------------|
| <b>Physical setting factor</b> |  |                   |          |         |       |                |
| 1.                             | The more food shops and variety available, the more my family is likely to buy healthy-food products   | 1                 | 2        | 3       | 4     | 5              |
| 2.                             | Convenience of accessing food shops (e.g. store’s location, distance and accessibility of transportation) plays an essential role in our family shopping | 1                 | 2        | 3       | 4     | 5              |
| 3.                             | We prefer shopping at food stores that offer different facilities and services (e.g. deliveries, online services, car parking)                           | 1                 | 2        | 3       | 4     | 5              |
| 4.                             | My family’s choice of food restaurant is based usually on its atmospheric elements (e.g. atmosphere, colours, music)                                     | 1                 | 2        | 3       | 4     | 5              |
| 5.                             | Food taste affects our family decision to choose among food products   | 1                 | 2        | 3       | 4     | 5              |
| 6.                             | Food smell affects our family decision to choose among food products   | 1                 | 2        | 3       | 4     | 5              |
| 7.                             | Food quality affects our family decision to choose among food products   | 1                 | 2        | 3       | 4     | 5              |

|                                  |   |   |   |   |   |   |
|----------------------------------|---|---|---|---|---|---|
| 8.                               | Food appeal affects our family decision to choose among food products   | 1 | 2 | 3 | 4 | 5 |
| 9.                               | Supplier website promotions affect our family choice of food products   | 1 | 2 | 3 | 4 | 5 |
| <b>Social setting factor</b>     |   |   |   |   |   |   |
| 10.                              | My family prefers to shop from stores that have friendly sales people who give us personal attention                                      | 1 | 2 | 3 | 4 | 5 |
| 11.                              | Salesperson's face-to-face communication and recommendations affect our healthy diet choice   | 1 | 2 | 3 | 4 | 5 |
| 12.                              | My family buys healthy food recommended by friends  | 1 | 2 | 3 | 4 | 5 |
| 13.                              | My family buys healthy food recommended by our extended families  | 1 | 2 | 3 | 4 | 5 |
| 14.                              | My family buys healthy food recommended by social support bodies (e.g. clubs, participating communities, peer groups)                     | 1 | 2 | 3 | 4 | 5 |
| 15.                              | Social pressures (e.g. friends) encourage my family sometimes to choose and eat unhealthy food on different occasions (e.g. parties)      | 1 | 2 | 3 | 4 | 5 |
| 16.                              | My family prefers eating with others instead of eating alone  | 1 | 2 | 3 | 4 | 5 |
| 17.                              | Food promotions through media (e.g. TV, Radio, Magazines, Newspapers, and Internet) affect our family's healthy-food choices              | 1 | 2 | 3 | 4 | 5 |
| 18.                              | Shop promotional offers affect our family choice of healthy food products   | 1 | 2 | 3 | 4 | 5 |
| <b>Temporal setting factor</b>   |   |   |   |   |   |   |
| 19.                              | The more free time available to parents, the more chance they have to purchase healthy-food products                                      | 1 | 2 | 3 | 4 | 5 |
| 20.                              | Time of purchase during the day, week and month (e.g. weekend shopping) affect our family's choice of healthy products                    | 1 | 2 | 3 | 4 | 5 |
| 21.                              | The more time available to parents at home, the more the chance there is to prepare and cook different healthy-food products              | 1 | 2 | 3 | 4 | 5 |
| 22.                              | Our family usually take food-product seasonality into consideration when we decide what to buy and cook in terms of healthy food products | 1 | 2 | 3 | 4 | 5 |
| 23.                              | Social events (e.g. parties during holidays and at weekends) affect my family's opportunities to eat healthy-food products                | 1 | 2 | 3 | 4 | 5 |
| <b>Regulatory setting factor</b> |   |   |   |   |   |   |
| 24.                              | We think that governmental policies and regulations on food product planting, preparation and marketing has enhanced food-product quality | 1 | 2 | 3 | 4 | 5 |
| 25.                              | Different health regulations (e.g. NHS publications or health visitors) have an impact on our family decisions on what to buy and cook    | 1 | 2 | 3 | 4 | 5 |
| 26.                              | Food product packaging helps us decide what to buy and how to cook healthy-food materials   | 1 | 2 | 3 | 4 | 5 |
| 27.                              | Nutritional labelling instructions affect my decisions on which products to buy (e.g. artificial ingredients)                             | 1 | 2 | 3 | 4 | 5 |
| 28.                              | Doctors' advice and instructions help my family to adopt healthy dietary requirements   | 1 | 2 | 3 | 4 | 5 |
| 29.                              | Family nutritional instructions influence what we buy and cook  | 1 | 2 | 3 | 4 | 5 |
| 30.                              | Ethical concerns (the country of origin clearly-marked, packaged in an environmentally-friendly way) influence our choices                | 1 | 2 | 3 | 4 | 5 |

#### Part Four: Learning History Factor

Please rate the extent to which you agree with the following statements that affect your family choice of what healthy-food products to buy and eat

| No. | Items  | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|-----|--|-------------------|----------|---------|-------|----------------|
| 1.  | We rely on our family experience to evaluate and choose from among a variety of healthy-food products                              | 1                 | 2        | 3       | 4     | 5              |
| 2.  | Our bad experiences of consuming unhealthy-food products (e.g. chips) made my family switch to healthy ones (e.g. fruit)           | 1                 | 2        | 3       | 4     | 5              |
| 3.  | Our good experiences of consuming healthy-food products make our family continue to buy and consume them                           | 1                 | 2        | 3       | 4     | 5              |
| 4.  | Healthy-food preparation and cooking skills impact on what to buy and cook   | 1                 | 2        | 3       | 4     | 5              |
| 5.  | Family nutritional knowledge about a healthy diet impacts on what to buy and cook (e.g. food containing vitamins, fibre, minerals) | 1                 | 2        | 3       | 4     | 5              |

|     |  |   |   |   |   |   |
|-----|--|---|---|---|---|---|
| 6.  | Family habits and familiarity with healthy-food products impact on what to buy and cook                              | 1 | 2 | 3 | 4 | 5 |
| 7.  | Family member personal perceptions impact on what to buy and cook in terms of healthy-food products                  | 1 | 2 | 3 | 4 | 5 |
| 8.  | Our family attitude towards a healthy diet impacts on what to buy and cook in terms of fresh meals                   | 1 | 2 | 3 | 4 | 5 |
| 9.  | Our family race/ethnicity (e.g. black, Asian, white) attitude towards a healthy diet impacts on what to buy and cook | 1 | 2 | 3 | 4 | 5 |
| 10. | Our family cultural approach to a healthy diet impacts on what to buy and cook                                       | 1 | 2 | 3 | 4 | 5 |
| 11. | Our family religion approach to a healthy diet impacts on what to buy and cook                                       | 1 | 2 | 3 | 4 | 5 |

#### Part Five: Behavioural Consequences - Utilitarian Reinforcement Factor

Please rate the extent to which you agree with the following statements that affect your family choice of what to buy and eat in terms of healthy-food products

| No. | Items  | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|-----|--|-------------------|----------|---------|-------|----------------|
| 1.  | My family choose healthy recipes to gain food benefits (including both long-term and short-term benefits)                  | 1                 | 2        | 3       | 4     | 5              |
| 2.  | Eating a healthy diet helps my family's physical wellbeing (e.g. sleeping well and having a good appearance)               | 1                 | 2        | 3       | 4     | 5              |
| 3.  | Eating healthy food helps my family to enjoy a healthy and balanced diet   | 1                 | 2        | 3       | 4     | 5              |
| 4.  | Our family's healthy eating provides us with nutritious food values and benefits (e.g. easier digestion and better energy) | 1                 | 2        | 3       | 4     | 5              |
| 5.  | Positive healthy-diet consequences is an important factor for my family (e.g. increased immune system function)            | 1                 | 2        | 3       | 4     | 5              |

#### Part Six: Behavioural Consequences – Informational Reinforcement Factor

Please rate the extent to which you agree with the following statements that affect your family choice of what to buy and eat in terms of healthy-food products

| No | Items   | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|----|---|-------------------|----------|---------|-------|----------------|
| 1. | Eating healthily makes my family members feel good about themselves and others  | 1                 | 2        | 3       | 4     | 5              |
| 2. | My family chooses food to enhance social circumstances (e.g. demonstrating group acceptance, conformity and prestige)       | 1                 | 2        | 3       | 4     | 5              |
| 3. | Healthy eating helps my family to achieve a healthy lifestyle, which improves relationships and interaction                 | 1                 | 2        | 3       | 4     | 5              |
| 4. | Adopting a healthy meal program improves my family's general appearance and self-image when interacting with others         | 1                 | 2        | 3       | 4     | 5              |
| 5. | Positive feedback regarding eating healthily makes my family mentally and emotionally healthy, and puts them in a good mood | 1                 | 2        | 3       | 4     | 5              |
| 6. | Healthy eating enhances the family's emotional status (e.g. enjoyment of eating and entertainment)                          | 1                 | 2        | 3       | 4     | 5              |

#### Part Seven: Behavioural Consequences - Utilitarian Punishment Factor

Please rate the extent to which you agree with the following statements that affect your family choice of what to buy and eat in terms of healthy-food products?

| No. | Items   | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|-----|---|-------------------|----------|---------|-------|----------------|
| 1.  | High prices prevent my family from buying healthy-food products | 1                 | 2        | 3       | 4     | 5              |

|    |   |   |   |   |   |   |
|----|---|---|---|---|---|---|
| 2. | My family chooses what to buy in terms of food value to avoid short-term and long-term health risks   | 1 | 2 | 3 | 4 | 5 |
| 3. | My family usually chooses healthy-food products to reduce both current and potential health risks (e.g. cardiovascular and cancer)  | 1 | 2 | 3 | 4 | 5 |
| 4. | Lack of family time and effort prevent us searching for, buying, and cooking healthy-food products that suit us   | 1 | 2 | 3 | 4 | 5 |
| 5. | Unhealthy food consumption and over-eating's unpleasant consequences (e.g. obesity and being overweight) encourage my family to adopt a healthy diet and to eat healthily | 1 | 2 | 3 | 4 | 5 |

**Part Eight: Behavioural Consequences - Informational Punishment Factor**

Please rate the extent to which you agree with the following statements that affect your family choice of what to buy and eat in terms of healthy-food products

| No. | Items   | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|-----|---|-------------------|----------|---------|-------|----------------|
| 1.  | Social criticism from others encourages the adoption and consumption of healthy-food products   | 1                 | 2        | 3       | 4     | 5              |
| 2.  | Unpleasant affective outcomes (e.g. bad temper and depression)  | 1                 | 2        | 3       | 4     | 5              |
| 3.  | Unhealthy food-consumption risks (e.g. social risks and psychological risks) are important reasons for my family to carefully choose what to buy and eat. | 1                 | 2        | 3       | 4     | 5              |
| 4.  | Fear of feeling stress and having bad moods makes my family adopt a strong diet and prefer healthy-food products  | 1                 | 2        | 3       | 4     | 5              |

5. What types of difficulties does your family experience in buying or cooking a healthy diet?

- 1-.....
- 2-.....
- 3-.....

**Part Nine: - Dependent Variable**

Please rate the extent to which you agree with the following statements that affect your family choice of what to buy and eat in terms of healthy-food products

| No. | Items   | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|-----|---|-------------------|----------|---------|-------|----------------|
| 1.  | I think that what food to choose, buy and eat is important  | 1                 | 2        | 3       | 4     | 5              |
| 2.  | I usually encourage my family to choose, buy and eat healthy-food products                                      | 1                 | 2        | 3       | 4     | 5              |
| 3.  | Healthy food choice and healthy eating affect families in living better and getting a healthy lifestyle         | 1                 | 2        | 3       | 4     | 5              |
| 4.  | Families nutritional knowledge and attitudes towards healthy-food product choice impact on what to buy and cook | 1                 | 2        | 3       | 4     | 5              |

**Part Ten: - Family data - Demographic characteristics**

1- What is your sex?

- Male  Female

2- What is your age?

|                          |              |                          |                   |
|--------------------------|--------------|--------------------------|-------------------|
| <input type="checkbox"/> | Less than 30 | <input type="checkbox"/> | 30-less than 60   |
| <input type="checkbox"/> | >60          | <input type="checkbox"/> | Prefer not to say |

3- Are you married  or have a partner  or single?

4- How long have you been married (had a partner)? (Years)

- |                          |                    |                          |               |
|--------------------------|--------------------|--------------------------|---------------|
| <input type="checkbox"/> | Less than one year | <input type="checkbox"/> | 1-less than 3 |
| <input type="checkbox"/> | 3-less than 5      | <input type="checkbox"/> | 5-less than 7 |
| <input type="checkbox"/> | 7-less than 9      | <input type="checkbox"/> | >9            |

5- What is your highest level of education?  
 No further education                       School level  
 Graduate level                                       Postgraduate level

6- What is your partner's highest level of education?  
 No further education                       School level  
 Graduate level                                       Postgraduate level

7- What is your occupation? .....What is your partner's occupation?.....

8- What is your working status?  
 Full-time     Part-time  
 Not working     Prefer not to say

9- What is your partner's working status?  
 Full-time     Part-time  
 Not working     prefer not to say

10- What is your family's average annual income? (£)  
 <10,000     10,000- less than 20.000  
 20,000- less than 30.000                       30,000- less than 40.000  
 40,000- less than 50.000                       >50,0000  
 Prefer not to say

11- Please list the children in your household in the table below:

| No. | Age | Female | Male |
|-----|-----|--------|------|
| 1-  |     |        |      |
| 2-  |     |        |      |
| 3-  |     |        |      |
| 4-  |     |        |      |

12- Does/do your child(ren) eat at a nursery? .....  
 Yes     No, If not please skip to question 14.

13- What types of food does/do your child(ren) usually eat at the nursery?  
A- .....  
B- .....  
C-.....

14- Does/do your child(ren) eat at school?  
 Yes     No, If not please skip to question 16.

15- What types of food does/do your child(ren) usually eat at school?  
A- .....  
B- .....  
C-.....

**Table 5 - 6: Collinearity Statistics Coefficients**

| Model                    | Collinearity Statistics |       |
|--------------------------|-------------------------|-------|
|                          | Tolerance               | VIF   |
| Behaviour Setting        | .599                    | 1.668 |
| LH                       | .919                    | 1.088 |
| URs                      | .925                    | 1.081 |
| IRs                      | .750                    | 1.334 |
| Utilitarian Punishment   | .868                    | 1.152 |
| Informational Punishment | .636                    | 1.572 |

**Chapter Six Appendixes****Table 6-3. E1: Highest level of education**

| Categories          | Frequency | Percent | Valid Percent | Cumulative Percent % |
|---------------------|-----------|---------|---------------|----------------------|
| No further educated | 1         | .5      | .5            | .5                   |
| School level        | 35        | 17.2    | 17.2          | 17.6                 |
| Graduate level      | 65        | 31.9    | 31.9          | 49.5                 |
| Post-graduate level | 102       | 50.0    | 50.0          | 99.5                 |
| Missing Values      | 1         | .5      | .5            | 100.0                |
| Total               | 204       | 100.0   | 100.0         | 100.0                |

**Table 6-3. E2: Partner's highest level of education**

| Categories          | Frequency | Percent | Valid Percent | Cumulative Percent % |
|---------------------|-----------|---------|---------------|----------------------|
| No further educated | 1         | .5      | .5            | .5                   |
| School level        | 38        | 18.6    | 18.6          | 19.1                 |
| Graduate level      | 73        | 35.8    | 35.8          | 54.9                 |
| Post-graduate level | 73        | 35.8    | 35.8          | 90.7                 |
| No Partner          | 10        | 4.9     | 4.9           | 95.6                 |
| Missing Values      | 9         | 4.4     | 4.4           | 100.0                |
| Total               | 204       | 100.0   | 100.0         | 100.0                |

**Table 6-3. F1: Parent's working status**

| Working Categories | Frequency | Percent | Cumulative Percent % |
|--------------------|-----------|---------|----------------------|
| Full-time          | 101       | 49.5    | 49.5                 |
| Part-time          | 52        | 25.5    | 75.0                 |
| Not working        | 48        | 23.5    | 98.5                 |
| 99.00              | 3         | 1.5     | 100.0                |
| Total              | 204       | 100.0   | 100.0                |

**Table 6-3. F2: Partner's working status**

| Working Categories     | Frequency | Percent | Cumulative Percent % |
|------------------------|-----------|---------|----------------------|
| Full-time              | 114       | 55.9    | 55.9                 |
| Part-time              | 18        | 8.8     | 64.7                 |
| Not working            | 37        | 18.1    | 82.8                 |
| Others- please specify | 13        | 6.4     | 89.2                 |
| No partner             | 11        | 5.4     | 94.6                 |
| 99.00                  | 11        | 5.4     | 100.0                |
| Total                  | 204       | 100.0   | 100.0                |

**Table 6-4. F: Shopping centres**

| No.         | Shopping Centres            | Frequency | Percentages % |
|-------------|-----------------------------|-----------|---------------|
| 1.          | Tesco                       | 65        | 25            |
| 2.          | Sainsbury                   | 60        | 23            |
| 3.          | Supermarkets                | 27        | 10.4          |
| 4.          | Local Shops                 | 26        | 10            |
| 5.          | Azda                        | 25        | 9.6           |
| 6.          | Vegetable Shops             | 20        | 7.7           |
| 7.          | Lidle                       | 10        | 3.8           |
| 8.          | Iceland                     | 6         | 2.3           |
| 9.          | Morrison                    | 6         | 2.3           |
| 10.         | The Co-operative Food Store | 6         | 2.3           |
| 11.         | Marks and Spencer           | 5         | 0.2           |
| 12.         | ALDI                        | 5         | 0.2           |
| Total views |                             | 261       | 100           |

**Table 6-5. A: Meaning of a healthy diet study sample**

| No.         | Respondents' views                | Frequency | Percentages % |
|-------------|-----------------------------------|-----------|---------------|
| 1.          | Balanced food/diet                | 107       | 25.2          |
| 2.          | Fruits and vegetables             | 90        | 19.4          |
| 3.          | Not too much sugar                | 45        | 9.6           |
| 4.          | Meat                              | 41        | 8.36          |
| 5.          | Low fat                           | 27        | 5.8           |
| 6.          | Variety of food                   | 26        | 5.6           |
| 7.          | Less salt                         | 21        | 4.5           |
| 8.          | Carbohydrate (e.g. Pasta & bread) | 16        | 3.42          |
| 9.          | Whole grain/ cereal               | 14        | 3.06          |
| 10.         | Dairy products                    | 10        | 2.11          |
| 11.         | No junk food                      | 8         | 1.74          |
| 12.         | Home made                         | 7         | 1.5           |
| 13.         | Fit/slim and exercised body       | 6         | 1.3           |
| 14.         | Fresh food                        | 5         | 1.1           |
| 15.         | Sea food                          | 5         | 1.1           |
| 16.         | Little processed                  | 5         | 1.1           |
| 17.         | Organic                           | 4         | 0.86          |
| 18.         | Water                             | 4         | 0.86          |
| 19.         | Minerals                          | 4         | 0.86          |
| 20.         | All vitamins                      | 3         | 0.64          |
| 21.         | High fibre                        | 3         | 0.64          |
| 22.         | Eat local food                    | 2         | 0.43          |
| 23.         | Less calories                     | 2         | 0.43          |
| 24.         | No artificial flavour             | 1         | 0.22          |
| Total views |                                   | 464       | 100           |



**Table 6-5. B: Main categories of healthy products that usually families buy**

| No.                | Respondents' views               | Frequency | Percentages % |
|--------------------|----------------------------------|-----------|---------------|
| 1.                 | Fruits and vegetables            | 137       | 20.7          |
| 2.                 | Meat                             | 126       | 18.9          |
| 3.                 | Carbohydrate (Rice, Bread, Pasta | 119       | 17.8          |
| 4.                 | Dairy products                   | 76        | 11.3          |
| 5.                 | Fish                             | 60        | 9.0           |
| 6.                 | Cereals and Pubes                | 50        | 7.6           |
| 7.                 | Plant/Green stuff (Herbs)        | 27        | 2.2           |
| 8.                 | Low fat products                 | 27        | 2.2           |
| 9.                 | Organic products                 | 13        | 2.0           |
| 10.                | Fresh juice                      | 11        | 0.8           |
| 11.                | Sea food                         | 6         | 0.9           |
| 12.                | Olive oil and vinegar            | 5         | 0.8           |
| 13.                | Unsalted food                    | 4         | 0.6           |
| 14.                | Home made                        | 4         | 0.6           |
| 15.                | Everything                       | 1         | 0.2           |
| <b>Total views</b> |                                  | 666       | 100           |

**Table 6-5. C1: Child(ren) eating at a nursery**

| Categories | Frequency | Percent | Valid Percent | Cumulative Percent % |
|------------|-----------|---------|---------------|----------------------|
| Yes        | 35        | 17.2    | 17.2          | 17.2                 |
| No         | 169       | 82.8    | 82.8          | 100.0                |
| Total      | 204       | 100.0   | 100.0         |                      |

**Table 6-6. C2: Child(ren) eating at a school?**

| Categories | Frequency | Percent | Valid Percent | Cumulative Percent % |
|------------|-----------|---------|---------------|----------------------|
| Yes        | 117       | 57.4    | 57.4          | 57.4                 |
| No         | 87        | 42.6    | 42.6          | 100.0                |
| Total      | 204       | 100.0   | 100.0         |                      |

**Table 6-5. D: Problems families experience shopping for healthy-food products**

| No. | Healthy-food shopping obstacles                                     | Frequencies | Percentages % |
|-----|---|-------------|---------------|
| 1-  | No problems   | 66          | 21            |
| 2-  | High price/expensive  | 58          | 18.5          |
| 3-  | Unavailability of healthy food products                             | 42          | 13.3          |
| 4-  | Food going off quickly  | 26          | 8.1           |
| 5-  | Low quality food products   | 24          | 7.6           |
| 6-  | Lack of variety   | 22          | 7             |
| 7-  | Lack of fresh food products   | 14          | 4.3           |
| 8-  | Transportation/Distance problems                                    | 10          | 3.2           |
| 9-  | Do not like it  | 9           | 2.8           |
| 10- | Trusting labelling  | 8           | 2.5           |
| 11- | Time available to shop such food                                    | 8           | 2.5           |
| 12- | Packaging problems  | 6           | 1.9           |
| 13- | Lack of Labelling   | 6           | 1.9           |
| 14- | Finding the required food such as (Halal and organic food products) | 5           | 1.6           |
| 15- | No knowledge of healthy food products                               | 5           | 1.6           |

**Table 6-5. E: Main healthy-food cooking obstacles**

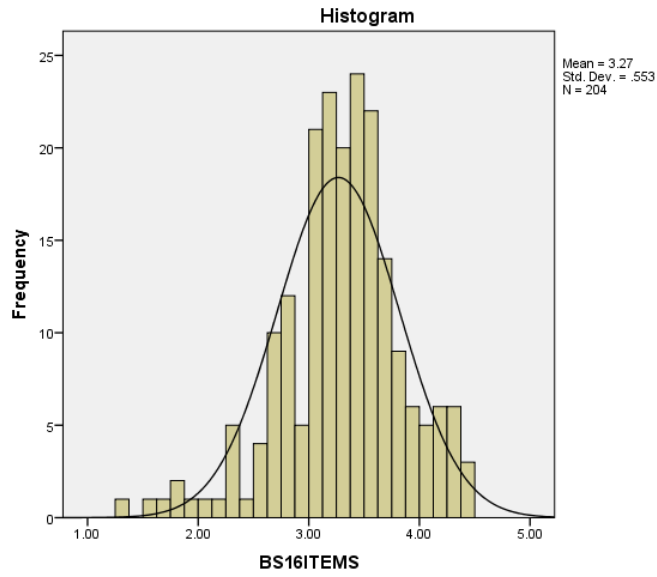
| No.         | Healthy-food cooking obstacles              | Frequencies | Percentages % |
|-------------|---|-------------|---------------|
| 1-          | Lack of time available for cooking          | 66          | 21            |
| 2-          | Children do not like it                     | 49          | 15.4          |
| 3-          | No problem                                  | 45          | 14            |
| 4-          | High cost of healthy food products          | 35          | 11            |
| 5-          | Lack of knowledge of how to cook            | 17          | 5.4           |
| 6-          | Food products short life                    | 14          | 4.4           |
| 7-          | Unavailability of healthy food products     | 14          | 4.4           |
| 8-          | Lack of time available for shopping         | 12          | 3.8           |
| 9-          | Not supported socially such as friends      | 10          | 3.2           |
| 10-         | Liking and enjoying unhealthy food products | 10          | 3.2           |
| 11-         | Bad taste                                   | 9           | 3             |
| 12-         | Food products appealing                     | 9           | 3             |
| 13-         | Variety /lack of choices                    | 8           | 2.5           |
| 14-         | No knowledge of healthy food products       | 7           | 2.2           |
| 15-         | Transportation/Distance problems            | 5           | 1.5           |
| 16-         | Labelling problems                          | 4           | 1             |
| 17-         | Fussy family member                         | 4           | 1             |
| Total views |   | 318         | 100           |

**Table 6-5. F: Places where family eats its main meals**

| Categories                     | Frequency | Percent | Cumulative Percent % |
|--------------------------------|-----------|---------|----------------------|
| Living room-in front of TV     | 59        | 28.9    | 28.9                 |
| Living room not in front of TV | 48        | 23.5    | 52.5                 |
| Kitchen in front of TV         | 9         | 4.4     | 56.9                 |
| Kitchen not in front of TV     | 67        | 32.8    | 89.7                 |
| Others                         | 21        | 10.3    | 100.0                |
| Total                          | 204       | 100.0   | 100.0                |

**Table 6-5. H: Main reasons for having a special diet**

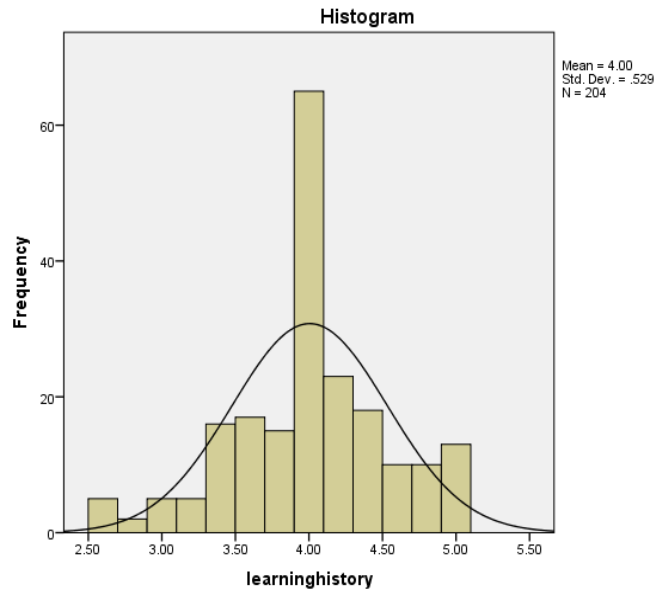
| Categories                                     | Frequency | Percent | Cumulative Percent % |
|--|-----------|---------|----------------------|
| Health long-term objectives like heart, cancer | 24        | 11.8    | 11.8                 |
| To lose or gain weight                         | 13        | 6.4     | 20.1                 |
| Personal reasons                               | 9         | 4.4     | 24.5                 |
| Other  | 9         | 4.4     | 28.9                 |
| Short-term objectives like allergies           | 4         | 2.0     | 13.7                 |
| Missing  | 145       | 71.1    | 100.0                |
| Total  | 204       | 100.0   | 100.0                |



**Figure: 6 -8: F1. Histogram normality for the BS construct**

**Table: 6 - 8: F1. Mean, SD, Skewness and Kurtosis for the BS construct**

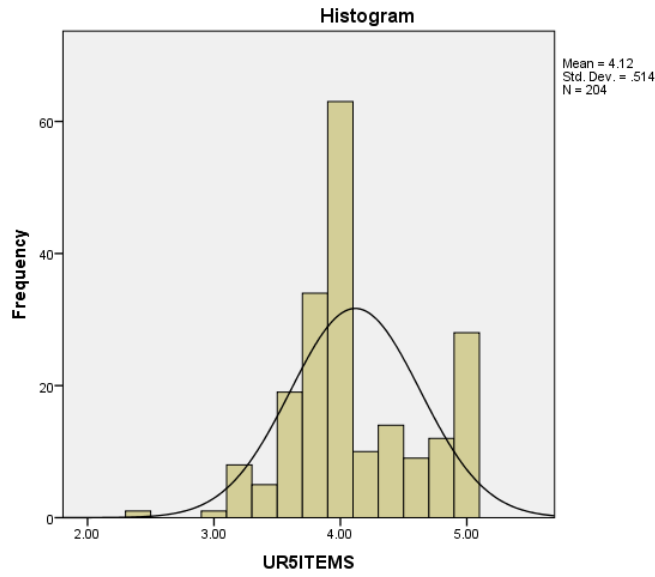
|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 204    |
|                        | Missing | 0      |
| Mean                   |         | 3.2675 |
| Std. Deviation         |         | .55291 |
| Skewness               |         | -.551  |
| Std. Error of Skewness |         | .170   |
| Kurtosis               |         | 1.040  |
| Std. Error of Kurtosis |         | .339   |



**Figure: 6 -8: F2. Histogram normality for the LH construct**

**Table: 6 - 8: F2. Mean, SD, Skewness and Kurtosis for the LH construct**

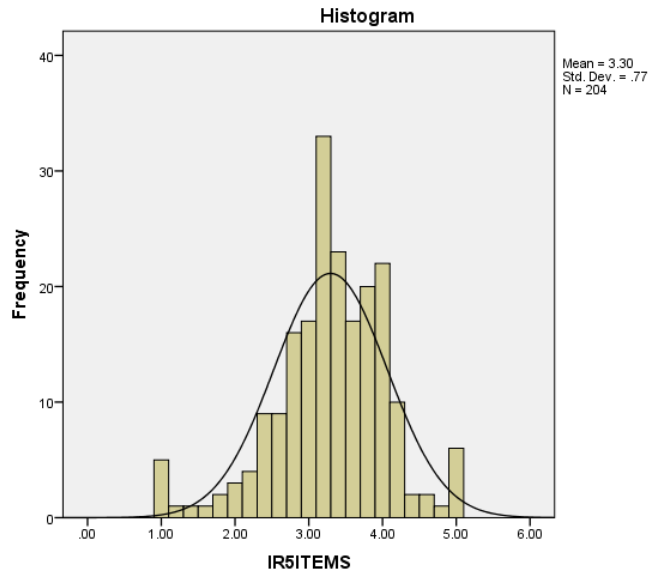
|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 204    |
|                        | Missing | 0      |
| Mean                   |         | 4.0049 |
| Std. Deviation         |         | .52875 |
| Skewness               |         | -.290  |
| Std. Error of Skewness |         | .170   |
| Kurtosis               |         | .330   |
| Std. Error of Kurtosis |         | .339   |



**Figure: 6 -8: F3. Histogram normality for the UR construct**

**Table: 6 - 8: F3. Mean, SD, Skewness and Kurtosis for the UR construct**

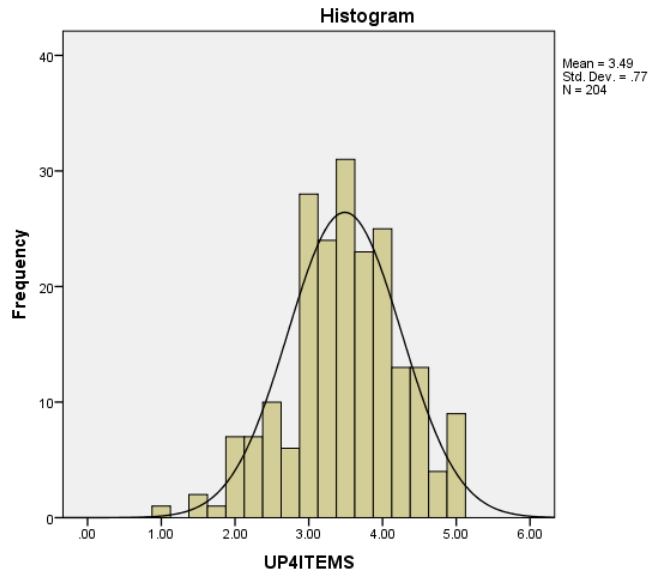
|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 204    |
|                        | Missing | 0      |
| Mean                   |         | 4.1186 |
| Std. Error of Mean     |         | .03597 |
| Std. Deviation         |         | .51370 |
| Skewness               |         | .216   |
| Std. Error of Skewness |         | .170   |
| Kurtosis               |         | -.195  |
| Std. Error of Kurtosis |         | .339   |



**Figure: 6 -8: F4. Histogram normality for the IR construct**

**Table: 6 - 8: F4. Mean, SD, Skewness and Kurtosis for the IR construct**

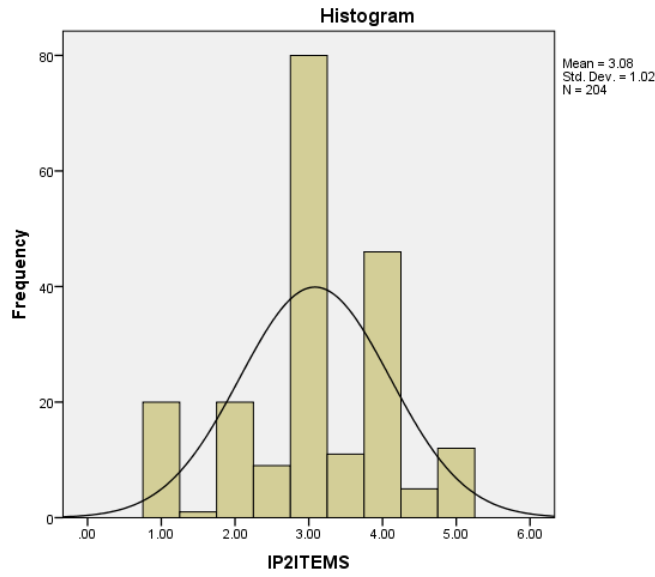
|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 204    |
|                        | Missing | 0      |
| Mean                   |         | 3.2951 |
| Std. Error of Mean     |         | .05391 |
| Std. Deviation         |         | .76999 |
| Skewness               |         | -.579  |
| Std. Error of Skewness |         | .170   |
| Kurtosis               |         | 1.148  |
| Std. Error of Kurtosis |         | .339   |



**Figure: 6 -8: F5. Histogram normality for the UP construct**

**Table: 6 - 8: F5. Mean, SD, Skewness and Kurtosis for the UP construct**

|                        |         |        |
|------------------------|---------|--------|
| N                      | Valid   | 204    |
|                        | Missing | 0      |
| Mean                   |         | 3.4877 |
| Std. Error of Mean     |         | .05391 |
| Std. Deviation         |         | .76995 |
| Skewness               |         | -.285  |
| Std. Error of Skewness |         | .170   |
| Kurtosis               |         | .123   |
| Std. Error of Kurtosis |         | .339   |



**Figure: 6 -8: F6. Histogram normality for the IP construct**

**Table: 6 - 8: F6. Mean, SD, Skewness and Kurtosis for the IP construct**

|                        |         |         |
|------------------------|---------|---------|
| N                      | Valid   | 204     |
|                        | Missing | 0       |
| Mean                   |         | 3.0833  |
| Std. Error of Mean     |         | .07139  |
| Std. Deviation         |         | 1.01972 |
| Skewness               |         | -.362   |
| Std. Error of Skewness |         | .170    |
| Kurtosis               |         | -.105   |
| Std. Error of Kurtosis |         | .339    |