

**An-Najah National University
Faculty of Graduate Studies**

**The Impact of Exclusive Breastfeeding on Infant
Morbidity in the First Six Months of Infant's life
in Nablus's Refugee Camps**

**By
Shaden Hamdi Shakeb Qanadelo**

**Supervised by
Dr-Samar Ghazal / Musmar**

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This Thesis was defended successfully on 28/7/2010, and approved by:

Committee Members

Signature

1. Dr. Samar Ghazal / Musmar / Supervisor



2. Dr. Haleama Al Sabbah / Internal Examiner



3. Dr. Sumaya Sayej / External Examiner



Dedication

To my parents, to every one deprived from education, and to those who know the value of learning and knowledge.

Acknowledgement

ALLAH, Subhanahu wa ta'ala said in holy Quraan:-

وَكَانَ فَضْلُ اللَّهِ عَلَيْكَ عَظِيمًا

And Allah's grace on you is very great.

(Surah An-Nisaa, 113)

Firstly I must thank God for his graces and blessing on me to complete this study, which helped me to overcome all obstacles and hard times I met throughout my study years.

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From bottom of my heart I would like to thank my parents who taught me the value of learning, especial thanks for my mother who's been always supporting, advising, and ensuring me that by believing, hope, and hard work all hard targets would be possible.

الإقرار

أنا الموقعة أدناه مقدمة الرسالة التي تحمل العنوان:

The Impact of Exclusive Breastfeeding on Infant Morbidity in the First Six Months of Infant's life in Nablus's Refugee Camps

أقر بأن ما اشتملت عليه هذه الرسالة إنما هي نتاج جهدي الخاص، باستثناء ما تمت الإشارة إليه حيثما ورد، وأن هذه الرسالة ككل، أو أي جزء منها لم يقدم من قبل لنيل أية درجة علمية أو بحث علمي أو بحثي لدى أية مؤسسة تعليمية أو بحثية أخرى.

Declaration

The work provided in this thesis, unless otherwise referenced, is the researcher's own work, and has not been submitted elsewhere for any other degree or qualification.

Student's name:

اسم الطالبة:

Signature:

التوقيع:

Date:

التاريخ:

List of Acronyms

Abbreviation	Explanation
AAFP	The American Academy of Family Physicians.
AAP	The American Academy of Pediatrics.
ACOG	The American College of Obstetricians and Gynecologist.
ALRI	Acute Lower Respiratory Infection
AOM	Acute Otitis Media
ARI	Acute Respiratory Infections.
BF	Breastfeeding.
EBF	Exclusive breastfeeding.
EFF	Exclusive Formula milk Feeding.
IgA	Immunoglobulin A.
IgD	Immunoglobulin D.
IgE	Immunoglobulin E.
IgG	Immunoglobulin G.
IgM	Immunoglobulin M.
LRTI	Lower Respiratory Tract Infection.
MCH	Maternal and Child Health
OM	Otitis Media.
Adj-OR	Adjusted Odds Ratio
PBF	Partial Breastfeeding.
PCBS	Palestinian Central Bureau of Statistics.
PMOH	Palestinian Ministry of Health.
PSC	Palestinian Satellite Channel
ROM	Recurrent Otitis Media.
S-IgA	Secretory Immunoglobulin A.
SPSS	Statistical Package for Social Sciences.
Type I DM	Type I Diabetes Mellitus.
UNICEF	The United Nations Children's Fund.
UNRWA	United Nations and Works Agency For Palestine Refugees in the Near East.
URTI	Upper Respiratory Tract Infection.
USA	The United States of America.
UTI	Urinary Tract Infection.
WHO	World Health Organization.

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Abstract

Throughout infancy it is important to receive the appropriate and the adequate nutrition, to ensure the utmost extreme biological growth and mental development for the child.

World wide, many studies on infants provided evidences that breastfeeding is the ideal method; it can decrease the incidence and severity of many infectious conditions, such studies in our country are lacking.

This study aimed to explore the effects of the different infant feeding patterns on infant's morbidity in the first six months of age in Nablus refugee camps (Balata, Askar, and Ein Beit el Ma). The research also aimed to explore the relationship between selected mother's and infant's sociodemographic factors, and the choice for the infant's patterns of feeding during the first six months of life in Nablus refugee camps.

The study was cross-sectional retrospective analytical survey, included 690 files of infant\mother pair's, born in 2007, reside in Nablus refugee camps, and receive health care in one of three UNRWA's clinics in Nablus refugee camps. Secondary data obtained from infants clinical files, then analyzed by SPSS program, version 11; frequencies and percentages, Pearson Chi-square, and multiple logistic regression methods were used.

The study results indicated; that percentage of Exclusive Breastfeeding (EBF) for the first six months of life was 70%, whereas Partial Breastfeeding (PBF) was 16%, and Exclusive Formula Feeding (EFF) was 14%. Which reflected the good efforts regarding promoting exclusive breastfeeding in the UNRWA's clinics.

Mother and infant sociodemographic factors (mothers aged 22-28 years olds, mother aged 15-22 years olds at marriage, mother aged 22-28 years old at delivery, those with high parity >4, mothers with basic and secondary level of education, not educated fathers, vaginal delivery, and female infants) were positively related to EBF significantly at 0.05..

On the other hand, EBF in the first six months of infant's life was negatively related to mothers aged > 36 years olds, mother aged > 29 years olds at marriage, mother aged > 36 years old at delivery, and those with low parity 1-2, high educated mothers and fathers, cesarean delivery, and male infants.

This study confirmed that exclusive breastfeeding during the first six months of life protects against, lower respiratory tract infection, otitis media, gastroenteritis, diarrhea, wheezing, and allergies. The effect of protection continued to be statistically significant (except for diarrhea) even after adjusting for mother and infant sociodemographic factors.

In conclusion, this study confirms that type of infant feeding in the first six months of infant's life is affected by mothers and infant's

sociodemographic variables. And that exclusive breastfeeding in the first six months of life is important element in preventing and decreasing many diseases during the same period of age.

The study results recommend that health agencies must give more concern for breastfeeding in general and exclusive breastfeeding in particular, especially during planning for fighting against infectious diseases. Further studies regarding this subject must be conducted within the Palestinian health agencies.

Chapter one
Introduction

Chapter one

Introduction

Breastfeeding has received significant attention in the past twenty years. Exclusive breastfeeding and its impact on infant's health has been a field of medical and public health research world wide.

UNRWA's services at Palestinian Refugee camps are keeping excellent health records for infants and their mothers suitable to this type of study.

In this chapter, the study background, the research problem, significance of the study, goal and objectives, study questions, hypotheses, and important definitions for what will be presented.

1.1.Study background

Having the appropriate and the adequate nutrition during infancy, and early childhood are fundamentals to the development of each child's full human potential ¹. It is well recognized that the first two years of age is a "critical window" for the promotion of optimal growth, health, and behavioral development ¹. This is due to the fact that this age is the peak for growth faltering, deficiencies of certain micronutrients, and common childhood illnesses such as diarrhea ¹.

Numerous factors affect the mother's choice to breastfeed, including socioeconomic status, cultural beliefs, level of social support, level of education, maternal work demands, range of care interventions provided

during pregnancy, childbirth and the early postpartum period (medical advice), family pressures and commercial advertising^{2,3}. Biological factors including infant size, sex, development, interest/desire, growth rate, appetite, physical activity, and maternal lactational capacity may influence the decision about the type of feeding for infant, supplementation, and also determine the need and timing of complementary feeding^{2,3}.

1.2.Types and importance of breastfeeding

Breastfeeding (BF) is the ideal method of providing young infants with the optimum form of nutrients they require for healthy growth and development⁴. By receiving accurate information, and the needed support of their families and the health care system; virtually all mothers can breastfeed⁴.

The World Health Assembly, endorsed a resolution in May 2001 advocating the need to encourage Exclusive Breast Feeding (EBF) up to the age 6 months taking into account the findings of the World Health Organization (WHO) expert consultation on optimal duration of EBF; WHO's public health and infant feeding recommendations is that "infants should be exclusively breastfed during the first six months of life and that they should continue to receive breast milk throughout the remainder of the first year and during the second year of life or beyond, and unrestricted exclusive breastfeeding results in ample milk production." ^{5, 6,7, 8,9}.

To enable mothers to establish and sustain EBF for 6 months, WHO and the United Nations Children's Fund (UNICEF) recommend⁸:

- Within the first hour of life, mother can initiate breastfeeding.
- Exclusive breastfeeding.
- Breastfeeding on demand according to the child need, day and night.
- No use of bottles, teats or pacifiers.

According to WHO report in the year 2002, and the American Academy of Pediatrics (AAP) in the year 2005, the definition of Exclusive Breastfeeding (EBF) is that “the infant only receives breastmilk, and no water, other fluids (juice, non-human milk), or foods should be administered”^{7, 8, 10}.

EBF definition also comprises that the infant receives no pacifiers/dummies or artificial teats, at least 8-12 breastfeeding times in 24 hours, including the night ones especially for newborn babies¹¹. It must be clear that any limitations placed on the number and /or duration of breastfeeding will interfere with the meaning of EBF¹¹.

When infant receives breast milk plus infant formula, this pattern of feeding is called mixed feeding¹⁰.

Both the American Dietetic Association and the AAP (2005) recommended EBF for the infant's first 6 months of life, and to continue breastfeeding in conjunction with other foods for the first year^{2, 10}.

Breastfeeding has been promoted and\ or recommended also by the United States Department of Health and Human Services, the American

Public Health Association, the American Academy of Family Physicians (AAFP), the American College of Obstetricians and Gynecologists (ACOG), and numerous other institutions and organizations^{12, 13}.

Islam as a religion strongly promotes breastfeeding. In the following ayah (verse) from the Holy Quran, ALLAH, Subhanahu WA ta'ala recommends the mother to suckle her offspring for 2 years if possible¹⁴.

The mothers shall suckle their offspring for two whole years, (that is) for those (parents) who desire to complete the term of suckling (Al-Baqarah: 233)

At national level, the Palestinian Ministry of Health (PMOH) coordinated with Palestine television and Palestinian Satellite Channel (PSC) through production of many programs to promote awareness for breastfeeding¹⁵. PMOH also plays a role through implementation of many programs on the importance of breastfeeding targeting women inside women unions, institutions, and health clinics, in addition to offering training courses in breastfeeding for participants from health organizations, and distribution of booklets and posters to targeted groups¹⁶.

1.3.Types, composition, and benefits of breast milk

According to WHO “In almost all situations, breastfeeding remains the simplest, healthiest and the least expensive, natural first food for babies”^{7, 8}. Human milk provides easily tolerated, digestible, readily available at any time and everywhere (requires no preparation), sterile

formula, at proper temperature, and with no artificial colorings, flavorings, or preservatives ^{2, 11}.

Sometimes breastmilk called the white blood, since it is considered similar to the placental blood of intrauterine life, in addition it is similar to unstructured living tissue like blood, plus its capability of transporting nutrients, affecting biochemical systems, enhancing immunity, and destroying pathogens ¹⁷.

Like all other animal milks; human breastmilk is species-specific, its own ideal composition makes it different from that of other mammals' types regarding ingredients and their concentrations ^{17, 18, 19}. This composition is not constant and varies with stage of lactation, breastfeeding pattern, season, and parity, and differs also among individuals (mother's milk is especially suited for her own baby) and communities, and are adapted to gestational age ^{11,18}. Mature breastmilk changes from month to month, day to day, feed to feed which makes it the superior milk that meets each particular baby's needs, plus that human breastmilk adapted throughout human existence to meet nutritional and anti-infective requirements of the human infant to ensure optimal growth, development, and survival^{11, 17, 18}.

1.3.1. Biological and chemical composition of breast milk

The chemical composition of breast milk changes dramatically over time in the postpartum period. The stages of lactation correspond roughly

to the postpartum time: colostrum (0–5 days), transitional milk (6–14 days), and mature milk (15–30 days) ^{2,20}

As a complex fluid; breastmilk contains all the energy and nutrients needed by the newborn baby to promote infant's health, growth, and development during the first six months of life ^{7,8,18}. It continues to provide up to half or more of a child's nutritional needs during the second half of the first year, and up to one-third during the second year of life ^{7,8}.

Nutrients include metabolic fuel (fat, protein, and carbohydrates), water, and the raw materials essential for tissue growth and development, such as fatty acids, amino acids, adequate minerals, vitamins, and trace elements ¹⁸.

It is important to know that the presence of some proteins in human milk are not for nutritional purpose to the infant; it serves immunological role instead ¹⁷. For example breastmilk as a white blood contains (leukocytes, immunoglobulins, and enzymes) in abundance, and the nonantibody factors (Lactoferrin, the bifidus factors, and oligosaccharides) which offer the newborn protection against disease; this benefit in addition to other benefits has been recognized for hundreds of years and makes it a peerless substance for feeding the human infant ¹⁷.

As a white blood there are two types of leukocytes in human milk; phagocytes (90%) and lymphocytes (10%) and their concentrations vary with the duration of lactation; where after birth these cells are higher than at any other time ¹⁷.

Macrophages are the dominant phagocytes¹⁷. They engulf and absorb pathogens, release Immunoglobulin A (IgA), and produce lactoferrin and lysozyme also¹⁷. Neutrophils are other phagocytic leukocytes in breast milk and the first to arrive to the inflamed site¹⁷. Lymphocytes in breast milk include T-cells (83%) and B-cells provide helpful immunity important in the destruction of viruses^{17,21}.

1.3.2. Breast milk's role in fighting infections

Antibodies (immunoglobulins) are proteins produced by plasma cells in response to an immunogen¹⁷. All types of immunoglobulins (IgG, IgA, IgM, IgE, and IgD) are found in human milk; however, both IgA and IgE, play a critical role in biological specificity of human milk on the recipient infant^{17,22}.

Secretory IgA (S-IgA) a compound that is the primary disease fighter in the human immune system, reflects mother's exposure to mucosal infection, attaches to the lining of the nose, mouth, and throat, and fights the attachment of specific infecting agents^{17,18,19,22}.

S-IgA is a couple of two IgA molecules, so-called secretory component seems to shield the antibody molecules from being degraded by the gastric acid and digestive enzymes in the stomach and intestines, this characteristic helps it to reach the intestine in undamaged condition, where it acts on pathogenic organisms and inhibit their multiplication^{19,22,23}.

The immunization process begins at birth by passive immunity, because mother's milk has antibodies to protect babies against diseases to

which they might be exposed to^{2,11}. Infant's own immune system may also produce S-IgA, but under the age of two years infant has immature immune response that is sometimes incapable of preventing disease¹⁹. The consumption of the mother's S-IgA not only provides resistance to disease, but it also stimulates the production of additional S-IgA in the infant¹⁹. As a result; breastfed children exhibit greater resistance to infectious diseases and stronger immune systems than their formula fed peers¹⁹. Breastmilk also supplies smaller amount of IgM and IgG²⁴.

Lysozyme; a major component of human milk enzymes (a potent digestive ingredient), has both bacteriocidal and anti-inflammatory action, and is much more abundant in human milk than in bovine type¹⁷.

Nonantibody factors in human milk comprise an elegant and intricate system that protects the infant against bacterial infection; the most important ones of these factors are Lactoferrin, the bifidus factors, and oligosaccharides¹⁷.

Lactoferrin; is a potent iron-binding protein which absorbs enteric iron upon reaching intestine, leading to reduction of the amount of free iron below the level necessary for the growth of iron-dependent bacteria^{24,17, 22}.

The intestinal flora of breastfed infants is dominated by gram-positive helpful bacteria called *Lactobacillus bifidus*; with a level in breastfed infants that is typically ten times greater than that of formula-fed infants^{17, 22}. The bifidus factor in human milk promotes growth of these beneficial bacteria¹⁷. The buffering capacities of milk (bifidus factor)

together with the lactobacillus, contribute to the low pH (5-6) of stool^{17, 24}. This acid environment will discourage the replication of many pathogens¹⁷.

Oligosaccharides (carbohydrates composed of a few monosaccharides) in human milk help to block antigens from attaching to the epithelium of the gastrointestinal tract¹⁷.

1.3.3. Other benefits of breastfeeding

Breastmilk in general provides many benefits for the baby's health; for example, it promotes optimal mother-infant bonding, and if the breastfeeding is exclusive will reduce spending on infant formulas and the benefits will increase to its highest; healthier mother and infant, reduce the need for the different types of medical services^{2,11,19}. The choice to breastfeed has a potential for decreasing annual health costs in The United States of America (USA) by \$3.6 billion and decreasing parental employee absenteeism, the environmental burden for disposal of formula cans and bottles, and energy demands for production and transport of formula¹⁰. So, in general breastfeeding is economic element for society¹¹.

1.4. Formula feeding

Infant formula is an artificial substitute for human **breast milk**, designed for **infant** consumption²⁵. Today, most infant formulas are based on either **cow milk** or **soy milk**, and some other types for infants with special dietary needs, are highly modified and may contain neither cow milk nor soy²⁵.

Breastmilk substitutes increase the risk of contamination either during manufacturing or home preparation; for example, water used for washing bottle or mixing infant formula may be contaminated. Some families may dilute it to make it last longer or fall in errors during mixing¹¹.

1.5.The problem of the study

Worldwide, diarrhea and respiratory infections are major causes of death of children, especially young ones²⁶. Acute gastroenteritis is one of the leading causes of illness and death in infants and children throughout the world, especially in developing countries; an estimated 2.5 million gastroenteritis deaths occur each year in children less than 5 years of age^{26,27}. In Palestine, diarrhea is one of the main causes of outpatient visits and hospitalizations²⁸. In the Palestinian Territory, deaths related to respiratory diseases are the second cause of infant death (21.8%) for the year 2005²⁹.

Breastfeeding benefits were investigated by many studies which concluded that breastfed children exhibit greater resistance to infectious diseases and stronger immune system, with a lower rate of chronic diseases when compared with those fed by formula¹⁹. Moreover, according to WHO report (2002); EBF during the first months of life is considered as a significant element that reduces infant morbidity and mortality, and aids in a quicker recovery during illness, especially those related to diarrheal disease and acute respiratory infections⁷.

The evidence of this protection was studied worldwide, and demonstrated that these effects are even more important in resource-poor, mal-nourished, and heavily populated societies^{8, 17}. Consequently the very cramped, poor sanitation, and overcrowd Palestine refugee camps in general are considered the ideal site for such an important study lacking in Palestine.

In Nablus there are three refugee camps suitable to conduct this study; Balata, Askar, and Ein Beit el Ma.

However, no previous studies were found to detect for the relationship between type of feeding in the first six months of infant life, and infant morbidity regarding different and important diseases in the same period of infant's age in Palestine at all. Examples are; upper respiratory tract infection, lower respiratory tract infection, otitis media, asthma, wheezing, gastroenteritis, diarrhea, urinary tract infections, and allergies.

In addition, there is a lacking in the studies that investigated in details the relationship between mother's and infant's sociodemographic factors and choice of infant's patterns of feeding during the first six months of life in Palestine. Examples are; mother's age, mother's age at marriage, mother's age at baby's birth, mother's level of education, mode of delivery, parity, and infant's gender.

This study also tried to search for the role of father in affecting the mother's decision of type of feeding their infants in the first six months of life, especially father's level of education.

Throughout this research, the researcher wants to investigate for the importance of exclusive breastfeeding as a simple and cheap method that fight the infectious diseases which increase the economic and medical burdens, especially in a developing society like Palestine refugee camps.

And the researcher will try to detect the sociodemographic factors that negatively affect the exclusive breastfeeding to focus the promoting efforts on mothers with low tendency to exclusively breastfeed.

1.6. Significance of the study

This research is considered as the first study in Palestine refugee camps, particularly Nablus ones that aimed to investigate the relationship between type of feeding in the first six months of infant life, and infant morbidity in the same period of infant's age.

It focuses on different diseases that affect many infants inspite it could be preventable by very simple and cheap methods. Examples are; upper respiratory tract infection, lower respiratory tract infection, otitis media, asthma, wheezing, gastroenteritis, diarrhea, urinary tract infections, and allergies.

This research also aimed to find any relationship between selected mother's and infant's sociodemographic variables and the mother's choice of infant's feeding in the first six months of infant life.

Many previous studies improved the presence and in some times the absence of a possible statistical relationship, between mother's and infant's

sociodemographic variables and the choice for the type of infant's feeding in the first six months of life. Examples are mother's age, mother's age at marriage, mother's age at baby's birth, mother's level of education, mode of delivery, parity, and infant's gender.

In addition, some studies investigated for the role of the father in affecting the mother choice on their infant feeding especially regarding a variable like father's level of education.

It is expected that this study will play an important role in highlighting the importance of exclusive breastfeeding in the first six months of infant's life on infant morbidity. It also is expected to highlight factors affecting breastfeeding in Palestinian refugee camps' societies.

1.7. Goal and objectives of study

➤ Study goal

This research aims to explore the effect of the different types of feeding (exclusive breastfeeding, partial breastfeeding, and exclusive formula feeding) on infant morbidity in the first six months of age in Nablus refugee camps.

➤ Specific objectives

In order to reach the main study goal, the following objectives are set to be measured.

1. To explore the relationship between type of feeding and frequency of disease visits in the first six months of life in Nablus refugee camps (examples are; upper respiratory tract infection, lower respiratory tract infection, otitis media, asthma, wheezing, gastroenteritis, diarrhea, urinary tract infections, and allergies).
2. To explore possible relationship between selected mother's demographic factors and choice of infant's patterns of feeding during the first six months of life in Nablus refugee camps (examples are mother's age, mother's age at marriage, mother's age at baby's birth, mother's level of education, mode of delivery, and parity).
3. To explore possible relationship between infant's gender and choice of infant's pattern of feeding during the first six months of life in Nablus refugee camps.
4. To identify possible relationship between father's level of education and type of infant feeding during the first six months of life in Nablus refugee camps.

1.8. Hypotheses

➤ Main hypothesis

There is no significant relationship, at the significance level $p \leq 0.05$, between type of infant feeding and morbidity in the first six months of infant's life in Nablus refugee camps.

➤ **Specific hypotheses**

1. There is no significant relationship, at the significance level $p \leq 0.05$, between type of feeding and frequency of disease visits in the first six months of life in Nablus refugee camps (examples are; upper respiratory tract infection, lower respiratory tract infection, otitis media, asthma, wheezing, gastroenteritis, diarrhea, urinary tract infections, and allergies).
2. There is no significant relationship, at the significance level $p \leq 0.05$, between mother's age and type of feeding in the first six months of life in Nablus refugee camps.
3. There is no significant relationship, at the significance level $p \leq 0.05$, between mother's age at marriage and type of feeding in the first six months of life in Nablus refugee camps.
4. There is no significant relationship, at the significance level $p \leq 0.05$, between mother's age at the time of infant's birth and type of feeding in the first six months of life in Nablus refugee camps in Nablus refugee camps.
5. There is no significant relationship, at the significance level $p \leq 0.05$, between parity and type of feeding in the first six months of life.
6. There is no significant relationship, at the significance level $p \leq 0.05$, between mother's level of education and type of feeding in the first six months of life in Nablus refugee camps.

7. There is no significant relationship, at the significance level $p \leq 0.05$, between father's level of education and type of feeding in the first six months of life in Nablus refugee camps.
8. There is no significant relationship, at the significance level $p \leq 0.05$, between mode of delivery for the infant who participated in the current study and type of feeding in the first six months of life in Nablus refugee camps.
9. There is no significant relationship, at the significance level $p \leq 0.05$, between infant's gender and type of feeding in the first six months of life in Nablus refugee camps.

1.9. Important definitions for this study:

United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) is a relief and human development agency, providing aids to Palestine refugees living in Jordan, Lebanon and Syria, as well as in the West Bank and the Gaza Strip ³⁰.

Palestinian refugees or Palestine refugees are the people and their descendants, predominantly Palestinian Arabic-speakers, who fled or were expelled from their homes during and after the 1948 Palestine War ³¹.

Exclusively breastfed infants (EBF); infants who receive only Breastmilk and no water or other fluids (juice, non-human milk) or foods ^{7,8,10}.

Partially breastfed (PBF); Combination of breast feeding with formula milk ¹⁰.

Infant formula; is an artificial substitute for human breast milk, designed for infant consumption ²⁵. According to this study, feeding the infant by formulas only during the first six months of life is defined as Exclusive Formula Fed (EFF).

According to this study, definition of disease visit was actual clinic's visit or request for medical prescription for any treatment in other places.

Odds ratio; is the ratio of the probability of the two possible states of a binary variable in two groups of subject ³².

Summary

Breastfeeding is considered and recommended as the ideal way of infant feeding by many health agencies and Islam. Exclusive breastfeeding in the first six months of life is found to be an important element in reducing health and economic burdens of infectious diseases especially those related to diarrheal and respiratory infections. Consequently, breastfeeding in general and exclusive type in particular deserves to be studied and focused on especially when we plan for development of child health especially in our developing country (Palestine).

Chapter Two
Literature review

Chapter Two

Literature review

This chapter, briefly presents important scholarly work which investigated breastfeeding. Benefits and role in decreasing morbidity, important statistics of breastfeeding at international, and regional, and national levels are presented within this chapter.

2.1. Relationship of breastfeeding and infections studies at international level

Exclusive breastfeeding for 6 months is not a common practice in developed countries, and is still rarer in the developing ones ⁸.

In its Healthy People 2010 statement; the United States has established federal goals for breastfeeding, including that for initiation in the early postpartum period, the percentage is 75%, continuing to 6 months postpartum is 50%, and of all women breastfeeding 25% which must continue to 1 year, exclusive breastfeeding for 3 months is 60% and for 6 months is 25% ³³.

According to UNICEF statistics about EBF in different regions in the world for the years 1995 to 2000, and the year 2006, less than half were EBF < 4 months in most countries ^{34, 35}.

Several studies in different western countries explored protective effect of breastfeeding against infections in the first six months of infant's life. Howie et al designed a prospective observational study in Dundee

(Scotland) published in 1990, and concluded that breast feeding when compared with bottle-feeding, confers protection against gastrointestinal illness; that persists beyond the period of breast feeding itself ³⁶.

Quigly et al (1990) conducted a case control study in England and found that: after adjustment for confounders; breast feeding protects against diarrheal disease in infants aged 6 months ³⁷.

Chantry et al study (1988-1994) documented the importance of full breastfeeding for ≥ 6 months (Full\BF ≥ 6) in providing greater protection against respiratory tract infection than does full breastfeeding for >4 but <6 months in the USA ³⁸. In addition, infants exclusively breastfed for one to three months Full\BF1-3 group had the first episode of OM before 1 year of age and Recurrent Otitis Media (ROM) more than the Full\BF ≥ 6 group ³⁸.

Levine et al carried out a case-control study in North America (1995-1996) and found that; among infants 2-11 months old, current breastfeeding was associated with a decreased likelihood of invasive pneumococcal disease (*Streptococcus pneumoniae*) ³⁹.

Galton Bachrach et al (2003) conducted a meta-analysis of 33 studies on infants in developed nations to investigate the relation between breastfeeding and the risk of hospitalization for lower respiratory tract disease (LRTD) ⁴⁰. They concluded that among generally healthy infants, those who were not breastfed had developed severe respiratory tract illnesses resulting in hospitalization three times more compared to those who were exclusively breastfed for 4 months ⁴⁰.

Similar findings in New Mexico, USA was illustrated by Cushing et al (1988-1992) who found that full breastfeeding was associated with a reduction in lower respiratory illness, and that breastfeeding reduces the severity of infant respiratory illnesses during the first 6 months of life ⁴¹.

Several studies concentrated on the duration of breastfeeding and its relationship with infection. Sassen et al study carried out (1987-1988) in Leiden (Holland) revealed that the risk of Acute Otitis Media (AOM) depends on the number of months an infant is breast-fed and the number of months that pass after breast-feeding is discontinued ⁴².

Duncan et al study in Tucson, USA (1993) suggests that EBF for 4 or more months protects infants from OM and ROM ⁴³.

A study in Mexico City carried out by Lopez-Alarcón et al (1997) showed that the likelihood of having a larger percentage of days ill was higher for the formula-fed than for the fully breast-fed infants during the entire follow-up. It concluded that human milk has a protective effect for Acute Respiratory Infection (ARI), as it does for diarrhea ⁴⁴.

Two Brazilian studies explored breastfeeding and infection relationship. César et al study (1993) found that breastfeeding protects young Brazilian children against pneumonia, especially in the first months of life (under 3 months old) ⁴⁵.

Romieu et al study (2000) confirmed that the low prevalence of asthma and wheezing observed among Brazilian school children (7-14) years of age may be partly related to the high level of breastfeeding ⁴⁶.

In the Philippines, Yoon et al (1988-1991) found that children who were not breastfed during the first 6 months of life, compared with those who were breastfed, were more likely to die of diarrhea⁴⁷. He also found a six times increase in mortality associated with both acute lower respiratory infection (ALRI) and diarrhea combined by not breastfeeding in the first 6 months of life. Unfortunately, the data also suggested that after age 6 months, the protective effects of breastfeeding dropped dramatically⁴⁷.

2.2. Regional studies

The effect of breastfeeding on infant mortality and morbidity has been studied in some regional countries.

In Bangladesh, Arifeen et al cohort study (1993- 1995) showed that infants who were either partially or not breastfed had a higher risk of post neonatal (29 days-11 months) death than infants who were breastfed exclusively for the first 4 months of life⁴⁸.

Another study in Bangladesh carried out by Miharshahi et al (2003), showed that children aged 0-3 month(s) who are EBF, were less likely to have suffered from diarrhea and ARI than infants who were not EBF⁴⁹.

In Saudi Arabia, a retrospective study carried out by Abdulmoneim I et al (2001) found that during the first 2 years of life; attack rates of all respiratory tract infections was significantly related to duration of lactation⁵⁰.

Another study in Egypt (1995-1997) carried out by Clements et al found that, relative to infants who were not breastfed, those who were breastfed exclusively, or partially breastfed had a 33% and 28% lower rate of diarrhea respectively ⁵¹.

Some of studies in the region explored effect of sociodemographic factors on breastfeeding pattern and choices. For example, Khassawneh et al study (2003) in Irbid, Jordan, found that the type of feeding was independent of mother's age, father's education level, child's gender ⁵². Women with higher education (more than high school) were less likely to breastfeed, similarly employed mothers, mothers delivered by caesarian, and those with lower number of children (<3) were less likely to fully breastfeed ⁵². The study concluded that a high proportion of Jordanian women did breastfeed for more than one year ⁵².

In Israel, a study conducted by Ever-Hadani et al on Jewish women (1974-1976) in the Jerusalem district found that women aged 24 years or younger and those aged 40 years or more were most likely to choose to breast feed. Birth order, maternal education, social class, age at marriage, and work outside the home did not significantly influence the decision to begin breast feeding ⁵³. Delivering by caesarean section was significantly associated with a tendency to formula feed ⁵³. Primipara and grandmultipara (parity > 4) were significantly more likely to breastfeed for three months or more. Mothers with the fewest years of schooling on the one hand, and those with the highest level education on the other, were most likely to breast feed for extended periods ⁵³.

2.3. Breastfeeding studies at national level.

Although there are very few studies done on the breastfeeding subject in Palestine, a study carried out in Gaza Strip (2007) found that the level of mother's knowledge in regard to breastfeeding doesn't guarantee the full implementation of breastfeeding, therefore; a need for further training to health care providers on the infant feeding strategies and more ministerial commitments toward the implementation of BF strategies is needed ⁵⁴.

According to the Demographic and Health survey conducted in Palestinian Territory in the year 2004, one noticed that the percentage of breastfed children who were born 3 years before the study was 95.6% ⁵⁵.

Also in the report of Palestinian family health survey for the year 2006, which was published by the Palestinian Central Bureau of Statistics (PCBS) in the year 2007, the results showed that breastfeeding practice is common in the Palestinian Territory, since 97.5% of children under five years of age were breastfed ⁵⁵. It is good to know that the variation in breastfeeding across regions and districts was minimal, and the average duration of breastfeeding was 10.9 months in the year 2004, while in the year 2006 results showed that the average duration of breastfeeding increased to 12 months ^{29,55}.

But one will be surprised when he knows that inspite of the high breastfeeding percentage in the year 2006, the percentage of the exclusive breastfeeding the same year in Palestinian Territory was only 24.8% ⁵⁵.

The UNRWA study (2001) that assessed the prevalence and duration of EBF among Palestinian refugee infants utilizing UNRWA services in the five Fields of the Agency's area of operation (Jordan, Lebanon, Syrian Arab Republic, Gaza Strip, and the West Bank) found that the prevalence rates of EBF up to 4 months were (24.0%, 30.2%, 40.3%, 33.3%, 34.5%) respectively, with average 32.7% ⁵. And the mean duration of EBF agency-wide based on data collected at the date of the interview was 2.7 months with no significant variations between Fields ⁵.

Summary

Most of international and regional studies concentrated on importance of breastfeeding in general and exclusive type in particular.

At the national level all of the studies concentrated on prevalence and sociodemographic characteristics, but did not explore a possible relationship between breastfeeding and morbidity in children, especially infectious diseases in infancy.

The researcher's literature review showed no previous published study at the national level directed towards the impact of exclusive breastfeeding on infant morbidity in the first six months of life in Nablus refugee camps. It is expected that such a study is going to lead to important results in this subject.

Chapter Three

Methodology

Chapter Three

Methodology

The main aim of this study is to explore the immediate effect of the different types of feeding (exclusive breastfeeding, partial breastfeeding, and exclusive formula feeding) on infant morbidity in the first six months of age in Nablus refugee camps

In this chapter the research design and steps utilized to reach this important goal include; study population, study design and sampling method, operational definition of the study variables, instrument of data collection, potential confounders, data analysis, ethical issues, and study limitations.

3.1.Study population

The study population was chosen to include infants born in 2007, and registered to get their health care at the maternal and child health departments, in all the UNRWA's clinics included at Nablus area.

There are 27 refugee camps in the occupied Palestinian territory (19 in West Bank)⁵⁶. Approximately one third of Palestinian refugees still live in refugee camps; making up 25.4% of all refugees in the West Bank⁵⁶.

Population density (inhabitants/km²) is high throughout the occupied Palestinian territory, it increased from 481 in 1997 to 626 in 2007 (416 in the West Bank)⁵⁷. According to WHO agenda (2008), the occupied Palestinian territory has a young population⁵⁷. The proportion of

individuals below 15 years of age is slightly higher among refugees (45.8%) than non-refugees (45.3%)⁵⁷. The broad unemployment rate in West Bank refugees rose from (24.5%) in 2007 to (25.3%) in 2008⁵⁷.

Nablus is a big city located in the north of West Bank, Palestine with (320,830) population according to the PCBS (2007)⁵⁵.

In Nablus there are three refugee camps, Balata camp (in the eastern side of Nablus city) is one of the most densely populated locations on Earth since 30,000 people in its concrete block houses on less than two square kilometers in size⁵⁸. In Askar (located in eastern side of Nablus) the camps' registered population is 14,629 live on 299 dunums of land⁵⁹, and Ein Beit el Ma camp (located in western part of Nablus) had a population of approximately 5,036 inhabitants on 45 dunums in mid-year 2006⁶⁰.

Since 1948, UNRWA established 3 clinics in Nablus, providing health and preventive care in the main 3 refugee camps (Balata, Askar, and Ein Beit el Ma) in Nablus area.

According to the three clinic records for infants born in the year 2007, and registered at MCH in each one of these clinics; it was found that there are 1738 active files for infants and their mothers in the three refugee camps clinics (756 infants at Balata, 560 at Askar, and 422 at Ein Beit el Ma clinic).

3.2. Study design and sampling method

This study is a cross-sectional retrospective analytical survey.

Only those who met inclusion criteria were included in the study. A total of (690) infant\ mother files from the 3 clinics at refugee camps met the criteria to be included in the study, while 1048 infants were excluded. The time needed for collecting data was 2 months from November 2008 till January 2009. The clinical filling system used by UNRWA contains enough information related to the study concepts in addition to the variables for both mother and infant. Each infant was followed through his\her clinical file for the first six months of life. Data in the files used to fill the questionnaires to obtain information regarding mother's and infant's sociodemographic profile in addition to the infant history of type of feeding and morbidity during the first six months of life.

UNRWA's clinics were used as a place to get the sample for this study because most of refugee camps residents receive their medical care especially MCH free of charge; population utilization of these services is very high due to its location inside refugee camp, and finally patients also visit clinics to obtain medication even if they get medical advice outside these clinics.

3.3. Sample of the study

The study sample consisted of clinical records for 690 mother \ infant pairs. The infants were from both genders, reside in one of Nablus

refugee camps (Balata, Askar, and Ein Beit el Ma), were born in the year 2007, registered at MCH departments in one of the three clinics included in the study, and met all the study criteria. Mothers of those infants also were included for the study purpose. Files of all infants born between 1\1\2007 to 31\12\2007 were followed for the following 6 months of their birth date. Table (1) below shows the sample distribution according to the place of resident.

Table (1): Sample distribution according to the place of resident (n=690)

<i>Camp</i>	No. of subjects	%
Askar	284	41.2
Ein Beit el Ma	74	10.7
Balata	332	48.1

From table (1) above we notice that 48.1% of our sample was from Balata camp, while 41.2% and 10.7% were from Askar and Ein Beit el Ma clinics respectively.

3.3.1. Inclusion criteria

All inclusion and exclusion criteria were setup to include only healthy term infants, getting their care at the UNRWA clinics as the following:-

➤ **Infants:**

- i. All infants born in the year 2007.
- ii. Reside in one of the refugee camps included in the study.

iii. Registered at the MCH departments in the clinics.

➤ **Mothers:**

All mothers of the study sample infants.

3.3.2. Exclusion criteria

➤ *For infants*

- i. Infants with low birth weight which is ≤ 2500 grams.
- ii. Premature and preterm infants i.e. infants born before 37 gestational weeks.
- iii. Those who were born in multiple gestation; twins, triple, etc.
- iv. Infants with any congenital malformation, chronic disease, or genetic diseases that might affect the study results.
- v. Infants diagnosed with anemia as been defined by WHO, and utilized by UNRWA's clinics:
 - Mild anemia for Hb < 10 mg\dl.
 - Moderate anemia for Hb 9-9.5 mg\dl.
 - Severe anemia if Hb < 9 mg\dl.
- vi. Babies diagnosed with immunologic problems.

- vii. Infants who live outside the camp, because this increase the probability to visit other clinics in Nablus city, or Nablus rural area's rather than the UNRWA's clinics.
- viii. Infants born after complicated pregnancy such as preeclampsia\ eclampsia and gestational diabetes.
- ix. Infants with incomplete information in their clinical record files.

➤ ***For mother***

- i. Those with incomplete files.
- ii. Divorced and widows to ensure that mothers and infants are living in the refugee camp and utilizing its services exclusively.

3.4.Operational definition of the study variables

The expected study outcome is focused on the relationship between patterns of infant feeding during the first six months of age and morbidity during the same period of life. At the same time it measures relationship between selected mother's and infant's sociodemographic variables and the choice of different patterns of feeding in the first six months of infant life.

➤ ***Dependent variables:***

A dependent variable: is what measured in the experiment and what is affected and responds to the independent variable ⁶¹.

According to the above definition, the followings were considered dependent variables of this study:

1. Type of feeding in the first six months of infant life, and according to our study criteria, we defined different methods of feeding for infants in their first six months of life as follow:
 - i. Exclusively breastfed infants (EBF); infants who receive only Breast milk and no water or other fluids (juice, non-human milk) or foods. Only prescribed medicines will be allowed if present.
 - ii. Partially breastfed (PBF); Combination of breast feeding with formula milk, the combination must be started at least from the first week of life, and percentage of breast milk to formula milk will not be taken in consideration in this study because it was not mentioned in the clinical records.
 - iii. Exclusively formula fed infants (EFF); infants receive non-human milk without breast milk.
2. Infant morbidity in the first six months of life, which helps to compare the effects of different types of feeding, especially EBF on infant morbidity in this period of infancy.

Morbidity in this study was identified as clinic disease visits which was defined in chapter one.

Diseases included were:- upper respiratory tract infection, lower respiratory tract infection, otitis media, asthma, wheezing, gastroenteritis, diarrhea, urinary tract infections, and allergies.

Regarding different diseases and diagnosis, the researcher used the entered diagnosis by clinic physicians in the infant files.

3. Frequency of disease visits in the first six months of life in Nablus refugee camps (examples are upper respiratory tract infection, lower respiratory tract infection, otitis media, asthma, wheezing, gastroenteritis, diarrhea, urinary tract infections, and allergies).

➤ ***Independent variables:***

Independent variable is defined as: The manipulated variable in an experiment or study whose presence or degree determines the change in the dependent variable ⁶².

According to the above definition, the following were considered independent variables.

1. ***For mother***; sociodemographic characteristics regarding each mother in the mother\infant pairs who met selection criteria:
 - i. Mother's age: (15-21 years, 22-28 years, 39-35 years. 36 years and more).
 - ii. Mother's age at marriage: (15-21 years, 22-28 years, 29 years and more).
 - iii. Mother's age when the baby who participated in the study was born: (15-21 years, 22-28 years, 39-35 years. 36 years and more).
 - iv. Parity: (1-2 children, 3-4 children, >4 children)

- v. Mother's level of education: (not educated, basic, Secondary, high education).
 - vi. Father's (husband) level of education: (not educated, basic, Secondary, high education). This item was added because it was expected that the father also may have a role in promoting the mother decision, especially for those with high level of education.
 - vii. Type of delivery for the infant who participated in the current study: (caesarean, vaginal).
2. *For infant*; sociodemographic and feeding patterns information for every infant in the mother\infant pair:
- i. Infant's gender: (male, female).
 - ii. Type of feeding in the first six months of life: (Exclusive Breastfed-EBF, Exclusive Formula Feeding-EFF, or mixture of both \partial breastfeeding-PBF).

Notes: During the testing for the specific hypotheses (relationship between the selected mother's and infant's sociodemographic profiles and type of feeding) type of feeding in the first six months of life was considered as a dependent variable to measure the effect of sociodemographic variables on it. While in the first specific hypothesis (relationship between type of feeding and frequency of disease visits) and the main hypothesis (relationship between type of infant feeding and morbidity) it was

considered as independent variable to measure how much it affects the morbidity of infant in the first six months of infant's life.

3.5.Instrument of data collection

The researcher conducted several visits to the three UNRWA's clinics included in the study. During these visits a comprehensive review of infant\mother files was done to select the suitable ones according to the study criteria.

3.5.1.Questionnaire

The researcher developed a three section questionnaire, where important information from each infants\mother file was filled by the researcher herself.

- a. Section one: contained general information including (Residence, Ration number).
- b. Section two: contained mother sociodemographic profile including (date of birth, mother's age, mother's age at marriage, mother's age when the infant included in the study was born, parity, mother's and father's levels of education, mother's occupation, mode of delivery for the infant included in the study).
- c. Section three contained: infant's information including (date of birth, infant's gender, type of feeding in the first six months of life, if the infant has any illness during the first six months of his \ her life, if so, frequency of disease visits, and table for infant's morbidity with

different diseases visits in the first six months of life (diseases that was investigated in the study).

All mother and infant sociodemographic variables and consequently the questions in the questionnaire were selected according to the study goal and objectives, and according to the literature review.

3.5.2. Reliability and Validity of the tool

Reliability is the consistency of the measurement, or the degree to which an instrument measures the same way each time it is used under the same condition with the same subjects ⁶³. Simply reliability is usually estimated by test/retest is that one should get the same score on test 1 as he do on test 2, and internal consistency commonly is by using Cronbach's Alpha ⁶³.

Validity refers to whether the questionnaire or survey measures what it intends to measure ⁶⁴.

The study questionnaire developed by the researcher; was based on revision of the literature, and according to study objectives. It was reviewed by the supervisor, and experts, who suggested changes in some items, then all the recommended modifications were done. The researcher her self filled all the questionnaires, and most of the questionnaire's items are social demographic variables and infant morbidity data obtained from mother\infant files. A pilot test was felt to be unnecessary since all data were secondary.

3.5.3.Data collection

After obtaining a formal approval from UNRWA's director, the researcher herself collected information from clinical files of the three selected UNRWA's clinics between November 2008 to January 2009.

The process of data collection went smoothly with very good cooperation of the three clinics staff.

3.6.Potential confounders

The economic status might be a confounder, and to adjust for this factor, study sample was chosen exclusively from the three Palestinian refugee camps in Nablus, in which the economic status of families is considered nearly at the same level.

However, getting accurate information about income from families at refugee camps is difficult because families will not disclose their actual income for fear of possibility to lose monthly UNRWA's aid.

To avoid the effect of confounding factors during analysis, the analysis for the table of the effect of infant feeding on his\her morbidity during the first six months of life was re-examined after applying adjustment for all statistically significant sociodemographic variables.

3.7.Data analysis

After collection of data, all information was entered and analyzed using the statistical Microsoft program SPSS version 11 (Statistical Package for Social Sciences).

The following statistical formulas were used:-

1. Frequencies and percentages.
2. Crosstab table.
3. Pearson Chi square: is a statistical test used to compare observed data with expected data (data we would expect to obtain according to a specific hypothesis). Our study depends on numbers and frequencies between variables, and examines the relationship between those pairs of variables, therefore; Pearson Chi-square test is thought to be a suitable test. It was used in our study to examine the significance of the relationship between mother and infant demographic variables and type of feeding in the first six months of age. It was also used to study the relationship between type of feeding and morbidity regarding different diseases in the first six months of life. Significance of the relationship is determined when $p\text{-value} < 0.05$.
4. Multiple logistic regression: is used to predict a dependent variable on the basis of continuous and/or categorical independents and to determine the percent of variance in the dependent variable explained by the independents³². In our study we have some confounding factors like mother's age, infant gender, etc, which must be adjusted to re-examine the relation ship between type of feeding and morbidity in the first six months of infant life again, so the suggested test here is the multiple logistic regression.

Accordingly, it was used in our study to re-examine the significance of the relationship between type of feeding and morbidity but after adjusting for mother and infant confounding factors. P-value and adjusted Odds Ratio (adj-OR) determined our result.

3.8.Ethical issues

Since this research did not include any meeting with mothers, but collecting secondary data from files by the researcher herself, there is no need to have consents from mothers to conduct the study. Consequently all information was obtained from patient's files after signing an agreement with the UNRWA's administration office. According to this agreement, the researcher abided to all UNRWA's regulations for conducting research and obtaining information including protecting privacy of families records used in this study. Also the researcher obtained the public health department committee's approval from An-najah National university including the ethical consideration.

3.9.Study limitations

Although there were no significant obstacles in performing this study, there were some limitations worth mentioning. Limited time of the study, small budget, and the high work load in UNRWA's clinics made it difficult to do face to face or telephone interview.

At the same time lack of some other important information in UNRWA's files like family income, mother's smoking, and mother's occupation puts limitation on sociodemographic variables used.

Other clinics in Nablus area providing health care to infants (for example ministry of health clinics) are so diverse in term of population, it was difficult to find complete records and follow up for specific infants which made this study unsuitable to be conducted at other clinics than UNRWA's . Therefore, infants from the city and rural areas were not included in the study.

Finally, because this study depends on secondary data obtained from clinical files and not face to face meeting, it is expected that the information accuracy may not reach 100%.

Summary:

This cross-sectional study was conducted in the UNRWA's clinics in Nablus refugee camps; the sample was 690 infant\mother pairs' files. A questionnaire was filled by information regarding mother's and infant's socio demographic profile, in addition to information about method of infant feeding and morbidity regarding different types of diseases in the first six month of infant life, data were analyzed using SPSS version 11.

Different statistical methods to find frequencies, percentages, and relationships applying Chi-square and multiple logistic regression were used.

Chapter Four

Results

Chapter Four

Results

This chapter presents in details the results of the study in accordance with its hypotheses. It includes sample distribution according to mother's and infant's sociodemographic profile, sample distribution according to infant's history of morbidity in the first six months. Also it includes sample distribution according to type of infant feeding in the first six months of life, results related to the specific hypotheses, and results related to the main hypothesis before and after adjustment for confounding factors.

4.1. Sample distribution according to mother's and infant's sociodemographic profile

Table (2) below shows the sociodemographic profile of the study sample for both mothers and infants. Most of mothers were within the age group (22-28) and (29-35) (39.4% and 33.2%) respectively. For infants, both males and females were equally included in the sample, and majority of them were outcome of vaginal delivery (73.2%). Regarding parity it is noticed that (38.2%) and (36.9%) of mothers in the study sample have (1-2), and (3-4) children, respectively. Results also indicate that most of the mothers and fathers in our sample had basic and secondary level of education.

Table (2): The sociodemographic profile of the study sample for both mothers and infants. (n=690)

Variables	No. of subjects	%
<i>Mother's age</i>		
(15-21)	77	11.2
(22-28)	272	39.4
(29-35)	229	33.2
36 and more	112	16.2
<i>Mother's age at Marriage</i>		
(15-21)	458	66.4
(22-28)	149	21.6
(29-and more)	83	12.0
<i>Mother's age at baby's birth</i>		
(15-21)	78	11.4
(22-28)	268	38.8
(29-35)	232	33.6
36 and more	112	16.2
<i>Parity</i>		
1-2	264	38.2
3-4	254	36.9
> 4	172	24.9
<i>Mother's level of education</i>		
Not educated	42	6.10
Basic	256	37.1
Secondary	270	39.1
High education	122	17.7
<i>Father's level of education(husband)</i>		
Not educated	44	6.40
Basic	272	39.4

Variables	No. of subjects	%
Secondary	261	37.8
High education	113	16.4
<i>Mode of delivery</i>		
Caesarean	185	26.8
Vaginal	505	73.2
<i>Infant's Gender</i>		
Male	343	49.7
Female	347	50.3

4.2. Sample distribution according to infant's history of morbidity in the first six months

History of morbidity in the first six months of life for all infants included in the study was explored in tables (3), (4).

Table (3): Sample distribution according to infant's history of morbidity in the first six months of life (n=690)

Variables	No. of subjects	%
<i>Infant have any diseases during the first six months of his \ her life</i>		
Yes	407	59.0
No	283	41.0
<i>frequency of disease visits</i>		
None	283	41.0
1	137	19.8
2-4	224	32.5
> 4	46	6.70

Table (3) shows that out of study sample (690), about 2/3 of infants 407 had documented disease visits during the first six months of life. While 283 (41%) infants did not have any disease during the same period of life.

The table also shows that about a third of the study sample (32.5%) had average rate of recurrent visits for disease\|s to the clinic (2-4) times. Only (6.7%) of study sample had more than 4 visits for illnesses to the clinic in their first six months of life.

Table (4): Sample distribution according to infant's morbidity with different diseases visits in the first six months of life (n = 407)

Diseases	No. of subjects	%
<i>Upper respiratory tract infection</i>		
No	84	20.7
Yes	322	79.3
<i>Lower Respiratory Tract Infection</i>		
No	370	90.9
Yes	37	9.10
<i>Otitis Media</i>		
No	352	86.5
Yes	55	13.5
<i>Wheezing</i>		
No	370	90.9
Yes	37	9.10
<i>Gastroenteritis</i>		
No	329	80.8
Yes	78	19.2
<i>Diarrhea</i>		
No	328	80.6
Yes	79	19.6
<i>Urinary tract infection</i>		
No	401	98.5
Yes	6	1.50
<i>Allergies</i>		
No	363	89.9
Yes	44	10.1

Table (4) shows sample distribution for infants whose files showed a visit for one or more of diseases investigated in the study.

It is evident from the table that URTI had the highest frequency (79.3%). On the other hand the lowest was 1.5% of files with diseases for UTI.

4.3. Sample distribution according to type of infant feeding in the first six months of life (n=690)

Table (5): Type of feeding in the first six month of life in the study sample (n=690)

<i>Type of feeding</i>	No. of subjects	%
Exclusive breastfeeding	481	69.7
Partial breastfeeding	110	15.9
Exclusive formula feeding	99	14.3
Total	690	%100

Table (5) shows that in the study sample, most of mothers (69.7%) provided exclusive breastfeeding to the infants in their first six months of life. Partial breastfeeding is less frequently used (15.9%), and exclusive formula feeding is only provided to (14.3%) of infants in the study sample.

4.4. Results related to study hypotheses

4.4.1. Results related to the specific hypotheses “relationship between the selected mother's and infant's sociodemographic profiles and type of feeding in the first six months of life in Nablus refugee camps”

A statistical relationship applying Pearson Chi-Square test ($P \leq 0.05$) was used to test the different hypotheses between the selected mother's and

infant's sociodemographic factors and the type of feeding in the first six months of life. The specific hypothesis stated that "there is no significant relationship, at the significance level $p \leq 0.05$, between the selected mother's and infant's sociodemographic factors according to (mother's age, mother's age at marriage, mother's age at her baby's birth, parity, mother's level of education, father's level of education, mode of delivery, and infant's gender) and type of feeding in the first six months of life in Nablus refugee camps.

Table (6) shows that there was statistically significant relationship between (mother's age, mother's age at marriage, mother's age at her baby's birth, parity, mother's level of education, father's level of education, mode of delivery, and infant's gender) and type of feeding in the first six months of life in Nablus refugee camps. Detailed results for each variable are the followings:-

Table (6): Relationship between different mother's and infant's sociodemographic variables and type of feeding in the first six months of life (n=690)

Variables	Feeding in the first six months of life						Correlation	
	EBF		PBF		EFF		Chi-Square Value	P-Value
	No.	%	No.	%	No.	%		
Mother's age							46.4	0.00001*
15-21	56	72.7	11	14.3	10	13.0		
22-28	213	78.3	47	17.3	12	4.40		
29-35	144	62.9	36	15.7	49	21.4		
36 and more	68	60.7	16	14.3	28	25.0		
Mother's age at marriage							285.1	0.00001*
15-21	362	79.0	75	16.4	21	4.60		
22-28	104	69.8	29	19.5	16	10.7		
29 and more	15	18.1	6	7.20	62	74.7		
Mother's age at baby's birth							45.2	0.00001*
15-21	57	73.1	11	14.1	10	12.8		
22-28	210	78.4	46	17.2	12	4.50		
29-35	146	62.9	37	15.9	49	21.1		
36 and more	68	60.7	16	14.3	28	25.0		
Parity							22.1	0.001*
1-2	166	62.9	45	17.0	53	20.1		
3-4	181	71.3	35	13.8	38	15.0		
> 4	134	77.9	30	17.4	8	4.70		
Mother's level of education							28.8	0.0001*
Not educated	25	59.5	13	31.0	4	9.50		
Basic	192	75.0	34	13.3	30	11.7		
Secondary	199	73.7	39	14.4	32	11.9		
High education	65	53.3	24	19.7	33	27.0		
Father's level of education							16.7	0.011*
Not educated	35	79.5	4	9.1	5	11.4		
Basic	190	69.9	43	15.8	39	14.3		
Secondary	192	73.6	42	16.1	27	10.3		
High education	64	56.6	21	18.6	28	24.8		
Type of delivery							49.4	0.0001*
Caesarean	96	51.9	34	18.4	55	29.7		
Vaginal	385	76.2	76	15.0	44	8.70		
Infant's gender							9.2	0.010*
Male	226	65.9	54	15.7	63	18.4		
Female	255	73.5	56	16.1	36	10.4		

* Statically significant at ($\alpha = 0.05$)

A. Mother's age:

Regarding mother's age we found that (78.3%) of the mothers at the age (22-28) years breastfed their infant exclusively in the first six months of age, and (17.3%) tends to partially breastfed their infants at the same interval of mother's age, while we found that for the age group 36 years and more the high percentage (25.0%) is for formula feeding (P-value is < 0.05). This means there is a significant correlation between mother's age and type of feeding in the first six months of life. So we reject the hypothesis and say that: "There exists a significant relationship, at the level of $p \leq 0.05$, between mother's age and type of feeding in the first six months of life."

B. Mother's age at marriage:

For the mother's age at marriage we found that (79.0%) of mothers in the age (15-21) years exclusively breastfed their infants, (19.5%) of the age group (22-28) years partially breastfed their infants, and (74.7%) of the age group 29 years and more were fed their infants by formulas (P-value is < 0.05). This means there is a significant correlation between mother's age at marriage and type of feeding in the first six months of life. So we reject the hypothesis and say that: "There exists a significant relationship, at the level of $p \leq 0.05$, between mother's age at marriage and type of feeding in the first six months of life."

C. Mother's age at baby's birth:

For this variable, results showed that the high percentage is for the age interval (22-28) years for EBF (78.4%). However it is noticed that age group ≥ 36 years tends to have the highest percentage (25%) for EFF infants (P-value is < 0.05). This means there is a significant correlation between mother's age at baby's birth and type of feeding in the first six months of life. So we reject the hypothesis and say that: "There exists a significant relationship, at the level of $p \leq 0.05$, between mother's age at baby's birth and type of feeding in the first six months of life."

D. Parity:

Regarding this factor the highest percentage (77.9%) is for mothers with parity > 4 , compared with mothers with low parity (1-2) children who tended to have highest level for and EFF (20.1%) (P-value is < 0.05). This means there is a significant correlation between parity and type of feeding in the first six months of life. So we reject the hypothesis and say that: "There exists a significant relationship, at the level of $p \leq 0.05$, between parity and type of feeding in the first six months of life."

E. Mother's level of education:

Study findings show that women with basic and secondary education (75.0%, and 73.0%) tend to have high percentage for EBF compared to non-educated ones and women with high level of education. Women with high education had the highest percent in using EFF (27.0%). which means

there is a significant correlation between mother's level of education and type of feeding in the first six months of life (P-value is < 0.05). So we reject the hypothesis and say that: "There exists a significant relationship, at the level of $p \leq 0.05$, between mother's level of education and type of feeding in the first six months of life."

F. Father's level of education (husband):

Study results indicated that infants born to non-educated fathers tend to have highest percent in receiving exclusive breastfeeding (79.5%), compared to other levels of education. On the other hand infants born to fathers with high education had the highest percent of EFF (24.8%) (P-value is < 0.05). which means there is a significant correlation between father's level of education and type of feeding in the first six months of life (P-value is < 0.05). Therefore, we reject the hypothesis and say that: "There exists a significant relationship, at the level of $p \leq 0.05$, between father's level of education and type of feeding in the first six months of life."

G. Type of delivery:

Investigation for type of delivery in our research indicated that women who delivered vaginally tended to provide EBF more frequently than those delivered by C-section (76.2% vs 51.9%). EFF was much higher in infants born to mothers through C-section compared to vaginal delivery (P-value is < 0.05). This means there is a significant correlation between type of delivery and type of feeding in the first six months of life. So we

reject the hypothesis and say that: “There exists a significant relationship, at the level of $p \leq 0.05$, between type of delivery and type of feeding in the first six months of life.”

H. Infant's gender:

Regarding infant gender, female infants were fed by EBF in higher percent (73.5%) compared to males (65.9%). Higher percent of male infants (18.4%) were given EFF compared to females (P-value is < 0.05). This means there is a significant correlation between infant's gender and type of feeding in the first six months of life. So we reject the hypothesis and say that: “There exists a significant relationship, at the level of $p \leq 0.05$, between infant's gender and type of feeding in the first six months of life.”

4.4.2. Results related to the hypotheses of morbidity

4.4.2.1. Results related to the first specific hypothesis “relationship between type of feeding and frequency of disease visits in the first six months of life in Nablus refugee camps”

In order to test the main hypothesis, " There exists no significant relationship, at the level of $p \leq 0.05$, between type of feeding and frequency of disease visits in the first six months of life in Nablus refugee camps (examples are upper respiratory tract infection, lower respiratory tract infection, otitis media, asthma, wheezing, gastroenteritis, diarrhea, urinary tract infections, and allergies)", Pearson Chi-Square test was applied.

Tables (7) below shows the frequencies and percentage of the two variables (frequency of disease visits and type of feeding in the first six months of life).

Table (7) Relationship between type of feeding in the first six months of life and infant's frequency of disease visits in the same period of age (n=690)

<i>Frequency of disease visits</i>	Feeding in the first six months of life						Correlation	
	EBF		PBF		EFF		Chi-Square Value	P-Value
	No.	%	No.	%	No.	%		
None	251	88.7	16	5.70	16	5.70	168.9	0.00001*
1	111	81.0	19	13.9	7	5.10		
2-4	112	50.0	56	25.0	56	25.0		
> 4	7	15.2	19	41.3	20	43.5		

* **Statically significant at ($\alpha = 0.05$)**

Table (7) shows that (88.7 %) of infants with no disease visits to the clinic were fed by EBF. At the same time those who had high frequent disease visits (> 4) were mainly fed by either PBF (41.3%) or EFF (43.5%). The difference was statistically significant ($P \leq 0.05$). So we reject the hypothesis and say that there is a significant relationship, at the level of $p \leq 0.05$, between type of feeding and frequency of disease visits in the first six months of life in Nablus refugee camps.

4.4.2.2. Results related to the main hypothesis “relationship between type of infant feeding and morbidity in the first six months of infant's life in Nablus refugee camps”

In order to test the main hypothesis," There is no significant relationship, at the significance level $p \leq 0.05$, between type of infant

feeding and morbidity in the first six months of infant's life in Nablus refugee camps". Pearson Chi-Square test was applied. Table (8) below shows the relationship between type of infant feeding in the first six months of infant's life and morbidity regarding different diseases in the same age.

Table (8): Relationship between type of infant feeding in the first six months of life and morbidity according to different diseases in the same age (n=407)

Diseases	Feeding in the first six months of life						Correlation	
	EBF		PBF		EFF		Chi-Square Value	P-Value
	No.	%	No.	%	No.	%		
Upper respiratory tract infection							1.8	0.416
No	47	56.0	16	19.0	21	25.0		
Yes	183	56.8	77	23.9	62	19.3		
Lower respiratory tract infection							25.6	0.00001*
No	221	59.7	86	23.2	63	17.0		
Yes	9	24.3	8	21.6	20	54.1		
Otitis Media							95.2	0.00001*
No	229	65.1	71	20.2	52	17.8		
Yes	1	1.80	23	41.8	31	56.4		
Wheezing							16.5	0.00001*
No	220	59.5	83	22.4	67	18.1		
Yes	10	27.0	11	29.7	16	43.2		
Gastroenteritis							49.8	0.00001*
No	213	64.7	58	17.6	58	17.6		
Yes	17	21.8	36	46.2	25	32.1		
Diarrhea							36.4	0.00001*
No	206	62.8	74	22.6	48	14.6		
Yes	24	30.4	20	25.3	35	44.3		
Allergies							15.6	0.00001*
No	217	59.8	80	22.0	66	18.2		
Yes	13	29.5	14	31.8	17	38.6		

*Statically significant at ($\alpha = 0.05$)

Table (8) shows a statistically significant relationship for development of most types of diseases with type of feeding in the first six months of life as follows.

A. Upper respiratory tract infection:

Regarding this disease we found that P-value was >0.05 , which means there is no significant correlation between the type of feeding in the first six months of life and possibility to develop URTI during the same period of age.

B. Lower respiratory tract infection:

According to findings in table (8), we notice that highest percent for those who did not develop LRTI was for infants fed by EBF (59.7%). On the other hand the highest percentage (54.1%) for those who were diagnosed with LRTI were EFF ($P < 0.05$). This means that there is a significant correlation between type of feeding and developing LRTI in infants in the first six months of life.

C. Otitis media:

Numbers show that for infants who did not have OM in the first six months of life EBF was the highest percentage (65.1%). Only (1.8%) of those who developed OM had EBF (P -value is < 0.05). This means that there is a significant correlation between type of feeding and developing otitis media in the first six months of life.

D. Wheezing:

Regarding wheezing the results found that among infants who had wheezing episode, EFF was the most frequent method of feeding (43.2%).

Infants with EBF were the most frequent (59.5%) among those who never wheezed in the first six months of their lives ($P < 0.05$). Therefore, we can conclude there is a significant correlation between type of feeding and wheezing in the first six months of life.

E. Gastroenteritis:

For this disease, the study results showed that (64.7%) of infants who did not develop gastroenteritis had EBF, in comparison to (17.6%) for both PBF and EFF ($P < 0.05$). This means there is a significant correlation between type of feeding and gastroenteritis in the first six months of life.

F. Diarrhea:

Numbers show that infants who were fed by EFF had the highest percentage in developing diarrhea (44.3%). Infants who did not develop diarrhea were mainly from the EBF group (62.8%) (P -value is < 0.05). This means there is a significant correlation between type of feeding and diarrhea in the first six months of life.

G. Allergies:

We notice that infants who were breastfed exclusively were the highest to not develop allergies in the first six months of life (59.8%), compared to PBF and EFF (22.0%) and (18.0%) respectively (P -value is < 0.05). This means there is a significant correlation between type of feeding and developing allergies in the first six months of life.

In general, the statistical relationship between type of feeding and all diseases in table (8) was significant at $P < 0.05$, except for URTI. Therefore, we reject the hypothesis and say that: “There exists a significant relationship, at the level of $p \leq 0.05$, between type of feeding and morbidity regarding (LRTI, OM, wheezing, gastroenteritis, diarrhea, and allergies) in the first six months of infant’s life.”

Regarding UTI, there were only six reported cases among the study sample (a very small number to apply any statistical association).

4.4.3. Relationship between type of feeding and infant morbidity after adjustment for mother and infant confounding factors

After adjustment for mother and infant confounding factors, analysis for morbidity was re-examined, by using multiple logistic regression method. Adjusted Odds Ratio (Adj-OR), 95% confidence intervals, and P-value for significance levels for diseases were investigated. Table (9) below shows the result of analysis, EBF was treated as the referent group.

Table (9) Adjusted Odds ratio, Confidence Intervals and Significance levels for diseases affected by type of feeding (n=407)

Disease	Type of feeding				
	EFF		PBF		EBF
	Adj-OR, CI	P-value	Adj-OR, CI	P-value	
<i>Upper respiratory tract infection</i>	3.724 (1.528, 9.074)	0.004*	1.467 (0.768, 2.801)	0.246	Referent
<i>Lower respiratory tract infection</i>	5.110 (1.621, 16.106)	0.005*	1.558 (0.530, 4.585)	0.421	Referent
<i>Wheezing</i>	4.950 (1.572, 15.625)	0.006*	2.506 (0.940, 6.667)	0.066	Referent
<i>Gastroenteritis</i>	2.584 (0.998, 6.711)	0.050*	5.525 (2.724, 11.364)	0.001*	Referent
<i>Diarrhea</i>	2.033 (0.841, 4.926)	0.115	1.032 (0.484, 2.202)	0.935	Referent
<i>Allergies</i>	4.926 (1.704, 14.286)	0.003*	2.793 (1.181, 6.624)	0.019*	Referent

Adj-OR: adjusted Odds Ratio.

CI: Confidence Intervals.

*** $P \leq 0.05$, significant**

From table (9), we notice that after adjusting for mothers' and infants' demographic variables, there is a significant increment in the adjusted odds ratio of EFF and PBF groups for allergies and gastroenteritis. While for URTI, LRTI, and wheezing the increment in adjusted odds ratio reach the significant level only for EFF group. Regarding diarrhea the increased adjusted OR did not reach statistical significance for both EFF and PBF.

We omitted OM from analysis after adjustment for confounding factors due to presence of a very small cell in the statistical analysis, which makes relation if present theoretical not practical.

Summary

The study results show that majority of infants in Nablus refugee camps are fed by EBF ($\approx 70\%$) in their first six months of life.

There exists a significant relationship, at the level of $p \leq 0.05$, between type of feeding in the first six months of life and mother's and infant's demographic profiles (mother's age, mother's age at marriage, mother's age at her baby's birth, parity, mother's level of education, father's level of education, mode of delivery, and infant's gender).

There is also a significant relationship, at the level of $p \leq 0.05$, between type of feeding and morbidity regarding (LRTI, OM, wheezing, gastroenteritis, diarrhea, and allergies.) in the first six months of infant's life.

Even after adjustment for confounding factors this relationship is still significant for (LRTI, wheezing, gastroenteritis, and allergies), in addition to URTI.

Chapter Five

Discussion

Chapter Five

Discussion

In this chapter, the study result will be discussed in terms of sample distribution, sociodemographic profile of infants and mothers, and the results of tested hypotheses. The study results will be compared by similar studies done globally and regionally.

5.1. Discussion related to sample distribution according to mother's and infant's sociodemographic profile

The study sample showed a good distribution of mother's age where it ranged from being very young mothers to older mothers, with the highest percentage was for (22-28) age group (39.4%). Mother's age at marriage shows that early marriage is still a pattern of Palestinian societies in refugee camps. Age of marriage at (15-21) in the sample was (66.4%). It is clear that the trend of early marriage increased in the year 2007, when one noticed in the results of PCBS survey for the year (2006) that the median age at first marriage of ever-married women between the ages (20-54 years) in Palestine refugee camps was for the age 19 years ⁵⁵.

Mother's age at baby's birth showed that the highest percentages were for age groups (22-28) years (38%), then (29-35) years (33.6%). The result agrees with PCBS results of survey (2006); fertility rate per 1000 women by age in Palestine refugee camps, showed that the highest was among the age group (25-29) years (272.3), followed by (20-24)years (229.3) ⁵⁵.

Regarding parity, low parity (1-2) and intermediate (3-4) combined formed around 75% of our sample, leaving high parity group (>4) to be around (25%). According to WHO agenda (2009), parity has stabilized in the last five years, the mean parity among Palestinian refugee women accessing UNRWA services was found to be 4.5 in the West Bank⁵⁶.

Mother's level of education shows that only (6%) of mothers did not get education and that (17.7%) of mothers received high education. The result goes with PCBS survey (2006), the highest percentages of female (age 10 and above) by educational level in refugee camps were for elementary and preparatory combined (49.8%), and secondary level of education (19.8%)⁵⁵.

Regarding father's level of education the pattern in this study is similar to mothers' level of education; even mothers have slightly higher level of education reflecting that Palestinian society encourages education for both males and females. This results are similar to that of the PCBS survey (2006); the highest percentages distribution of males (age ≥ 10 years) by educational level in Palestine refuge camps elementary (22%), then preparatory (30.2%), and finally secondary (17.1%)⁵⁵.

Regarding type of delivery, about a quarter of study sample had their babies by C-section. This percentage is some what higher than findings in PCBS survey (2006) which pointed that rate of C-section in Nablus was 18.3%⁵⁵. However, the annual report of UNRWA (2007); found that the

C-section rate among women in West Bank was (27%)⁶⁵, a rate close to our findings.

For infant gender, males and females were included in equal percentage (49.7% males, 50.3% females) in order to decrease gender bias. This result is highly consistent with PCBS survey (2006), that from population pyramid for the Palestinian Territory we noticed that male and female ratios were (50.7%) and (49.3%) respectively⁵⁵. More males are born than females, but males have higher mortality rates than females⁵⁵.

5.2. Discussion related to sample distribution according to infant's history of morbidity in the first six months of life

Table (3) shows that only (41%) of study sample had no visits for diseases to the clinic. Despite that only (6.7%) had high frequent visits to the clinic (>4). This is usual in the first years of infants' life. According to the UNRWA's annual report (2007); attendance for preventive care at UNRWA primary health care facilities (medical examination, immunization, and identification of children with special needs) during the first year of life was estimated at (90%) of all infants registered agency-wide with the highest percentage (100%) among Palestinian refugees in Lebanon and Gaza fields⁶⁵. While the attendance rate agency-wide were (75% and 49%) during the second and third years of infant's life respectively⁶⁵.

Table (4) shows that URTI was the most frequent for disease visits (79.3%). For healthy infants; this is the mean characteristic of the study

sample, URTI is the usual frequent acute illness in infant's life. According to the UNRWA's annual report (2007), respiratory infections is the third main cause of mortality among children aged (1-3) years (14.7%), after congenital malformation and accidents during the year (2006)⁶⁵.

The least frequent cause for disease visits was UTI and again this is expected for healthy term babies.

5.3. Discussion related to sample distribution according to type of infant feeding in the first six months of life

Table (5) shows that around (70%) of the study sample were fed by EBF, and only (14%) were provided EFF. Study results show that Palestinian women in refugee camps tend to provide breastfeeding in a very good percent to their infants. According to the researcher observation, UNRWA's clinics in Nablus refugee camps (including Balata, Askar, and Ein Beit el Ma) has important and extensive efforts in promoting breastfeeding through the information presented to mothers by nurses in MCH departments, and/or through booklets and pamphlets. This may interpret the large difference in patterns of feeding percentages especially EBF that noticed between this study and PCBS survey (2006); which found that exclusive breastfeeding in the first six months of life in Palestine refugee camps was 24.8%⁵⁵.

Another explanation for this difference is the poor economic conditions among Palestine refugee camps which may prevent them from getting infant formulas.

5.4. Discussion related to study hypotheses

5.4.1. Discussion related to the specific hypotheses “relationship between the selected mother's and infant's sociodemographic profiles and type of feeding in the first six months of life in Nablus refugee camps”

A. Mother's age:

This research found that in a society like the Palestinian refugee camps there is a statistically significant association between type of feeding in the first six months of life and mother's age. As noticed in table (6), women aged 22-28 years old were the highest to breastfeed either exclusively (78.3%) or partially (17.3%), while the group aged ≥ 36 years old tends to formula feed their infants. These results are in contrary to the results of Irbid study (2003); a semi-urban community in Jordan which found that type of feeding in the first six months of age was independent of mother's age ⁵², but this study result is similar to that conducted by Sachdev and Mehrprtra in New-Delhi; urban city in India (1993-1994), which found that younger mothers were positively related to exclusive breastfeeding ⁶⁶. On the other hand Ever-Hadani et al study on Jewish women in Jerusalem (1974-1976) found that maternal age < 24 or >40 years old were positively associated with the decision to breastfeed ⁵³.

B. Mother's age at marriage:

The study results point to the presence of significant relationship between type of feeding in the first six months of infant life and mother's

age at marriage (table 6); the younger the mother the higher the tendency to exclusively breastfeed. This result is different from Ever-Hadani et al on Jewish women from Jerusalem (1974-1976), which found that age at marriage did not significantly influence the decision to breastfeed⁵³.

C. Mother's age at baby's birth:

In this study (table 6), result point that mother's age at baby's birth correlates significantly with mother's choice about infant type of feeding in the first six months of infant life; mothers aged 22-28 years old were the highest to breastfeed either exclusively or partially, while the group aged ≥ 36 years old tend to formula feed their infants. Unfortunately, no previous study was found related to such association.

Suggested explanation for the previous three items (mother's age, mother's age at marriage, mother age at baby's birth) may be that marriage and delivery at relatively young age puts high responsibility on mothers to increase their knowledge about maternal and child health in general, and the most suitable way of feeding method for her baby in particular. Therefore, they respond positively to doctors and nurses advice about their infant health more than older mothers.

D. Parity:

Regarding parity, the result found a statistically significant relation with infant feeding pattern in the fist six months of life (table 6); the higher the parity (>4 children) the higher the tendency to breastfeed exclusively;

and the lower the parity (1-2), the higher the tendency to feed by using formula-milk exclusively. This can be explained by the effect of economic factors to save expenditures on formulas. And may be that practicing breastfeeding is considered as contraceptive method especially for those with high number of children. According to PCBS survey during the year (2004), the percentage of refugee camp women aged (15-49) years who practice breastfeeding as a contraceptive method was 3.7% ²⁹. Another explanation for tendency of mother's of high parity to breastfeed is that high number of children leads to increased experience for mother in breastfeeding. The study findings are consistent with Khassawneh et al study (2003) in Jordan which found that mothers with lower number of children ≤ 3 were less likely to exclusively breastfed, and Berger-Achituv study et al in Tel Aviv district which found that grand multiparas (≥ 5 children) had a significantly higher rate of breast-feeding than women with one to four children ^{52, 67}. While Ever- Hadani et al study in Jerusalem (1974-1976) found that mothers with primipara and grandmultipara >4 breastfeed their infants for longer (≥ 3 months) ⁵³.

E. Mother's level of education:

In this study, the results revealed that type of infant's feeding in the first six months of life is significantly influenced by mother's level of education (table 6). Although the percentage of women who decided to use EBF was the highest compared to PBF and EFF in all levels of education, women with basic and secondary levels of education had a significant high percentage of EBF (75.0% and 73.3%) respectively. Women with high

education chose EFF more frequently (27.0%) than other women. A possible explanation is that women with high education usually leave home for either education or work, leaving their infants for a good time which increase chances to use formula feeding. Similarly Yoon et al in the Philippines (1988-1991) found that women with no formal education breastfed for a median of almost 12 months, whereas women with some college education breastfed for a median of only 3 months ⁴⁷. Also in Jordan, Irbid's study (2003) found that women with higher education were less likely to breastfeed ⁵², the same for Delhi study (1993-1994); the less educated mothers were positively related to EBF ⁶⁶, while Berger-Achituv et al study in Tel Aviv district found that women with ≥ 13 years education were more likely to breast-feed for 2 weeks or longer ⁶⁷.

F. Father's level of education

Father's level of education was also found to be a significant factor in this study (table 6); for those who were non-educated; their babies had the higher percentage of EBF. On the other hand, PBF and EFF were used more frequently by infants born to higher educated fathers. A possible explanation is that educated fathers tend to be partners for higher educated women and tend to have higher paying jobs that might encourage the use of formula feeding. However, father education level was not found to be a significant factor in Khassawneh et al study (2003) in Jordan, or in Delhi (1993-1994) one ^{52, 66}.

G. Type of delivery:

In this research mode of delivery is considered as a significant factor in determining infant feeding pattern during the first six months of infant's life; mothers with normal vaginal delivery tend to breastfeed their infants exclusively. In contrast; in caesarean section the higher numbers were for PBF and EFF type. This is may be due to failure in initiation of breastfeeding in the first days after delivery due to surgery and its consequences like pain or discomfort. This result goes along with Irbid (2003) and Delhi (1993-1994) studies; those delivered by caesarian were less likely to fully breastfeed for 6 months^{52, 66}.

H. Infant's gender:

Infant gender in this research was found to be an important element in the feeding choice during the first six months of infant's life females were the higher to be breastfed either exclusively or partially, the higher percentage is for EBF, while for males EFF is higher (table 6). A possible explanation is that male gender in our culture is preferred over female babies, with more willingness to pay for formulas to male babies. This result is consistent with PCBS study in the year 2006 that EBF in the first 6 months of life is higher for females⁵⁵, but differs from Jordan study (2003) in Irbid which found that type of feeding was independent of child's gender⁵⁰.

5.4.2. Discussion related to the hypotheses of morbidity

5.4.2.1. Discussion related to the first specific hypothesis “relationship between type of feeding and frequency of disease visits in the first six months of life in Nablus refugee camps”

The study results found an existent relationship between type of feeding in the first six months of infant life and morbidity during the same period of age (table 7). This study also tried to further investigate this relationship by looking at different types of diseases (table 8).

In this research, results appeared that exclusively breastfed infants had none or less frequent visits for diseases to the clinics in their first six months of life, when compared with partially or exclusively formula fed peers (table 7).

It was found that infants who had high frequent disease visits (>4) tend to be EFF (43.5%) or PBF (41.3%). Despite this important finding that confirms the protective effect of EBF, this exact information was not looked at in previous studies. However, a similar idea was explored in Lopez-Alarcón et al study in Mexico City (1997) which followed healthy newborns for 6 months, and showed that the likelihood of having a larger percentage of days ill was higher for the formula-fed than for the fully breast-fed infants during the entire follow-up, and the probability of suffering an episode of ARI, and having a larger percentage of days ill was higher for formula-fed than for fully breast-fed infants during the first

4 months of infant's life ⁴⁴. It concluded that human milk has a protective effect for ARI, as it does for diarrhea ⁴⁴.

5.4.2.2. Discussion related to the main hypothesis before and after adjustment for confounding factors “ relationship between type of infant feeding and morbidity in the first six months of infant's life in Nablus refugee camps”

Results in tables (8), (9) show statistically significant relationship with most of diseases included in the study, before and after adjustment for confounding factors.

A. Upper Respiratory Tract Infection:

This study found no statistically significant relationship between type of feeding and clinic visits for URTI in the first six months of infant life. However, this research detected a significant relation after adjustment for the mother and infant demographic factors (table 9). EFF (adjusted-OR; 3.7) was found to increase the risk of URTI in the first six months of infant's life. These results go with the results of a study conducted in a developed country like USA; Chantry et al study (1988-1994) found that: In unadjusted analyses, differences between exclusive breastfed ≥ 6 and exclusive breastfed for 4-5 months groups for URI did not reach significance from a statistical point of view ³⁸. While in a developing country like Bangladesh; Mhrshahi et al (2003) found that before and after the adjustment for the confounding factors, the high prevalence of acute

respiratory infection (ARI) was significantly associated with lack of EBF in infants less than three months of age ⁴⁹. Lopez-Alarcón et al (1997) study confirmed that ARI was significantly lower in EBF infants than in EFF infants up to age 4 months in Mexico City ⁴⁴. However, there was a difference in the definitions of respiratory diseases between studies.

B. Lower Respiratory Tract Infection

This study found that infants who were breastfed exclusively in the first six months of life had less chance to develop LRTI during the same period of life, when compared with their formula fed peers. Partially breastfed infants also showed a statistically significant protective effect but with a lower degree than EBF ones (table 8). After adjustment for the confounding factors, we also noticed that the preventive effect of EBF in the first six months of life is still significant regarding LRTI (table 9). This result is consistent with Cushing et al study (1988 – 1992) in New Mexico which illustrated that full breastfeeding (exclusive type) was associated with a reduction in lower respiratory illness risk, and that breastfeeding reduces even the severity and duration of infant respiratory illnesses during the first 6 months of life ⁴¹. The results are also consistent with César et al study (1993) which showed that breastfeeding protects young Brazilian children against pneumonia, especially in the first months of life (under 3 months old) ⁴⁵. Such relation also was proved in many developed countries by Ip et al through a meta-analysis (2005-2006) that reviewed the evidence on the effects of breastfeeding on short- and long-term infant and

maternal health outcomes, and noted that a history of breastfeeding was associated with a reduction in the risk of severe lower respiratory tract infections⁶⁸.

Another meta-analysis of 33 studies in developed nations by Galton Bachrach et al (2003) on healthy infants, those who were not breastfed had developed severe respiratory tract illnesses resulting in hospitalization three times more compared to those who were exclusively breastfed for 4 months⁴⁰.

C. Otitis media:

This study found that when compared with EFF infants, those who were exclusively or partially breastfed had a lower percentage of getting otitis media in the first six months of their life. The protective effect was greater for EBF than PBF (table 8). This result goes with [Ip](#) et al meta-analysis (2005-2006) which found that a history of breastfeeding was associated with a reduction in the risk of acute otitis media in developed countries⁶⁸. The results also are consistent with several other studies world wide. Sassen et al (1987-1988) in Leiden, found that the risk of AOM was significantly decreased until 4 months after breast-feeding was discontinued and concluded that risk of AOM depends on the number of months an infant is breast-fed and the number of months pass after breast-feeding is discontinued⁴². Duncan et al study in Tucson (1993) found that infants exclusively breast-fed for 4 months or more had half the mean number of acute otitis media episodes as did those not breastfed at all; these

findings suggest that exclusive breast-feeding of 4 months or more protected infants from episodes of otitis media⁴³. Scariati et al longitudinal analysis (1993-1994) on infants up to age 7 months found that breastfeeding protects US infants against the development of ear infection, the risk of developing ear infection increased as the amount of breast milk an infant received decreased, and it does not have to be exclusive to confer this benefit, which suggested that protection is afforded in a dose-response manner; the more breast milk an infant receives in the first 6 months of life, the less likely that he or she will develop ear infection⁶⁹. After adjusting for demographic and lifestyle variables that are associated with respiratory outcomes, Chantry et al study (1988-1994) found that children in the FullBF \geq 6 group were at lower risk of experiencing the first episode of OM before 1 year compared with each of the other breastfeeding groups exclusively breastfed \leq 3 months³⁸.

D. Wheezing:

This study found that there is a statistically significant relationship between EBF and wheezing; infants who were exclusively breastfed in the first six months of life show a lower percentage of wheezing during the same period when compared with PBF, and EFF (table 8). However, the protective effect for PBF is lower than that for EBF. And after adjustment for mother and infant confounding factors, the effect of EFF in increasing morbidity in the first six months of life regarding wheezing was still significant (table 9). This result goes with Chantry et al study (1988-1994)

which revealed that wheezing for those in the full (exclusive) breastfeeding for <1 month group, was greater than the risk for those in the full breastfeeding ≥ 6 months group in USA ³⁸. Result also is similar to Dell & To study (1994-1995), which monitored the effect of EBF but for a longer period of age, and after adjustment for confounding factor, they found that a longer duration of breastfeeding (>9 months) appears to be protective factor against development of asthma and wheezing in children younger than 2 years in Canada ⁷⁰. Fredriksson et al in a prospective 6 year follow-up study (1997-2002) of Finnish children found that; the prevalence of asthma was at its lowest when a child was breastfed 4 to 6 months, and for persistent wheezing, cough and phlegm were at their lowest when a child was breastfed for 7 to 9 months ⁷¹. But regarding adjustment for confounding factors this study result is not consistent with adjustment for demographic and lifestyle variables that are associated with respiratory outcomes in Chantry et al study, he found no statistically significant differences in the FullBF ≥ 6 group for wheezing compared with other groups ³⁸.

E. Gastroenteritis & Diarrhea:

This study found that infants who were breastfed exclusively in the first six months of life have more protection against suffering from episode\ of gastroenteritis in general and diarrhea in particular, when compared with their formula fed peers. Some protective effect is offered by partial breastfeeding, but to a lesser extent compared to exclusive type

(table 8). The effect is still significant only for gastroenteritis but not for diarrhea after adjustment for the confounding factors (table 9). Similarly, in an unadjusted analysis in USA study; Scariati et al (1993-1994) found that breastfeeding protects United State infants against the development of diarrhea, and that the more breast milk an infant receives in the first 6 months of life, the less likely he or she will develop diarrhea⁶⁹. However, they concluded that exclusive breastfeeding is not crucial to confer this benefit because protection is afforded in a dose-response manner⁶⁹. Moreover Ip et al meta-analysis (2005-2006), found that in general a history of breastfeeding was associated with a reduction in the risk of non-specific gastroenteritis in different developed countries⁶⁸.

Lopez-Alarcón et al in Mexico City (1997) followed infants for 6 months and presented evidence of a protective effect of breast-feeding against diarrhea, they revealed that the probability of suffering an episode of diarrhea was higher for the formula-fed than for the fully breast-fed groups from 2 to 6 months of age; however, partially breast-fed group did not show any trend⁴⁴. Also Howie et al, in a prospective observational study (1990) followed up infants for first two years of life in Dundee; he found that breastfeeding (not exclusive) during the first 13 weeks of life confers protection against gastrointestinal illness that persists beyond the period of breast feeding itself, and was accompanied by a reduction in the rate of hospital admission³⁶. In addition Beaudry et al (1995) assessed the effect of the method of feeding on gastrointestinal illnesses during the first 6 months of life among infants born in Canada⁷². The results of this

retrospective cohort study suggest a protective effect of breast-feeding during the first 6 months of life on gastrointestinal illnesses ⁷². Quigley et al Case-control study in (1990) found that breastfeeding protects against diarrheal disease in infants in England, associations were striking in infants aged 6 months but the degree of protection may vary across infants, and did not persist beyond two months after breast feeding had stopped ³⁷. Quigley et al study (2000-2002) concluded that EBF for at least 6 months protects against hospitalization for diarrhea and LRTI, and ensured that breastfeeding, particularly when exclusive and prolonged, was considered as a protective element against severe morbidity in contemporary United Kingdom ⁷³. However, they detected that such protection wears off for both outcomes soon after breastfeeding cessation⁷³.

F. Allergies

This study found that regarding skin allergy, EBF is considered as a protective element when compared with EFF especially in the first six months of infant life, PBF also offers protection, but the effect is less than exclusive type (table 8). This protective effect was true even after adjustment for confounding factors regarding mother's and infant's demographic profile (table 9). This finding also was proved in many developed countries by Ip et al meta-analysis between (2005-2006) which found that a history of breastfeeding was associated with a reduction in the risk of severe atopic dermatitis ⁶⁸, and Oddy et al in a prospective cohort study to age 6 years in Australia (1989–1992) which found that the

protective effect of exclusive breastfeeding against early asthma and atopy (assessed by skin prick testing to 4 common environmental aeroallergens) is evident; less exclusive breastfeeding leads to increment in child atopy⁷⁴. But our result differs from the results that was obtained from a cohort study in Dunedin, New Zealand (1972 – 1973) which found that breast feeding for longer than three weeks was associated with an increased risk of atopy, and breastfed children were twice as likely as children who were not breast fed to be positive for any allergen at the age of 13 years⁷⁵. The study provided substantial evidence against the initial hypothesis that breast feeding is protective against atopy⁷⁵.

This study also differs from a cluster randomized trial by Kramer and colleagues in Belarus published in (2007) to assess whether exclusive and prolonged breast feeding reduces the risk of asthma and allergy at 6 years of age, which found no significant difference in allergy and asthma symptoms reported by parents or the results of allergy skin prick tests^{76,77}.

Unfortunately, our sample contained only 6 cases of UTI, this number is too small to apply statistical relationship test. Maybe UTI in clinics was under diagnosed in the age up to 6 months. However, some authors reported the presence of an oligosaccharide in the urine of breastfed infants that caused inhibition of *Escherichia coli* adhesion to uroepithelial cells⁷⁸. Other researchers noted an increment in the concentration of immunologic factors in the urine of breastfed infants⁷⁸, and a case-control study was conducted in Naples, Italy showed that

compared with infants who were bottle fed, breast-fed patients had a relative risk of UTI of 0.38 when a dichotomous classification (ever breast fed versus never breast fed) was used ⁷⁸. The study suggested that breastfeeding provides substantial protection against UTI during the first 6 months of life among children in an industrialized country ⁷⁸.

For type I Diabetes mellitus and asthma, the study sample has no cases for both. For the nature of history of those diseases; it is difficult to diagnose them in the first six months of life. However, if the same patients are followed up in a cohort study for their first six to ten years of age, we might be able then to draw relationship.

Summary

In general Palestinian women in UNRWA clinics tend to provide EBF for their infants in their first six months of age.

Factors affecting women's choices in breastfeeding were similar in general with factors found in other studies in the region (examples: Jordan and Bangladesh).

Like many other previous researches, our study plays an important role in emphasizing the effectiveness of human milk in general and exclusive breastfeeding in particular in prevention and reduction of many infectious and non infectious diseases in the first six months of infant life.

Chapter Six

Conclusions and Recommendations

Chapter Six

Conclusions and Recommendations

This chapter includes conclusions and recommendations related to the results obtained from our study.

6.1. Conclusions

Through literature review, the study found that in the Arab world in general and in Palestine in particular are in need for studies like this research, because breastfeeding is considered one of the important public health concerns. This is especially important in planning the development of mother and infant health issues. It is also important for international health agencies' and governments' policies in planning protection against infectious and chronic diseases, which constitute stumbling block against nations prosperity.

The study found that type of feeding the infant in the first six months of his life is affected by mother's age, mother's age at marriage, mother's age at delivery, parity, mother's and father's level of education, mode of delivery, and infant's gender.

Other findings that mothers aged (22-28) years olds, mother aged (15-22) years olds at marriage, mother aged (22-28) years old at delivery, those with high parity >4 , mothers with basic and secondary levels of education, not educated fathers, vaginal delivery, and female infants were positively related to EBF.

While we found that mothers aged > 36 years olds, mother aged > 29 years olds at marriage, mother aged > 36 years old at delivery, and those with low parity (1-2), high educated mother and fathers, cesarean delivery, and male infants were negatively affected EBF in the first six months of infant life.

We also can conclude from our study that exclusive breastfeeding in the first six months of infant life is important element in preventing and decreasing some of diseases during the same period of age; lower respiratory tract infection, otitis media, wheezing, gastroenteritis, diarrhea, and allergies. On the other hand our study was not able to prove this for upper respiratory tract infections except after adjustment for confounding factors.

6.2. Recommendations

1. Since first hours after delivery is the most critical time in promoting mothers toward nursing their babies, more supportive efforts from intended health professionals and nurses are needed during this time, especially in hospitals and maternal and child health departments.
2. Concerned health agencies must activate their role towards promoting breastfeeding in general and exclusive breastfeeding in particular in showing the wide range of benefits of breastfeeding for mothers and infants. Lectures, symposia, conferences, awareness campaigns, and

pamphlets targeting health workers, both parents especially during postpartum period, and teenagers in schools are highly recommended.

3. Health promotion and awareness for breastfeeding should target the groups found to have less tendency to exclusively breastfeed in UNRWA's clinics in Nablus refugee camps. Examples are high educated mothers, low parity, women with C-section deliveries, and mothers who deliver at older age.
4. More active role from national and local Televisions and other types of media in promoting programs for breastfeeding is called for panning advertisement for infant formulas might also be helpful.
5. Increased awareness to mothers about an important need to continue breastfeeding during disease episodes like diarrhea, respiratory diseases, etc.
6. Improve conditions at work for mothers to enable them to have maternity leave and nursing hour during work.
7. Further studies similar to ours are strongly needed in Arab world in general and Palestine to include (urban, rural, and other camps).
8. Further studies are also suggested to investigate the following dimensions:-
 - Short and long term benefits of breastfeeding for mother's health.

- Short term benefits of breastfeeding on infant's health among different types of diseases especially infectious types nation wide.
- Cohort studies to explore the long term effects for breastfeeding on health during infancy, childhood, and adulthood periods, against different infectious and chronic diseases.
- Studies to target the prevalence and factors affecting the initiation, duration, termination, knowledge, attitudes, types and practices of breastfeeding among the different intra and interregional parts of our country.
- Studies on cost effectiveness of using breastfeeding.

Summary

Our results confirmed many other findings of studies globally and nationally.

All results agreed that EBF is of great importance for infant health. Further efforts and studies from concerned agencies in our country are needed towards promote these important findings.

References

1. Dewey K, Lutter C, Martines J, Daelmans B. **Guiding Principles for Complementary Feeding of the Breastfed**. Washington: Pan American Health Organization-World Health Organization; 2001 December. 8.
2. Ricci SS. **Essential of Maternity, Newborn, and Woman's Health Nursing**: Nursing Management of The Newborn. USA: Lippincott Williams and Wilkins; 2007. 480-485.
3. Butte NF, Lopez-Alarcon MG, Garza C. **Nutrient Adequacy of Exclusive Breastfeeding for The Term Infant During The First Six Months of Life**. Geneva: World Health Organization; 2002. 13-18, 22-23, 26-37.
4. World Health Organization (WHO). 2008. Breastfeeding. Avail from: <<http://www.who.int/entity/nutrition/topics/en/>>. Accessed 2008 march 30.
5. Mousa F. **Assessment of breast feeding practices among mothers of infants utilizing UNRWA clinics**. UNRWA'S Health Department: UNRWA; 2001 October. 3-12.
6. The Fifty-fourth World Health Assembly (WHA54.2). Infant and young child nutrition. Agenda item 13.1; 2001. 4.

7. World Health Organization (WHO). **The World Health Report-2002: Reducing Risks, Promoting Healthy Life.** Geneva, Switzerland: WHO; 2002. 68.
8. World Health Organization (WHO). 2008. Exclusive Breastfeeding. Avail from: <http://www.who.int/nutrition/topics/exclusive_breastfeeding.html>. Accessed 2008 march 30.
9. World Health Organization (WHO). 2010. The World Health Organization's infant feeding recommendation. Avail from: <http://www.who.int/nutrition/topics/infantfeeding_recommendation/en/print.html>. Accessed at 2010 April 21.
10. The American Academy of Pediatrics (AAP). 2005. AAP Releases Revised Breastfeeding Recommendations. Avail from :< <http://www.aap.org/>>. Accessed at 2008 May 26.
11. World Health Organization (WHO) and United Nations Children's Funds. (UNICEF). **Breastfeeding Management and Promotion in a Baby Friendly Hospital: an 18-hour Course for Maternity Staff.** NewYork: UNICEF; 1993. 4-8.
12. Clark SGJ, Bungum TJ. *The Benefits of Breastfeeding: An Introduction for Health Educators.* **Californian Journal of Health Promotion** 2003; 1 (3): 158-163.
13. Nancy E. Wight MD. 1997 Oct. The Benefits of Breastfeeding. Breastfeeding Coalition. Avail from: < <http://www.breastfeeding.org/bfarticles.html> >. Accessed 2008 Jun 9.

14. Shaikh U, Ahmed O. *Islam and Infant Feeding. Breastfeeding Medicine* 2006; 1(3): 164-167.
15. Palestine Ministry of Health\Health Management Information System (PMOH-HMIS). 2003. **The Status of Health in Palestine 2002**. Palestine: Palestine Ministry of Health (PMOH); July 2003. xIv, xIvii.
16. Palestine Ministry of Health- Health Management Information System (PMOH-HMIS). August 2005. **The status of Health in Palestine: Annual Report 2004**. Palestine: Palestine Ministry of Health (PMOH). 23-24.
17. Riordan J. **Breastfeeding and Human Lactation: The Biological Specificity of Breastmilk**. 3rd edition. USA: Jones and Bartlett; 2005.
18. Prentice A. *Constituents of Human Milk. Food and Nutrition Bulletin* 1996 December; 17(4). 98-122.
19. Clark SGJ, Bungum TJ. *The Benefits of Breastfeeding: An Introduction for Health Educators. Californian Journal of Health Promotion* 2003; 1 (3): 158-163.
20. Butte NF, Lopez-Alarcon MG, Garza C. **Nutrient Adequacy of Exclusive Breastfeeding for The Term Infant During The First Six Months of Life**. Geneva: World Health Organization; 2002. 13-18, 22-23, 26-37.

21. Hawkes JS, Gibson RA. *Lymphocytes subpopulations in breast-fed and formula-fed infants at six months of age*. **Adv Exp Med Biol** 2001; 501: 497-504.
22. Greene A. 1996 June 21. Benefits of Breastfeeding. DrGreene Content. Available at: <<http://www.drgreene.com/homepage.html>>. Accessed 2008 Jun 13.
23. Newman J. How Breastmilk Protects Newborn. 2002. Available at: <<http://www.promom.org>>. Accessed 2008 Jun 13.
24. Hanretty KP. **Obstetrics Illustrated: Puerperium-Normal and Abnormal**. 6th edition. UK: Churchill livingstone; 2003: 340.
25. Wikipedia. Infant formula. 2008 May 30. Wikipedia® is a registered trademark of the Wikimedia Foundation, Inc., a U.S. registered 501(c)(3) tax-deductible nonprofit charity. Available at: http://en.wikipedia.org/wiki/Infant_formula. Accessed 2008 Jun 2.
26. Kosek M, Bern C, Guerrant RL. *The global burden of diarrhoeal disease, as estimated from studies published between 1992 and 2000*. **Bull World Health Organ** 2003; 81: 197–204.
27. Nelson EAS, Ko WK, Kwan E , Leung SF, Poon KH, Chow CB, Sin WK, Wong YK, Yeung CY. *Guidelines for the management of acute diarrhoea in young children*. **HK J Paediatr** 2003; 8: 203–236.

28. Abu-Elamreen FH, Abed AA , Sharif FA. Viral, *Bacterial and Parasitic Etiology of Pediatric Diarrhea in Gaza, Palestine*. **Med Princ Pract** 2008; 17: 296–301.
29. Palestinian Central Bureau of Statistics (PCBS). 2006. **Palestinian Family Health Survey 2004: Final Report**. Ramallah-Palestine: Palestinian Central Bureau of Statistics (PCBS). 136, 138.
30. Wikipedia. United Nations Relief and Works Agency for Palestine Refugees in the Near East. 2010 May 27. Wikipedia® is a registered trademark of the Wikimedia Foundation, Inc., a U.S. registered 501(c)(3) tax-deductible nonprofit charity. Available at: <[http://en.wikipedia.org/wiki/United Nations Relief and Works Agency for Palestine Refugees in the Near East](http://en.wikipedia.org/wiki/United_Nations_Relief_and_Works_Agency_for_Palestine_Refugees_in_the_Near_East) >. Accessed 2010 May 30.
31. Wikipedia. Palestinian refugee. 2010 May 5. Wikipedia® is a registered trademark of the Wikimedia Foundation, Inc., a U.S. registered 501(c)(3) tax-deductible nonprofit charity. Available at: <http://en.wikipedia.org/wiki/Palestinian_refugee >. Accessed 2010 May 30.
32. Everitt BS. **The Cambridge Dictionary of Statistics in the Medical Science**. USA: Cambridge university press; 1995. 181.
33. The American Public Health Association (APHA). American Public Health Association Policy Statement 2007-14. A Call to Action on

- Breastfeeding: A Fundamental Public Health Issue. Washington, DC: American Public Health Association; 2007. Available at: <<http://www.apha.org/advocacy/policy/>>. Accessed 2008 Jun 20.
34. UNICEF Global Database on Breastfeeding Indicators. 2001. Breastfeeding and Complementary Feeding: UNICEF Global Database on Breastfeeding. Avail at: <<http://www.childinfo.org/index.htm>>. Accessed 2008 May 10.
35. UNICEF Global Database on Breastfeeding Indicators. 2006 March. Breastfeeding and Complementary Feeding: UNICEF Global Database on Breastfeeding Indicators as of March 2006. Avail at: <<http://www.childinfo.org/index.htm>>. Accessed 2008 May 10.
36. Howie PW, Forsyth JS, Ogston SA, Clark A, Florey CD. ***Protective effect of breast feeding against infection. British Medical Journal*** 1990; 300: 11-16.
37. Quigley MA, Cumberland P, Cowden JM, Rodrigues LC. ***How protective is breast feeding against diarrhoeal disease in infants in 1990s England? A case-control study. Archives of Disease in Childhood*** 2006; 91: 245-250.
38. Chantry CJ, Howard CR, Auinger H, Auinger P. ***Full Breastfeeding Duration and Associated Decrease in Respiratory Tract Infection in US Children. Pediatrics*** 2006 February; 117 (2):425-432.

39. Levine OS, Farley M, Harrison L, Lefkowitz L, McGeer A, Schwartz B. ***Risk Factors for Invasive Pneumococcal Disease in Children: A Population-based Case-Control Study in North America.*** **Pediatrics** 1999 March; 103 (3): 28.
40. Galton Bachrach VR, Eleanor Schwarz, Lela Rose Bachrach. ***Breastfeeding and the Risk of Hospitalization for Respiratory Disease in Infancy: A Meta-analysis.*** **Arch Pediatr Adolesc Med** 2003; 157 (3): 237-243.
41. Cushing AH, Samet JM, Lambert WE, Skipper BJ, Hunt WC, Young SA, McLaren LC. ***Breastfeeding Reduces Risk of Respiratory Illness in Infants.*** **American Journal of Epidemiology** 1998; 147(9): 863-870.
42. Sassen M L, Brand R, Grote J J. ***Breast-feeding and acute otitis media.*** **American journal of otolaryngology** 1994; 15 (5): 351-357.
43. Duncan B, Ey J, Holberg CJ, Wright AL, Martinez FD, Taussig LM. ***Exclusive Breast-feeding for at least 4 months protects against Otitis Media.*** **Pediatrics** May 1993; 91 (5): 867- 872.
44. Lopez-Alarcón M, Salvador Villalpando S, Fajardo A. ***Breast-Feeding Lowers the Frequency and Duration of Acute Respiratory Infection and Diarrhea in Infants under Six Months of Age.*** **The Journal of Nutrition** 1997 March; 127 (3): 436-443.

45. César JA, Victora CG, Barros FC, Santos IS, Flores JA. *Impact of breast feeding on admission for pneumonia during postneonatal period in Brazil: nested case-control study*. **BMJ** 1999; 318 (15): 1316-1320.
46. Romieu I, Werneck G, Velasco SR, White M, Hernandez M. *Breastfeeding and Asthma Among Brazilian Children*. **Journal of Asthma** 2000; 37 (7): 575-583.
47. Yoon PW, Black RE, Moulton LH, Becker S. *Effect of Not Breastfeeding on the Risk of Diarrheal and Respiratory Mortality in Children under 2 Years of Age in Metro Cebu, The Philippines*. **American Journal of Epidemiology** 1996; 143 (11): 1142-1148.
48. Arifeen S, Black RE, Antelman G, Baqui A, Caulfield L, Becker S. *Exclusive Breastfeeding Reduces Acute Respiratory Infection and Diarrhea Deaths Among Infants in Dhaka Slums*. **Pediatrics** 2001 October; 108 (4): 67-77.
49. Mahrshahi S , Ichikawa N, Shuaib M , Oddy W, Ampon R, Dibley MJ, Iqbal Kabir AKM , Peat JK. *Prevalence of Exclusive Breast-feeding in Bangladesh and Its Association with Diarrhoea and Acute Respiratory Infection: Results of the Multiple Indicator Cluster Survey 2003*. **J Health Poul Nutr** 2007 Jun; 25(2):195-204.
50. Abdulmoneim I, Al-Ghamdi SA. *Relationship between breast-feeding duration and acute respiratory infections in infants*. **Saudi Medical Journal** 2001; 22 (4): 347-350.

51. Clemens J, Abu Elyazeed R, Rao M, Savarino S, Morsy BZ, Kim Y, Wierzba T, Naficy, Lee YJ. *Early Initiation of Breastfeeding and the Risk of Infant Diarrhea in Rural Egypt. Pediatrics* 1999 July; 104 (1): 3-8.
52. Khassawneh M, Khader Y, Amarin Z, Alkafajei A. *Knowledge, attitude and practice of breastfeeding in the north of Jordan: a cross-sectional study. International Breastfeeding Journal* 2006; 1:17-22.
53. Ever-Hadani P, Seidman DS, Manor O, Harlap S. *Breast feeding in Israel: maternal factors associated with choice and duration. Journal of Epidemiology and Community Health* 1994; 48: 281-285.
54. Kanoa B, Kariri M. Infant Feeding in Gaza Strip: Mother's Knowledge, Attitudes & Practices. [abstract]. In College of Medicine Conference (CMCI) Medical Education and Public health; (2007); Palestine. Gaza: Islamic University in Gaza.
55. Palestinian Central Bureau of Statistics (PCBS). 2007 December. *Palestinian Family Health Survey 2006: Final Report*. Ramallah-Palestine: Palestinian Central Bureau of Statistics (PCBS). 39, 45, 46, 57, 59, 98-100, 112.
56. The Sixty-Third World Health Assembly (A63/1). Health condition in the occupied Palestinian territory, including east Jerusalem, and the

occupied Syrian Golan. Report of the director of health, UNRWA, for 2009 Health conditions of, and assistance to Palestine Refugees in the occupied Palestinian territory. Provisional Agenda item 13. 2010 May 13.

57. Sixty-Second World Health Assembly (A62/INF.DOC./2). Health condition in the occupied Palestinian territory, including east Jerusalem, and the occupied Syrian Golan. Report of the director of health, UNRWA, for 2008 The Palestine Refugees in the occupied Palestinian territory. Provisional Agenda item 14. 2009 May 14.
58. Wikipedia. Balata. 2010 March 3. Wikipedia® is a registered trademark of the Wikimedia Foundation, Inc., a U.S. registered 501(c)(3) tax-deductible nonprofit charity. Available at: <<http://en.wikipedia.org/wiki/Balata>>. Accessed 2010 April 21.
59. Wikipedia. Askar. 2009 July 1. Wikipedia® is a registered trademark of the Wikimedia Foundation, Inc., a U.S. registered 501(c)(3) tax-deductible nonprofit charity. Available at: <[http://en.wikipedia.org/wiki/Askar_\(camp\)](http://en.wikipedia.org/wiki/Askar_(camp))>. Accessed 2010 April 21.
60. Wikipedia. Ein Beit al-Ma. 2010 April 3. Wikipedia® is a registered trademark of the Wikimedia Foundation, Inc., a U.S. registered 501(c)(3) tax-deductible nonprofit charity. Available at: <http://en.wikipedia.org/wiki/Ein_Beit_al-Ma%27>. Accessed 2010 April 21.

61. Everything Bio.2007. Definition of dependent variable. Avail from:<<http://www.everythingbio.com/glos/definition.php?word=dependent+variable>>. Accessed at 2010 May 24.
62. The free dictionary.2009. Independent variable. Avail from: <<http://www.thefreedictionary.com/Independent+variables>>.Accessed at 2010 May 24.
63. The Layman's Guide to Social Research Methods. 1997. Reliability and Validity: What's the Difference? Avail from: <<http://www.socialresearchmethods.net/tutorial/Colosi/lcolosi2.htm>>. Accessed at 2010 May 24.
64. Evensen Web Design. Ogust 2008. Questionnaire Validity. Avail from:< <http://www.evensenwebs.com/validity.html>. Accssed 25-5-2010>. Accessed at 2010 May 24.
65. United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA). 2007. **Annual report of the department of health for the year 2006**. Amman-Jordan: UNRWA. 61, 66, 69.
66. Sachdev H.P.S, Mehrprtra S. *Predictors of Exclusive Breastfeeding in Early Infancy: Operational Implications*. **Indian Pediatrics** 1995 December; 32: 1287-1295.
67. Berger-Achituv S, Shohat T, Garty B-Z. *Breast-feeding Patterns in Central Israel*. **IMAJ** 2005 August; 7: 515-519.

68. Ip S, Chung M, Raman G, Chew P, Magula N, DeVine D, Trikalinos T, Lau J. Breastfeeding and Maternal and Infant Health Outcomes in Developed Countries. Evidence Report/Technology Assessment No. 153, April 2007. (Prepared by Tufts-New England Medical Center Evidence-based Practice Center, under Contract No. 290-02-0022).
69. Scariati PD, Grummer-Strawn LM, Fein SB. *A Longitudinal Analysis of Infant Morbidity and the Extent of Breastfeeding in the United States*. **Pediatrics** 1997 June; 99(6):5.
70. Dell S, To T. *Breastfeeding and Asthma in Young Children*. **Archives of Pediatrics Adolescent Medicine** 2001; 155(11):1261-1265.
71. Fredriksson P, Jaakkola N, Jaakkola J. JK. *Breastfeeding and childhood asthma: a six-year population-based cohort study*. **BMC Pediatrics** 2007; 7: 39.
72. Beaudry M, Dufour R, Marcoux S. *Relation between infant feeding and infections during the first six months of life*. **Pediatrics** Feb 1995; 126 (2): 191-197.
73. Quigley MA, Kelly YJ, Sacker A. *Breastfeeding and Hospitalization for Diarrheal and Respiratory Infection in the United Kingdom Millennium Cohort Study*. **Pediatrics** 2007; 119: 837-842.
74. Oddy WH, Sherriff JL, de Klerk NH, Kendall GE, Sly PD, Beilin LJ, Blake KB, Landau LI, Stanley FJ. *The Relation of Breastfeeding and*

Body Mass Index to Asthma and Atopy in Children: A Prospective Cohort Study to Age 6 Years. **American Journal of Public Health** 2004 September; 94(9): 1531-1537 pp

75. Susan Mayor. *Breast feeding does not protect against atopy.* **BMJ** 2002 September; 325: 675.
76. Sheila Gahagan. *Breast feeding and the risk of allergy and asthma.* **BMJ** 2007; 335:782-783.
77. Mike Mitka. **Study Finds Breastfeeding Not Protective Against Development of Allergies, Asthma.** **JAMA** 2007; 298(14): 1629.
78. Pisacane A, Graziano L, Mazzarella G, Scarpellino B, Zona G. *Breast-feeding and urinary tract infection.* **Pediatrics** 1992 January; 120 (1): 87-89.

Appendix

Appendix (1): Questionnaire

بسم الله الرحمن الرحيم

هذا الأستبيان معد لدراسة لنيل درجة الماجستير تقوم بها الطالبة شادن قناديلو من كلية الدراسات العليا | قسم الصحة العامة في جامعة النجاح الوطنية.

عنوان الدراسة

أثر الرضاعة الطبيعية الخالصة على مرض الطفل في الأشهر الستة الأولى من حياته في مخيمات نابلس.

The Impact of Exclusive Breastfeeding on Infant Morbidity in the First Infant's life in Nablus's Refugee Camps Six Months of

ستقوم الباحثة بتعبئة الاستبيانات مباشرة من المعلومات الموجودة في الملفات الخاصة بكل أم وطفل في عيادات الأنروا المشمولة في الدراسة في مخيمات مدينة نابلس الثلاثة، علماً بأن المعلومات ستعامل بغاية السرية، وهي لغاية البحث العلمي فقط .

الباحثة

شادن قناديلو

2008

Part one\ General information:-

Resident-----

Rationl Number-----

Part two\ Mother Information:

Date of birth-----

Put tick near to the correct answer:**1. Age:-**

- a) (15-21).
- b) (22-28).
- c) (29-35).
- d) (36 and more).

2. Age at Marriage:-

- a) (15-21).
- b) (22-28).
- c) (29 and more).

3. Mother age at baby's birth (the baby who included in the study):-

- a) (15-21).
- b) (22-28).
- c) (29-35).
- d) (36 and more).

4. Parity:-

- a) 1-2.
- b) 3-4.
- c) >4.

5. Mother Education:-

- a) Not educated.
- b) Basic.
- c) Secondary.
- d) High Education.

6. Father Education (husband):-

- a) Not educated.
- b) Basic.
- c) Secondary.
- d) High Education.

Part three\ Infant Information.

Date of Birth-----

Put tick near to the correct answer:**1. Age:-**

- a) 0 to < 1 month.
- b) 1 to < 2 months.
- c) 2 to < 3 months.
- d) 3 to < 4 months.
- e) 4 to < 5 months.
- f) 5 to 6 months.

2. Gender:-

- Male
- Female

3. Type of feeding in the first six months of life:-

- EBF
- PBF
- EFF

4. Did the infant have any diseases during the first six months of life:-

- Yes
- No

If yes answer the next two questions.**5. Frequency of disease visits**

- a) None
- b) 1
- c) 2-4
- d) > 4

6. Infant's morbidity with different diseases visits in the first six months of life.

Type of Disease	Yes	No
Upper Respiratory Tract Infection		
Lower Respiratory Tract Infection		
Otitis Media		
Asthma		
Wheezing		
Gastroenteritis		
Diarrhea		
Urinary Tract Infections		
Allergies		
DM type I		

**Appendix (2): Commitment for UNRWA and agreement from them to
conduct the study**

An-Najah
National University
Faculty of Medicine



جامعة
النجاح الوطنية
كلية الطب

التاريخ: 2008/08/14

حضرة الدكتور ابراهيم السلطان/ مدير وكالة الغوث/ نابلس المحترم

تحية طيبة وبعد،

الموضوع: تعهد

انا الطالبة شادن حمدي قناديلو رقم تسجيل (10552558) في برنامج ماجستير الصحة العامة/ جامعة النجاح بناء على طلبكم اتعهد باطلاعكم على جميع المعلومات التي ساقوم باخذها من ملفات الوكالة وجميع النتائج النهائية لبحث رسالة الماجستير (فوائد الرضاعة الطبيعية).

مع الاحترام،،،

توقيع الطالبة

شادن حمدي قناديلو

مشرف الطالبة

د. سمر غزال مسمار
مساعد العميد للشؤون السريرية

Appendix (3) Child health record girls 0-3 years

06. 7. 698. 1

CHILD HEALTH RECORD FOR GIRLS 0-3 YEARS

_____ HEALTH CENTRE

SER. NO. _____ R.C. NO. _____
 NAME OF CHILD: _____
 DATE OF BIRTH: _____
 WEIGHT AT BIRTH: _____ gms
 TWIN PREM. L.B.W.
 PLACE OF DELIVERY: HOSP. MAT.
 HOME PRIVATE
 IF AT HOME BY: MIDWIFE TBA
 TYPE OF DELIVERY: _____
 SAT AT: _____ Months:
 WALKED AT: _____ Months:

NAME OF MOTHER: _____
 YEAR OF BIRTH: _____ MARITAL AGE: _____
 M. H. R. NO. _____
 NO. PREV. PREG.: _____
 NO. CHILDREN ALIVE: _____
 NO. STILL BIRTHS: _____
 NO. ABORTIONS: _____
 NO. OF CHILDREN DEAD: _____
 AGE AT AND CAUSE OF DEATH _____

ADDRESS _____

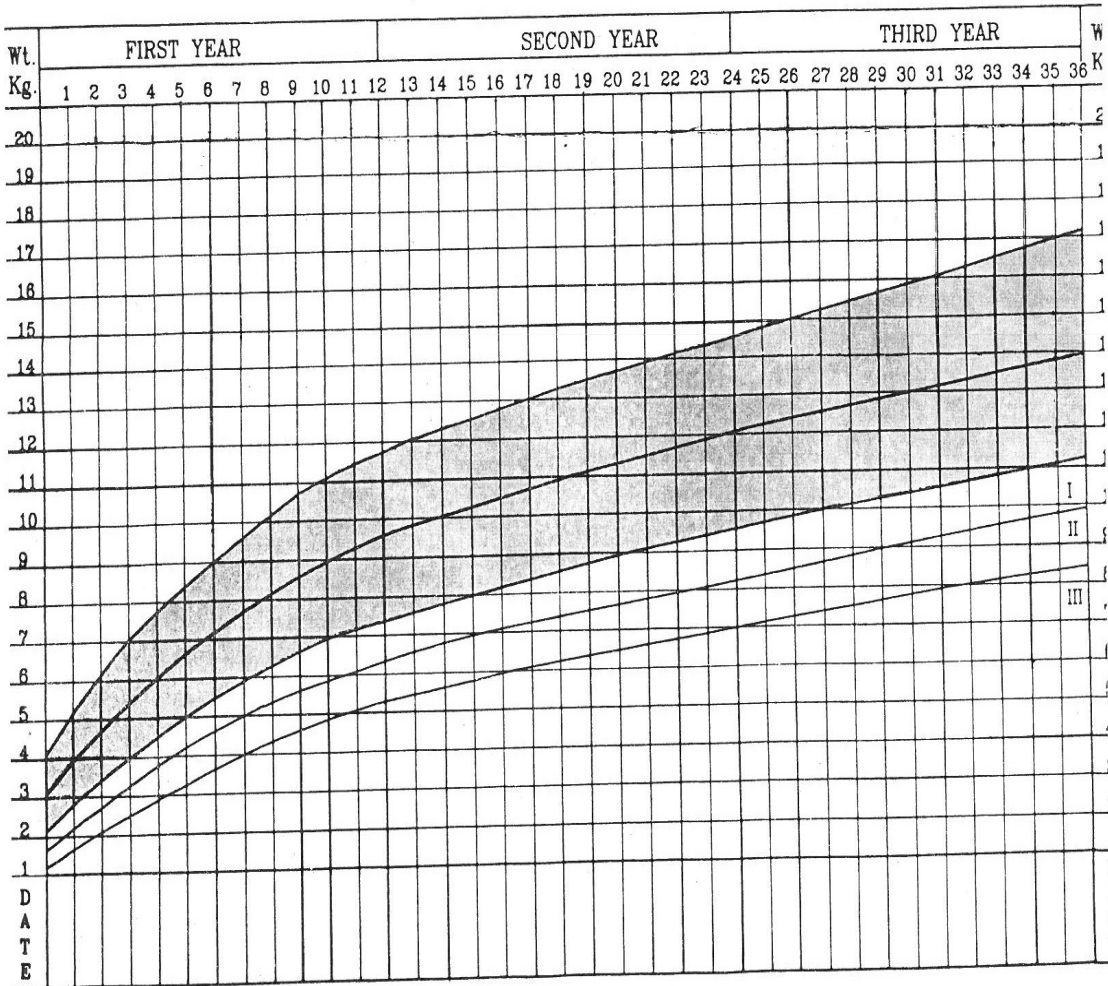
IMMUNIZATION DATES

BCG: _____
 DPT: 1st _____ 2nd _____ 3rd _____ Booster _____
 POLIO: 1st _____ 2nd _____ 3rd _____ Booster _____
 IPV: 1st _____ 2nd _____ 3rd _____
 HEPETITIS B.: 1st _____ 2nd _____ 3rd _____
 MEASLES _____ MMR _____
 OTHER (SPECIFY) _____

PRECEDING CHILD:

SEX	DEAD/ALIVE	AGE AT DEATH
A <input type="checkbox"/>	D <input type="checkbox"/>	<1M <input type="checkbox"/> 1-12 M <input type="checkbox"/> >1Y <input type="checkbox"/>

REMARKS: _____



جامعة النجاح الوطنية
كلية الدراسات العليا

أثر الرضاعة الطبيعية الخالصة على مرض الطفل في الأشهر الستة الأولى من حياته في مخيمات نابلس

إعداد

شادن حمدي شكيب قناديلو

إشراف

د. سمر غزال مسمار

قدمت هذه الأطروحة استكمالاً لمتطلبات درجة الماجستير في الصحة العامة بكلية
الدراسات العليا في جامعة النجاح الوطنية في نابلس - فلسطين.

2010م

ب

أثر الرضاعة الطبيعية الخالصة على مناعة الطفل ضد الأمراض في الأشهر الستة الأولى

من حياته في مخيمات نابلس

إعداد

شادن حمدي شكيب قناديلو

إشراف

د. سمر غزال مسمار

الملخص

من المهم خلال فترة الطفولة المبكرة أن يتلقى الطفل الغذاء المثالي و الكافي لضمان النمو البيولوجي و التطور العقلي. وقد توصلت العديد من الدراسات في مناطق مختلفة من العالم أن الرضاعة الطبيعية هي الطريقة الأمثل لإطعام الطفل، حيث أنها تساهم في منع و تقليل حدوث العديد من الأمراض خصوصا المعدية منها حيث في بلادنا نفتقد لمثل هذا النوع من الدراسات.

لقد هدفت هذه الدراسة بالدرجة الأولى إلى معرفة أثر الأنماط المختلفة المتبعة في إطعام الأطفال على مرض في الأشهر الستة الأولى من حياته في مخيمات نابلس، وأيضا إلى معرفة اثر بعض العوامل الديموغرافية للام و الطفل على خيار الأم من حيث طريقة إطعام الطفل في هذه المرحلة من حياته في مخيمات نابلس.

وقد شملت هذه الدراسة التحليلية المسحية 690 ملف طبي، يحتوي على معلومات لكل من الطفل و الأم، وتم اختيار العينة بحيث يكون الأطفال من مواليد العام 2007، سكان مخيمات نابلس، و يراجعون عيادات وكالة الغوث في مخيمات مدينة نابلس الثلاثة (بلاطه، عسكر، و عين بيت الماء). تمت عملية جمع المعلومات من الملفات عن طريق استعمال استبيانات تم تحليلها إحصائيا ببرنامج SPSS الإصدار 11، وتم استعمال عدة طرق إحصائية شملت التكرارات و النسب، تربيع كاي، والارتداد اللوجستيكي المتعدّد.

أشارت النتائج إلى أن نسبة الرضاعة الطبيعية الخالصة في الأشهر الستة 70% أما نسبة أولئك الذين اعتمدت أمهاتهم طريقة المزج بين الحليب الطبيعي والصناعي في إطعامهم

فبلغت 16% وقد بلغت نسبة الرضاعة الصناعية الخالصة 14%. وتعتبر هذه النسبة جيدة جدا مقارنة بدراسات أخرى مما يشير إلى الجهود الدؤوية التي تبذلها عيادات وكالة الغوث في الحث على الرضاعة الطبيعية خصوصا في الأشهر الستة الأولى من حياة الطفل.

وبالنسبة للعوامل الديمغرافية للام و الطفل وجدنا أن (أولئك الأمهات اللواتي يبلغن من العمر ما بين 22 - 28 سنة، وأولئك اللواتي تزوجن في أعمار تراوحت بين 22-15 سنة، والأمهات التي كن بين 28-22 سنة عند الولادة، ولديهن أكثر من أربعة أطفال، واللواتي وصلن إلى المرحلة الأساسية والثانوية في التعليم، وكون الأب غير متعلم، والأمهات اللواتي ولدن ولادات طبيعية، وكون المواليد إناثا) أثر إيجابا على الرضاعة الطبيعية الخالصة في الأشهر الستة الأولى من حياة الطفل.

بينما وجد أن الرضاعة الطبيعية الخالصة في الأشهر الستة الأولى من حياة الطفل تأثرت سلبا بكون عمر الأم بين أكثر من 36 سنة، وقت إجراء الدراسة أو الولادة، و كونه أثر من 29 سنة عند الزواج، وكونها لديها طفل أو طفلين وحصول الأم أو الأب على تعليم عال، و الولادات القيصرية، وكون المولود ذكرا.

وأظهرت الدراسة أيضا أن الرضاعة الطبيعية الحصرية في الأشهر الستة الأولى من حياة الطفل تقل من احتمال أصابته بالعديد من الأمراض المعدية خلال نفس الفترة ومن هذه الأمراض: التهابات المجاري التنفسية السفلى، التهاب الأذن الوسطى، التهاب القناة الهضمية، الاسهالات، صفير الصدر، وحساسية الجلد. وقد أظهرت الدراسة أن أثر هذه الحماية بقي لجميع الأمراض المشمولة بالدراسة ماعدا الإسهالات حتى بعد استثناء العوامل الديمغرافية المؤثرة للام و الطفل.

وقد استنتجنا أن أسلوب إطعام الطفل في الشهر الأولى الستة الأولى من حياته يتأثر بالعوامل الديمغرافية للأم و الطفل.

وأن الرضاعة الطبيعية الخالصة في الأشهر الستة الأولى من حياة الطفل تعتبر عاملاً هاماً في منع و تقليل نسبة الإصابة بالكثير من الأمراض خلال نفس الفترة من حياة الطفل.

وأوصت الدراسة أن تولي مؤسساتنا الصحية اهتماماً أكبر بالرضاعة الطبيعية بصورة عامة والرضاعة الطبيعية الخالصة في الأشهر الستة الأولى من حياة الطفل بخاصة خصوصاً خلال وضعها للخطط التي تهدف إلى محاربة الأمراض المعدية وأوصت الدراسة أيضاً بعمل دراسات مستفيضة تعنى بالرضاعة الطبيعية في بلادنا.

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