



Faculty of Graduate Studies

Master of Business Administration

The Status of Dental Health Human Resources in Hebron District

By

Amjad Mohammad Alhammouri

Supervisor

Dr. Hussein Jabareen

This thesis is submitted in partial fulfillment of the requirement for the master degree in business administration program, faculty of graduate studies, Hebron University, Hebron, Palestine.


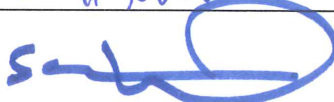

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This thesis was defended successfully on 18 /12 /2017 and approved by:

<u>Defense committee members</u>	<u>Signature</u>
1. Dr. Hussein Jabareen	
2. Dr. Samir Abu Znaid	
3. Dr. Moatasem Hamdan	

Dedication


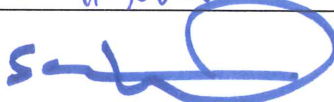

To My honorable parents,
For their abundant support,
To my lovely wife and children
For their patience and understanding,
And for their love
To my brothers and sisters
To my colleagues and friends
To martyrs and detainees
To my people

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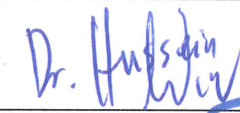
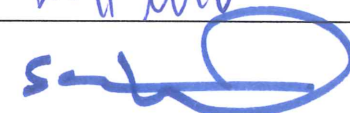

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Declaration

الإقرار

أنا الموقع اسمي أدناه مقدم الرسالة التي تحمل العنوان:

The Status of Dental Health Human Resources in Hebron District

واقع الموارد البشرية العاملة في طب الاسنان في محافظة الخليل

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

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 of qualification.

Student Name:	Amjad Mohammad Alhammouri	اسم الطالب:
Signature:		التوقيع:
Date:		التاريخ:

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Abbreviations

HHRP	Health Human Resources Planning
DHHRP	Dental Health Human Resources Planning
DHPSA	Dental Health Professional Shortage Area
WB	West Bank
PDA	Palestinian Dental Association
MoH	Ministry of Health
WHO	World Health Organization
FDI	World Dental Federation
BI	Busyness Index
PCBS	Palestinian Central Bureau of Statistics
SPSS	Statistical Package for Social Sciences
Cons	Conservative dentistry
Prosthodont	Prosthetic dentistry
Endo	Endodontic dentistry
Pedo	Pedodontics
Ortho	Orthodontics
RCT	Root Canal Therapy
DMF	Decayed Missed Filled Teeth

Abstract

This study aims to describe the status of dental health human resources in Hebron district; demographical and personal characteristics, workload and busyness index, financial income satisfaction, productivity and development scopes, and factors enhancing and those hindering the quality of service provided.

This was achieved by cross sectional descriptive study conducted between 5th June to 24th July 2017. A questionnaire was sent to 455 working or looking for work dentists in Hebron district, 264 questionnaires were returned back with a response rate of (58%).

The results showed that males form (66.8%) of dentists at Hebron district. Dentists' average age was 35 years, (45.9%) of them are working in Hebron city itself, and (37.4%) are working in another city within Hebron district. Most of the dentists (87%) had only bachelor degree, (76%) have work and they are stable in their workplace. The vast majority of dentists (89%) are working in the private sector.

The average dentist in Hebron works for 8.3 hours per day, 5.9 days per week, treats 9 patients per day, and has only 10.8 days as personal vacation each year. The busyness index for the district is 1.79 as (39.2%) of the dentists are not busy and could treat more patients, while (45.2%) have enough patients and don't feel overloaded. (50%) of the dentists are able to treat more than 10 patients extra to their current clients. Neither gender nor place of work affects the busyness index. Alternatively level of satisfaction of income and busyness index are strongly related.

The level of satisfaction of dentists' of income is moderate. There is a significant statistical difference according to gender, compliance with the price list, and current status of work. Meanwhile place of work has no statistically significant difference associated with level of satisfaction of income.

Dentists at Hebron concern of continuing education as 52.9% of them attended a conference in 2017 and 69% have attended a training course since 2016. Participants also

identified that Pedodontics (65%), endodontics (62%), and periodontics (48%) are the most needed specialties in Hebron.

The factors that can enhance the level of provided service according to dentists participated in this study are mainly: Availability of equipment, patients' attitude, continuous education, profit, and patients' compliance to appointments. On the other hand, they think the factors decreasing the level of services are mainly: negative patient's attitude, poor financial commitment, poor patients' compliance to appointments, and colleagues' price competition.

Based on the results of this study, it is recommended to establish a coordination committee for oral health composed of key stakeholders, encourage universities and dental association to establish post graduate programs, campaigns for increasing the awareness of population for their oral health, and a continuous education program that should be developed and activated.

Chapter One: Introduction To The Study

1.1. Introduction

Planning is essential in order to guide choices that will lead to successful achievement of improved health outcomes through sound and effective decision making. Accordingly, the community's resources could then be allocated efficiently to meet its actual needs. (Qutop, 2006). Health human resources planning (HHRP) is concerned with ensuring that the right number and type of health human resources are available to deliver the right services to the right people at the right time (Birch, 2002). Dental care is a related field of this topic as the production of dental services is strongly influenced by the availability of personnel, since the provision of dental services is labor intensive. This dependence on personnel supply, coupled with the long training time required for dentists, means that required changes in future personnel quantity and quality need to be anticipated years in advance. Thus the reliability of any personnel planning model will be strongly influenced by its ability to estimate future need and demand levels (Goodman, 1990).

The need to plan for dental health personnel is rooted in the ethical imperative to use limited health resources appropriately. A central problem though, is deciding from whose perspective the decision of appropriateness should be made. The determination of appropriateness is based on subjective values held by each potential evaluator of personnel need. The list of evaluators includes consumers, providers, purchasers of dental care, and private and public policy makers (DeFrieze, 82). Frequently the perspectives of these groups differ, as well as their ability to influence the subsequent production and distribution of dentists (Goodman, 1990).

In sharp contrast to other scientific areas where a set of well-defined methodologies and techniques is generally adopted and refined to solve a given problem, in HHR planning, *methodologies* (the conceptual scope of analysis) and *approaches* (the techniques applied upon a particular method) abound, and there is still no commonly accepted or favored procedure to accurately forecast physician requirements (Lopez, 2015).

Four basic approaches proposed for estimating manpower requirement are health needs based, demand based, service targets based and health manpower to population ratio. These methods use different assumptions and have different data needs in order to estimate requirement of human resources in health sector. The first three convert people to health service they need based on certain assumptions and health services are then converted to manpower that is required to produce those services. In the fourth approach, people are directly converted to health manpower. The health need and service target approaches are normative, whereas the demand based approach is predictive (Dreesch, 2005).

The demand based approach (which is used in this study) also is called as requirement model or the utilization based approach examines the quantity of health care services demanded by the population. The demand is defined as amount of the various types of health services that the population of a given area will seek and has the means to purchase at the prevailing prices within a given period (Dreesch, 2005).

Direct treatment costs due to dental diseases worldwide were estimated at US \$298 billion yearly, corresponding to an average of 4.6% of global health expenditure. Indirect costs due to dental diseases worldwide amounted to US \$144 billion yearly, corresponding to economic losses within the range of the 10 most frequent global causes of death (Listl, 2015).

The Dental treatment team includes but not confined to dentists, dental assistants, dental hygienists, and dental technicians. Palestinian ministry of health has developed and adopted licensing regulations for dentists, technicians, and lately dental assistants. This study is targeting the dentists only, as they are the essential component of dental care team.

To assess the requirements of dental health human resources, the researcher used the busyness index. It is calculated for an area by averaging the busyness indices for all dentists in the area. The index for the individual dentist is self-reported on a scale from one to four, where the number "one" indicated that the dentist wish to have more patients and the number "four" indicated that the dentist is too busy to treat all patients who are

seeking care (Henderson, 1974). This method is used as the private sector is the dominant sector in dental care provision in Palestine. According to PCPS in 2015, out of 50.049 million dollars spent on dental care, 48.516 million dollars were Household out-of-pocket payment forming nearly 97%.

1.2. Problem statement

The increasing numbers of dental graduates in the West Bank from the local universities and abroad (Abu salamah, 2016) led to a general assumption among dentists that an oversupply of dentists is present in Palestine. The Palestinian dental association confirms that an oversupply of dentists is already present in the West Bank, so it has started since 2010 to advertise in local newspapers at the time of application to universities recommending the students and their families not to study dentistry. Furthermore, it is found that the demand power for dental care (Jenin District) was weak and cannot absorb current dentist numbers (Hamdan, 2011).

On the other hand, dental schools at local universities accepting an increasing numbers of dental students each year. However, the burden of oral disease is particularly high for the disadvantaged and poor population groups in both developing and developed countries (Petersen et al., 2005).

The consequences of oversupply of dentists may include underemployment, unemployment, and worker induced demand.

This study attempts to describe the status of dental human resources in Hebron districts from three perspectives; first: the actual workload and busyness index, second: satisfaction of dentists about their income, and third: productivity and development capabilities of working dentist. Factors improving the quality of provided dental services and factors decreasing the quality of these services are explored also.

1.3. Objectives of the study

This study aims to describe the status of dental health human resources providing dental care in Hebron district. The broader objective of this research is to describe the present status of dental care provision in Hebron district within the following specific objectives:

1. To describe the basic demographic features of dental care providers (dentists) in terms of the number of practitioners, the age, gender, geographical distributions, state of graduation, qualifications and experience, the type of practice (public or private), and current professional status.
2. To assess status of average working hours and to measure the busyness index of dentists in the district.
3. To identify the main factors affecting the busyness index for dentists in Hebron.
4. To measure the level of satisfaction of dental income and the factors affecting it.
5. To describe factors increasing productivity of the dentist.
6. To describe the dental specialty perception effect and specialization priorities in Hebron market according to dentists.
7. To describe the main factors that could improve the quality of dental service.
8. To describe the main factors that could hinder the dental care services level.

1.4. Research Questions

1. What are the main demographical and personal characteristics of dental health human resources in Hebron district?
2. What is the actual status of workload for dentists in Hebron district and what is their busyness index?
3. What are the main factors affecting busyness index of dentists in Hebron?
4. What is the level of satisfaction among dentists of their dental income? What are the factors affecting it?
5. What are that reasons the that affect productivity among dentists in Hebron?
6. What is the specialty perception effect and priorities among dentists?
7. What are the main factors that could enhance the quality of dental services from dentists' point of view?

8. What are the main obstacles that may decrease the quality of dental services level from dentists' point of view?

1.5. Research Significance

Careful planning for health human resources ensures the optimal use of the limited resources available for the community. The results of this study will help to develop an outline of the dentists in Hebron district and could be generalized for Palestine as a whole, responding to a long felt need to explore the status of the entire dental profession. This will help Ministry of Health (MoH), Palestinian Dental Association (PDA), universities, and other related planners to guide their choices. Moreover, the methodology that is used in this study could be repeated to assess the demand and supply of other health professions like physicians, pharmacists, and nurses.

1.6. Scope and Limitations of the Study.

- The time scope: the time of the research was from June 5th to July 30th, 2017.
- The place scope: The research covered all working or looking for work dentists in Hebron district.
- The human scope: The population that was targeted in the research consists of all dentists working or looking for work in Hebron district.

Chapter Two: Literature Review

2.1. Introduction

In this chapter we briefly review the literature written about health human resources planning in general then go further to describe the dental human resources planning. Dental human resources planning models will form the major part of this chapter. Workload and productivity will be reviewed also in this chapter. Finally health and dental health in Palestine will be briefly described. It is worth to mention that health and dental human resources has been addressed in literature in several expressions such as: workforce, manpower, personnel, supply and demand of dentist. All of these expressions have been used here interchangeably.

2.2. Human Resources Planning in Heal-thcare

Human resources play a critical role in delivering health services to the population. Health planners and decision makers have to ensure that the right number of people, with the right skills, is at the right place at the right time to deliver health services for the population needs, at an affordable cost. (DREESCH, 2005). By other words, Health Human Resources Planning (HHRP) is aimed at having the right number of people with the right skills in the right place at the right time to provide the right services to the right people (Birch, 2002).

Health care is a labour-intensive industry, and human resources are the most important input into the provision of health care, and the largest proportion of health care expenditure. It is remarkable that the market for human resources in health care has been relatively under-researched and under-managed in all developed countries' health systems.

The market for human resources in health care, like any other labour market, is made up of an interaction between demand and supply. The demand for human resources in health care is derived from patients' demand for health services, which in turn is derived from the population's demand for 'health'. These demands are assumed to be related to the

overall size and structure of a population, to patient expectations of health care and to the income of society (Bloor, 2003).

The health worker is defined as a “person primarily engaged in actions with the primary intent of enhancing health”. The global workforce is huge, amounting to 59.2 million fulltime workers, of whom two thirds and one third are health service providers and health management support staff respectively. In health care systems the health worker is an integral part of a team where each member contributes different skills and performs different functions (WHO, 2006).

In the past, health workforce planning had limited success because there were limited support for long term strategic planning and use of unsuitable or complex planning methods for the country situation. As a result, some countries ended up with too many or too few health workers and poor geographic distribution of the workforce (Hall, 1998).

2.3. Human Resources Planning in Dental Care

As stated previously Human resource planning in dentistry has been reported in the literature in different phrases such as dental manpower, dental workforce, dental personnel, and supply and demand of dentists.

Dental health planning is complex enough in its own right, making workforce planning for it even more difficult. Many factors and issues associated with the dental care market and its stakeholders make workforce planning a complex and challenging task (Parkash, 2006). The following key factors have been identified in dental workforce planning (Colombet, 1996; Try, 2000; Robinson, 2004):

- As with any other disease condition, morbidity patterns in dental diseases can vary due to many factors, such as time, population characteristics and geographical location. Therefore availability of accurate and timely morbidity data is vital for dental workforce planning.

- It is important to differentiate between the concepts of need, demand and utilization in dental workforce planning. Need is what the patient thinks he/she wants; it becomes a demand when it is complemented by purchasing power. Utilization is the amount of dental care consumed or purchased as a result of decisions arrived at jointly by the patient and the health service provider. From policy perspective, what is needed may not always be translated into demand.
- The productivity of the dental workforce could vary due to a number of factors, such as age, gender, number of auxiliaries, practice patterns and technology used.
- Knowledge of both the number of dentists and their geographical distribution is vital for workforce planning.
- Increasing the capacity of dental training institutions will involve a considerable time frame. On the other hand, reducing the number of trainees will lead to under-utilization of the training capacity. Furthermore, training of a dentist takes about five years, and therefore whatever the changes to the training capacity, it will take a minimum of five years to be practically effective as far as the workforce is concerned.
- Unique market characteristics in the field of dentistry, such as high cost of capital investment, long periods for return on investment, and professional settings are also important when planning for the dental workforce.
- Most of dental health services in Palestine are provided by the private sector as small single practice businesses, which is not easy to plan for, run, and manage by a structured organization, compared to other health services such as governmental health services, UNRWA health system, and nongovernmental health organizations.

2.4. Human Resources Planning Models in Dental Care:

The literature about human resources planning in dental care can be categorized into four main models similar to that present in other health care sectors. The approaches compare the service that can be produced (supply) with the volume of required service (need, demand, utilized, or target). Other models have been suggested and will be explained later. Finally DeFriese and Barker paper classification system of the dental workforce model which is the most cited classifications system is presented.

The following are conceptual models that underlying dental workforce studies:

2.4.1. Provider-to-population ratio model

The provider-to-population ratio method indicates the number of dentists needed in relation to the ratio of residents in a specific area, such as a city or country. The results of a need-based model from the ratio for the manpower-to-population are straight forward and unambiguous to interpret. For these reasons this method is popular (Songpaisan 1985; Collins et al. 1993; McClendon et al. 1997; Mick and Lee 1999).

The desirable ratios are established on the basis of current situations, international comparisons, recommended standards, ratios observed in a favored area of the country and extrapolation of past trends (Hornby et al. 1980; Dreesch et al. 2005).

The advantages of this model include: simplicity, low cost, minimum data is required, and it allows comparison be made between different continents.

Much criticism has been attributed for this model; the main disadvantage is whether the so-called benchmark standard could be considered as a universally optimal ratio. In the calculation of this ratio, productivity of all dentists is considered equal, and the demands of all population segments are taken as relatively equal. However, several writers have expressed their concerns about the validity, and hence the applicability, of population to dentist ratios, citing many factors that could affect both the supply dynamics of the service provider and the demand dynamics of the population. These factors include age, sex, race, occupation, level of education, income, cultural and social values on the demand side, and age, sex, number of auxiliary personnel employed, and number of hours worked on the supply side (Dawson, 2005).

This method is usually employed when no other data are available.

2.4.2. The health needs model

This model focuses on the incidence and prevalence data in the general population. These data are then translated into treatment needs generally according to expert opinion about people's health needs. In this methodology, total personnel hours required to meet the health needs of a projected population in a given target year is calculated. Further, the productive capacities of the dental practices are taken into account. Using these parameters, manpower requirement is estimated. This method requires well maintained databases and surveillance capacity, combined with planning expertise (De Silva, 2012).

The main advantage of this method that it has an appealing and clear logic that is consistent with ethic of providing services based on need and not social or economic conditions. On the other hand the shortcomings include extensive and detailed data required and considered to be costly and complicated. Setting of standards is complicated because of the lack of consensus on optimum care and on health effects of care. Also this model is likely to result in projected service requirements well in excess of country's ability to provide them and/or in excess of consumer willingness to use them. Besides it can't be used where private sector is the dominant as the case in Palestine.

2.4.3. Health Demands Model / Utilization Technique

In this method, workforce requirements are projected based on current and estimated future utilization rates. Indices of demand are constructed using utilization rates by age, sex, occupation and race; and future demand is derived from the expected changes in the size of these population groups and the proportionate change in services that this might imply in the future (Hornby et al. 1980; Sheiham 1981; Roberfroid et al. 2009). Demand and utilization are two terms that have been used interchangeably. Demand is defined by the seeking behaviour for health care by patients, resulting directly from the perceived or subjective need for treatment (Spencer 1980b; Davis 1982) while the term utilization refers to the amount of dental care consumed or purchased as a result of compromised decisions between the patients and providers (Grytten 1992). The workforce requirement is projected based on the data of dental utilizations obtained from health providers, the average dental visits made by the patients and the expected population growth (Hornby et

al. 1980; Born 1981). Proxies for demand/utilization data have been used such as practitioner's productivity or professional opinion surveys (DeFriese and Barker 1982) or other influences of demand such as data on dental insurance or socioeconomic status (Odrich 1985).

The shortcomings of this model focus that it may ignore political and social reasons needed to improve service distribution and delivery. Besides, this model may require sophisticated data and can be complicated and costly. Other scholars argue that it may not consider quality of services and their relevance to country's health problems.

The advantages of this model are obvious in private sector dominance as it is inclined to produce economically realistic projections.

The demand model is suitable for countries with, dominant private sector, passive government attitude towards delivery of services and relatively minor imbalances in the provision of services to different segments of the population.

2.4.4. The service target model

The service target method involves the setting of targets by health authorities for the production and delivery of specified health services at various levels of care, considering the current level of technology, the demand of the population for certain services and the various services already performed by health workers. Compared to the need and demand-based method, this method uses other criteria to develop targets, which would consequently create demand or provision of health workforce. These other criteria include factors such as the public demand for services, political views, costs, efficiency for service delivery, likely effects, segment of the population benefitted, access and administrative feasibility (Hall and Mejia 1978; Hornby et al. 1980; Dreesch et al. 2005). When the number of services has been identified, the workforce required to render the services is calculated.

The strengths of this approach lie in its method which breaks down the activity and components of health services. This in turn facilitates the matching of each part of the

health system with the most appropriate method for estimating demand, which makes it relatively easy to put into practice and allows for assessment of interaction between variables (Wibulpolprasert 1997). The method places importance on productivity and its improvement, simplifies cost estimates and has an active approach towards improving the health services (Hall and Mejia 1978). The target setting method allows integration of function and resources across various health programs and prevents overlapping of activities (Dreesch et al. 2005).

However this method requires comprehensive workflow studies and expert opinions which are subject to bias or errors in judgment. The ability of the health sector to expand, the capacity of health workers to deliver the targets established and the probability that the public will use the service is difficult to ascertain only through assessments made by health authorities (Hall and Mejia 1978). It is also difficult to define the tasks and skills required to deliver the programme and to match it with available resources (Dreesch et al. 2005). Sheiham (1981) commented that although the dental profession appears to follow a target setting approach by having a specific target or solutions on each oral health goals, if the importance of preventive action is not recognized, they would in reality still be using the supply-demand model.

2.4.5. The Econometric Model

The Econometric Model is sometimes described as a simple equation of supply and demands which requires few variables, but other times it is defined as a complex equation that could involve numerous variables (Born 1981). Data required for projection would depend on the scope and complexity of that particular model. This model uses the interaction between supply and demand, but emphasizes the price of health care (to the patient) and income (to the providers) as the primary factors. The model divides the health sector into a demand sector, which is concerned with the decisions of the general population to seek care; and a supply sector which is concerned with the decisions of providers to supply care (Feldstein and Roehrig 1980). The interaction between these two will determine how much care is provided, to whom, and at what prices. The actual demand will depend upon the prices people are willing to pay for the services which includes the price of dental care, annual per capita income of the population, availability

of health insurance and waiting time, both in securing an appointment and in being kept waiting in the health care agency (Feldstein and Roehrig 1980; O'Brien-Pallas et al. 2001). Health care providers' willingness to offer services (supply) will depend on the price received the value providers place on their own time, wages paid to other supporting health personnel, and the state of existing technology. Given all the factors involved in determining supply and demand, it is the price that ultimately adjusts so that quantity supplied equals quantity demanded (Feldstein and Roehrig, 1981).

Certain variables are presumed to be the critical components in the health financial system and the relationship of those variables to the production of services is assumed to behave in accordance with general economic theory (Born 1981).

It was claimed that the strengths of this model lie in its objective (Born 1981) and logic (Wibulpolprasert 1997) approach as demand for health care is usually related to the ability of people to purchase health care and the monetary benefit that the providers think they will receive if they provide the care. However, this could be true from an economic point of view, but might not conform to public health perspectives. The model is also said to provide frameworks that are useful for assessment of the relationship among stock, wages, demand and budgets (O'Brien-Pallas et al. 2001). Nevertheless, the econometric approach is limited in terms of its conceptual adequacy. It does not sufficiently consider population health needs, budget pressures, political/socio/economic factors, and the influence of the changing health system and the impact of outcomes (O'Brien-Pallas et al. 2001). The data required for the analysis of workforce requirement is either nonexistent or inadequate and there is a possibility that the health economic system may not behave in a traditional manner as presumed by the economists (Born 1981). Furthermore these models can be extremely complex and costly- both in computer time and manpower hours (Odrich 1985).

2.4.6. WHO/FDI Planning Model (Health Through Oral Health)

The World Health Organization and the Federation Dentaire International set up a joint working group (JWG6) to produce a tool for decision-makers that can be used for planning services (World Health Organization 1989).

The WHO/FDI model for demand identification (WHO/FDI, 1989) is an internationally recognized approach for calculating the demand for dental healthcare in different settings. It takes into account substantial differences in economic development, in addition to the differing disease experience and progression at different ages, as well as attitudes to oral health care in different countries, by utilizing suitable age cohorts. The age cohorts normally used in the WHO/FDI model were 0-14 years, 15-29 years, 30-64 years and 65-79 years (WHO/FDI, 1989).

The WHO/FDI model estimates the services needed per person, expressed in minutes, for all relevant aspects of oral healthcare over the whole period of each cohort. These are then divided by the number of years in each cohort to calculate minutes per person per year. The selection of age cohorts and the time allocated for various activities or treatment modalities in the original WHO/FDI model are based on the results of many international studies and expert opinion.

The WHO/FDI methodology recommends the use of different percentage values to convert Need to Demand, in different age cohorts. Essentially, these values represent the fraction of people who have a dental care need who actively seek treatment for it. In an economically prosperous country such as the UK or US, a high proportion of people with a dental healthcare need will expect to be treated. However, in a developing country, a much lower proportion of people will seek treatment for anything other than acute pain. In the original WHO/FDI model, these percentage values were selected following a series of consultations with relevant experts from different parts of the world, and using results of previous research work. In deciding these percentage values, many factors, including the health system, the health status, level of education and the level of development of the country, were considered. Accordingly, the following percentage values were recommended for developing countries with a moderate to high awareness of the need for dental health (WHO/FDI 1989). Table 2.1 shows need-demand conversion factors in the WHO/FDI model.

Table 2.1: Need-demand conversion factors in the WHO/FDI model

Age cohort	Conversion factor (Need to Demand)
0-14 years	65-100%
15-29 years	65-85%
30-64 years	30-65%
65+ years	10-30%

The final outcome of the programme is expressed as an operator-to-population ratio specific for that population. By modifying the entered data, the program is capable of producing a variety of estimates of this ratio: high, moderate and low approximations for example.

Several limitations of JWG6 WHO/FDI model have been mentioned by researchers. First, the model needs extensive information. In the planning model of workforce, the data about the dental status or treatment need and other demographic background information are necessary to calculate the number of the personnel (Bourgeois et al. 1993). Second, the methodology adopted is flawed because it neglects cohort and period effects in the estimates of oral care needs (Bronkhorst et al. 1991). Third, the unit of oral health personnel is not clearly defined. The concept of the "unit" of oral health personnel is in an important position for developing a programme. This unit is designated a full time equivalent (FTE) which includes dentists, dental auxiliaries, primary health care workers, and non-health personnel. Finally, it fails to consider other factors which influence the whole system and its implementation. Some of the papers suggested that one should reflect on other related factors which are also important to utilize the dental care (Maizels et al.1993; Wilson and Cleary 1995; Locker and Jokovic 1996; McGrath and Bedi 1999; Pitts 2005). The planning flow chart for the WHO/FDI JWG6 is shown next page in figure 2.1.

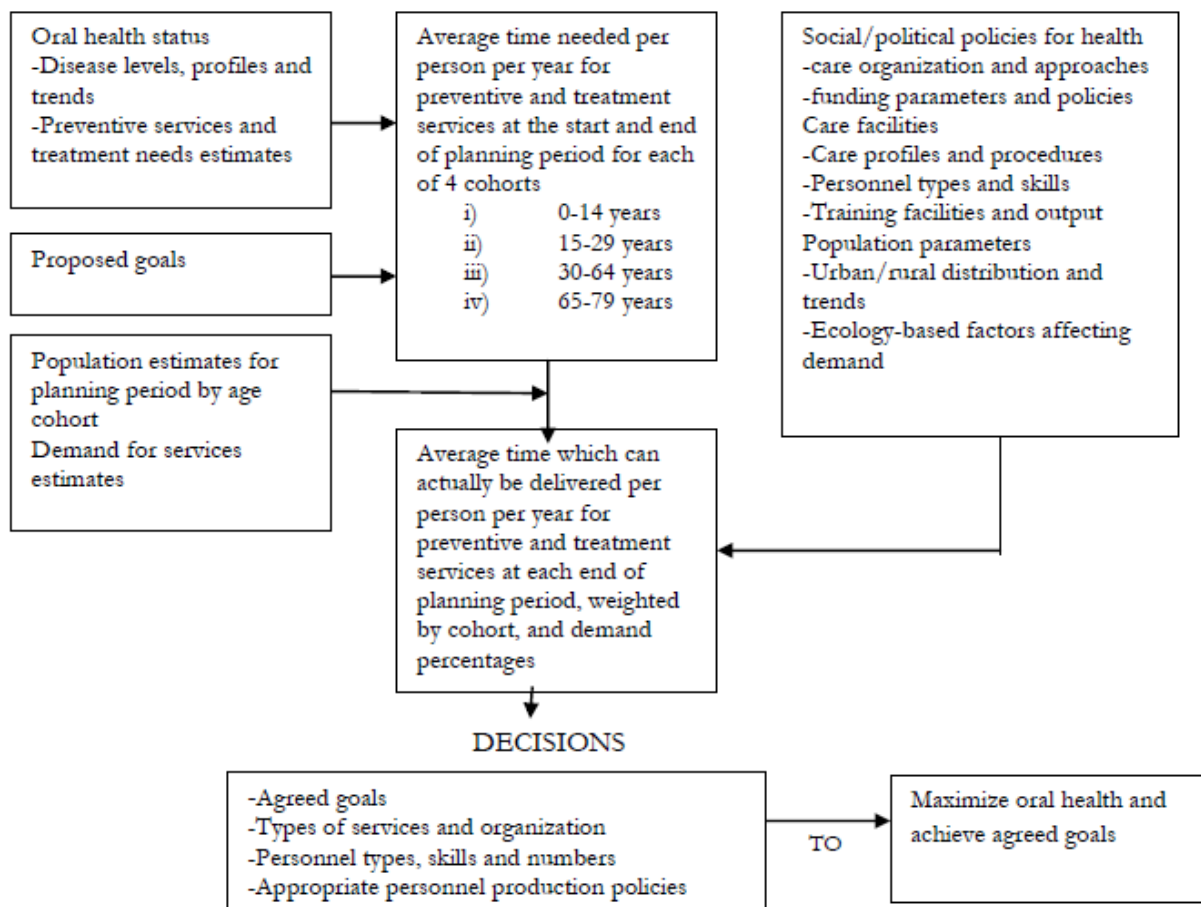


Figure 2.1: The planning flow chart for the WHO/FDI JWG6

The strengths and weakness of the various models of health work forces planning models are well summarized by Abdul Murat, it is presented in a table in appendix (1).

2.4.7. The DeFries and Barker paper classification system 1982

This classification system was put down in 1982 in their book "Assessing **dental manpower requirements**: alternative approaches for state and local planning", since then this classification was the most cited one. According to this classification the techniques used to assess dental manpower requirements can be classified into one of those five techniques:

- 1. Projections from Manpower-to-Population Ratios.** This simple and straightforward technique attempts to estimate the supply of dentists in some future year by examining 5 factors: the current stock of practitioners, projections from current statistics of the future retention of graduates of instate dental schools, the influx from out-of-state schools, retirements and deaths. Population estimates are obtained from appropriate state or federal agencies, and manpower-to-population ratios are calculated for each year from the present to the target year. Such analyses usually suggest either an oversupply or an undersupply of dentists according to an arbitrary ratio standard. The method is usually employed when no other data are available.

- 2. Dental Practitioner Opinion Surveys.** A questionnaire survey of the practicing dentists in a state or sub-state region asks them to describe briefly the structure and size of their practices and to indicate whether, in their opinion, there is a shortage of dental manpower in the vicinity of their practices. This sort of question might be combined with one that asks how “busy” dentists are or an estimate of the number of additional patients a practice might handle. On the basis of the answers received, particular counties or communities are defined as dental manpower shortage areas.

- 3. Estimates of Requisite Demand to Absorb Current Capacity.** This method is less common and more complex than the practitioner opinion survey, as it requires information on the practice structure and patient volume, as well as estimates of demand for dental care services. Rather than focus only on the supply of health manpower, this approach attempts to measure the extent and manner in which demand must be stimulated by some future date in order to utilize fully the supply of dental services that will be available.

- 4. Econometric Practice-Productivity Study.** This approach attempts to measure a large number of variables known to correlate with the output (measured usually in terms of visits, patients, procedures or time) of dental practice for a given period and to relate these variables, through the use of regression equations, to the utilization of (demand for) dental services. Such studies are somewhat more complicated conceptually and methodologically than the first 3 types.

5. Need-Based, Demand-Weighted Studies. This approach is distinguished from the others principally by its emphasis on the measurement of the incidence and prevalence of conditions (disease and other needs for service or treatment) in the general population and its use of these data as the basis for the estimation of manpower requirements. The technique involves the translation of epidemiological measures of dental conditions into standardized measures of treatment needs and the measurement of the productive capacity of dental practices. Estimates derived from this analysis are of the percentage increase in productivity — measured in units of time, procedures or visits — required to meet the treatment or service needs of the population. This approach can be supplemented, or weighted, through the use of a measure of demand for care. The approach is relatively uncommon because of the number of separate factors that must be measured and taken into account.

2.5. Workload and Busyness Index

The actual workload of a dentist could be the most important factor in estimating dental workforce requirements in the future (Huang et al, 2013).

WHO developed in 1998 a tool called Workload Indicators for Staffing Needs (WISN), which uses workload information to rationally and flexibly determine the number and type of staff required in a given health facility (WHO, 1998).

A tool similar to WISN was developed earlier by Mumma called the busyness index. The busyness index for an area is calculated by averaging the busyness indices for all dentists in the area.

$$\text{Busyness index for an area} = \frac{\sum_{i=1}^{ND} (BI)_i}{ND}$$

where $(BI)_i$ = busyness index for the i th dentist

1, if the dentist was not busy enough and wanted more patients

2, if the dentist provided care for all who requested it, had enough patients and did not feel overworked.

3, if the dentist provided care for all who requested it but felt overworked

4, if the dentist was too busy to treat all requests.

The index for the individual dentist is self-reported on the scale (Henderson, 1974) .

2.6. Productivity

Although the number of dentists is an important determinant of supply, other factors also contribute. Dental equipment, supplies and well-trained and managed auxiliary personnel also affect supply by allowing dentists to produce more dental services per unit of time (Boulier, 1979).

Productivity could be defined as the efficiency with which an economic activity transforms inputs into outputs. The higher the efficiency, the greater the productivity and hence the greater the output that can be achieved from a given set of inputs. Its importance for economic development and hence living standards is hard to understate. Dentists' productivity has increased significantly over the past 40 years. Specifically, during this period, dental output has more than tripled, and almost half of this increase is accounted for by the growth in dentists' productivity (Beazoglou, 2002).

The growth of productivity could be attributed to many drivers: First, the equipment used chair side by dentists which embodies increasing digital and computer controlled elements is expected to improve both in its technical performance but also its price and capability. CAD/CAM dentistry, which has been in use since 1980. Second, the employment of

allied dental practitioners in dental practices as studies in the US have found a positive association between the increased use of allied dental practitioners and the productivity of dental practices. Third, although the single dentist practice remains the biggest element of the employment of dentists, there has been growth in group practices which have the potential to achieve higher levels of dentists' productivity through better scheduling and sharing of capital equipment costs (Australia's future health workforce, 2014).

2.7. Health and Health Human Resources in Palestine

There are four major health service providers in Palestine: the MoH, United Nations Relief and Work Agency (UNRWA), non-governmental organizations (NGOs), and private for-profit providers. MoH provides primary, secondary and tertiary health services and purchase the unavailable tertiary health services from domestic and abroad providers. UNRWA provides primary care services, only for refugee and purchase secondary care services for the hardship cases. NGOs provide primary, secondary and some tertiary services. Private for-profit sector provides the three level of care though a variety of specialized hospitals and investigation centre (WHO, 2012).

Though Hamdan stated in 2003 that an accurate inventory of Palestinian health professionals and estimates of outward migration were likewise not available and an appropriate Health Human Resources policy and strategies incorporated in health reform initiatives essential to bring about change (Hamdan, 2003). It is found thirteen years later that the Palestinian health workforce has seen an increase in recent years. The availability of health inputs including physicians, nurses, midwives, pharmacists, and dentists, can provide insight on the availability of services and the ability of the system to respond to the needs of the people. In 2016, Palestine The number of medical cadres registered in various medical associations in Palestine reached 29,479 cadres, of which 22,201 were in WB at 75.3%, and 7,278 were in Gaza Strip at 24.7%, while the number of medical staff working in MoH was 7,149 employees, 24.3% Of the total human medical personnel working in the health sector. According to health annual report of MoH in 2016 there were 7760 physicians, 6482 nurses, 4269 pharmacists, 2989 dentists, and 701 midwives in W.B. (Moh, 2016).

A review of the MoH human resource profiles during the last decade shows significant variations in overall employment as well as in the distribution of key human resources, indicating the impact of various ad hoc factors rather than a planned policy for human resources development. Overall, the ratios of health professionals to population indicate a favorable situation in terms of the overall supply of health professional categories in the Occupied Palestinian Territory. The following table shows the number of health human resources for 10,000 inhabitants at Palestine in 2016.

Table 2.2 Health human resources per 10,000 population at Palestine in 2016(MoH 2017)

Specialty	Palestine/ 100,000 Pop
Physicians	21.7
Dentists	6.6
Pharmacists	10.0
Nursing	20.9
Midwifery	2.0

The Palestinian health sector context has two distinguishing characteristics: it operates in an environment of political instability and conflict under Israeli control, undermining effective governance system, and its financial viability is severely constrained by its dependence on donor funding, which is subject to fluctuations related to political considerations (Alaref, 2017).

2.8. Dental Care in Palestine

Dental health sector in Palestine is regulated mainly by the Ministry of Health (MoH) and the Palestinian Dental Association (PDA). The Ministry of Health regulates the licensing of dentists, dental technicians, and lately new regulations have been adopted for dental assistants. The Ministry of Health provides oral hygiene instructions and examinations for school students in addition to treatments in the dental clinics.

For dental health services at Hebron district, the (MoH) has 3 dental clinics in Hebron city, 2 in South Hebron, and 2 in North Hebron (MoH, 2015). The number of private dental clinics and centers in Hebron city is 170, in North Hebron is 64, in South Hebron is 64, and in Yatta is 27. So 325 dental clinics/ centers are in Hebron district.

The Palestinian Dental Association was established in 1952 with its headquarters in Jerusalem and Amman under the name of Jordanian Dental Association. The dental association is considered as one of the oldest professional syndicates in Palestine. The purpose of establishing this union is to serve its members through:

- 1- Upgrade the profession, protect, defend, and organize it.
2. Cooperation with the Ministry and all relevant institutions and bodies to promote the level of health status.
- 3 - Gather the word doctors and preserve their rights and dignity (PDA web site, 2017).

According to the WHO we have 6.6 dentists in Palestine per 10 000 population. This ratio is less than Jordan, Lebanon, and Syria but more than Bahrain, Oman, and Egypt. The numbers of dentists per 10 000 population in middle eastern countries are shown in table

Table 2.3 dentists per 10 000 population of Middle East countries (WHO 2015)

Bahrain	4.4
Egypt	1.7
Iran,	3.6
Iraq	2.2
Jordan	10.3
Kuwait	7.4
Lebanon	12.9
Libya	7
Morocco	1.4
Oman	2.6
Palestine	6.6
Qatar	6.2
Saudi	53.7
Sudan	1.6
Syrian	13.3
Tunisia	3.9
Emirates	17.1
Yemen	0.2

According to (MoH, 2012) annual report the DMF index (decayed, missed, filled teeth) for students of the first grade in hebron was 0.27 which is the second highest prevalence in the West Bank after Qalqilia with 0.41 as this is seen in table 2.4.

Table 2.4: DMF index for 1st Grade Governmental School by district (MoH, 2012)

Distirtict	DMF
Jerusalem	0.04
Rammallah	0.10
Nablus	0.16
Hebron	0.27
Jenin	0.09
Bethlehem	0.14
Tulkarm	0.07
Salfit	0.00
Qalqilia	0.41
Tubas	0.09
South Hebron	0.06

An oral health survey in the Palestinian West Bank area among Palestinian schoolchildren (older than the first grade students) reported a very high mean DMFT caries score of 6.5. These results indicate a population of schoolchildren at a high caries risk (Bajali, 2007).

According to the records of PDA the numbers of dentists and specialties in the West Bank in the year of 2016 was 2904, their geographical distribution and the numbers of specialized dentists is shown in table2.5.

Table 2.5: Dentists numbers, speciality, and ratios by district, West Bank 2016 (PDA 2017)

City	General Dentists	Specialized	Ratio
Jerusalem	612	28	4.60%
Rammallah	438	23	5.30%
Nablus	339	22	6.50%
Hebron	541	18	3.30%
Jenin	283	17	6.00%
Bethlehem	296	13	4.40%
Tulkarm	215	12	5.60%
Salfit	76	1	1.30%
Qalqilia	64	3	4.70%
Tubas	40	1	2.50%
TOTAL	2904	125	4.30%

The association embodies three specialized scientific societies, the Palestinian Orthodontics Society, the Palestinian Oral and Maxillofacial Surgery Society, and the Palestinian Dental Implants Society.

There are two dental schools in the West Bank accrediting the first degree in dentistry, at Arab American University in Jenin (AAUJ) and Al-Quds University. Post graduate dental studies present only in AAUJ: board of orthodontics accepting 3 students each year and high diploma in dental implantology which accepted 18 students last year.

An obligatory internship program for the newly graduated was extended for one year since 2011 and consists of theoretical and practical parts, aims to offer practical work experience and the opportunity to work under the supervision of expert professionals (Abu salamah, 2016).

2.9. Previous Studies

Previous studies describing the status of dental health human resources are abundant and diverse. The researcher will go through the most related previous studies according to the geographical base and the method used.

The most related study was done by (Hamdan, 2011), as a master thesis. The study aimed to assess the imbalance between the dental workforce supply and the demand for dental service in Jenin district. The researcher used cross sectional descriptive study of all active dentists in Jenin district. For the assessment of the required number of dentist he used the dentist to population ratio approach and the oral needs /service approach. The study showed an increase in the dental workforce associated with low utilization of dental service in the population. It was clear in the study that the demand of population can't absorb the continuous increase in the dentist supply. The study concludes dentists' surplus and maldistribution of dentists in Jenin. An increase in the female dentist was obvious as they constitute the majority of local universities graduates.

The study emphasized the importance of planning and monitoring the dental workforce and the urgent need for controlling the production of dentists, and strongly recommended the national universities to advance dental education.

The thesis showed the shortcomings of the dentist to population ratio method and the oral needs/service approach, since it concluded that one third of the present dentists in Jenin is enough to meet the dental health needs. This seems nonrealistic as the researcher ignored the patients coming from outside Jenin district especially those from Arabs of 1948 occupied lands.

A PhD dissertation was done by (Qutob, 2009) for his degree at University of Toronto named "A Needs-Based Approach for Health Human Resources Planning for Dentistry in Jeddah, Saudi Arabia". The study aimed to provide a human resource planning example to inform governmental bodies in Saudi Arabia to reallocate community resources towards better dental health. The researcher used the needs model where he conducted a population sample survey to collect data on dental status and service requirements through self-administered questionnaires and clinical examinations from one side and conducted a census of dentists and assessed their total service output by means of self-administered questionnaires, from the other side. The results showed when the projected total full time employee (FTE)-dentists needed to treat the incidence of oral diseases/conditions (11,214) is contrasted with the total available supply in Jeddah and Bahrah (289 dentists), the remaining FTEs needed to meet the needs becomes 10,925 FTE-dentists.

This huge difference could be explained by the needs approach model which was used in the study. Still the researcher used this method as the health insurance in Saudi Arabia covers the dental treatments.

Another Arabic study was done for Lebanon by (Doughan et al, 2005). The researchers used World Health Organization/World Dental Federation planning model to estimate the required number of dentists. The results of the study showed that the number of dentists required for Lebanon in the year of 2015 was estimated to be 2715 while the projected

supply will be 6176. The clear conclusion was urgent measures are needed to reduce the potential oversupply of dentists in this country.

The researchers depended on data derived from a dentists' survey in 1997 showed that the annual working time of Lebanese dentists is on average 1050 hours a year to estimate average working hours of a dentist for 1050 hours a year that stands for 20 hours a week, this average is much lower than many other states and led to increase number of required dentists. More to the point general criticism for the WHO/FDI model is well documented in the literature.

A descriptive study of Sultanate of Oman dental workforce was done by (Gallagher et al. 2015). The researchers aimed, first, to describe trends in the dental workforce in Oman from 1990 to 2015 and compare the dental workforce with its medical counterparts in Oman and with other countries, and second, to consider future dental workforce in the Sultanate. They used dentist-to-population ratios which were compared nationally, regionally, and globally for medicine and dentistry. Dental graduate outputs were mapped onto the local supply. Future trends were examined using population growth predictions, exploring the expected impact in relation to global, regional, and European workforce densities. Data were collected from published sources. The results showed population growth in Oman is increasing at a rate of over 2% per year. Oman has historically been dependent upon an expatriate dental workforce with only 24% of the dentist workforce was Omani in 2010 (number = 160). Subsequent to Oman Dental College (ODC) which started to qualify dental (BDS) graduates in 2012, there was an increase in the annual growth of the dentist workforce. On the assumption that all future dental graduates from ODC have an opportunity to practice in Oman, ODC graduates will boost the annual Omani dentist growth rate starting at 28% per annum from 2012 onwards, building capacity towards global (n = 1711) and regional levels (Gulf State: n = 2167) in the medium term.

The study concluded that the output of dental graduates from Oman Dental College is improving the dentist-to-population ratio and helping the Sultanate to achieve its aim of developing an Omani-majority dental workforce. However, the shortcomings of the dentist to population ratio method is well known and discussed thoroughly earlier in this chapter.

An example of the weakness of dentist to population ratio method can be observed in the study of (Sudhakar, 2015) named "Dental manpower planning in India: current scenario and future projections for the year 2020". The researcher discussed Indian dental manpower issues in this article which consists of both qualitative and quantitative research. The results of the study showed that the output of qualified dentists has increased substantially over the last decade and at present there are over 117,825 dentists working in India. Although India has a dentist to population ratio of 1:10,271, the newly graduating dentists find it difficult to survive in the private sector. The study added that at present less than approximately 5% of graduated dentists are working in the Government sector. If the present situation continues there will be more than one lakh dentists over supply by the year 2020. The continuation of the situation will lead to wastage of highly trained dental manpower and create a threat to the professional integrity of the dentists. This research highlighted the fact that there is an urgent need for an organized national human resource planning system to control the supply and demand of dental manpower, to ensure a systematic distribution of manpower and to give future directions to policy makers (Sudhakar, 2015).

Other studies used the workload to estimate the required number of dentists comes for the Far East. For instance (Huang et al, 2013) study aimed to make projections of the dental workforce from 2011 to 2020, based on a survey of the actual workload of 6762 dentists in 2010 in Taiwan. The actual workload of the dentists who returned the questionnaires was analyzed. A projection of dental workforce from 2011 to 2020 was calculated, based on the actual workload. The analysis of the actual dental workload was conducted on 6762 (59.1%) returned questionnaires. After adjusting for working hours, working days, and gender differences, surplus dentists will number approximately 1069 in 2020. The researchers concluded that an oversupply of dentists and a decrease in population demand will result in a surplus of dentists. To make better projections of the dental workforce, surplus dentists can be arranged to care for the aged, disabled people, and underserved people.

Another study used the busyness scale was in Korea by (Lee, 2013). This study investigated the busyness of dentists and analyzed factors related to busyness in these professionals. 243 practicing dentists were surveyed via mail. Busyness was measured by

using the Mumma scale. Data analysis and results showed that the dentists' busyness index was 1.91. Furthermore, while 40% of the practicing dentists wanted more patients, 30.8% were not overworking but did not want more patients. The study concluded that the busyness index should be considered when developing relevant human resource plans (Lee, 2013).

A study of (Janulyte et al, 2014) explored the current employment profile and future career intentions of Lithuanian general dentists and specialists. A structured questionnaire that inquired about demographics, different employment-related aspects (such as practice type, location, working hours, perceived lack of patients, etc.), and future career intentions (intent to emigrate, to change profession, and the timing of retirement). The final response rate was 67.6% corresponding to 2,008 respondents.

The results showed that the majority of all dentists work full or part-time in the private dental sector, more than one third of them owns a private practice or rents a dental chair. A minority of dentists works in the public dental sector. According to the survey, 26.6% of general dentists and 39.2% of dental specialists work overtime (>40 hours per week; $P < 0.001$) and practice in multiple clinics (1.4 ± 0.6 and 2.0 ± 1.2 , respectively; $P < 0.001$). One third of general dentists (31.3%) and dental specialists (31.4%) stated they have a low number of patients ($P > 0.05$). The majority (68.9% of general dentists and 65.9% of dental specialists) plans to work after the retirement age ($P > 0.05$). Emigration as an option to continue in their professional career was being considered by 10.8% of general dentists and by 8.3% of dental specialists ($P > 0.05$). Working either full or part-time in private practices (OR = 4.3) and younger age (≤ 35 years; OR = 2.2) are the two strongest predictors for a perceived insufficient number of patients.

The Conclusions of the study was that one third of dentists in Lithuania work long hours and lack patients. Many dentists practice in multiple locations and plan to retire after the official retirement age. Some dentists and dental specialists plan to emigrate. So the perceived shortcomings within the dental care system and workforce planning of dentists need to be addressed.

A systemic review of the literature about dental health human resources planning was done in Canada (Maupomé et al, 2001). In their study "Is there a sound basis for deciding how many dentists should be trained to meet the dental needs of the Canadian population?". The researchers critically assessed the scientific strength of 1968-1999 Canadian publications. The results showed that out of 18 papers, 4 were classified as projections from manpower-to-population ratios, 4 as dental practitioner opinion surveys, 8 as estimates of requisite demand to absorb current capacity and 2 as need based, demand-weighted studies. They concluded human resources planning publications often had questionable strength or analytic frameworks. The paradigm of business-scarcity evolved from a belief around an economic model for the profession into a fundamental tenet of HRP. A formal analysis to establish its existence beyond arbitrary dentist: population ratios has usually been lacking.

A Meta analysis for the current status of the dental practice in Bulgaria was done by (Katrova, 2012). The study aimed to show the leading trends in dental practice and dental profession development after two decades of transition in Bulgaria. A systematic review of data was performed including analysis of secondary statistical data and benchmarking data from relevant publications. The meta-analysis found that: The dentists/ patients ratio decreased steadily; The dental surgeries' development, in terms of new equipment, is observed; The use of support staff increased from 1996 to 2001, and decreased as on 2011; The utilization of dental services, compared to EU level is going down; The disproportion between new technologies implementation and lack of trained support staff utilization was evidenced; Long-term trend toward general versus specialize care was demonstrated. The Conclusion of the study was: The extensive growth and irregular distribution of dental practices, along with the decrease of the dental services' utilization shape the portrait of the dental profession and dental practice in Bulgaria by the end of the first decade of 21 century.

Chapter Three: Methodology

3.1. Introduction

This chapter describes the methodology used to explore the status of human resources working in dental care at Hebron district. It displays the study design, study setting, study population, research instrument, data collection, and data analysis. Study work method is explored in detail, and ethical considerations are elaborated.

3.2. Study setting

The study was conducted in Hebron district which forms the southern part of the West Bank. According to the PCBS the population of Hebron district on 2016 was 729,193 inhabitants distributed on 92 localities. Appendix(2) shows the localities of Hebron district and population density of those localities.

3.3. Study population

The study population consists of all licensed dentists registered in the Palestinian Dental Association (PDA) and ministry of health (MoH) in Hebron district working or looking for work. According to the (PDA) records **547** dentists are licensed and registered in Hebron district. Out of those there are: **35** retired, **45** travelling for working or study, **14** working outside the district, and **3** in Maternal leave.

Adding to them **5** dentists registered outside Hebron and working in the district make the number of dentist working or looking for work in Hebron district is **455**.

Inclusion Criteria

- The dentists who fulfilled the following criteria were included in the survey:
- Registered in the PDA
- Licensed from MoH
- Working or looking for work in Hebron district.

Exclusion Criteria

The dentists who characterized with any of those criteria were excluded from the study.

- Retired dentists.
- Emigrants outside Palestine for study or work.
- Working outside Hebron district.
- In a maternity leave.

3.4. Study design

A quantitative descriptive survey design was used in this study to describe the status of dental health human resources in Hebron district according to the workload and busyness index, Satisfaction of income, scopes of productivity and development, and factors enhancing and those hindering the quality of provided services. Data was collected between 5th of June to 24th of July, 2017.

3.5. Study instrument

Self-administered questionnaire (Appendix 1) was utilized for this survey. The questionnaire was developed after extensive review of the literature, and then was evaluated by number of scholars and researchers (appendix 3). The questionnaire was tested for clarity and interpretation of the questions in a **pilot survey** on 11 dentists from Bethlehem district, and modifications were made where appropriate.

The questionnaire consisted of 5 parts:

- A. Demographical and personal data** of the participants like: age, sex, place of work, year of graduation, scientific achievement experience, current professional status, nature of the current work.
- B. Workload of the participant** included questions about: the use of predetermined appointments, average of working hours per day, average of working days per week, average of patients treated per day, average of vacations per year, average of waiting time for the patient in the clinic, average number of extra patients dentist can treat, busyness index, and basic working hours.
- C. Financial income:** Satisfaction and the average amount paid for dental materials and disposables, dental labs, fixed costs, net income, and compliance with PDA price list.
- D. Scopes of productivity and development:**
 - At personal level: number of days the dentist participates per year in forums and scientific days, hand on courses.
 - At the practice level: employment of receptionist and dental assistant, having x-ray machine, x-ray sensor, apex locator, rotary motor, physiodispenser, the willing to participate in specialization program, and perception of which specialties Hebron district needs most.
- E. Qualitative open ended questions** about what factors increase the level of quality of service provided to patients, what factors hinder the quality of care, and any other remarks they like to add.

Validity and Reliability:

As for the **validity** the questionnaire was sent to a group of experts to examine the entire instrument and offer their opinion on its content (Annex3). Comments from experts were collected and reviewed with the supervisor, some comments were taken into account; rephrasing some questions. The questionnaire was then sent to a dental faculty member for final validation, and minor changes were conducted in wording some parses.

As for the **reliability** of the tool in this study, it was estimated using alpha coefficient (Cronbach's alpha). Cronbach's alpha is a measure of the internal consistency of a test or scale; consistency describes the extent to which all the items in a test measure the same concept or construct and hence it is connected to the inter-relatedness of the items within the test (Tavakol & Dennick, 2011). The reliability coefficient is equal to (0.73), which is considered as a good reliability coefficient for researchers.

The questionnaire was written in Arabic to enable all participants to answer its items easily.

3.6. Data collection procedure

Names of licensed and registered dentist were obtained from (PDA) records. They were distributed on a geographical base. A permission to conduct the study was received from the Palestinian Ministry of Health and the Palestinian Dental Association. The questionnaire was distributed by the researcher whenever possible. In addition, a medical representative of pharmacological company and dental material distributor were both trained by the researcher on how to assist in filling the questionnaire and then helped in collecting them during their work rounds from dentists. Most dentists were visited by the data collection team in their clinics and centers. To increase the response rate, online questionnaire was developed using Google docs to reach participants whom couldn't be reached personally, these dentists were contacted by email and telephone call to explain for them the purpose of the study and to encourage them fill out the online questionnaire.

The challenge the researcher faced during data collection was mainly the wide geographical spread of dentists in the Hebron district. Cooperation in filling out the questionnaire of some dentists on time was also another challenge.

3.7. Data Analysis

The data analysis was performed by using Statistical Package for Social Science (SPSS) version 20. Continuous variables were expressed as means and standard deviations as appropriate. Frequencies and percentages were calculated for all categorical variables.

Mann Whitney test was used to check the difference between males and females in relation to busyness index and satisfaction of income. Kruskal-Wallis test was used to check the differences between groups of place of work and status of current work in relation to busyness index and satisfaction of income. Spearman correlation coefficient was used to check the association between busyness index and [Income Satisfaction and Net Income], and to check the association between Income Satisfaction Level and compliance with Dental Association price list]. With significance level of 95%, a P-value less than 0.05 is considered statistically significant.

The answers to the open-ended questions were grouped into similar categories and coded accordingly.

Some of results were produced by likert scale analysis and the following distribution was used in measuring questionnaire's paragraphs:

Table 3.1: Likert scale

Very high	High	Moderate	Low	Very low
5	4	3	2	1

Table 3.2: measurement scale

Mean	Degree
More 3.5	High
2.5-3.5	Moderate
Less 2.5	Low

3.8. Ethical Consideration

Permissions for distributing the questionnaire were obtained from the academic council of higher education at Hebron University, MoH, and PDA (Appendix 4). The information sheet and covering letter of the questionnaires explained the purpose of the study with a confirmation that the information participants provide will be treated as confidential and used only for scientific research purposes (Appendix 5).

Chapter Four: Results

4.1. Introduction:

In this chapter the researcher will present and analyze the results of the research according to the order of questionnaire's items. Out of 455 working or looking for work dentists in Hebron district (study population), 264 completed questionnaires were returned back reaching the response rate of 58%, which is considered acceptable to generalize the results on the population of the study.

4.2. Demographic and personal Data:

The main characteristics of dental health human resources in Hebron district who participated in the study are shown below in table4.1.

The results show that the number of males who work in the dental field is higher than the number of female with percentages 66.8% and 33.2% respectively . and the average age of dentists in Hebron district is 35 years with 8.89 standard deviation.

According to the place of work , Hebron city has the highest number of dentists , then City in the Hebron district (Dura, Yatta, Al-Dhahiriya, Halhul, Sa'ir, Bani Na'im, Ithna) , and finally A town or a camp in the Hebron district (Shuyukh, Beit Ula, Nuba, Kharas Tarqumiya, Beit Ummar, Surif, Sammoua, Beit Awa, Dersamet. ...) with percentages 45.9%,37.4% and 16.7% respectively.

The analysis showed that 87.9% of dentist have a Bachelor of Oral Medicine and Surgery, 9.1% have Master of Dentistry Specialty and just 1.1% of them have Arab Board, Palestinian Bord. Also more than half of dentists graduated between 2008-2016 and 31.8% between 1998-2007, but 3.8% of them graduated between 1978-1987.

The average years of work in dental field in Hebron district is 10 years with 8.2 standard deviation . the results showed that 76% of the dentists work and stable in their works ,where 1.9% of them don't work and looking for work .also 88.5% of them are working in private clinic/center where 3.8% are working in formal jobs such as jobs in Palestinian Ministry of Health , academic university.

Table 4.1: Demographical and personal characteristics of participate dentists in hebron district.

variable	classification	Frequency (%) N=264	Mean ±SD
Gender	Male	175 (66.8)	-
	Female	87 (33.2)	
Age	24-29	78 (29.5)	35.14±8.89
	30-35	82 (31.1)	
	36-41	28 (10.6)	
	42-47	34 (12.9)	
	48-53	17 (6.4)	
	≥ 54	25 (9.5)	
Work Place	Hebron City	118 (45.9)	-
	City in the Hebron district (Dura,Yatta,Al-Dhahiriya, Halhul, Sa'ir, Bani Na'im, Ithna)	96 (37.4)	
	A town or camp in the Hebron district (Shuyukh, Beit Ula, Nuba, Kharas Tarqumiya, Beit Ummar, Surif, Sammoua, Beit Awa, Dersamet. ...)	43 (16.7)	
Educational Level	Bachelor of Oral Medicine and Surgery	232 (87.9)	-
	Master of Dentistry Specialty	24 (9.1)	
	Arab Board, Palestinian Bord	3 (1.1)	
	Other	5 (1.9)	
Graduation Year	1978-1987	10 (3.8)	-
	1988-1997	32 (12.3)	
	1998-2007	83 (31.8)	
	2008-2016	136 (52.1)	
Years of dental practice	≤5	101 (38.3)	10 ±8.2
	6-15	96 (36.4)	
	16-25	43 (16.3)	
	26-35	16 (6.1)	
	≥36	8 (3.0)	
Current Work Status	Work and stable in the work	200 (76.0)	-

	Work and looking for a better chance	58	(22.1)	
	do not work and looking for work	5	(1.9)	
Type of the current work	- Formal Job	10	(3.8)	-
	-private clinic/ center.	232	(88.5)	
	- Other.	20	(7.6)	

4.3. Workload

Appointments system:

This variable was measured by asking respondents the following question: how often do use predetermined appointment for the treatment of patients? As analysis showed the mean of predetermined appointments considered high and equal 3.6. This is obvious below in table 4.2.

Table 4.2: Usage of predetermined appointments distribution

Answer	Frequency	(%)	Mean ± STD
Always	50	(19.2)	3.60 ±1.110
Often	115	(44.1)	
Sometimes	59	(22.6)	
Little	16	(6.1)	
Rarely	21	(8.0)	
Total	261	(100)	
Missing	3		

Characteristics of workload

The results showed that the average number of working hours **per Day** is high with a mean equals 8.3, also the average number of working days **per week** is high with a mean

equal 6, where the average number of patients who are treated **per Day** is 9. The average of waiting time in the clinic before dental treatment is acceptable with mean equal 22 minutes; finally the average number of annual vacations except weekends and holidays (personal vacations) is 11 days. This is clear below in table 4.3.

Table.4.3 :Characteristics of Workload

Variable	Over all Mean	Standard Deviation	Mean for males	Mean for females
Number of work <u>hours</u> per Day	8.3	2.08	8.7	7.4
Number of work <u>days</u> per week	5.9	.575	6.0	5.7
Number of <u>patients</u> treated per Day	9.0	6.50	10.0	7.0
Number of days of annual vacations except weekends and holidays (special vacations) per year	10.8	11.75	10.1	12.3
Waiting time in the clinic before the dentist approach (minutes)	22	14.59	23	20

Ability to treat more patients

Ability of the dentist to treat more patients is measured by the **extra number** of patients that the dentist can treat them weekly. The results showed that 28.7% of dentists can treat 5-9 patients over their usual number of patients, where 14.7% can treat less than 5 patients. This is illustrated in figure 4.1.

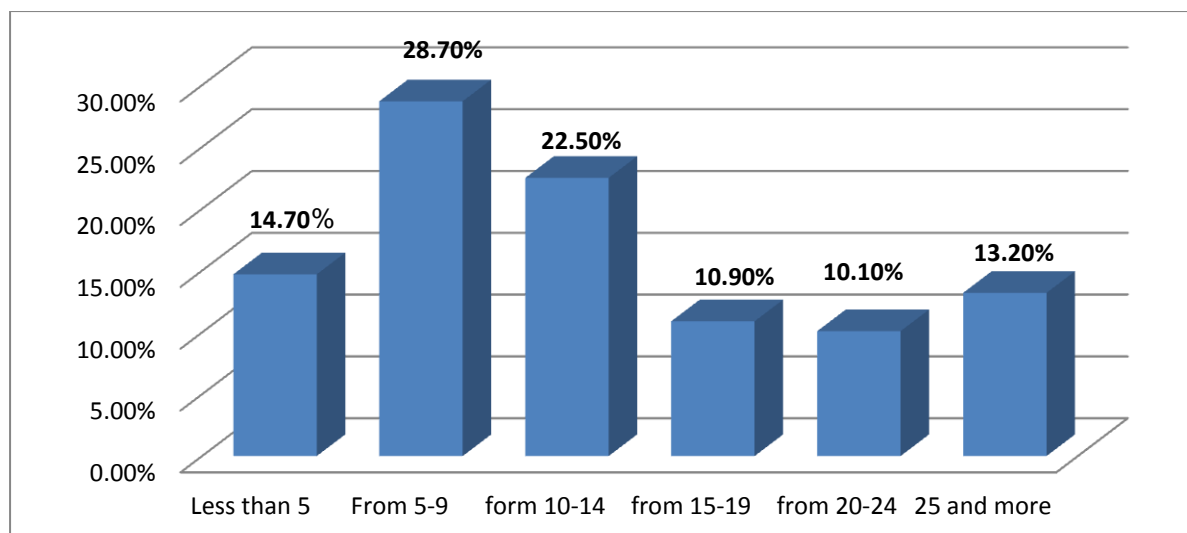


Figure 4.1 Ability to treat more patients.

The busyness index of practicing dentists:

The analysis showed that the mean of the **Busyness index** equal 1.79, with the following percentages: 45.2% of the dentists have enough patients, and didn't feel overload, and 39.2% of them weren't busy and can medicate more patients, where 13.3% of them have enough patients but felt overloaded, and 2.3% of them were too busy to treat all requests. This is clear in below table no.4.4.

Table 4.4: The busyness index of practicing dentists

Grade	Criteria	Frequency	(%)	Busyness index
1	The dentist wasn't busy and can treat more patients.	103	(39.2)	1.79±.757
2	The dentist has enough patients, and didn't feel overload.	119	(45.2)	
3	The dentist has enough patients, but felt overload.	35	(13.3)	
4	The dentist was too busy to treat all requests	6	(2.3)	
	Total	263	(100.0)	-
	Missing values	1		-

Factors affecting Busyness Index

Statistical analysis of factors significantly affecting busyness scale revealed that there wasn't a significant difference between **male and female** in busyness Index (BI) as Mann Whitney = 6595.000 ($p < 0.05$). This is shown below in table 4.5.

Table 4.5 Mann Whitney test for differences of gender and BI

	busyness index
Mann-Whitney U	6595.000
Wilcoxon W	10423.000
Z	-1.843-
P-Value	.065

There was no significant difference between different the **places of work** in relation to busyness index (Kruskal Wallis 0.895) – ($p > 0.05$). This is shown in table 4.6.

Table 4.6: Kruskal Wallis test for differences of place work and BI

Explanatory Variable	Value	P-Value
Place of work	.895	.639

Spearman correlation coefficient was used to analyze factors associated with busyness index and revealed that there was a very strong positive statistically significant association between BI and (**income satisfaction and net income**) ($P < 0.01$). This is shown in table 4.6.

Table 4.6: Results of Spearman Correlation Coefficient

Explanatory Variable	r	P-Value
Income satisfaction	.403**	.000
Net Income	.397**	.000

The following table summarizes the factors affecting the busyness index

Table4.7:Factors affecting the busyness index

Explanatory Variable	P-Value
Gender	.065
Place of work	.639
Income satisfaction	.000
Net Income	.000

4.4. Financial Income Satisfaction:

Financial Income satisfaction Level:

This variable was measured by asking the respondents about their range of satisfaction of financial income as a dentist. It is obvious that the financial income satisfaction level is moderate with mean 3.42 and standard deviation 0.937. This is clear in figure 4.2 below.

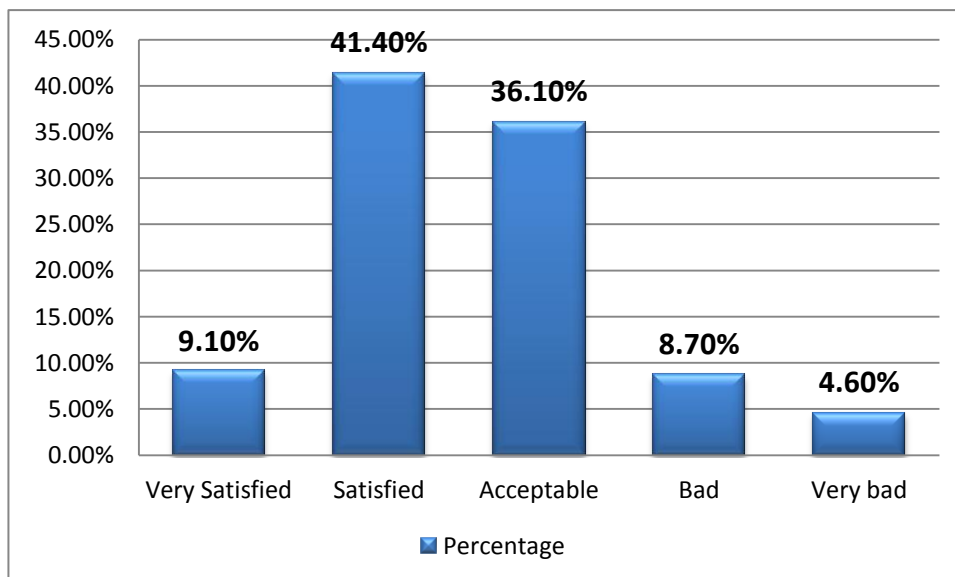


Figure 4.2: Financial Income satisfaction Level

Factors Affecting Income Satisfaction

Statistical tests of the difference in Income Satisfaction Level between males and females showed that there was a significant difference between **males and females** in satisfaction of income as Mann Whitney = 5410.000 ($p < 0.05$). This is shown in table 4.8 next page.

Table 4.8 : Mann Whitney test for gender and satisfaction of income

	Satisfaction level
Mann-Whitney U	5410.000
Wilcoxon W	9151.000
Z	-3.931-
P-Value	.000

The spearman correlation coefficient was conducted to check the association between Income Satisfaction Level and **Compliance with the Palestinian Dental Association (PDA)** price list. The analysis showed that there is a positive relationship between compliance with the PDA price list and the financial satisfaction $r = 0.169$ ($p < 0.01$).

Table 4.9:Results of Spearman Correlation Coefficient

Explanatory Variable	Test Value	P-Value
Compliance with the Dental Association price list	.169	.007

Kruskal Wallis test was conducted to check the differences of Income satisfaction level between groups in the following variable: place of work and current work status. The results show that there are a significant differences between groups in current work status with P-values < 0.01 , but there aren't a significant differences between groups in place of work, with P-values larger than the significance level ($\alpha = 0.05$). This is clear in below table 4.10.

Table 4.10: Results of Kruskal Wallis Test

Explanatory Variable	Test Value	P-Value
Place of work	.787	.675
Current work status	54.884	.000

The following table summarizes the factors affecting the level of satisfaction of the dentists to their financial income.

Table4.11: Factors affecting level of satisfaction.

Explanatory Variable	P-Value
Gender	.000
Compliance with the Dental Association price list	.007
Place of work	.675
Current work status	.000

Practicing Another Career:

This variable was measured by asking the dentists if they practice another career. The results show that 94.3% of them just working in dental field as it is obvious in the following figure 4.11.

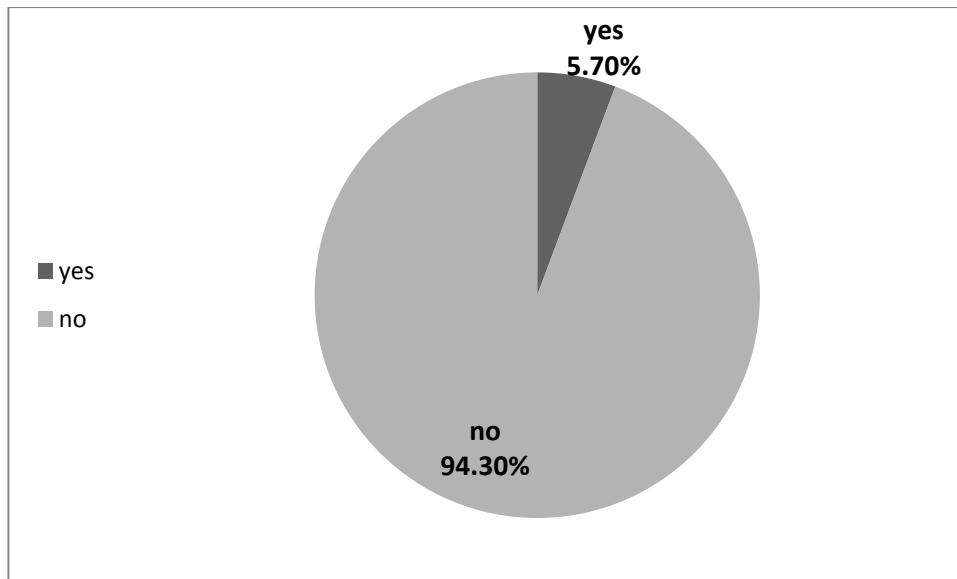


Figure 4.3: Percent of dentists practicing another career

Monthly Expenses:

The average monthly expenses of dental materials, tools, and disposables is 2013 NIS, and The average monthly Expenses for dental labs is 3132 NIS, where the average monthly fixed Expenses of the clinic (clinic rent, electricity, telephone, Internet, water, taxes, secretary salary) is 2094 NIS. This is clear in table 4.12 next page.

Table 4.12: Monthly Expenses(NIS)

Expenses	Mean	STD
Expenses of dental materials, tools and disposables.	2013	1748.56
Expenses for dental labs.	3132	2756.9
Operating Expenses of the clinic: clinic rent, electricity, telephone, Internet, water, taxes, Secretary salary.	2094	2062.80

Monthly Net Income:

The average monthly net income for dentists in Hebron district is moderate with mean 2.89 and 1.34 standard deviation. This is equal to 4800 NIS as the weighed mean. The results are clear in below table 4.13.

Table 4.13: Monthly Net Income (NIS)

Income Range	Frequency	(%)	Mean± STD
Less than 2000	32	(13.5)	2.89±1.340
2000-4000	77	(32.5)	
4001-6000	57	(24.1)	
6001-10000	39	(16.5)	
10001-15000	21	(8.9)	
More than 15000	11	(4.6)	
Total	237	(100.0)	-
Missing	27		-

The monthly net income compromises only 35% of revenues for the dentists in Hebron. The percentages of materials expenditure, fixed costs expenditures, laboratories costs, and net income are shown below in figure 4.4.

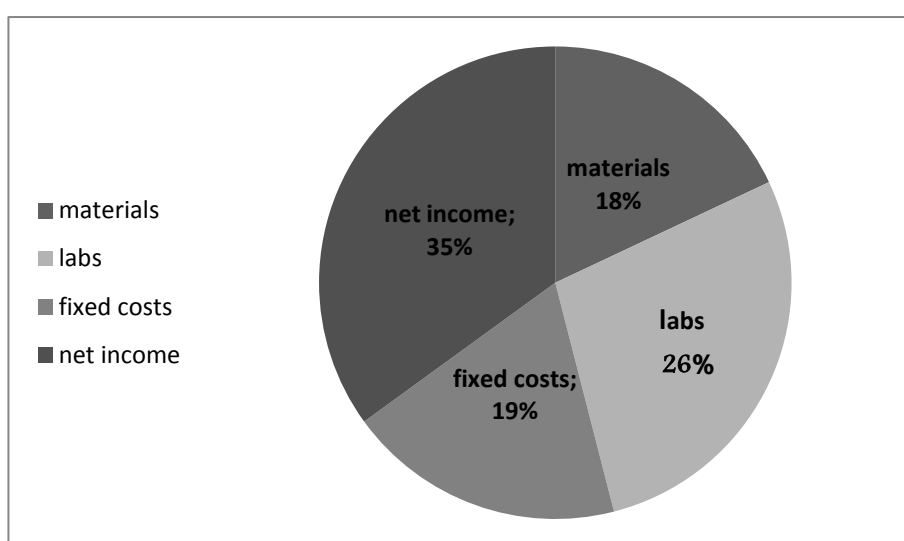


Figure 4.4 The percentages of materials expenditure, fixed costs expenditures, laboratories costs, and net income.

Additional source of financial Income:

This variable was measured by asking respondents if they have another source of financial income, and it is clear in the results that 90% of them haven't another source. This is clear in below figure 4.5.

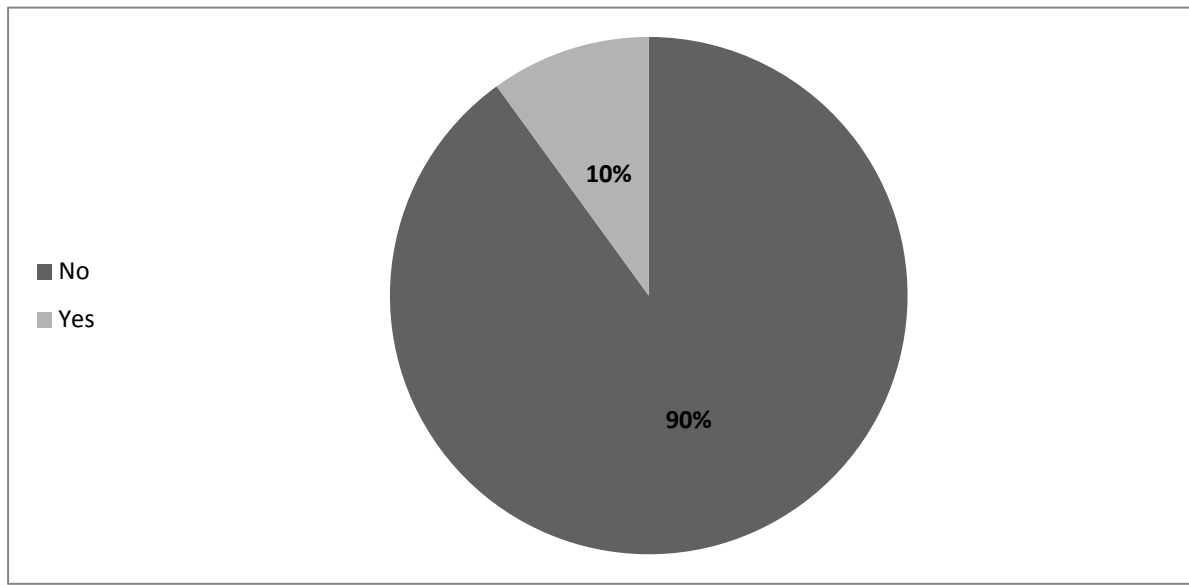


Figure 4.5: Percentage of Dentists having Additional Sources of Financial Income

The Percentages of the dental procedures of the total work in the dental clinic

The results showed that the Endodontics (RCT) procedure has the highest percentage of total work in the dental clinics (29.01%), while the dental implants procedure has the lowest percentage of total work (6.36). This is clear in figure 4.6 below.

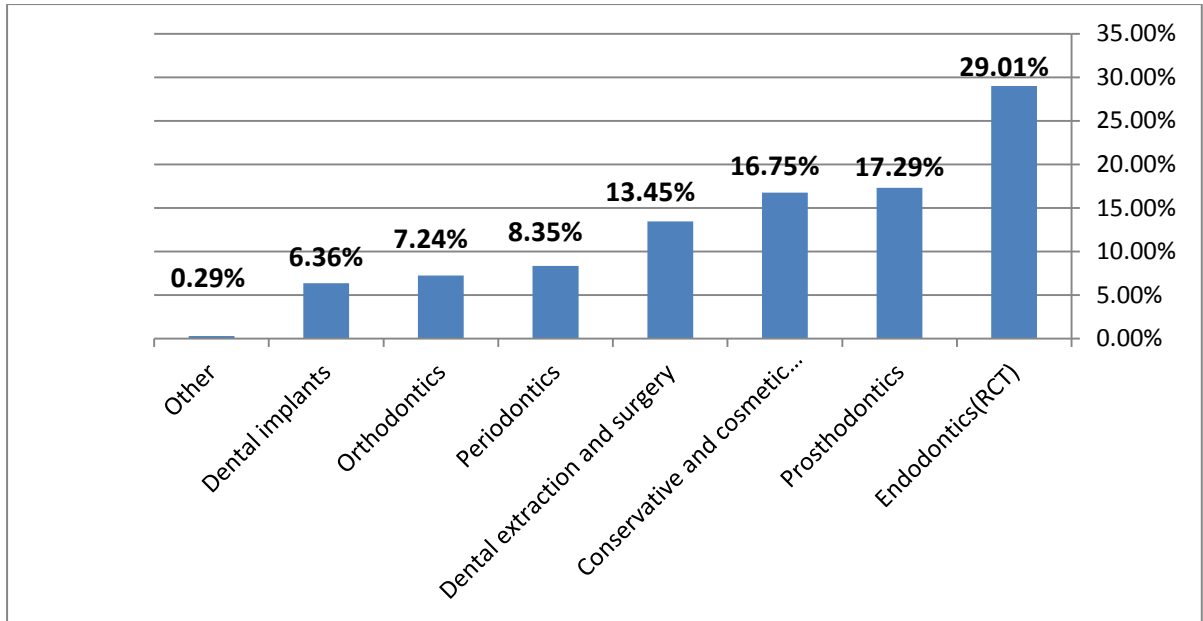


Figure 4.6: percentage of procedures in dental clinics

Compliance with the minimum price of Dental Association price list:

The compliance with the dentist himself to the minimum price of the Dental Association price list for the treatment of patients is high as the results showed with a mean 3.52. The detailed percentages are obvious in figure 4.7.

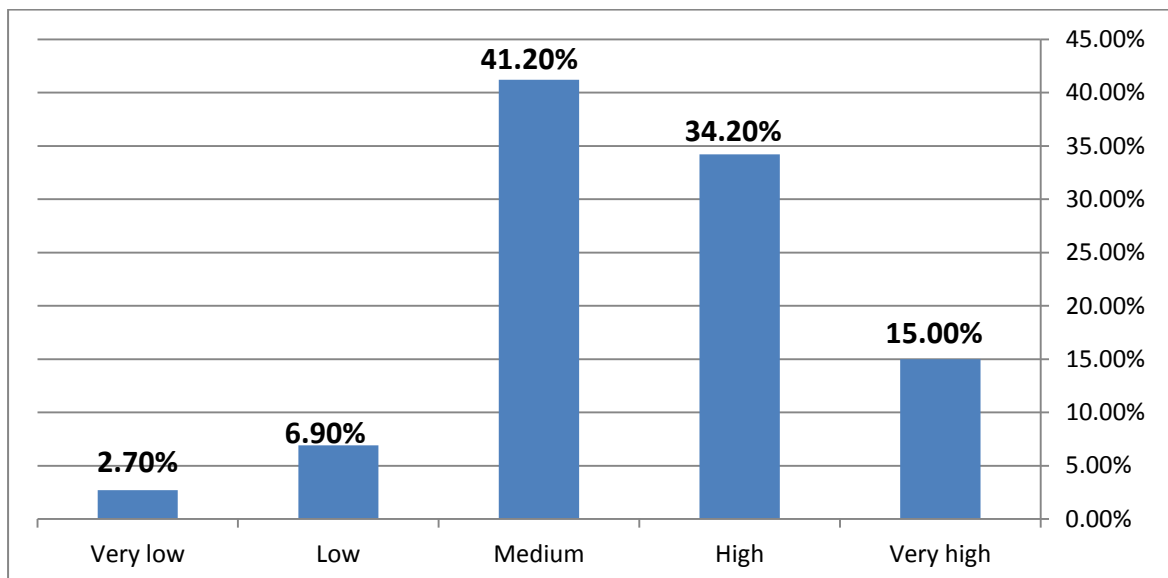


Figure 4.7: compliance of the dentist with the price list of the PDA

The perception of dentists of their colleagues' compliance with the minimum price of Dental Association list:

The perception of respondent dentists of colleague dentists' compliance with minimum price of the PDA list is low with mean 2.07; the percentages of the dentists' opinion are clear in Figure 4.8.

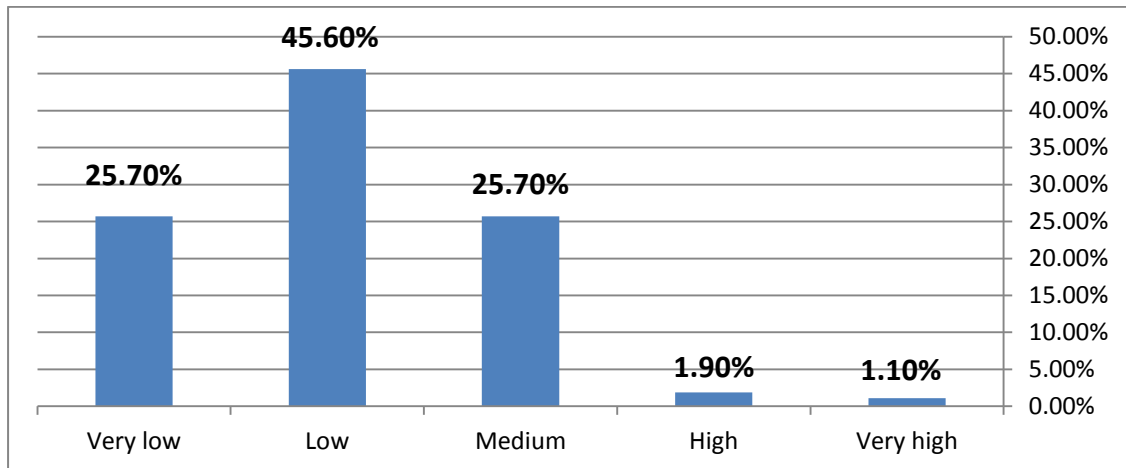


Figure 4.8: Compliance of colleagues' dentists with PDA price list.

Fairness of the price list of Palestinian Dental Association:

The Fairness of the price of the Palestinian Dental Association from dentist's perspective is moderate to high with a mean 3.46 ± 1.012 . The detailed percentages of dentist's opinion are clear in figure 4.9.

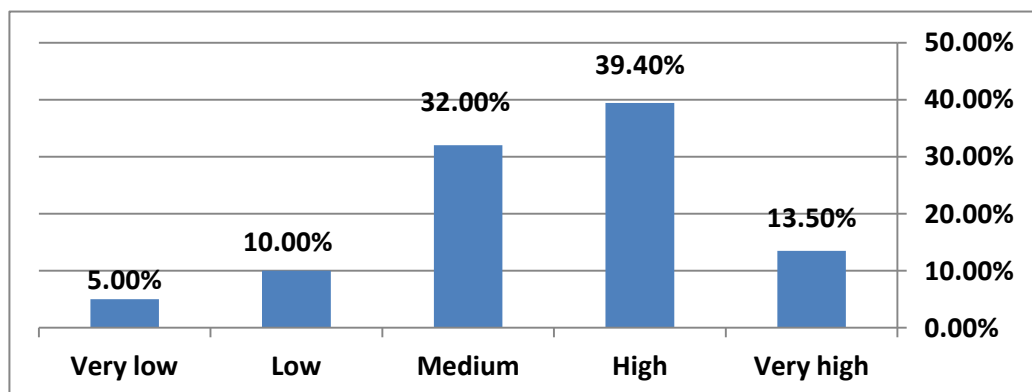


Figure 4.9: fairness of PDA price list.

4.5. Productivity and Professional development:

Attending of scientific days, conferences and training courses:

Regarding professional development the results (Table 4.14) show that the average number of days of scientific workshops and conferences a dentist attended is 7 days per year, and the average number of training courses that attended is 1.8 day yearly.

Table 4.14: Attendance of scientific days ,conferences and training courses

	Minimum	Maximum	Mean	Std. Deviation	N	Missing
Number of Scientific days / conferences	0	35	7	6.81	237	27
Number of Training courses	0	15	1.7564	1.79	234	30

The last scientific days and conferences and training courses:

The analysis showed that 52.9% of the dentists attended the last scientific workshop or conference in year 2017, where 9.8% of them in a year before 2014. Also 38.8% of the dentists attended the last training courses in year 2017, where 10.8% of them in the year of 2015, this is clear in table 4.15.

Table 4.15: Attending of the last scientific days ,conferences and training courses

	2017		2016		2015		Before 2014		N	Missin g
	N	(%)	N	(%)	N	(%)	N	(%)		
last Scientific days / conferences	135	(52.9)	73	(28.6)	22	(8.6)	25	(9.8)	255 (100)	9
Last Training courses	90	(38.8)	71	(30.6)	25	(10.8)	46	(19.8)	232 (100)	32

Availability of Resources:

The analysis showed that 65.6% of the dentists have Apex locator device and 55.8% of them have Physio dispenser device, also 55.3% of them have X-ray machine, where 39.9% of them have X-ray Sensor. This is clear as shown in table 4.16.

Table 4.16: Acquisitions of different productivity factors.

Existence	Receptionist employee	Dental assistant	X-ray machine		X-ray sensor		Apex locator		Motor Rotary		Physio dispenser device		Other	
	N (%)	N (%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
No	124 (48.1)	143 (55.6)	115	(44.7)	155	(60.1)	88	(34.4)	126	(49.2)	114	(44.2)	229	(88.4)
Yes	134 (51.9)	114 (44.4)	142	(55.3)	103	(39.9)	168	(65.6)	130	(50.8)	144	(55.8)	30	(11.6)
Total	258 (100)	257 (100)	257	(100)	258	(100)	256	(100)	256	(100)	258	(100)	259	(100)
Missing	6	7	7		6		8		8		6		5	

The majority of the dentist in Hebron district used patients' medical records (82.8%); still 17.2% didn't have medical records for their patients'. This can be seen below in table 4.16.

Table 4.17: The Existence of Patients medication documents

Existence	Frequency	(%)
No	45	(17.2)
Yes	216	(82.8)
Total	261	(100)
Missing	3	

63.1% of those who used medical records for their patients keep paper files, while 24.2% used computer based programs and 12.8% used both as seen in Figure 4.10 next page.

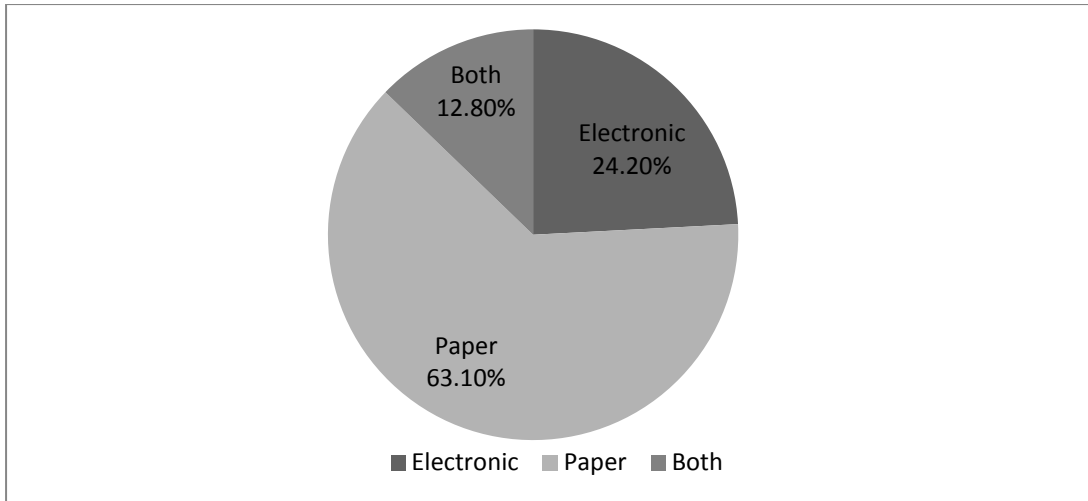


Figure 4.10: The type of patients treatment documentation

The desire to join a specialized program in dentistry:

Most of the dentists desire to join a specialty program in dentistry with percentage 72.5%. This is obvious in figure 4.11.

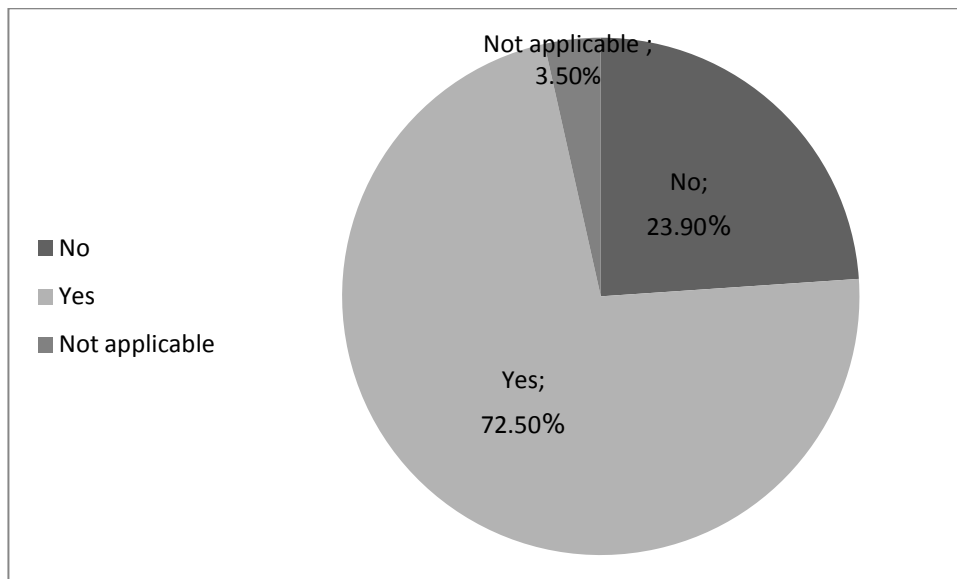


Figure 4.11: The Desire of joining a specialty program in dentistry

Perception of specialty impact on dentistry:

This variable was measured by asking respondents: "Do you think getting a specialty in dentistry increases the followings: Professional development, Treatment quality, and financial return".

As shown in the following figure 4.20, most dentists (91.6%) expect that the professional development will increase; similarly 92% of them expected that the treatment quality will increase, and 85.8% expected that the financial return will increase.

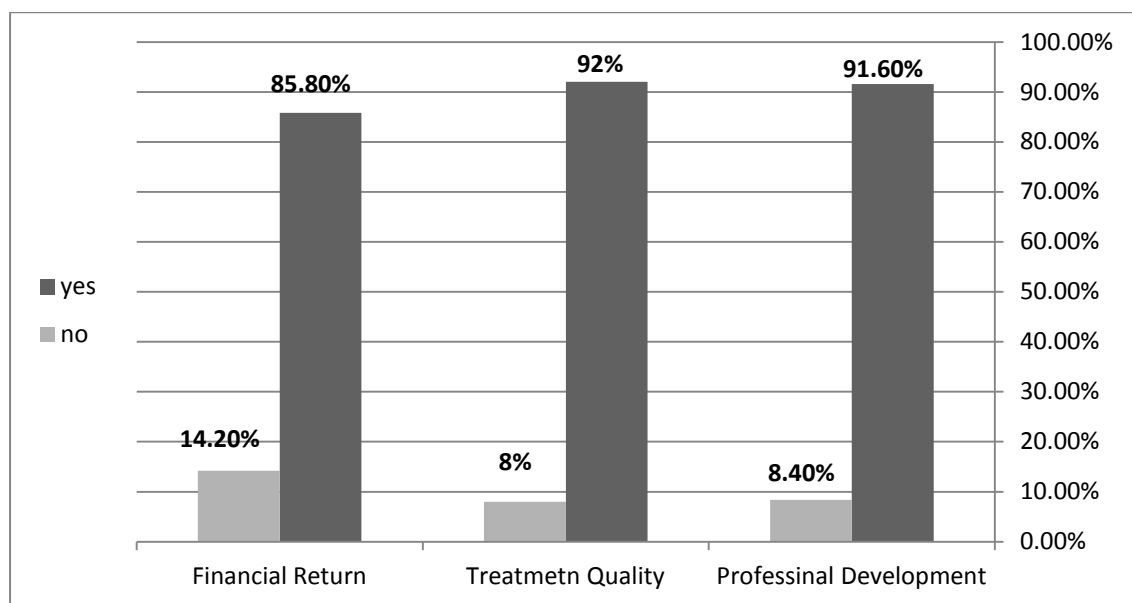


Figure 4.12: Specialty impact on dentistry profession

Market Need of Dental Specialties in Hebron District:

For the most needed specialty in Hebron district, pediatric dentistry was the most chosen branch with percentage of 65%, followed by root canal therapy with percentage 62%. Other specializations are illustrated in figure 4.13.

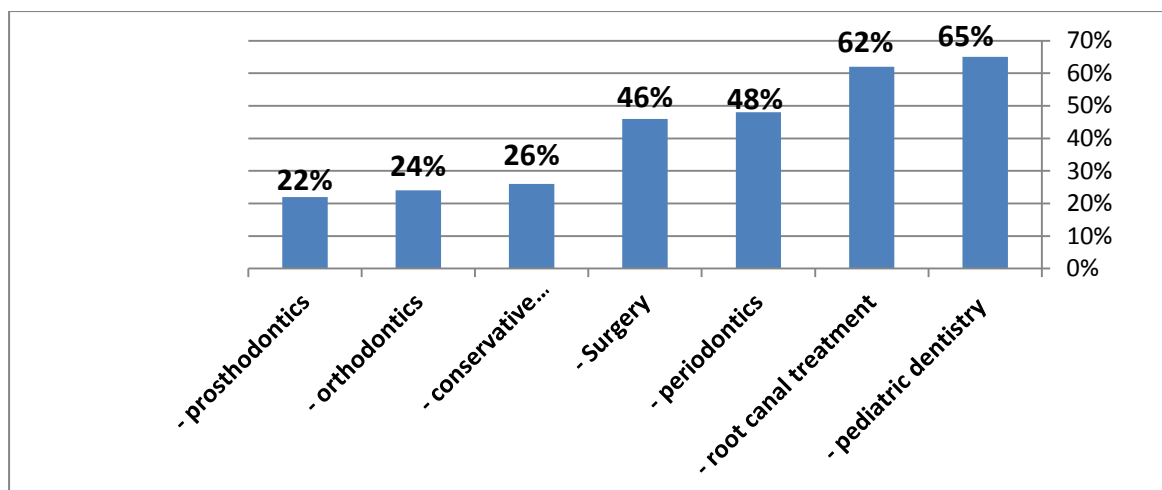


Figure 4.13: The priorities of market need for dental specialties

Competition level and market need of general dentists and specialists.

The results showed that Dentists considered the competition level between dental clinics as moderate. As for the market need of general dentists the participants clarified that it is low. On the other hand the need for specialists was moderate to high with mean equal 3.46. These results are clear in table 4.18 below.

Table 4.18: Competition level and market needs of general dentists and specialists

Statement	Mean	Std.deviation	Total	Missing
Competition Level between dental clinics.	3.43	1.055	257	7
Market need of general dentists.	1.53	.832	254	10
Market need of specialized dentists.	3.46	.930	254	10

4.6. Factors enhancing and factors decreasing the service level from the dentists' point of view:

Factors enhancing the level of provided service

As shown in figure 4.22 next page, it is obvious that the main 5 factors contribute to improving the quality of services provided by dentists to patients are addressed by the

availability of the equipment, the patient's attitude, the continuous education of dentists, the financial profits, and patients' compliance to appointments.

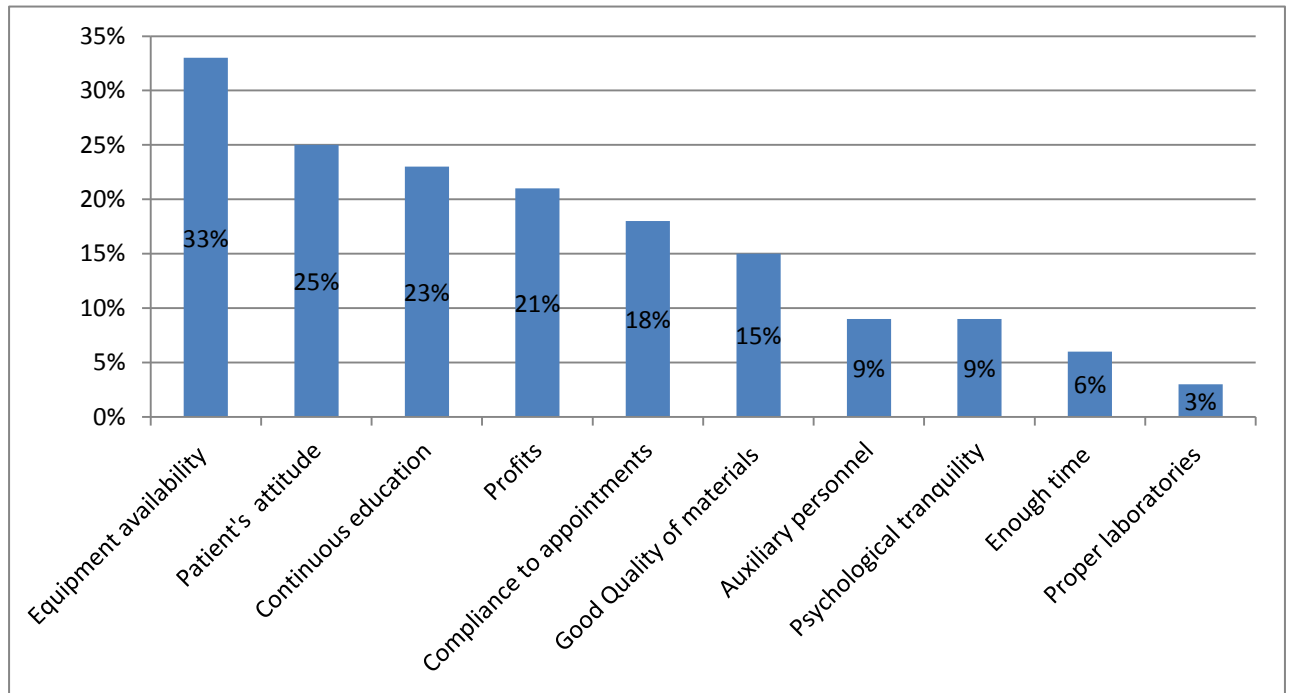


Figure 4.14: Factors enhancing the level of service provided to patients.

Factors Decreasing Quality of Service Provided to Patients

As illustrated in figure 4.23, it seems that the most three factors leading to lower level of quality of service provided by dentist to patient are negative patient attitude, poor patients financial commitment, and poor patients compliance to appointments respectively. The dentists reported that price competition among dentists also reduces the quality of service.

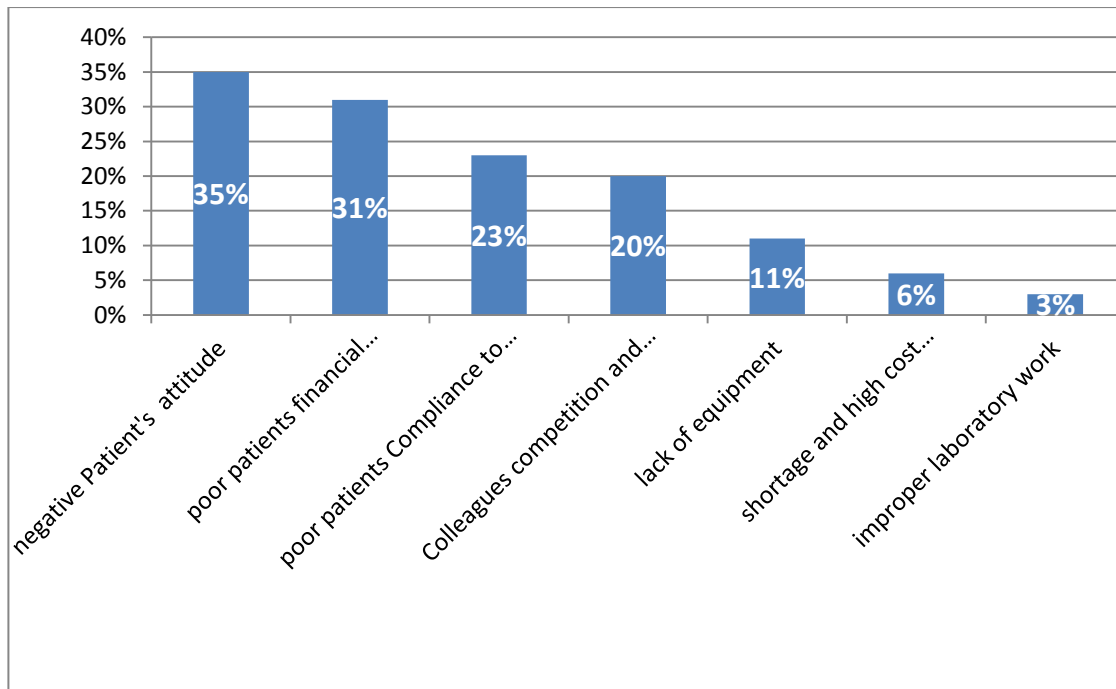


Figure 4.15. Factors decreasing the quality of dental service provided

4.7. Summary of the results

Out of 455 questionnaires distributed, 264 were returned back representing 58% response rate.

66.8% of the participants are males and the average age is 35 years. 45.9% of the dentists are working in Hebron city itself, and 37.4% are working in another city within Hebron district. 90% of dentists had only bachelor degree, 76% have work and they are stable in their workplace while 22% have work but looking for a better option. The vast majority of dentists (89%) are working in the private sector.

The average dentist in Hebron works for 8.3 hours per day, 5.9 days per week, treats 9 patients per day, and has only 10.8 days as personal vacation each year. The busyness index is 1.79 as 39.2% of the dentists aren't busy and could treat more patients, while 45.2% have enough patients and don't feel overloaded. 50% of the dentists are able to treat more than 10 patients extra to their current clients. Neither gender nor place of work

affects the busyness index. Alternatively level of satisfaction of income and busyness index are strongly related.

The level of satisfaction of income is moderate. There are statistical differences according to gender, compliance with the price list, and current status of work. Meanwhile place of work has no significant difference associated with level of satisfaction of income. The average dentist in Hebron pays each month 2013 NIS for variable materials, 3132 NIS for dental labs, and 2094 NIS as fixed costs. And earns 4800 NIS as net income.

Dentists at Hebron concern of continuing education as 52.9% of them attended a conference in 2017 and 69% have attended a training course since 2016. In addition 72.5% of the dentists express their desire to join specialty program and they feel that specialization has a positive effect on professional development, treatment quality, and financial return. Participants also identified that Pedodontics (65%), endodontics (62%), and periodontics (48%) are the most needed specialties in Hebron.

The factors that can enhance the level of provided service according to dentists participated in this study are mainly: Availability of equipment, patients' attitude, continuous education, profit, and patients' compliance to appointments. On the other hand, they think the factors decreasing the level of services are mainly: negative patient's attitude, poor financial commitment, poor patients' compliance to appointments, and colleagues' price competition.

Chapter Five

Discussion, Conclusion, and Recommendations

5.1. Introduction

In this chapter the researcher will discuss the results of the research and demonstrate the conclusions and recommendations. The discussion consist of 5 parts: demographic and personal data of dental health human resources in Hebron district, workload and busyness index, satisfaction of income, productivity and development, and factors enhancing and those decreasing quality level of provided services.

5.2. DISCUSSION

In terms of gender distribution of the dentist in Hebron, females represented the third of the participants in this survey study, which is very promising for a conservative community like Hebron. One of the reasons that may have contributed to this change is that dental faculties at local Palestinian universities had been established late 1990s which make it easier for female to peruse their education towards dentistry without the need to travel abroad which is not preferred or allowed by majority of females families. In addition, there is recent cultural shift and positive change taking place in the Palestinian community in terms of female's education. This finding matches well with the international literature as was reported by (Jennings, 2011) that 40% of new graduates are women and the study projected that 30% of United States' dentists will be women by 2020. In addition, it is important to ascertain the contributions of women to the dental workforce. There is a considerable amount of research on the positive impact on the profession as a result of the influx of women into dentistry (Adams 2005).

More than 60% of the dentists population were under 35 years old, which is relatively a young population, reflecting an increase in the dentist market flow, due to the increased number of graduates per year, which will continue to widen the gap of percentage of young dentists to older ones, this will also affect on the skills differences between the two

generations, due to the acceleration in the science of dentistry that new generation is expected to enjoy its privileges, and keeps the older generation in a critical need for upgrading and continuing education courses to bridge and narrow this gap, although older generation have the higher portion of patients because of their long experience and market share due to time practice. Continuing professional development will guarantee that the patients are getting the up-to-date practice standards. The young age of dentist also indicates lower numbers of them intending to retire in the coming years.

The well known story of maldistribution of health workers is obvious here as 46% and 37% of the dentists are working in the urban areas like Hebron city or a city in Hebron district respectively leaving only 17% working in rural areas. Hebron city forms nearly 30% of the districts inhabitants while 46% of the dentists are working there. This was clear also in Jenin as Hamdan reported that 82% of Jenin district dentists are working in Jenin city. This can be seen also in many developing and developed countries. In United States of America Northgrave found that the citizens of rural areas suffer from the uneven distribution of dentists due to the mal-misdistribution of dentists throughout the country. So rural areas find themselves facing a low dentist to patient ratio, placing many rural areas into a Dental Health Professional Shortage Area (DHPSA) (Northgrave, 2004). This maldistribution could be attributed for socioeconomical factors; still this will lead to underserved localities.

As for the educational level, it is clear that Hebron dentists' who only 9.1% of them hold a master degree and 1.1% board specialists is far behind in the number of specialists compared to general practitioners. Compared to USA, in 2009 the states had about 22% of dentists are specialists and this percentage planned to increase slowly to about 27% by 2020 (Solomon, 2009). Furthermore Hebron district without proud is lower than other Palestinian districts in numbers of specialists to dentist ratio according PDA records. This results no doubt leads to lower level of service provided to patients, and sheds light for the necessity of local postgraduate programs.

Concerning working hours per day, it seems that dentists are working slightly more than the expected 8 hours per day. This is an acceptable average of working hours internationally for the private sector. On the other hand the average number of days as

special vacations is low (11 days a year), compared to annual vacations of governmental employees or private sector labors. Moreover dentists in Hebron work more time than their colleagues in Taiwan, Lebanon, and New Zealand. The mean number of hours worked per week was 29.1 for female and 36.0 for male dentists in New Zealand (Ayers, 2008). Calculating working hours for dentists in Hebron $(8.3*5.9*52-(8.3*17.8)) = 2398.7$ working hour per year. According to a dentists' survey in 1997 which show that the annual working time of Lebanese dentists is on average 1050 hours a year (Doughan, 2003). Surely this can be referred to the attempt of the dentists in Hebron to increase their income by treating more patients or waiting for new ones.

As expected, female dentists work less hours, less days, more vacations, and see fewer patients. This is an international trend as in Taiwan, for example, female dentists tended to work 18% fewer hours per day than male dentists (Huang, 2013). Biologic and sociological characteristics may force women to interrupt their careers to have and care for children.

Ability to treat more patients shows that half of the dentists are able to treat more than 10 patients weekly in addition to their current patients; this refers to lack of busyness. The answers should be taken with caution as this could reflect the will rather than actual.

Busyness index for Hebron district is 1.79 ensures lack of busyness for working dentist in the district and coincides with the result that half of the dentists are able to treat more than 10 patients extra to their current patients. Compared to the busyness index of Jenin district in Hamdan study which was 1.59, the situation in Hebron is more favorable for the dentists. This difference is may be related to the presence of dental school in the Arab American University in Jenin as more portion of students from Jenin district joining it. This result has been emphasized also as the participants indicated the market need for general dentists is low. Keeping in mind that busyness index is related to satisfaction of income, this may explain why 288 dentists applied for 3 vacant posts in the WB for MoH in 2017.

The ideal situation for a country is to have a busyness index of 2.0 as this resembles the optimum allocation of the limited sources. Oversupply of dentists could lead to

underemployment, unemployment, or worker induced demand. Underemployment can be realized easily as discussed earlier where dentists are able to treat more patients. Unemployment could be observed as 54 dentists are travelling outside mostly for work, and 2% don't work and are looking for work. Worker induced demand or overtreatment has been documented early in literature by empirical studies like that of Evans, R.G. (1974), "Supplier-induced demand: Some empirical evidence and implications".

To have a busyness index of 2.0, this means either to have more patients demanding treatment or less dentists offering supply. Calculating the optimum number of dentists for Hebron district to make the busyness index 2.0 reveals that 407 dentists are enough. This means that there are 48 extra dentists now.

The fact that there is significant unused capacity within the dental care system and that the most important barriers to dental care are financial issue, leads to an important policy implication. In the current situation, adding additional dental care providers to the market is unlikely to address the most critical issues concerning access to dental care (Vujicic, 2015).

The increase of numbers of dentists unnecessarily will lead to improvement of dental health status as there is compelling evidence to show that the main barriers to dental care are overwhelmingly financial and are not related to the availability of providers. For example, results of a new study show that cost and low perceived need are by far the top reasons adults avoid going to the dentist (Yarbrough, 2014).

Satisfaction of income is a major factor for encouraging students' enrolment in dental schools. The results show that dentist have a high moderate level of satisfaction. This result could be referred to psychological reasons of accepting the status and reflecting self satisfaction. Satisfaction is also could be related to other factors such as having siblings joining the profession, since many dental students are sons or brother of dentists.

Although most dental practices are mainly private and female patients are more than males, but female dentists are less satisfied with their income. This could be as a result as

they work less time, and many female dentists work in clinics and centers they do not own which affect negatively on their income.

Dentists who do not comply with the PDA price list were less satisfied with their financial income. It is doubtless that the vigorous competition between dentists has driven some to lower the prices they charge, that will jeopardize the quality of provided treatment and leads to lower satisfaction of the income. Surely the satisfaction of income is directly related to current status of work, as those less satisfied will be looking for a better chance, while stable dentists are most satisfied with their income. Place of work has no effect on the satisfaction of income, so dentists working in rural areas are satisfied as well as their colleagues working in urban areas, this result will encourage new dentists not to hesitate to start their professional life in rural areas.

The dentists classified themselves as complied with the price list of PDA when the question was for the dentist himself, but reported the compliance as low when the question was about other colleagues. This phenomenon can be interpreted psychologically as the health worker tries to explain the scarcity of clients for economical reasons. This result accompanied with that the dentists considered the price list of PDA is fair, makes no excuse for the dentists not to comply to the price list.

The vast majority of dentists are devoting themselves for dental occupation since 90% of them don't have any other source of income apart from their dental practice income. This result shows that once a dentist is graduated he has no other choice to work something else. The long study and training period in addition to the financial costs make it necessary for careful planning for the numbers of dental graduates.

The results of monthly expenses showed a high ratio of expenses to the net income making the net income only 35% compared to 40 % present in (Anka, 2014) study. This variation shows that dentists in Hebron are paying more for fixed and variable costs especially labs, so getting less in comparison to their counterparts in other countries.

To make sense of the average net income of dentists in Hebron district it should be compared to the monthly household expenditure. The monthly household expenditure in

the Palestinian Territory (average household consisting of 6.0 persons) was between January 2010 and January 2011 JD 886.9 according to PCBS. The average net income of the dentists is close to the third category which is nearly equal to the average monthly household expenditure. Taking in consideration the time interval between the 2 studies and the rise in the overall consumer's price index in Palestine, it seems clearly that Hebron dentists are not that fortunate compared to the public. .

Endodontics (Root Canal Therapy) is the main procedure done in the dental clinics (29%), as many of patients step to dental clinic just to remove the pain. Conservative treatment should extend instead RCT and prosthodontics. Nowhere the proverb "An ounce of prevention is worth a pound of cure" works better than in the dental field. Campaigns for patients' education surely will help to make this shift. Though dental implants is the least procedure done in the clinics according to the results (6%), this branch is one of the most proliferating in the future of dentistry.

The results showed clearly the attention of Hebron district dentists to attend scientific days and conferences. This Corresponds with results that continuous education is one of the major factors that elevate the quality of service provided to patients. Attendance to training courses is less and this could be attributed to less availability of those courses.

Continuous education program is not present in MoH. PDA has developed such a program in 2011 but no longer activated afterward. The motivation for dentists for attending those conferences and courses is the competition between dental clinics, the tremendous development of equipments, materials and techniques of treatment. The widespread of social media also takes part as it enables both the patient and dentist to be aware of the latest developments in the field.

The positive perception of dentists about the effect of specialization on professional development, treatment quality, and financial return besides the desire for 72.5% of dentists to join specialty program manifest the need for specialization programs in local universities. These results go together with the evaluation of the participants for the need of specialized dentists as high moderate. On the other hand, the local universities provide limited opportunities for specialization. For instance, American University of Jenin has 2

programs for dental higher education, orthodontics and dental implantology but with limited number of seats. Alquds University doesn't have any postgraduate program.

Dentists in Hebron District acquire several resources of auxiliary personnel and equipment that increases their productivity and they are aware of effect of equipment availability on the level of treatment provided. The financial cost of equipment is the obstacle for most of the dentists to acquire them. In comparison for the availability of X ray machines between Jenin and Hebron, 55% of Hebron dentists had x ray while 51% of Jenin dentists had one. This little difference can be due to time interval between the 2 studies as Jenin study was done 2011.

Though 82.7% of the dentists uses medical documentation for their patients, still 17.2% don't use any documentation method for procedures done for the patients. This percentage is non negligible and should be followed up and special procedures should be implemented to reduce it. The lack proper medical documentation could jeopardize the patient safety and dentist defensibility.

The market need for specialists indicates that pedodontics is the first specialty needed. This result can be expected as there isn't any accredited pedodontist in the district, besides the lack of willingness for the dentist to treat children. Endodontics comes second, though it is the main procedure done in the dental clinics, challenging cases led the participants to choose endodontics. Periodontics as there is any specialist in the district is the third.

Availability of proper equipment is the main factor enabling the dentist to provide higher quality of service to patients. It is true that a bad workman blames his tools but a good worker knows how to choose his tools. The introduction of more sophisticated dental equipment allowing for faster performance of tasks which directly affects productivity of dentist and quality of treatment provided. The Australian Dental Association report on productivity considered technological progress is the primary driver of productivity growth (Australian Dental Association 2013). The Digital radiography can be used by dentists to have X-ray equipment available to them chair side, which can quickly produce highly readable X-rays that can be stored digitally and transferred easily. Modern Rotary Endodontic instrumentation with electronically controlled force and rotation speed has

made endodontic procedures much more productive in terms of time. This is remarkably distinguishing when to remember that endodontics is the main procedure done in dental clinics. The difficulty to acquire those equipments is mainly the financial constraints, especially for newly graduated dentists where they hardly can get the basic equipments.

Dentists believed that good patients' attitude is the second factor helping the dentists to lever the level of quality provided. Continuing education comes in the third place for the factors elevating the quality of service provided; this also coincides with the desire of 72.5% of dentists for higher education and their good perception about the effect of specialization on quality of treatment, professional development, and financial return.

Profits come in the fourth place, not the first but not the last. It is doubtless that the financial return is the major motivation for work; still the results showed that dentists take in consideration non financial factors such as patients' attitude more than profit making.

Patients' compliance to appointments also enables the dentists to offer high quality of dental care. Dental procedures are lengthy, so appointments system is mandatory to make use of clinic time. Enough time was also mentioned in less percentage and could be added to this item. Poor compliance will affect time devoted to patients and surely will affect the quality of treatment.

Concerning the hindering factors, it seems from figure 4.20 that dentists attributed these factors to patients as most common factors decreasing the quality of provided services, patients knew in advance that they can pay less. They learned that from previous experiences as they could pay less than the prices list. Dentists also mentioned, but with less importance, other hindering factors that related to equipment; such as shortage of or their high cost. Negative patients' attitude has been reported as non compliance to oral hygiene instructions, lack of awareness of the value of the oral health, and poor cooperation of the patient during treatment.

Looking at those results will make it difficult for dentists to contribute to the improvement of quality of service provided. Taken in consideration that the major factors reported were external factors associated with patients which can only be improved

through awareness campaigns targeting patients and their families. Another issue related to patients also that a policy should be set towards decreasing the poor patients' compliance of payment where prepayment policy could be suggested to decrease this phenomenon that is directly associated with less satisfaction of dentist which will lead to lower quality of service.

Dentist also reported clearly that doctors' competition in term of prices is decreasing the quality of service. From the researcher point of view competition between colleagues will lead to decrease in prices until it reaches a point where the dentist becomes in a position to choose cheap low quality materials, this in turn will directly affect the effectiveness of treatment and quality of service. It is also the researcher point of view that a strict price policy or regulation will guarantee both the quality of service and the financial benefit to the dentist, this will enable dentists not to compromise the quality of his service, the time he gives to his patients, or the used material.

If these hindering factors not properly resolved there will be a decrease in dentists satisfactions on different levels and a deterioration of the dentistry profession which will affect on patients health and well being that represents the essence of sole dentistry profession. Improving dentists satisfaction will motivate them to be involved in continuing education activities to improve their quality of service as it will be the main criteria for patients to choose their dentists and this will increase the status of the profession and the patients well being. Quality competition is the most honorable and favorable between colleagues; it is a safe belt for elevating the professional threshold line.

5.3. CONCLUSIONS

In conclusion, this study describes the status of dental health human resources in Hebron district. Describing the status is the cornerstone of planning for the dental workforce. The results showed that although males are dominant, increasing numbers of female dentists are joining the profession. The Majority of dentists (two thirds) are young making excellent potential for future educational investments. Dentists mostly are concentrated in urban areas and the vast majority is working in the private sector.

Our dentists are working slightly more than the average hours of work per day and 6 days per week, having less weekly and annual vacations compared to other countries. Half of the dentists are able to treat more than 10 patients extra to the current patients each week and 40% of dentists at Hebron have low score (1.79) in the busyness scale index which indicates there is an oversupply of general practitioner dentists in Hebron district. This result was emphasized also as the participants considered the market need for general dentists is low. Neither gender nor place of work had effect on the busyness scale of dentists.

There was a good satisfaction level among the dentist for their dental income, higher among those who are stable in their work, males, and those complied with PDA price list.

Majority of the dentists have the desire for higher education in their specialty as they have good perception effect of specialty on financial income, professional development, and quality of treatment. Dentists are doing their best to keep up with latest developments by attending training courses and scientific conferences. Dentists also acquire different resources that assist them to increase their productivity. Pedodontics, root canal therapy, and periodontics are the main specialties needed in the market.

Availability of equipments, patients' attitude, and continuous education are the main factors promoting the level of service, while negative patients' attitude, poor patients' financial compliance, and poor patients' compliance to appointments are the major obstacles that decrease the quality of dental services provided to patients in the district.

5.4. The Strengths and weaknesses of the study

The strengths of the study:

1. This is the first research targeting this subject in Hebron district up to the researcher knowledge.
2. The research targeted all the dentists in the district making the response rate higher than any sample size.
3. The results can be generalized to other districts in Palestine.
4. The method applied can be used in other health-care sectors.

The Weaknesses and limitations of the study:

1. Limited time and resources for the researcher.
2. The approach used (busyness index). As it produces a status quo projection and assumes that increases in demand should create increased supply.
3. Lack of cooperation of some participants especially filling out the financial part in the questionnaire.

5.5. RECOMMENDATIONS

Recommendations for decision makers:

1. There is a need for coordination between MoH, PDA, universities, Ministry of finance and planning for providing direction on controlling the numbers of dental students.
2. National discussion should be held between MoH, PDA and insurance companies to expand the coverage of specific dental services.
3. Programs for educating and training auxiliary personnel should be considered by local universities and educational centers.
4. Procedures should be implemented to ensure proper documentation of medical records for the patients in the dental clinics.

Recommendations for PDA:

1. Campaigns for increasing the awareness of population for their oral health and the benefits of regular checkups and effectiveness of preventive measures.
2. PDA and Universities should take the initiative and start up masters and specialization programs that will feed the local market with specialized high quality dental service in Palestine special with the fact of oversaturated market of dentists.
3. The continuous education program adopted by the PDA should be developed and activated. Licensing the clinics by MoH should be conditional on compliance to this program.

Recommendations for dentists:

- 1.To encourage new dentist to start their work in rural areas that will make the service more accessible and affordable for marginalized rural communities.
- 2.Dentists should comply with the price list of PDA as it protects their rights, increase their satisfaction of their income, and shift the financial competition into quality competition.
- 3.Dentist should be encouraged to acquire modern equipments and financial solutions should be developed to help them purchasing those equipments.

5.6. Areas for future research

1. Assessment the supply and demand of dentists in Palestine as a whole.
2. Comparative study between approaches to estimate the required number of dentists in an area.
3. The growing role of female dentists in Palestine.
4. The musculoskeletal effect of long time working on dentist.
5. Future studies should take in consideration the patients opinions about the dental service they receive.
6. Factors affecting the patients' decision for choosing their dentist.
7. Further studies exploring the status of other dental personnel, lab technicians, dental assistants, and dental hygienists would be beneficial.

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رام الله - فلسطين.. الجهاز المركزي للإحصاء الفلسطيني، وزارة الصحة الفلسطينية، ٢٠١٥. الحسابات الصحية الفلسطينية ٢٠١٣

نقابة أطباء الاسنان الفلسطينية. أجنحة العام ٢٠١٦. القدس. فلسطين.

Appendices

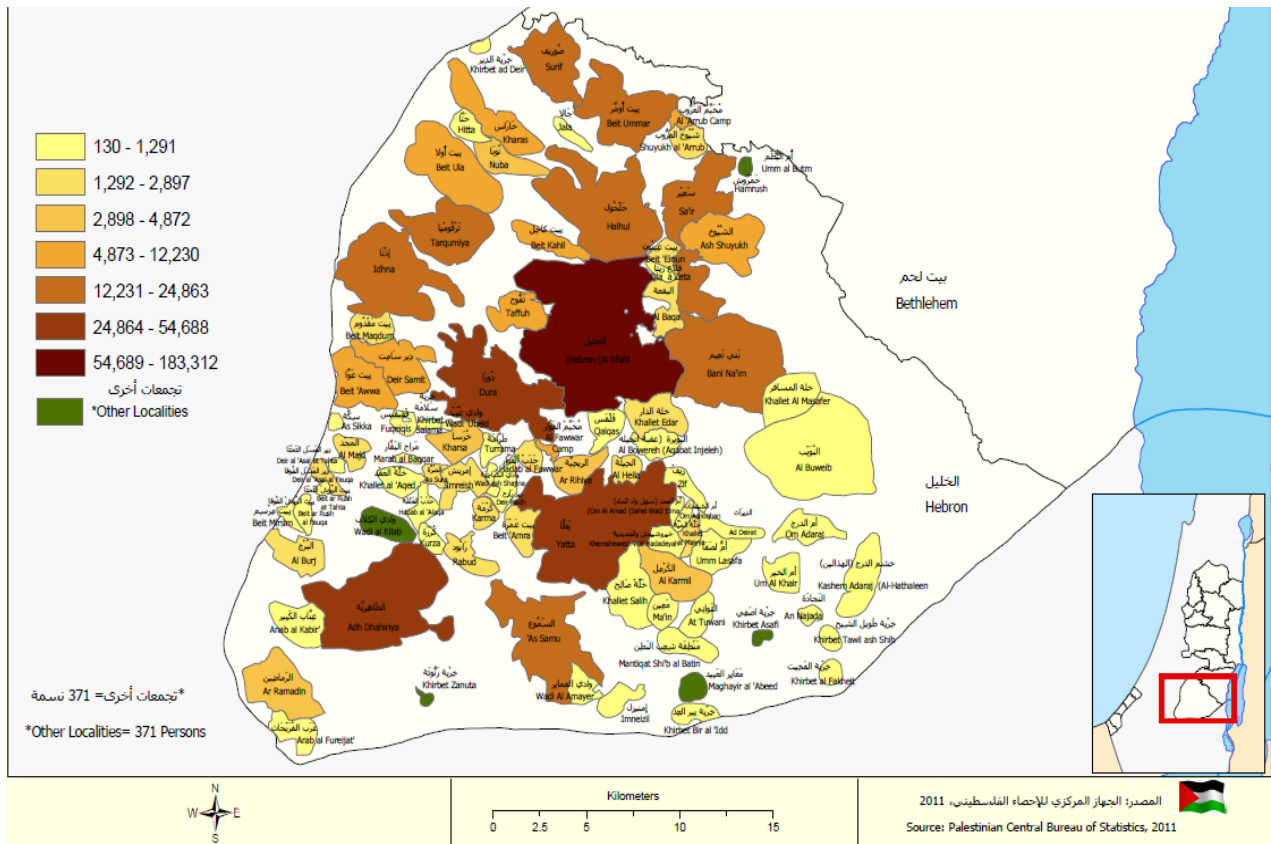
Appendix(1).The strengths and limitations of health workforce planning models.

#	Type of model	Strengths	Limitations
1	Health Needs Model	<ol style="list-style-type: none"> 1.logical and easy to understand 2.consistent with professional ethics 3. Has the potential of addressing the health needs of the population using a mix of human resources for health. 4.useful in a health programme where the health problems and the health services needed are clearly demarcated 	<ol style="list-style-type: none"> 1.requires a high level of skills and knowledge of the health care workers 2.Ignores the question of efficiency in allocation of resources among other sectors e.g. school teachers, primary health workers 3.ignore the perceived needs of the population and other impacts of healthy population 4.ignores the reality of economic demand 5.difficulty of converting the dental health status measurement into treatment needs 6. does not take into account evidence-based dentistry and use of outdated approaches by health professionals 7.Is likely to project unattainable service and staff targets
2	Health Demands Model / Utilization technique	<ol style="list-style-type: none"> 1. provides a comprehensive view of the dynamics of health services utilization 2. avoid the risk of setting excessively expensive or unrealistic objectives 3. captures more of the reality of the dental marketplace 	<ol style="list-style-type: none"> 1. relies heavily on utilization rates and assumes that increases in demand should create increased supply 2 fail to understand that there are some populations who are in need but could not demand for it. 3. it violates severe fundamental assumptions of a perfectly competitive market 4. does not take into account financial or economy factors 5.Produces a status quo projection, since future population segments are assumed to have a similar utilization rates as base year segments
3	Service Targets Method	<ol style="list-style-type: none"> 1.breaks down the activity and components of health services which facilitates estimation of demand 2.easy to put into practice 3.allows assessment of interaction between variables 4.places the importance of productivity 5.simplifies cost estimates 6. active approach towards improving 	<ol style="list-style-type: none"> 1.it allows the planner discretion in departing from extrapolations of past experience 2.errors of judgment could be made on productivity rate and capacity to deliver

#	Type of model	Strengths	Limitations
		the health services	
4	The Manpower to Population Ratio	<ol style="list-style-type: none"> 1. cheap, quick, easy to apply and to understand/interpret, and requires little information 2. Allows comparison be made between different continents. 	<ol style="list-style-type: none"> 1. does not consider how demand and supply forces interact 2. assumes that the demand of each people is the same 3. fails to recognize and address the different levels of disease in different age cohorts 4. ignores the various categories of oral health auxiliaries 5 imply that wages, prices and other costs need not be considered in the calculation.
5	The Econometric Model	<ol style="list-style-type: none"> 1. scientific and objective approach 2. solid theoretical base, cost-conscious and can be subjected to testing and analysis 3. could gain review from health economists 	<ol style="list-style-type: none"> 1. data required are either nonexistent or inadequate 2. health economic system may not behave in a traditional manner as presumed by the economists 3. ignores the role of other supporting health workers 4. does not sufficiently consider population health needs, budget pressures, political/ socio/ economic factors, the influence of the changing health system and the impact of outcomes
6	The WHO/FDI JWG6 model	<ol style="list-style-type: none"> 1. enables the user to forecast requirements, by age cohort and by type of care, while at the same time including socio-economic variables 2. flexible and adaptable 	<ol style="list-style-type: none"> 1. neglects cohort and period effects 2. neglects aspects of demand and provide overly simplistic answers to complex questions 3. ignores the role of other supporting health workers 4. ignores socio-economic factors that could modify the behaviour and the practice of dentists

(Abdul Murat, 2012)

Appendix(2) Localities of Hebron District.



Appendix (3) Arabic Survey Questionnaire



جامعة الخليل – كلية الدراسات العليا

عزيزي الزميل طبيب الأسنان

يقوم الباحث بإعداد دراسة حول واقع الموارد البشرية العاملة في طب الأسنان في محافظة الخليل

أعد هذا الاستبيان كجزء من دراسة للحصول على درجة الماجستير في إدارة الأعمال. ولقد تم اختياركم لتكونوا ضمن عينة الدراسة. لذا نضع بين أيديكم هذه الاستبانة راجين تقديم المساعدة، وذلك بالإجابة عن فقرات الاستبانة بدقة وموضوعية لما له اثر كبير في الحصول على نتائج دقيقة. علما بان كل ما يرد في إجاباتكم سيكون موضع احترام، وسوف يعامل بسرية تامة، ولن يستخدم إلا لأغراض البحث العلمي فقط. وعليه لا داعي لكتابة الاسم أو أي معلومات تدل على شخصكم الكريم.

إن فريق البحث على استعداد بتزويدكم بنتائج هذه الدراسة في حالة الطلب

ومع الشكر الجزيل لتعاونكم.

لمزيد من الاستفسار يمكنكم الاتصال على: ٠٢٢٢٥٧٥٦٥ او ٠٥٩٩٢٩٦٤٦٤

او المراسلة عبر البريد الالكتروني: hamouri74@gmail.com

الباحث: دكتور امجد محمد امين الحموري

وذلك تحت إشراف الدكتور: حسين الجبارين

القسم الاول: بيانات ديموغرافية

١. العمر: سنة

٢. الجنس: ذكر انثى

٣. مكان العمل (اسم المدينة، القرية، المخيم):

٤. بلد الدراسة:

٥. سنة التخرج:

٦. التحصيل العلمي:

بكالوريوس طب اسنان

بكالوريوس طب اسنان + بورد متخصص في طب الاسنان، اذكر التخصص:

غير ذلك ، اذكره

٧. عدد السنوات التي أمضيتها في مزاولة مهنة طب الأسنان: سنة

٨. الوضع المهني الحالي: أعمل و مستقر في عملي

أعمل و أبحث عن فرصة افضل

أبحث عن عمل

٩. طبيعة العمل الحالي: (يمكن اختيار اكثر من اجابة)

وظيفة رسمية

وزارة الصحة الفلسطينية

الخدمات الطبية العسكرية

وكالة غوث اللاجئين

مؤسسة / جمعية غير حكومية

جامعة اكااديمية

عيادة /مركز خاص

أعمل في عيادتي / مركزي الخاص

أعمل في عيادة / مركز خاص أملكها بالمشاركة مع زميل/ زملاء اخرين

أعمل في عيادة / مركز خاص يملكها زميل اخر

غيره / حدد:

القسم الثاني: عبء العمل

١٠. هل تعمل ضمن نظام تحديد موعد مسبق لمعالجة المرضى؟
 نادرا قليلا غالبا أحيانا دائما
١١. معدل ساعات عملك في اليوم الواحد: ساعة
١٢. معدل عدد أيام عملك الأسبوعية: أيام
١٣. معدل عدد المرضى الذين تعالجهم في اليوم الواحد: مريض
١٤. معدل عدد أيام العطل السنوية عدا نهاية الأسبوع والأعياد (إجازات خاصة): يوم.
١٥. معدل طول فترة الانتظار التي يقضيها المريض في العيادة قبل الدخول للمعالجة: دقيقة
١٦. معدل عدد المرضى الذين تستطيع معالجتهم أسبوعيا زيادة على المرضى الذين تعالجهم حاليا؟
 أقل من ٥
 من ٥-٩
 من ١٠-١٤
 من ١٥-١٩
 من ٢٠-٢٤
 ٢٥ فأكثر
١٧. ما هي درجة انشغالك كطبيب أسنان؟
 غير مشغول واستطيع معالجة المزيد من المرضى
 لدي كفايتي من المرضى و عدد المرضى ينسجم مع قدرتي الاستيعابية
 أعالج جميع المرضى الذين يحضرون ولكن ذلك أعلى من قدرتي الاستيعابية
 مشغول جدا ولا استطيع معالجة المزيد من المرضى
١٨. ساعات عملك بشكل أساسي
 الفترة الصباحية
 الفترة المسائية
 الفترة الصباحية والفترة المسائية

القسم الثالث: الرضا عن الدخل المادي

١٩. ما هو مدى رضاك عن دخلك من مهنة طب الأسنان؟
 راضي جدا راضي مقبول سيء سيء جدا
٢٠. هل تمارس عملا آخر غير مهنة طب الأسنان؟
 نعم لا
٢١. معدل المبلغ الشهري المدفوع في العيادة على مواد الأسنان والأدوات ومواد الاستعمال لمرة واحدة:
شيكل.....
٢٢. معدل المبلغ الشهري الذي تدفعه لمختبرات الأسنان:..... شيكل
٢٣. معدل المصروفات الأخرى التي تدفعها شهريا على النفقات التشغيلية للعيادة؟
مثل: إيجار العيادة، الكهرباء، هاتف، انترنت، الماء، ضرائب، راتب سكرتيرة:..... شيكل.
٢٤. معدل الدخل الصافي لعملك في طب الأسنان في الشهر الواحد:
 أقل من ٢٠٠٠ شيكل ٢٠٠٠ - ٤٠٠٠ شيكل ٤٠٠٠ - ٦٠٠٠ شيكل
 ٦٠٠٠ - ١٠٠٠٠ شيكل ١٠٠٠٠ - ١٥٠٠٠ شيكل أكثر من (١٥٠٠٠) شيكل
٢٥. هل لديك مصادر دخل أخرى إضافة إلى عمالك كطبيب أسنان؟
 لا نعم، حدده إذا رغبت:..... شيكل
٢٦. كم تشكل العلاجات التالية من النسبة المئوية (١٠٠%) لعملك في عيادة طب الأسنان؟
- | | |
|---------------------------|---------|
| علاج اللثة: | % |
| العلاج التحفظي والتجميلي: | % |
| علاج العصب: | % |
| قطع الأسنان والجراحة: | % |
| التركيبات السنية: | % |
| زراعة الأسنان: | % |
| تقويم الأسنان: | % |
| غيره، حدد: | % |
| المجموع: | % ١٠٠ |

٢٧. ما هي درجة التزامك بالحد الأدنى لتسعيرة نقابة أطباء الأسنان لعلاج المرضى؟
 عالية جدا عالية متوسطة متدنية متدنية جدا

٢٨. برأيك ما هي نسبة التزام عامة أطباء الأسنان بالحد الأدنى لتسعيرة نقابة أطباء الأسنان لعلاج المرضى؟
 عالية جدا عالية متوسطة متدنية متدنية جدا

٢٩. هل تعتقد ان تسعيرة نقابة أطباء الأسنان لعلاج المرضى منصفة للطبيب؟
 منصفة جدا منصفة متوسطة متدنية متدنية جدا

٣٠. بعد كم سنة من الآن تنوي التوقف عن ممارسة مهنة طب الأسنان؟.....سنة

القسم الرابع: الإنتاجية و التطور

٣١. معدل عدد الأيام العلمية او المؤتمرات العلمية التي تحضرها في العام الواحد:

٣٢. متى كان آخر مؤتمر علمي أو يوم علمي حضرته؟
 ٢٠١٧ ٢٠١٦ ٢٠١٥ ٢٠١٤ فما دون

٣٣. معدل عدد دورات التدريب العملي التي تحضرها في العام الواحد:

٣٤. متى كانت آخر دورة تدريب عملية حضرتها؟
 ٢٠١٧ ٢٠١٦ ٢٠١٥ ٢٠١٤ فما دون

ب) مجال هذه الدورة

٣٥. هل يوجد لديك في العيادة أي من المصادر التالية:

<input type="checkbox"/> لا	<input type="checkbox"/> نعم	Reception employee	- موظفة استقبال
<input type="checkbox"/> لا	<input type="checkbox"/> نعم	Dental assistant	- مساعدة طبيب
<input type="checkbox"/> لا	<input type="checkbox"/> نعم	X-ray machine	- جهاز اشعة
<input type="checkbox"/> لا	<input type="checkbox"/> نعم	X-ray sensor	- جهاز سنسور
<input type="checkbox"/> لا	<input type="checkbox"/> نعم	Apex locator	- ابكس لوكتور
<input type="checkbox"/> لا	<input type="checkbox"/> نعم	Rotatry motor	- جهاز روتري
<input type="checkbox"/> لا	<input type="checkbox"/> نعم	Physiodispenser	- جهاز زراعة
		- غيره/ حث:

٣٦. ما هو عدد كراسي العلاج في العيادة التي تعمل بها:

٣٧. هل تحتفظ بملفات خاصة لمعالجات المرضى؟ لا نعم ، حدده: الكتروني ورقي

٣٨. هل لديك الرغبة للانضمام في برنامج اختصاص في طب الاسنان؟

لا ينطبق لا نعم

التخصص

٣٩. هل تعتقد ان الحصول على تخصص في طب الاسنان يزيد من:

- التطور المهني نعم لا

- جودة العلاج نعم لا

- العائد المادي نعم لا

٤٠. ما هي تخصصات طب الأسنان التي تحتاجها محافظة الخليل، مرتبة حسب الأهمية؟
(جراحة، تقويم، علاج عصب ، طب أسنان الأطفال ، علاج تحفظي ، تركيبات ، لثة)

(١).....

(٢).....

(٣).....

الرجاء الاجابة على العبارات التالية بما تراه مناسباً

رقم	العبرة	متدني جدا	متدني	متوسط	عالي	عالي جدا
٤١	مدى مستوى التنافس بين عيادات الأسنان					
٤٢	مدى حاجة سوق العمل إلى مزيد من أطباء الأسنان العامين					
٤٣	مدى حاجة سوق العمل إلى مزيد من أطباء الأسنان المختصين					
٤٤	مدى شعورك بالعزلة المهنية (عدم وجود تواصل وتفاعل مع الزملاء) نتيجة عملك في عيادة طب الأسنان					
٤٥	مدى شعورك بالرضا نتيجة عملك في عيادة طب الأسنان					
٤٦	مدى اهتمامك بالمدة التي يقضيها المريض بالانتظار في العيادة حتى دخوله للعلاج كجزء من جودة الخدمة					
٤٧	مدى اهتمامك بإرضاء المريض بإعطائه مدة كافية داخل غرفة العلاج كجزء من جودة الخدمة					

٤٨. ما هي أهم العوامل التي تساعدك في عملك و تمكنك من رفع مستوى الخدمة التي تقدمها للمريض؟

.....

.....

.....

.....

.....

٤٩. ما هي أهم المعوقات التي تحد من عملك و تقلل من مستوى الخدمة التي تقدمها للمرضى؟

.....

.....

.....

.....

.....

أي معلومات /ملاحظات أخرى تود اضافتها:

.....

.....

.....

.....

شكرا لكم على حسن تعاونكم

Appendix (4) English Survey Questionnaire

Section 1: Demographic data

1. Age: Year

2. Gender: *Male *Female

3. Workplace:

Hebron City

City in the Hebron governorate (Dura, Yatta, Al-Dhahiriya, Halhul).

A town or camp in the Hebron governorate (Sa'ir, Shuyukh, Bani Na'im, Ithna, Beit Ula, Nuba, Kharas Tarqumiya, Beit Ummar, Surif, Sammoua, Beit Awa, Dersamet. ...).

4. Country of study:

5. Graduation Year:

6. Educational Achievement:

Bachelor of Oral Medicine and Surgery

Master of Dentistry - Specialty.....

Arab Board, Palestinian specialization.....

Other, please mention.....

7. Number of years spent practicing dentistry:

8. Current career status:

Work and stable in my work.

Work and look for a better chance.

I do not work and look for work.

9. Nature of the current work: (more than one answer can be selected).

Formal job

Palestinian Ministry of Health

Military medical services

UNRWA

Foundation / NGO

- Academic University
- private clinic/ center
- I work in my private clinic / center
- I work in a private clinic / center with colleagues
- I work in a clinic / private center owned by another colleague
- Other / Select:

Section II: Workload

10. how often do you use predetermined appointment for the treatment of patients ?

1- Always 2- Often 3- Sometimes 4- Little 5- Rarely

11. Average hours worked per day: hours.

12. Average number of weekly work days..... days.

13. Average number of patients treated per day..... patient.

14. Average number of annual holidays except weekends and holidays (special holidays): days.

15. How long does the patient wait in the clinic before entering treatment: minute.

16. The average number of patients you can treat weekly greater than the patients currently treated:

- Less than 5
- From 5-9
- from 10-14
- from 15-19
- from 20-24
- 25 and more

17. how much are you busy as a dentist?

- 1, not busy enough and can treat more patients.
- 2, had enough patients and did not feel overworked.
- 3, provided care for all who requested it but felt overworked.

4, too busy to treat all requests.

18. your basic working hours

- Morning period
- Evening period
- Morning and evening periods

Section III: Satisfaction with financial income

19. How satisfied are you with your income from the dental profession?

a- Very Satisfied b- Satisfied c- Acceptable d- Bad e- Very bad

20. Do you practice any other work than the dental profession? No Yes

21. The monthly amount paid in the clinic for dental materials, tools and disposable materials:
.....NIS.

22. The average monthly amount you pay for dental labs:
.....NIS.

23. Rate of other expenses you pay monthly on operating expenses of the clinic?

Such as: clinic rent , electricity, telephone, Internet, water, taxes, Secretary salary:
NIS.

24. Average rate of net income for your dental work per month:

- Less than 2000 NIS 2000 - 4,000 NIS 4001 - 6000 NIS
- 6001 - 10,000 NIS 10001-15000 More than (15000) NIS

25. Do you have other sources of income in addition to your work as a dentist?

- No Yes, specify it if you wish: _____ NIS.

26. What are the following treatments (100%) for your dental clinic?

- periodontal treatment:%
- Conservative and cosmetic treatment:%
- Endodontics :%
- Dental extraction and surgery:%
- Dental prostheses:%
- Dental implants:%
- Orthodontics:%
- Other, select: %

* Total: 100%

27. What is the degree of your commitment to the minimum price of the Dental Association price list for the treatment of patients?

- Very high - High - Medium - Low - Very low

28. In your opinion, what is the ratio of the general dentists' commitment to the minimum price of the Dental Association for the treatment of patients?

- Very high - High - Medium - Low - Very low

29. Do you think that the price of the dentists' union to treat patients is fair to the doctor?

- Very high - High - Medium - Low - Very low

30. How many years from now do you intend to stop practicing dentistry? Year.

Section IV: Productivity and Development

31. Average number of scientific days or scientific conferences that you attend in one year:.....

32. When was the last scientific conference or scientific day I attended?.....

- 2017 - 2016 - 2015 - 2014 and below.

33. Average number of hands-on training courses per year:.....

34. a) When was the last practical training course I attended?

- 2017 • 2016 • 2015 • 2014and below.

B) The scope of this course

35. Do you have any of the following sources in the clinic:

- Receptionist employee Yes No
- Assistant dental assistant Yes No
- X-ray machine Yes No
- X-ray sensor Yes No
- Apex locator Yes No
- Motor Rotary Yes No
- Physiodispenser device Yes No

- Other / specify

36. What is the number of treatment chairs in the clinic where you work:

37. Do you keep special files for patient treatments?

- No Yes, **select it:** Electronic Paper

38. Do you have the desire to join a specialty program in dentistry?

- Not applicable No Yes

*Specialization

39. Do you think getting a specialty in dentistry increases:

- Professional development Yes No
- Quality of treatment Yes No
- Financial return Yes No

40. What dental specialties do need in Hebron District, ranked by importance?

(Surgery, orthopedics, nerve treatment, pediatric dentistry, conservative treatment, combinations, periodontal)

- 1)
- 2)
- 3)

• • Please answer the following statements as you see fit

- Very low • Low • Average • Very High • High

41. Level of competition between dental clinics.

42. Need for the labor market to more general dentists.

43. Need for the labor market to more specialized dentists.

44. How far you feel in professional isolation (lack of communication and interaction with colleagues) as a result of your work at the dental clinic.

45. How satisfied you are as a result of your work at the dental clinic.

46. How interested you are in the length of time the patient spends waiting in the clinic until he or she is admitted for treatment as part of the quality of service.

47. Your interest in satisfying the patient by giving him enough time in the treatment room as part of the quality of service.

48. What are the most important factors that help you in your work and enable you to raise the level of service you provide to the patient?

1-

2-

3-

49. what are the main obstacles that limit your work and reduce the level of service you provide to patients?

1-

2-

3-

Any other information / notes you would like to add:

❖

❖

❖

THANKS FOR YOUR COOPERATION

Appendix (6) Referees of the questionnaire

Name	Title	location
Dr . Hussein jabareen	supervisor	Hebron university
Dr. Mohammad Aljabari	Assistant professor	Hebron university
Dr. Samir Abu Znaid	Associated professor	Hebron university
Dr. Moatasem Hamdan	Associated professor	Al Quds university
Dr. Raed Abu Hantash	Associated professor	Al Quds university
Dr. Ibraheem Ghannam	PDA chairman	Palestinian Dental Association
Dr. Mohammad Asia	Associated professor	The Arab American University-Jenin
Dr. Imad Fashafsheh	Assistant Professor	The Arab American University-Jenin
Dr. Asma Imam	Associated professor	Al Quds university
Dr. Elaham Alkhateeb	Assistant Professor	Al Quds university
Dr. salam alhakteeb	Associated professor	Al Quds university

Appendix (7) Letter to Palestinian Dental Association- Hebron

Hebron University
College of Graduate Studies



جامعة الخليل
كلية الدراسات العليا

التاريخ: ٢٠١٦ / ٠٤ / ١٦

حضرة الدكتور خالد الطرايرة المحترم
رئيس اللجنة الفرعية / الخليل
نقابة اطباء الاسنان الفلسطينيين

الموضوع: تسهيل مهمة باحث

تحية طيبة و بعد،،،

تهديكم كلية الدراسات العليا في جامعة الخليل أطيب التحيات و نشكر لكم حسن تعاونكم معنا، كما و نرجو من حضرتكم التكرم بالموافقة و الاعاز لتسهيل مهمة المناوب أمجد الحموري والذي يقوم بعمل دراسة استكمالاً لمتطلبات الحصول على درجة الماجستير في ادارة الأعمال تحت عنوان: " واقع الموارد البشرية العاملة في طب الاسنان في محافظة الخليل".

ويتطلب اتمام هذه الدراسة أن يقوم بتوزيع الاستبانة المرفقة على مراكز و عيادات طب الأسنان في محافظة الخليل و ذلك في الفترة الواقعة ما بين ٢٠١٧-٤-٢٠ إلى ٢٠١٧-٥-٣١. مع العلم ان كامل المعلومات ستستخدم لأغراض البحث العلمي و ستعامل بطريقة سرية، كما هو موضح في وصف الدراسة المرفق مع هذا الكتاب.

كما أود اعلامكم ان مجلس كلية الدراسات العليا في جامعة الخليل قد اجاز في جلسته (رقم: ٢٠١٧/٤) و الذي عقدت يوم الاثنين بتاريخ ٢٠١٧/٤/٣ للطالب أمجد الحموري القيام ببحثه (بعنوان: واقع الموارد البشرية العاملة في طب الاسنان في محافظة الخليل) الواردة تفصيله في الوثائق المرفقة، وذلك بعد اطلاعه على مقترح مشروع البحث وادوات جمع معلوماته (الاستبانة) ووجد انها قابلة للعمل ومفيدة لتطوير الخدمات الصحية الفلسطينية، ولا تتعارض و أخلاقيات البحث العلمي الصحي.

لا يرى مجلس كلية الدراسات العليا في جامعة الخليل أنه سيكون هنالك أي تأثير أو ردة فعل سلبية يسببها الاشتراك في هذه الدراسة، حيث أنها لا تعتمد على تقديم نوع جديد من العلاج أو أنها من الأبحاث المعتمدة على التجربة، بل هي محاولة باستخدام المنهج الرصفي للبحث في سبل تحسين مستوى الخدمات الصحية، وبذلك لن تؤدي المشاركة في هذه الدراسة إلى إلحاق أي ضرر أو خطر بالمشاركين أو امكان عملهم كما ونتوقع أن المشاركة في هذه الدراسة سوف تعطيتهم الفرصة لإبلاغ صناع القرار الصحي الفلسطيني بقضايا الخدمات الصحية وتحسين جودتها.

لقد تم التأكد من اتباع الطالب لقوانين كلية الدراسات العليا في جامعة الخليل بالمراعاة في تصميم البحث أن تبقى هوية المشاركين مجهولة، لذلك فإنه من غير المطلوب كتابة الاسم، العنوان، اسم المؤسسة التي يتواجدون فيها، أو أية معلومات تدل على شخصيتهم. وأنه في حال الموافقة على المشاركة في هذه الدراسة، ستبقى آرائهم طبي الكتمان. ولن يكون لأي شخص، ما لم ينص القانون على ذلك، حق الاطلاع على محتوى الاستبيانات الخاصة بالمشاركين في البحث باستثناء الدكتور المشرف على هذا البحث والطالب صاحب البحث ولجان الأخلاق المهنية المستقلة من إدارة جامعة الخليل. وتنص قوانين جامعة الخليل على حفظ كافة الاستبيانات الورقية و الالكترونية حتى تسليم تقرير البحث في مكان مغلق و أمن لدى المشرف داخل الكلية لمدة فصل دراسي واحد ليتم اتلافها بمحضر رسمي و حسب الاصول المعمول بها في جامعة الخليل.

وبناءً على ما تقدم، فأرجو من حضرتكم التكرم بالسماح للطالب الوارد اسمه القيام بجمع معلوماته البحثية في الفترة الواقعة ما بين ٢٠١٧-٤-٢٠ الى ٢٠١٧-٥-٣١ من مراكز و عيادات طب الأسنان في المؤسسات الصحية الحكومية والغير حكومية والقطاع الخاص.

علماً أن هذه المعلومات سوف تستخدم فقط لأغراض البحث العلمي تحت إشراف الدكتور حسين جبارين ليتسنى للطالب استكمال متطلبات التخرج للحصول على درجة الماجستير من كلية الدراسات العليا. كما سيتم ترتيب وصول الطالب لهذه العيادات ضمن جدول زمني مناسب لتجنب أي ضغط أو إرباك للعاملين في هذه المؤسسات.

د. حسين جبارين

Dr. Husseini

مشرف الدراسة
عميد كلية التمريض



مرفق طوية:

- ورقة معلومات عن البحث متضمنة ملخص واهداف الدراسة، الاعتبارات الأخلاقية، ونموذج موافقة المشاركين.
- استبانة البحث الخاصة بالعاملين الصحيين (أطباء الأسنان).

ورقة معلومات حول الدراسة

عنوان البحث: واقع الموارد البشرية العاملة في طب الاسنان في محافظة الخليل

مقدمة: نحن مهتمون بمعرفة وجهات نظر اطباء الاسنان العاملين في محافظة الخليل بشأن الموارد البشرية العاملة في طب الاسنان في المحافظة كجزء من دراسة للحصول على درجة الماجستير في ادارة الاعمال من جامعة الخليل. ويقوم بعمل هذه الدراسة الباحث امجد الحموري من جامعة الخليل. سوف يتم توزيع هذا الاستبيان على مجتمع الدراسة المكون من جميع اطباء الاسنان العاملين في محافظة الخليل. ولقد تم بناء الاستبيان المرفق تحت اشراف الدكتور حسين الجبارين بناء على معايير عالمية لقياس مدى العرض والطلب على خدمات طب الاسنان في محافظة الخليل بأسلوب حساب درجة الانشغال. سنكون ممتنين جدا إذا تكرمت بالموافقة على توزيعه في مؤسستكم من اجل جمع معلومات تجيب على اسئلة الدراسة. بإمكانكم طلب اي ايضاحات او معلومات اضافية عن هذه الاستمارة او عن الدراسة ككل من الباحث او المشرف على الدراسة.

وصف الدراسة: تسعى هذه الدراسة الى قياس الفرق بين العرض والطلب على خدمة طب الاسنان في محافظة الخليل من اجل التعرف على الفانض والنقص في هذه الخدمة وكيفية اعادة تقييمه في المستقبل من اجل الخروج بالتوصيات التي يمكن تنفيذها للحفاظ على او تغيير العدد الكلي لأطباء الاسنان العاملين في المحافظة لمواءمته مع الطلب على هذه الخدمة من السكان. وتتبع اهمية هذا البحث من اهمية دراسة خدمات القطاع الصحي بشكل عام واهمية التعرف على واقع الموارد البشرية العاملة في طب الاسنان بشكل خاص، والذي يعتبر الخطوة الأساسية للتخطيط لهذه الموارد بالشكل الصحيح بعد التعرف على التناسب ما بين الطلب والعرض. وسيتم اجراء الدراسة الميدانية باستخدام المنهج الوصفي (الاستبيان) بهدف وصف الواقع الحالي للموارد البشرية العاملة في طب الاسنان في محافظة الخليل.

أهداف الدراسة: الهدف الرئيسي لهذا البحث هو تقييم العرض لطب الاسنان ومقارنته بالطلب على هذه الخدمة من وجهة نظر مقدمي الخدمة، وذلك من خلال وصف الواقع الحالي لتقديم خدمة طب الاسنان في محافظة الخليل حسب الاهداف الفرعية التالية:

- ١) وصف المعلومات الديموغرافية الأساسية لمقدمي خدمة طب الاسنان من ناحية العدد، العمر، الجنس، التوزيع الجغرافي، سنة التخرج، سنوات الخبرة، الوضع المهني الحالي، وطبيعة العمل الحالي.
- ٢) وصف معدل ساعات العمل وقياس مؤشر الانشغال لأطباء الاسنان في محافظة الخليل.
- ٣) قياس مدى الرضى عن الدخل المادي من مهنة طب الاسنان وقياس مدى الالتزام بتسعييرة نقابة اطباء الاسنان.
- ٤) وصف امكانيات التطور و زيادة الانتاجية لدى اطباء الاسنان.

الاعتبارات الاخلاقية: لافراد العينة كامل الحرية في قرار اختيار المشاركة او عدم المشاركة. في حال قرارهم بالمشاركة، سنطلب اعادة الاستبيان بعد الانتهاء من تعبئة بدون كتابة الاسم، العنوان، اسم مكان العمل، او أي معلومة تدل على هوية المشارك، وبذلك فإننا نفترض أن ذلك الشخص موافق على المشاركة في هذا البحث وهذا ما هو معروف باسم **الموافقة الضمنية**. وفي حال القرار بعدم المشاركة، فإن ذلك لن يؤثر على شخصهم في أي شكل من الأشكال.

نحن لا نعتقد أنه سيكون هنالك أي تأثير او ردة فعل سلبية يسببها الاشتراك في هذه الدراسة، حيث انها لا تعتمد على تقديم نوع جديد من العلاج او انها من الابحاث المعتمدة على التجربة، بل هي محاولة للبحث في سبل تحسين مستوى الخدمات الصحية، لذلك لن تؤدي المشاركة في هذه الدراسة الى الحاق أي ضرر أو خطر بالمشاركين او المراكز الصحية التي يتواجدون فيها. كما ونتوقع أن المشاركة في هذه الدراسة سوف تعطيتهم الفرصة لإبلاغ صناع القرار الصحي بقضايا تهتم برفع مستوى جودة الخدمات المقدمة في المراكز في حقل طب الاسنان.

لقد تم الاخذ بالحسبان في تصميم البحث ان تبقى هوية المشارك مجهولة تماما، لذلك فإنه من غير المطلوب كتابة الاسم، العنوان، اسم المؤسسة التي يتواجد بها، او اية معلومات تدل على شخصيتهم. وفي حال موافقتهم على المشاركة في هذه الدراسة، ستبقى ارايتهم طبي الكتمان. لن يكون لأي شخص، ما لم ينص القانون على ذلك، حق الاطلاع على الاستبانة الخاصة بالمشاركين بالبحث باستثناء الدكتور الباحث المسؤول عن الدراسة ولجان الاخلاق المهنية المستقلة من ادارة جامعة الخليل.

عند الانتهاء من عمل هذا البحث، سوف يتم كتابته في تقرير وستعرض نتائجها في حلقة دراسية ضمن مشروع التخرج من كلية الدراسات العليا في جامعة الخليل، وسيتم دعوة جميع المؤسسات الصحية المشاركة للحضور.

إذا كنت ترغب في معرفة المزيد من المعلومات عن هذه الدراسة، يمكنك الاتصال ب:

اسم الباحث: امجد محمد امين الحموري رقم الهاتف المحمول 0599296464
البريد الإلكتروني hamouri74@gmail.com

وبدلا من ذلك، يمكنك الاتصال بالمشرف عن الدراسة و هو:

الدكتور حسين جبارين، عميد كلية التمريض، جامعة الخليل، ص ب 40، الضفة الغربية، فلسطين
رقم تلفون المكتب: 0097-02-222 0995 -تحويلة 121 : السكرتيرة 127:
رقم المحمول: 0097 - 0598 949 773 البريد الإلكتروني hjabareen2000@yahoo.com

وتفضلوا بقبول فائق الاحترام،

امجد محمد امين الحموري ، والدكتور حسين جبارين

شكرا جزيلاً لأخذ الوقت الكافي لقراءة هذا الرسالة.

موافقة المشترك: لقد قرأت استمارة القبول هذه وفهمت مضمونها، وتم الاجابة على اسئلتى جميعها. وبناء عليه فإنني، حرا مختاراً، اجيز اجراء هذا البحث ووافق على الاشتراك فيه واني اعلم ان الباحث وزملاءه ومعاونيه او مساعديه سيكونون مستعدين للإجابة على اسئلتى، وانه باستطاعتي الاتصال بهم اذا شعرت لاحقا ان الاجوبة تحتاج الى مزيد من الايضاح، كما اعرف تمام المعرفة بانني حر في الانسحاب من هذا البحث متى شئت حتى بعد اعطاء الموافقة على الاشتراك دون ان يؤثر ذلك سلبا على باقي شكل من الاشكال.

شاكرين لكم حسن تعاونكم

ملخص الدراسة

تهدف هذه الدراسة إلى وصف حالة الموارد البشرية العاملة في طب الأسنان في محافظة الخليل من نواحي: الخصائص الديموغرافية و الشخصية، عبء العمل و مؤشر الانشغال ، مستوى الرضا عن الدخل المالي والالتزام بتسعييرة النقابة، نطاقات الانتاجية و التطور، والعوامل التي ترفع ، وتلك التي تعرقل جودة الخدمة المقدمة للمرضى.

وقد تم تحقيق ذلك من خلال دراسة وصفية مقطعية أجريت بين ٥ يونيو و ٢٤ يوليو ٢٠١٧. تم إرسال استبيان إلى ٤٥٥ طبيب اسنان عاملا أو يبحث عن عمل في منطقة الخليل. تم جمع ٢٦٤ استبانة مما جعل معدل الاستجابة ٥٨٪.

وأظهرت النتائج أن أطباء الأسنان الذكور يشكلون ٦٦,٨٪. وكان متوسط عمر أطباء الأسنان في محافظة الخليل ٣٥ عاما، و ٤٥,٩ منهم يعملون في مدينة الخليل، و ٣٧,٤٪ يعملون في مدينة في محافظة الخليل. ٩٠٪ من أطباء الأسنان لديهم درجة البكالوريوس فقط، ٧٦٪ يعملون ومستقرون في عملهم في حين ٢٢٪ يعملون وبحثون عن فرصة أفضل. وتعمل الغالبية العظمى من أطباء الأسنان في القطاع الخاص.

عمل متوسط طبيب الأسنان في الخليل لمدة ٨,٣ ساعة يوميا، ٥,٩ أيام في الأسبوع، وعالج ٩ مرضى يوميا، واخذ فقط ١٠,٨ يوم اجازات شخصية كل عام. وكان مؤشر الانشغال ١,٧٩ كما ٣٩,٢٪ من أطباء الأسنان لم تكن مشغولة ويمكنها علاج المزيد من المرضى، في حين أن ٤٥,٢٪ لديهم ما يكفي من المرضى ولم يشعروا بعبء زائد. وكان ٥٠٪ من أطباء الأسنان قادرين على علاج أكثر من ١٠ مرضى اسبوعيا إضافة لى المرضى الحاليين. ولم يؤثر نوع الجنس أو مكان العمل على مؤشر الانشغال. ومقابل ذلك، كان مستوى الرضا عن مؤشر الدخل والانشغال مرتبطا ارتباطا وثيقا.

وكان مستوى الرضا عن الدخل معتدلا. وكان هناك فروق إحصائية حسب نوع الجنس، والالتزام بقائمة الأسعار، والوضع الحالي للعمل. في حين أن مكان العمل لم يكن له فرق كبير يرتبط بمستوى الرضا عن الدخل. ويدفع طبيب الأسنان في الخليل ما متوسطه ٢٠١٣ شيكل للمواد المتغيرة، ٣١٣٢ شيكل لمختبرات طب الأسنان و ٢٠٩٤ شيكل كتكاليف ثابتة.

وقد شارك أطباء الأسنان في الخليل في التعليم المستمر بنسبة ٥٢,٩٪ في مؤتمرات عام ٢٠١٧ و ٦٩٪ شاركوا في دورة تدريبية منذ عام ٢٠١٦. وبالإضافة إلى ذلك، أعرب ٧٢,٥٪ من أطباء الأسنان عن رغبتهم في الالتحاق ببرامج التخصص، وأظهر اعتقادهم التأثير الممتاز للتخصص في التطوير المهني والعلاج الجودة، والعائد المالي. طب اسنان الاطفال بنسبة ٦٥٪، علاج العصب بنسبة ٦٢٪، وعلاج اللثة بنسبة ٤٨ ٪ هي التخصصات الأكثر حاجة في محافظة الخليل حسب هذا الترتيب.

اما عن العوامل التي تدفع مستوى الخدمة المقدمة فهي أساسا: توافر الاجهزة، و ثقافة المريض، والتعليم المستمر، والرياح، والتزام المرضى بالمواعيد. ومن ناحية أخرى، فإن العوامل التي تؤدي الى انخفاض مستوى الخدمة هي أساسا: ثقافة المريض السلبية، وضعف الالتزام المالي للمريض، وسوء التزام المرضى بالمواعيد، والمنافسة السعرية بين الزملاء.

واستنادا إلى النتائج، أوصت الدراسة بإنشاء لجنة تنسيق للصحة الفموية تتألف من أصحاب العلاقة الرئيسيين وتشجيع الجامعات ونقابة اطباء الأسنان على بدء برامج الدراسات العليا وحملات لزيادة وعي السكان عن صحة الفم والأسنان، و تطوير وتفعيل برنامج التعليم المستمر لأطباء الاسنان.