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RESEARCH ARTICLE

FACTORS AFFECTING THE LENGTH OF WAITING PERIOD IN GOVERNMENT DENTAL CLINICS IN NAJRAN CITY, SAUDI ARABIA

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ABSTRACT

The current study aims to identify the factors affecting the waiting period in government dental clinics in Najran, Saudi Arabia. The study followed the quantitative research methodology descriptive and analytical approach method that depends on the questionnaire applied to a sample of 148 medical, nursing and administrative staff in government dental clinics in Najran Region (Najran Specialist Dental Center, Sharurah Dental Center, Habuna Dental Center, Primary Dental Clinics) The research community consists of (210) employees. The study reached results showing that the delay in the maintenance of medical devices was the most influencing factor in the length of waiting periods. Followed by the shortage, poor distribution, and high turnover of the medical staff. Then the weak coordination process between the medical staff and the entry office. The last arrangement was a shortage of some medical supplies and equipment. According to the results, the study recommended a government dental clinic in the Najran region in the Kingdom of Saudi Arabia to work to reduce waiting times through several points, the most important of which are: activating periodic maintenance and maintenance work at the required time without delay, employing a sufficient number of medical workers: reducing the turnover of medical staff by increasing motivation and high rewards, Providing high-quality medical supplies, improving coordination in government dental centers.

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INTRODUCTION

The great development witnessed by service organizations posed a challenge for public hospitals to keep pace with this development and provide the best services to their patients. This development led to increased demands for improving the quality of services provided in government hospitals to cope with private hospitals which introduced the latest technology and adopted the highest standards of health service quality. According to Motloba, et.al (2018) patient waiting time for medical service considered one of the most important factors related to the quality of health services and patient satisfaction. According to Khatoun, et. al (2016) the length of waiting period predominantly is one of the main frustrating things in delivering the healthcare. Other scientists recommended the queues theory as one of the solutions to this problem, a theory that originated in (1909 A4D), and was used widely in many aspects of life, especially those that are directly related to the customer and the possibility of

obtaining a service as soon as possible and at the lowest cost (Mubarak et al., 2015). Due to the importance of waiting times in dental clinics in public hospitals in Saudi Arabia, the current study focuses on studying the factors affecting the length of the waiting period in government dental clinics in Najran city, Saudi Arabia. The Study Problem: Government dental clinics have worked in recent years to improve their services expeditiously. Dental clinics have been equipped with the highest levels of advanced medical and technological equipment. However, despite that improvement, it is noticeable that waiting times are still a problem that requires solutions in dental clinics in the Kingdom. As waiting times are, still long and do not coincide with the size of the administrative development that took place in these clinics. In addition, the solutions that Dental clinics have done to solve problems related to the length-waiting period are often ineffective. Consequently, the current study seeks to research this problem by studying the factors affecting the length of the waiting period in government dental clinics in Najran city, Saudi Arabia.

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The Study Importance: The present study has two important practical and academic importance, as follows:

Practical significance: The practical importance of the study stems from the fact that delaying the provision of the service in government dental clinics in Saudi Arabia often leads to complications in the health condition, as well as causing lost time for patients and many of them go to private dental clinics despite their high costs. The researcher thinks that the reasons of the length of the waiting period are solvable and can be avoided if it's cleared, and therefore the current study will benefit Administrators and dentists in government dental clinics to finding the reasons that lead to increase the waiting period to consider these reasons and work to find appropriate solutions for them.

Academic significance: The current study has academic importance in being one of the few studies that deals with waiting times for patients in government dental clinics in Saudi Arabia, and the researcher hopes that the current study will be one of the scientific databases for future research in its subject.

The Study Objectives:

The current study aims to identify factors affecting the length of waiting times in the government dental clinic in public hospitals in the Kingdom.

The current study aims to achieve the following objectives:

- To identify the magnitude of the waiting period problem in government dental clinics in Saudi Arabia.
- To identify the factors affecting the long waiting times for patients in government dental clinics in Saudi Arabia.
- To the analysis of the relationship between factors (medical staff, medical supplies, maintenance of medical devices and coordination process) and the length of waiting times in government dental clinics in Saudi Arabia?

Study Hypotheses: The study will test the following hypotheses:

Hypothesis

- There is a statistically significant relationship between the medical staff and long waiting periods in government dental clinics in Saudi Arabia.
- There is a statistically significant relationship between medical supplies and long waiting periods in government dental clinics in Saudi Arabia.
- There is a statistically significant relationship between the maintenance of medical devices and long waiting periods in government dental clinics in Saudi Arabia.
- There is a statistically significant relationship between the coordination process and long waiting periods in government dental clinics in Saudi Arabia.

Study model:

Independent Variables

- Medical staff

- Medical supply
- Maintenance of medical devices
- Coordination process

Dependent Variables

Long waiting Periods In government dental clinics in Najran city, Saudi Arabia

Chapter Two Literature Review

Introduction: All countries are greatly concerned with enhancing the level of health services by relying on various means such as developing and setting up clinics to improve the level of services. This is because health services are related to human life, and the relationship between them is positive, as a change in them may lead to a change in human life in the same direction (Dredy, 2014). The period time in the clinics is one of the most important indicators or criteria that show the effectiveness of the health organization in carrying out its work, and in the clinics. In particular, some costly capabilities and potentials must be invested properly. The time period considered as one of the main popular issues about visiting patients to any emergency facilities at health facilities (Hemmati et al., 2018).

The community mainly expects clinics and health institutions to give a prompt and suitable medical interventions based on the severity of the patient's condition. Thus, waiting period is one of the main factors in assessing the quality of care provided in health institutions (Hemmati et al., 2018). The period that the person spends waiting is the main factor that impact on the level of use of the health services provided if patient satisfaction is one of the indicators and criteria in assessing the quality of the health sector. Therefore, the most recent means of measuring the performance of the health sector can be well evaluated by measuring the level of personal satisfaction through the waiting period (Mofleh & Naji, 2012). Health services clinics in general and dental clinics in particular face many challenges due to the limited resources available in most of these clinics, as the length of waiting time is one of the most important challenges facing clinics. The length of patient waiting time is known as the extent of the period the patient enters the health institution until the time the patient quits the health institution (Al-Ghareeba and Al-Qudah, 2012).

The long waiting time in a health institution or clinic predominantly is the main obstacle of a healthcare system. As the time that a patient waits to be examined is one of the factors that affect the use of health care services, and patients see lengthy waiting periods as an impediment to having services effectively (Mofleh & Naji, 2012). In general, Motloba et al. (2018) showed that the patients classified the issue of waiting period in health care facilities as the greatest concern, especially in the outpatient department, communication, ahead of staff problems, and behavior. It has been observed that Wait periods for patients presenting to emergency clinics are the worst compared to those with experience with general care and cold medical conditions. Long waiting times affect the quality of healthcare provided. In fact, health care should be provided when needed, without undue delay.

Definition of Length of Waiting Period: The first minutes of waiting in the clinic, health institution, or even the dental clinic may be normal for a patient, but when the time is longer than 15 minutes, patients begin to feel anxious, start checking the time and contacting reception staff to enquire about the reason of delay. Why don't doctors schedule patients exactly when they are ready to see? (Optima Dentistry, 2018). The measure of patient satisfaction with the service provided is most often done by measuring the amount of time the patient spent in the facility. Many studies showed that patients' experiments of waiting time significantly affects their observation of quality and overall satisfaction with the service provided (Nannozi & Fellowship, 2013).

Reasons for Length of Waiting Period in Dental Clinic: Patients lose patience in result of they think that time is not well scheduled. However, doctors may not be aware of what is the appropriate day to provide services to patients, in addition to the fact that some patients' cases require many times to provide health services to them more than others (Jegtvig, 2020). According to Optima Dentistry (2018), there are many reasons for the length of the waiting period. One of those reasons is that dental treatment cannot always be expected; he considers that the patient is to be restored. The expected treatment times range from a brother to 30 minutes, where the dentist begins to give the injection to the patient and then the dentist begins to remove Cavities, while it deepen and the core of the tooth becomes uncovered. These days, dentists must have a root canal treatment that will take another thirty-minutes to complete. A thirty-minutes appointment and suddenly turning into an hour's appointment will challenge the schedule. Therefore, the US Health Department aimed to set a standard, which is that the waiting time does not exceed 30 minutes for 50% of the auditors, and 95% of the auditors should not wait more than 75 minutes.

However, another reason for Length of Waiting Period by Optima Dentistry (2018) is that Each patient deserves the same attention as another patient. The dentist can sometimes reduce the treatment time by cutting some corners here and there, but competent dentists never consider this an appropriate option. Therefore, patients unintentionally pressure the caregiver to rush the treatment process.

Factors Affecting the Waiting Time

Medical staff Dudko et al.(2018) this study is talked about the lack of dentists in overseas and remote districts of Australia, as the media paid attention to long public dental waiting lists over the past years. The comparative study conducted an analysis and compared a group of dentists to a number of approximately one dentist for every (100,000) citizens. Data of the participating dentists were also extracted from their records reports. The study found that there is a significant improvement in the number of qualified dentists in the overseas and remote districts of Australia. Tennant et al.(2013) conducted a study on the workforce in dentistry and their policy, which was based on a statistical analysis in addition to the percentages of the study sample. The study examined the practice rates of the study sample as a measure to reach the results. Latin from Australia was chosen as the study community, as the total population of the two states is approximately (8 million) people. The study concluded that the PtP ratio is considered a measure of the distribution of the

workforce as well as an important measure of geographical obstacles in order to reach them.

Medical Supplies: Nannozi (2013) presented a project explaining the reason for continuous quality improvement at the Mengo Dental Clinic, and then in the project, he developed countermeasures that seek to reduce patient waiting times at the center as a method for increasing patient satisfaction and improving health services provided. One of the problems at Mengo Dental Clinic is the lack of dental supplies. The project showed that the center is purchasing tools and equipment and starting a tray preparation system to solve this problem, which led to the tools becoming more easily available, which reduced waiting times for patients due to the availability of dental equipment.

In a study conducted by Kasusu et al (2015), the availability of dental materials and equipment is important to enable comprehensive dental and oral care in general. The study provided further evidence of the significant shortage of dental equipment in public facilities. The study showed that there is a poor classification for the delivery times of materials in most facilities, indicating the presence of irregularity and long waiting times for the supply of materials. The study also positively assessed the adequacy of the budget to purchase dental materials, which indicates the abundance of financial resources available. However, it appears that the supply of dental equipment from the vendors was not as required, that there was a failure to fulfill the demand, or that the procurement process was ineffective, resulting in a long waiting period for dental materials and equipment at the facilities.

Maintenance of Medical Devices: Mwanza et al. (2015) conducted a study that identified a set of objectives for the different maintenance practices used in maintaining hospital equipment, the challenges facing these maintenance practices, and the impact of maintenance practices on the delivery of healthcare services. The study found a set of results, the most important of which is the high rate of equipment failure and the lack of manpower. As a result, the study grouped many hospital equipment in different categories according to the level of criticality. The study also designed an effective maintenance model based on maintenance that focuses on reliability in order to improve hospital equipment. Hospital equipment to provide a valuable healthcare service. Al-Bashir et al. (2017) conducted a study that seeks to improve the processes that are applied when medical devices fail during maintenance work in Jordanian health hospitals, relying on the Six Sigma methodology that reduces downtime and increases availability through a high-quality correction process that increases customers satisfaction. This model can be used to show the decision maker which variables most influence downtime, and what decisions need to be made in relation to these variables to minimize their effects on downtime. Many other factors harm the downtime, such as the maintenance team's delay in detecting, hardware failure, and delay in service registration requests

Coordination Process: Data from a study by Casaverde et al. (2017) found that children who visit clinics rarely suffer from high degrees of caries; Also, physicians and caregivers do not suffer from the misbehavior that results from them; It does not result in long waiting times between appointments; They also do not need several missed dates.

The study concluded that coordination of care can improve attendance at the dental clinic. A study by Katre (2014) shows that scheduling appointments is critical in treating children's teeth. The study showed that all over the world, many systems were designed and studied to improve appointment scheduling systems, in order to provide patients with high-quality treatment and reduce long waiting times. The study found that most patients were happy with the appointment system followed by the Pediatric Dental Department and YMT Dental College and Hospital.

Chapter Three Methodology

Research Method and Data Collection

The research is quantitative research depending on descriptive and analytical methods. The research applied a survey to determine factors affecting the length of the waiting period in government dental clinics in Najran city, Saudi Arabia. Both descriptive and analytical approach were used to collect the data for this study. Qualitative data collection helps to understand the research topic while the quantitative approach helps to measure the impact of independent variables on dependent variables.

Study Population and Sampling: The research population consisted of the Dentist, Dental Assistant, Dental Hygienist, and Administrative Staff at four government dental clinics in Najran region (Najran dental center, Sharourah dental center, Habona dental center, Primary dental clinics) consists of (210) employees. Table No. (1) clears-out study population:

Table No. (3-1) Study Population

Najran dental center	
	44 Dentist
	21 Dental assistant
	4 Dental Hygienist
	12 Administrative
Sharourah dental center	
	14 Dentist
	5 Dental assistant
	3 Dental Hygienist
	4 Administrative
Habona dental center	
	5 Dentist
	4 Dental assistant
	4 Dental Hygienist
	2 Administrative
Primary dental clinic	
	58 Dentist
	21 Dental assistant
	9 Dental Hygienist
Total	
	210

To determine the sample size of the study; the researcher used Sekaran & Bougie (2014) to determine the sample size of the community, according to the table (3-1). In this study total population are 210 participants, according to the above table and the level of significance $p=0.05$ the sample size includes at least (136) Dentist, Dental Assistant, Dental Hygienist, and administrative staff. A total of (150) questionnaires were distributed, (2) questionnaires have been neglected due to uncompleted answers, (148) questionnaires data were suitable to be tested.

Research Instrument

A self-administered questionnaire was used as a research instrument. The questionnaire was designed according to research objectives and hypotheses; the questionnaire was depending mainly on the previous studies that handle the

research topic such as Mofleh & Naji (2012), Dudko et al. (2018), Khatoun, et al. (2016) and Nannozi (2013). The questionnaire was consisted of three parts:

- The first part will include the cover letter.
- The second part will include the sample's demographic characteristics (age, education, and experience).
- The third part will include statements that measure the independent and dependent variables.

A five-point Likert-type scale will be used, with responses ranging from least important = (1) very important = (5). To explain the arithmetical averages of the estimates of the individuals of the study sample on each paragraph of the questionnaire and each of its fields. The following criterion was used: $(\text{the upper limit (5)} - \text{the minimum (1)}) / \text{the number of categories (3)}$ the length of the class is (1.333). Based on this, the following criterion was adopted: Low Level mean = 1-2.333, Moderate Level mean = 2.334- 3.667 and Mean = 3.68-5 considers high Level of estimation.

Reliability

Cronbach's Alpha = .879

N of Items = 21

The Cronbach's Alpha coefficient reaches (%87,9) which is above the accepted cut-off value (0.70), as suggested by (Sekaran and Bougie, 2013). This indicates that each item is internally consistent and highly reliable.

Statistical Methods: To reach accurate and unified indicators that serve the objectives of the study and test hypotheses, the researcher adopted the following

statistical methods:

Descriptive Statistics: The percentage, frequency, arithmetic mean and standard deviation to measure Factors affecting the length of the waiting period in government dental clinics in Najran city, Saudi Arabia.

One-Sample t.Test: to clear-out, if there is a statistically significant relationship between selected Factors affecting the length of the waiting period in government dental clinics in Najran city, Saudi Arabia

Data Security: Data security is a top priority for many researchers, as the data we collect is of great value for health leaders to make the right decision. All questionnaires were kept and the entry data the researcher need of them for one year. We are responsible for our participants to keep their data safe and secure - to ensure it remains in trusted hands only. It was clarified that all information provided by the participant will be used for scientific research purposes only. Ensuring the confidentiality of information and data is the responsibility of the researcher.

RESULTS

Analysis of Demographic Characteristics: This section provides general information regarding the sample of study in terms of (age, Gender, Education Level, Experience, and

Job). Table 4.1 presents the respondents' demographic characteristics.

Table (4.1) Age

1-Age		
	Frequency	Percent
Less than 30 years	47	31.8
30- 40 years	67	45.3
41-50 years	23	15.5
More than 50 years	11	7.4
Total	148	%100

2-Gender		
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3-Experience		
	Frequency	Percent
Less than 5 years	50	33.8
5-10 years	51	34.5
11-15 years	29	19.6
More than 15 years	18	12.2
Total	148	100.0

4-Job		
	Frequency	Percent
Dentist	59	39.9
Dental Assistant	43	29.1
Administrative	36	24.3
Dental Hygienist	10	6.8
Total	148	100.0

	Frequency	Percent
Male	114	77.0
Female	34	23.0
Total	148	%100.0

5-Education Level		
	Frequency	Percent
High school or less	11	7.4
Diploma	38	25.7
Bachelor	69	46.6
Higher Education	30	20.3
Total	148	100.0

Samples characteristics: Table No. (4.1) Age: The majority of the study sample is in the age category (30- 40 years) (%45.3) followed by category (Less than 30 years) (%31.8), then category (41-50 years) (%15.5), and the last age category is (more than 50 years) (%7.4) of the study sample. This study got such results Because most of the kingdom nation is young. Gender: The %77 of the samples were males, %23.0 were females. This study got such results because the kingdom society is a conservative; males are more responsive than females. Educational level: %46.6 hold Bachelor, %25.7 of the samples hold Diploma, %20.3 holds Higher Education, and %7.4 holds High school or less. This study shows such results due to fact that the highest percentages of workers individuals in kingdom hospitals are holders of bachelor's degrees.

Experience: %34.5 of the samples have (5- 10 years) experience, %33.8 have (less than 5 years) experience, %19.6 have (11-15 years) experience, and %12.2 have (More than 15 years) experience of the study sample. The results showed a high experience of dentists in public hospitals in the Kingdom. Job: %39.9 of the samples work as a Dentist at public hospitals in the Kingdom, %29.1 work as Dental Assistant, %24.3 work as Administrative.

Also, the table showed that %6.8 work as Dental Hygienist at public hospitals in the Kingdom.

Analysis of the Statistical Results Related to the Second Part of the Questionnaire: The following tables present the arithmetic mean, the standard deviation for the study dependent and independent variable:

First, Factors Affecting the Length of Waiting Times: Factors affecting the length of waiting times have 4 variables that include (Medical staff, Medical supplies, Maintenance of medical devices, coordination process) where they are arranged to descend according to the degree of estimation as shown (indicates attitudes of the sample towards questionnaire statements of Factors affecting the length of waiting times; Average mean (3.794), S.t (1.118) (High estimation). The following is a detail of Factors affecting the length of waiting times variables results:

Medical staff: To identify a lack of available medical staff Means and Std. The deviation was executed, show indicates the attitudes of the sample towards questionnaire statements of lack of medical staff; Average mean (3.790), S.t (1.129) (High estimation).

Medical supplies: To identify a lack of medical supplies Means and Std. The Deviation were executed, shows indicates the attitudes of the sample towards questionnaire statements of lack of medical supplies; Average mean (3.707), S.t (1.103) (High estimation).

Maintenance of medical devices: To identify delayed maintenance of medical devices Means and Std. The Deviation was executed, shows indicates the attitudes of the sample towards questionnaire statements of delayed maintenance of medical devices; Average mean (3.973), S.t (1.072) (high estimation).

Coordination Process: To identify poor coordination Means and Std. The Deviation was applied; shows indicates the attitudes of the sample towards questionnaire statements of poor coordination; Average mean (3.709), S.t (1.168) (high estimation).

Second, long waiting Periods in government dental clinics: To identify long waiting Periods in government dental clinics Means and Std. The Deviation was applied; shows indicates the attitudes of the sample towards questionnaire statements of Long waiting Periods In government dental clinics; Average mean (3.634), S.t (0.734) (Moderate estimation).

DISCUSSION

The study reaches the following:

- The results show that the reasons for long waiting periods related to medical staff are lack of medical staff, high turnover of medical staff and poor distribution in medical staff
- The results show that the reasons for long waiting periods related to medical supplies are the low quality of medical supplies, lack of necessary medical equipment, lack of medical materials that are used.

- The results show that the reasons of long waiting periods related to maintenance of medical devices are lack of maintenance of medical devices, Lack of the necessary medical device parts, delay of the company that responsible for maintaining medical The results show that the reasons for long waiting periods related to Coordination Process are Poor coordination between the admission and medical staff Poor coordination between the medical and nursing staff Poor coordination between the financial management and medical staff Poor coordination between the suppliers and staff
- The highest level of estimation, which stated that One of the reasons for the long waiting periods is the Poor coordination between the admission and medical staff

Conclusions and Recommendations

Principle Findings: The results show that the delay in the maintenance of medical devices was the most influencing factor in the length of waiting periods at a high degree of appreciation. Followed by the shortage, poor distribution, and high turnover of the medical staff with a high degree of appreciation. The weak coordination process followed with a high degree of appreciation. The last arrangement was a shortage of medical supplies and equipment.

- There is a statistically significant relationship between the shortage of medical staff and long waiting Periods In government dental clinics in Saudi Arabia.
- There is a statistically significant relationship between a lack of medical supplies and long waiting Periods In government dental clinics in Saudi Arabia.
- There is a statistically significant relationship between delayed maintenance of medical devices and long waiting Periods In government dental clinics in Saudi Arabia.
- There is a statistically significant relationship between poor coordination processes and long waiting Periods in government dental clinics in Saudi Arabia.

Recommendation

According to the results, the study recommends the following: Dental clinics in the government in public hospitals should reduce the length of waiting times by the following. First, recruit sufficient medical staff reduce the turnover of medical staff by increasing the motivation and raise the rewards and Distribute the medical staff as appropriate. Second, provide high quality of medical supplies, provide necessary medical equipment all of the time, and Provide sufficient medical materials that are used. Third, provide a high quality of medical device parts, activating periodic maintenance, and provide an alternative device if the device is taken for maintenance. Fourth, improve the coordination between the admission and medical staff between the medical and nursing staff

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