

DEDICATION

I would like to honor my beloved parents, wife, family and I also would like to dedicate for their limitless support. I take this opportunity to thank them for making me a better person.

ACKNOWLEDGEMENT

If I am here and doing whatever I am good at, then it is all because of my parents. I realize how blessed I am to have you both in my life and it is indeed a great honor being your son. I thank you so much for all the love, support, and belief that you have bestowed upon me. You seeded morality, affection, and all the best things in me that have helped me in evolving as the person you always wanted me to be. Thank you very much in helping my dreams comes true.

I thank my beloved wife for giving me the strength even in the worst of times to work towards my goal.

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ABSTRACT

Patient satisfaction is summation of all the patient as expectations in a health care setting and it is a human experience, appraised subjectively by an individual, regarding the extent to which, care received has met certain expectations.

This study was carried out to assess patient satisfaction during dental examination in Khartoum Dental teaching hospital in order to identify the impact of effective behavior of the care providers in the dental clinic on the level of patient satisfaction. In this study a questioner was designed to collect data from 60 patients and their relatives.

The study revealed that the patients were satisfied with radiologic services in spite of less communication between patient and technologist; furthermore risk factors did not expressed to patient prior to exam.

These data can be used for the welfare of the patient, the care provider and the health care organization.

الخلاصة

وجد ان رضا المرضى تشكل عبر توقعاتهم عن الرعاية الصحية و استنادا علي خبراتهم المتراكمة التي عززت بالتجارب الفعلية .

اجريت هذه الدراسة لتحليل رضا المرضى عن اشعة الاسنان بمستشفى الخرطوم التعليمي لمعرفة مدي تأثير سلوك مقدمي الخدمة في عيادات الاسنان و مستوى رضا المرضى عن الخدمات . في هذه الدراسة صمم استبيان لجمع المعلومات من ستين مريضا .

و خلصت الدراسة الي ان المتغيرات الديمغرافية الاخرى لم يكن لها تأثير ذو دلالة احصائية علي رضا المرضى ، ايضا السلوك العاطفي لمقدم الرعاية شكل كبير علي رضا المرضى .

و بصورة عامة كان هناك رضا عن قسم الاشعة بالرغم من زمن الانتظار الطويل نسبياً قبل الدخول للتصوير الاشعاعي ، قلة التواصل بين تقني الاشعة و المريض ، كما تم تحديد اولويات و احتياجات المريض لتطوير الخدمة المقدمه ويمكن ان تستخدم هذه الدراسة من اجل رفاهية المرضى و مقدمي الرعاية في تنظيم الرعاية .

CHAPTER 1

1.1 Introduction.

Two quotes presenting an explanation of patient satisfaction are patient satisfaction is a summation of all the patient's expectations in a health care setting (Worthington, 2004) and it is a human experience, appraised subjectively by an individual, regarding the extent to which, care received has met certain expectations (Brennan, 1995). Factors that influence the subjective appraisal of the patients and in turn support the evaluation of health care are the determinants of patient satisfaction. An in-depth analysis of the level of patient satisfaction associated with every aspect (determinants of patient satisfaction) of a health care setting will further help us to understand if the patients were satisfied in the health care environment.

Customers are the most important stakeholders and their views on every aspect of the health care environment will have to be understood so that measures can be taken to satisfy them during their future encounters with the health care environment.

Patient satisfaction data can be extensively used in various ways within a health care organization and also by other entities outside that organization such as accreditation agencies, business coalitions, and health plans. For a health care organization, conducting patient satisfaction studies helps in the evaluation of that health care system, the quality of care provided by the care providers in that system, and the provider-patient relationships (Mascarenhas, 2001).

Results from patient satisfaction studies can divulge the consumers presumed strengths and weaknesses of the health care environment and what

factors influenced or will influence their level of satisfaction in a health care setting. Measuring the level of patient satisfaction is important because it serves as an indicator of overall success in terms of how well the organization is meeting the needs of its target population. It is also one of the steps towards developing a competitive advantage in a market place environment (Scalise, 2004).

Organizations with highest patient satisfaction scores are proven to be more profitable (Scalise, 2004). Examples of external entities that use patient satisfaction data are accreditation agencies, insurance companies, and different business coalitions. Also, currently public opinion is considered as evidence for shaping new health policies (Edgington&Pimlott, 2000).

Patient's views on what is important in connection with the care they receive may be seen as an aspect of quality and patient satisfaction has increasingly come to be used as an indicator of quality (Wilde, Starrin, Larrsson, & Larsson, 1993). According to Yoshido and Mataka (2002), patient satisfaction in today's times is increasingly regarded as a component in the quality of patient care. When there is care that meets the expectations of the patients, then customer satisfaction is increased. To meet patient expectations, health care providers and the organization will need to continuously increase their quality of the care and monitor the results of their efforts.

Satisfying patients must be a fundamentally sound principle and a legitimate goal for a health care organization. By delivering quality health care, an organization may succeed in today's changing business and economic environment (Newsome & Wright, 1999a).

Patient satisfaction can be used as an indicator of an organization's survival in a highly competitive environment. According to Newsome and Wright

(1999a) and Bowers, Swan, and Koehler (1994), satisfying customers is necessary for a business's long term success. By doing so, there would be an increase in exchange relationships and thus positive returns to the organization. Positive organizational results of higher patient satisfaction would be evidenced by increased market share, less employee turnover, higher profits, and improved clinical quality (Scalise, 2004). Patient satisfaction data may also be used by various other organizations such as health plans and business coalitions to evaluate a health care organization (Scalise). If satisfied with the public response, these organizations could extend more support to the health care organization and so might contribute to long term success of the organization. Hence, fostering and maintaining customer support is one of the factors that might contribute to organization's growth.

Care providers are recognized by the way they provide care to the public. The public's perception of a profession is important in understanding the values they place on that profession (Edgington&Pimlott, 2000). Patients will develop respect towards the care providers and the health care organization when value is created for the patients in the form of quality health care, increased customer support, and so on. A health care provider gets negatively recognized if the quality of treatment he/she provides is not up to the expectations of the patient and vice-versa.

Recognition may be in the form of positive or negative word of mouth (Scalise, 2004). There is a higher chance for a customer to recommend an organization and a care provider to someone he/she knows through positive word of mouth, if the customer holds a positive value for the organization and the provider. In a public opinion survey conducted to find out the public perception of dental hygienists and the profession in Alberta, Canada, it was

found out that more than two thirds of Albertans believed dental hygienists were highly qualified and skilled professionals who could provide efficient preventive care (Edgington&Pimlott). Thus, by conducting a patient satisfaction study the value the public holds in regard to a particular profession and the organization can be understood.

Similarly, patient satisfaction studies in a dental radiography will help in measuring the quality care offered, positive or negative recognition/perception the patients have about the dental hygienists, and, hence, might be a tool to measure the success of the setting. Though there have been many patient satisfaction studies conducted in health care settings, there are not many that are associated with a dental radiography setting. A possible reason why there has not been serious consideration to assess the level of patient satisfaction with the dental hygienists can be assumed because dental hygienists are not seen as independent and autonomous care providers.

That is why many dental radiography organizations all over the world have been striving hard for the past two decades for greater independence, autonomy, and recognition (Adams, 2004). Often the credibility of a positive patient satisfaction in a dental office goes to the dentist alone, yet often equal or at least significant lengths of dental care encounter time is spent with dental hygienists who are an important part of the dental team. Although there are not many studies available on the actual length of the dental care encounter time with the dental hygienists, the following evidence will show that a majority of the patients visit a dental office for either a checkup or a preventive measure that dental hygienists are specially qualified and trained to perform. It has been found out from a public opinion study in Alberta, Canada, that 62% of the patients visited a dental office for

preventive care procedures (Edgington&Pimlott, 2000). A health promotion survey conducted in Canada (1998) supports the above mentioned evidence (Edgington&Pimlott). The Health Promotion survey discovered that more than 80% of those who visited the dental office did so for either a checkup or prevention-related purpose. As dental hygienists are best qualified to offer these preventive procedures, it could be assumed that significant amount of patient's dental care encounter time will be spent with the dental hygienists. In spite of their effort, dental hygienists, who are a part of the treatment team, may not be fully recognized in terms of overall contribution to patient satisfaction. To better understand the public recognition of dental hygienists and how they are seen in the eyes of the public, a study to determine the level of patient satisfaction in a dental radiography setting is needed. Patient satisfaction data in a

dental radiography setting could be used as an initial step towards the process of exploring the public's perception of dental hygienists. The results would be used to develop new strategies in a dental radiography setting to attract patients, create value for them, and elevate the level of satisfaction with the dental care encounter.

This study was to determine the level of patient satisfaction in a dental radiography department in order to find out the areas of weaknesses to further enhance the efficiency of the department to sustain services within a competitive environment. Objectives of the study would be to understand the patient perception about dental hygienists and to identify the positive and negative aspects of a specific dental radiography setting to enhance patient satisfaction efforts.

In effect, patient satisfaction and public perception can be analyzed and assessed by

Discovering the level of patient satisfaction associated with different aspects of a dental health care setting, thereby providing a wide scope, through which effectiveness of the care and the treatment outcomes could be enhanced.

1.2 Problem of the study

There have been many studies on patient satisfaction that were conducted in health care settings, and the results obtained have been used by those health care organizations to develop actions or plans and to enhance services offered to the patients. But not many studies have been put forth to understand the level of patient satisfaction in a dental radiography setting. By conducting this study at the Dental radiography Clinic of Dental Teaching Hospital, the level of patient satisfaction with different aspects of this service can be understood. We may discover if the clinical services offered at the clinic are meeting the patient's expectations. This might help in making important managerial decisions. Whether the dental hygienists get positive or negative recognition will also be assessed. Higher levels of patient satisfaction with the dental radiography setting and with the dental hygienists would enhance the recognition and reputation of both the setting and the care providers.

Is the level of patient satisfaction in this dental radiography department affected by the affective behavior of the care provider and the demographic characteristics of the patient population?

1.3 Objectives of the study

1.3.1 General objective

- To assess patient's satisfaction during dental radiography.

1.3.2 Specific objectives

- To assess patient waiting time.
- To assess procedure time.
- To assess patient communication such as explanation of the procedure, purpose of the exam, risk involved, and implication of the exam.
- To assess patient perception about the department.
- To assess patient comfort during exam.
- To assess preference for male versus female.

1.4 Overview of the Study

The study used data collected from the surveys completed by the dental radiography patients. The questionnaire used was a modified version of Hogan Patient Satisfaction questionnaire. The data were related to the factors associated with patient satisfaction in the dental radiography setting.

CHAPTER 2

THEORETICAL BACKGROUND AND LITERATURE REVIEW

2.1 Theoretical Background

Over the years, researchers have gathered substantiate evidence and developed various theories of patient satisfaction. Such theories visualize patient satisfaction from different angles.

Following are the theories of patient satisfaction that illustrate the association of patient satisfaction with treatment outcomes, health care environment, and health care provider power.

2.2 Performance Theory

According to this theory, patient satisfaction is not affected by prior patient expectations at all. Actual performance and the treatment outcome effectively affect patient satisfaction.

Actual performance will overwhelm any psychological response tendencies related to expectations (Oliver & DeSabro, 1998). Higher patient satisfaction can be expected to result in a better clinical outcome and lower patient satisfaction is associated with poor clinical outcomes (Oliver & DeSabro). Basically what the theory means is, though patients have expectations, level of patient satisfaction is influenced highly by the quality of care provided and the outcomes of the care. Patient's pretreatment expectations cannot inhibit the level of patient satisfaction, as it is overcome by the high quality care offered and a superior treatment outcome.

2.3 Fulfillment Theory

Fulfillment theory views patient satisfaction in a somewhat different way from performance theory. This theory contends that patient satisfaction is the difference between actual outcome and some other ideal or other desired outcomes (Linder-Pelz, 1982). This theory hypothesizes that satisfaction would vary positively with the extent to which perceived outcomes concurred with the pretreatment expectations (Linder-Pelz). The patient's perception of whether the outcome of a treatment was good or bad was based on the expectations the patient had before treatment and would influence the patient satisfaction. This means that there would be positive satisfaction if the treatment outcome matched with the pretreatment expectations of the patient.

Expectancy-Disconfirmation Theory Not very different from the fulfillment theory, the expectancy-disconfirmation theory contends that patients form expectations of their treatment outcomes even before the treatment. It proposes that the consumer compares his or her perception about a product or a service against a pre-purchase's comparison level or standard. In a health care setting, patients tend to compare the actual outcomes with that of the perceived outcomes (Oliver & DeSabro, 1998). It proposes that if one's expectations are higher, the less likely that service could meet or exceed them, and the result would be reduced satisfaction or dissatisfaction. On the contrary, the higher the perceived level of performance, the more likely the expectations would be exceeded, resulting in increased satisfaction.

2.4 Social-Equity Theory

This theory is different from the other three theories. If a patient perceives that his/her treatment outcome is comparatively and fairly the same when compared to that of his/her counterparts, then he/she is supposed to be

satisfied. Individuals compare their gains with those of other consumers and with those of the service provider (Newsome, & Wright, 1999). Patients tend to compare their treatment results with those undergoing the same treatment procedures for a similar condition in the same health care setting or any other health care setting. If the other patient had acquired better treatment services and the outcome in that patient is found superior to that of the first patient, the first patients more likely get dissatisfied.

2.5 Primary Provider Theory

The Primary Provider Theory contends that patient satisfaction occurs at the nexus of provider power and patient expectations (Aragon, 2003). It is principally the function of an underlying network of interrelated satisfaction constructs satisfaction with the primary provider, the amount of time a patient has to wait for the provider, and satisfaction with the provider's assistant (Aragon). According to this theory primary providers offer the greatest clinical utility to patients (Aragon). The theory is mainly operated by patient centered measures exclusively, where only patients judge the quality for service and other judgments are totally irrelevant. So this theory concludes that patient's level of satisfaction is inherently influenced by the primary care provider.

What could be understood from these theories is that patient's level of satisfaction is influenced by different factors like quality care, treatment outcomes, provider power, waiting time, equality in treatment, and staff members. The factors mentioned in these theories together with various other influencing factors were integrated in the patient satisfaction instrument. The first three theories, Performance theory, Expectancy Disconfirmation theory and Fulfillment theory mainly focus on the treatment outcome in a patient, irrespective of patient's prior expectations.

Social equity theory talks about patients being treated equally. According to Primary Provider Theory, patient satisfaction is influenced by the primary provider, waiting time, and the staff assisting the provider.

2.6 Previous Research on Patient Satisfaction

Determinants of patient satisfaction that influence the level of patient satisfaction are broad and complex. The literature reveals several factors that influence or at least are associated with patient satisfaction in health care settings. The supporting literature suggests that a questionnaire can be formulated and implemented among the patient base to assess the level of patient satisfaction associated with dental care. Following are the factors believed to influence general patient satisfaction.

Factors that influence the level of patient satisfaction in a health care setting can be divided into intrinsic factors and extrinsic factors. Intrinsic factors that are thought to influence patient satisfaction would be Age (Newsome & Wright, 1999b) Sex or Gender (Mataki, 2000; Schouten, Hoogstrate, & Eijkman, 2003), Socioeconomic Status (Ham, 2003; Mofidi, Rozer, & King, 2002; Newsome, & Wright, 1999b) Ethnicity (Badner, Bazdekis, & Richards, 1999; Carasquillo, Orav, Brennan, & Burstin, 1999; Saha & Hickam, 2003) Literacy (Vass, 2003), and Anxiety (Yellen & Davis, 2001). Extrinsic factors include characteristics of the health care organization and setting, the health care system that includes physicians, radiology staff, nurses, management staff, etc., access to care, insurance coverage, and cost of the treatment.

Intrinsic Factors and Patient Satisfaction Age, an intrinsic factor, indirectly influences patient satisfaction. According to Newsome and Wright (1999b), younger patients are more tolerant towards the dental health care system, owing to their good oral conditions. But older individuals who have

deteriorating oral conditions are less satisfied because even extensive dental treatment cannot bring back their lost comfort and functions. Also, according to certain researchers, younger patients are less tolerant towards dental care providers than older individuals (Rahmann, Shahidullah, Shahiduzzaman, & Rashid, 2002). such contradictory results have made it difficult to find the exact influence of age on patient satisfaction. Gender has also been studied and found to have indirect influence on patient satisfaction, although there is no clear cause noted. Gender is an independent predictor of patient satisfaction, and the females had displayed higher rates of satisfaction than their male counterparts in the studies conducted in the past (Mataki, 2000). Anxiety also factors into patient's level of satisfaction. Highly anxious patients miss the appointments, postpone treatments, and are found to be more noncompliant than patients who are less anxious (Yellen&Davis, 2001). Low-income clients often complain about the health care system (Ham, 2003) because of the perceived second rate treatment they receive compared to their high-income counterparts (Ham), and for being refused for treatment by certain providers (Mofidi et al., 2002).

Patients from different backgrounds, ethnicity and cultures have lower satisfaction rates because some of them cannot speech English and do not understand the provider's communication (Carasquillo et al., 1999). Also, they perceive that a low quality of care is provided to them (Carasquillo et al). Saha and Hickam (2003) considered language and culture as two key factors among Asians that led to decreased interest in treatment, to disbelief, and to a lack of understanding of the physician's advice. Authors have different opinions about the influence of one's literacy level on patient satisfaction. According to Vass (2003), if patients do not have the capacity

to obtain, process, and understand basic health information and services, they are less likely to make appropriate health decisions. Patients with a low level of education are highly anxious and do not comprehend what the health provider is trying to communicate and become dissatisfied with the health care provider and the system. In another study, it was found that a larger percentage of patients with a high school education or less considered their dentists to be more informative and truthful to them (Mataki, 2000). A less educated person might be dissatisfied if the dental provider is not communicative and informative enough but would be more compliant if provided with more health information.

Extrinsic Factors and Patient Satisfaction Extrinsic factors that influence patient satisfaction are mainly those that pertain to the health care organization itself, such as health care setting, access to the setting, providers and staff in the setting, insurance plans that the organization recognizes, cost of treatment, quality of treatment, types of services offered, etc. In effect, every aspect of the health care organization could influence patient satisfaction.

A patient-friendly health care environment could calm anxious first-time patients as well as fearful patients and might facilitate the patient's compliance and overall satisfaction. Patients recognize in a health care environment, the need for their personal space, a warm welcoming environment, supportive measures, good physical design, access to external areas, and provision of facilities for recreation and leisure (Douglas & Douglas, 2004). Mayer D (1992) predicted that the future hospitals would offer a more patient-friendly design that would promote compliance and patient satisfaction.

Patient access to health care is often related to the availability, accessibility and accommodation of health care services when required. In one of the studies (Badner et al., 1992), regarding patient satisfaction with dental care in a hospital, almost 60% of the participants were displeased with the extensive waits for the appointment. In the same study, unavailability of adequate dental care services was also found to dissatisfy patients.

Providers play an inherent role in taking care of the patient in such a way that satisfies patient's expectations. Providers are valued by the patients based on their communicative style, the quality treatment and information they provide, their personal appearance, etc. Patients exhibited more satisfaction when the dentists encouraged questions, paid more attention to them, had a calm attitude, and were friendly and assuring (Mataki, 2000). Patients evaluate the quality of health care in relation to their perceptions of instrumental and affective behaviors of the care providers (Mataki). Patients expect to be treated by highly competent and skilled health professionals (Wilde et al., 1993) and when a provider's technical competence seems unsatisfactory, patients were displeased. Dissatisfaction also rises when dentists fail to give enough information to the patients (Badner et al., 1992). Other staff in the health care setting such as nurses, front desk personnel, and management staff may also influence patient satisfaction. In a study assessing satisfaction with dental care in a municipal hospital, more than 60% of the patients were pleased with the courteous and compassionate attitude of the staff

(Badner et al). Non-medical staff, although not directly involved with the treatment procedures, can act as catalysts in facilitating patient's comfort level and overall satisfaction. The way the staff members treat patients is not

only important for organizational growth but is also crucial for their long term-employment in the office (Spolidoro, 2000).

Cost of the treatment and the insurance plan(s) that the organization recognizes limited access of low income and middle income patients to health care. Dental expenditures are soaring, and paying out of pocket by low-income and middle-income families is a burden leading them to the belief that public insurance plans would cover the treatment expenditures. Some patients are dissatisfied with the waiting times and the perceived unfriendly behaviors from the front desk staff and the dentists when compared with their counterparts who are privately insured or who pay out of pocket. According to dentists, patients who are Medicaid-insured miss and postpone treatment appointments more frequently than insured patients (Mofidi et al., 2002) and so dentists enrolled in the Medicaid program express their lack of interest in treating patients insured through Medicaid.

A health care system should provide at least the basic health care facilities to the public in need. According to Badner et al., (1992) patients were dissatisfied with the unavailability of adequate dental care services in a municipal hospital. Increase in the overall supply of dental services to the population in need will improve the satisfaction with care (Croucher, Robinson, Zakrzewska, Cooper, & Greenwood, 1997). So, if patients are given the necessary health care services within a single health care setting, it would satisfy the patients and thus promote patient satisfaction.

Intrinsic factors and extrinsic factors come together in such a way that the patient is positively or negatively influenced. The predictors of patient satisfaction and their relation in influencing the level of patient satisfaction in a dental radiography department can be incorporated in the development of a questionnaire containing all the above mentioned factors. Thus, how the

intrinsic and extrinsic factors influence level of patient satisfaction should be assessed to determine patient's satisfaction in an academic dental radiography department.

Background

2.7 Dental Radiography Technique and Care

2.7.1 Importance of Dental Radiographs

Dental radiographs are a necessary component of comprehensive patient care. In dentistry, a radiographic examination is essential for diagnostic purposes. Radiographs enable the dental professional to identify many conditions that may otherwise go undetected; dental radiographs allow the dental practitioner to see many conditions that are not apparent clinically. An oral examination without dental radiographs limits the dental practitioner's knowledge to what is seen only clinically, that is, teeth and soft tissues.

With the use of dental radiographs, the dental professional gains a great deal of information about teeth and supporting bone structures. (Joan M. Iannucci, 2011)

2.7.2 Uses of Dental Radiographs

Dental radiographs have many and varied uses. One of the most important uses of dental radiographs is for detection of diseases, lesions, and conditions of the teeth and bones that cannot be identified by clinical examination alone. Many diseases and conditions produce no clinical signs

or symptoms and are typically discovered only through the use of dental radiographs (Joen M. Iannucci, 2011).

Dental radiographs are also used for confirming suspected diseases and for assisting in the localization of lesions and foreign objects. Radiographs provide essential information during routine dental treatment; for example, the dentist relies on radiographs during root canal procedures. Dental radiographs can be used to examine the status of teeth and bone during growth and development. Dental radiographs are indispensable for showing changes secondary to trauma, caries, and periodontal disease.

Dental radiographs are an essential component of the patient record. A radiograph contains a vast amount of information, much more than a written record does. An initial radiographic examination provides baseline information about the patient. Each radiograph serves to document the patient's condition at a specific time. Any subsequent radiographs can be used for comparative purposes. Follow-up radiographs can be compared with initial radiographs and examined for changes resulting from treatment, trauma, or disease.

The primary benefit of dental radiographs to the patient is detection of disease, as mentioned earlier. When radiographs are properly prescribed, exposed, processed, and scanned, their benefit far outweighs the risk of small doses of x-radiation.

Through the proper use of dental radiographs, the dental professional can minimize and prevent problems, such as tooth-related pain or the need for surgical procedures.

Thus, the dental professional can save the patient time and money while maintaining the patient's oral health. (Joen M. Iannucci, 2011)

2.7.3 The dental radiologic technologists

The dental radiographer is any person who positions, exposes, and processes dental x-ray image receptors. In the typical dental practice, the dental radiographer is a dental auxiliary, either a dental hygienist or a dental assistant. The dental radiographer must have sufficient knowledge as well as technical skills to perform dental radiographic procedures and have a thorough understanding of his or her responsibilities and professional goals.

2.7.4 Knowledge and Skill Requirements

To be a competent dental radiographer, background knowledge of dental radiography is essential.

The dental radiographer must have a basic understanding of radiation history and a working knowledge of radiation physics, radiation characteristics, radiation biology, and radiation protection. In addition, the dental radiographer must be familiar with dental x-ray equipment, dental x-ray film, dental x-ray image characteristics, dental x-ray film processing, and quality assurance in the dental office (Joel M. Iannucci, 2011).

In addition to background information, the dental radiographer must master the knowledge of patient management basics. Most important, the dental radiographer must be proficient in technique concepts and the technical skills used in dental radiography.

2.7.5 Duties and Responsibilities

The dental auxiliary is a member of the dental team and has an important role in the practice. Each auxiliary employed in the dental office is assigned specific duties and responsibilities.

The assigned duties and responsibilities vary, depending on the size and nature of the dental practice and the individual qualifications of the auxiliary.

Assigned responsibilities in regard to dental radiography may include the following:

- Positioning and exposure of dental x-ray imaging receptors.
- Processing of dental x-ray films
- Data retrieval of digital images
- Mounting and identification of dental radiographs
- Education of patients about dental radiography
- Maintenance of darkroom facilities and processing equipment.
- Implementation and monitoring of quality control procedures. (Joen M. Iannucci, 2011)

2.7.6 Step-By-Step Procedures.

Step-by-step procedures for the exposure of periapical receptors using the paralleling technique include patient preparation, equipment preparation, and receptor placement methods. Exposure of bite-wing receptors using the paralleling technique is discussed in Chapter 19. Before exposing any receptors using the paralleling technique, infection control procedures must be completed (Joen M. Iannucci, 2011).

2.7.8 Patient Preparation

After completion of infection control procedures and preparation of the treatment area and supplies, the patient should be seated. After seating the patient, the dental radiographer must prepare the patient before the exposure of any receptor.

2.7.9 Equipment Preparation

After patient preparation, equipment must also be prepared before the exposure of any receptors.

2.7.10 Exposure Sequence for Receptor Placements

When using the paralleling technique, an exposure sequence, or definite order for periapical receptor placement and exposure, must be followed. The dental radiographer must have an established exposure routine to prevent errors and to use time efficiently. Working without an exposure sequence may result in omitting an area or in exposing an area to x-radiation twice. (Joen M. Iannucci, 2011).

2.8 Patient Relations and the Dental Radiographic Technologist

Patient relations are important for all dental professionals. The dental radiographer needs good interpersonal skills to communicate with patients and establish trusting relationships.

Communicating with dental patients may be the most demanding professional challenge that a dental radiographer encounters. The purpose of this chapter is to discuss specific interpersonal skills that enhance communication between the dental radiographer and the patient and to review the importance of patient relations (Joen M. Iannucci, 2011).

2.8.1 Interpersonal Skills

Skills that promote good relationships between individuals are termed interpersonal skills. (The term *interpersonal* is defined as “between persons.”) The dental radiographer must have effective interpersonal skills not only to establish trusting relationships with dental patients but also to promote patient confidence. Technical skills alone are not sufficient for providing optimal patient care. Interpersonal skills must be used in conjunction with technical skills to enhance the quality of patient care. (Joen M. Iannucci, 2011).

2.8.2 Communication Skills

Communication is a crucial interpersonal skill. Communication can be defined as the process by which information is exchanged between two or more persons. Effective communication is the basis for developing a successful radiographer–patient relationship.

2.8.3 Verbal Communication Skills

Verbal communication involves the use of language. The dental radiographer's choice of words is important when talking with the dental patient. Certain words detract from the professional image of the dental radiographer. For example, the term *pull* sounds less professional than *extract*, and the word *fix* sounds less professional than *repair* or *restore*. Some words used in the dental setting (e.g., *cut*, *drill*, *scrape*, *zap*) are associated with negative images and must be avoided. In addition, excessive use of technical words may cause confusion and result in miscommunication. The dental radiographer should always choose words that can be easily understood by the patient. (Joel M. Iannucci, 2011).

2.8.4 Nonverbal Communication Skills

Nonverbal communication involves the use of body language. Nonverbal messages that the dental radiographer conveys through posture, body movement, and eye contact are important when working with patients in the dental clinical setting.

Nonverbal messages can be substituted for verbal messages. For example, a nod of the head indicates agreement, whereas a shake of the head signals disagreement. Nonverbal behavior can also be used to enhance

communication. Forexample, if the statement “It’s nice to see you” is accompaniedby a smile, consistency exists between the verbal andnonverbal messages; the verbal message is enhanced by thenonverbal message. When nonverbal messages are consistentwith verbal messages, the patient is more likely to relax andtrust the dental professional. When nonverbal messages arenot consistent with verbal messages, however, the patient ismore likely to respond with apprehension and mistrust. (Joen M. Iannucci, 2011).

Posture and body movement are important nonverbal cues that convey the attitude of the dental radiographer. An attentive posture and leaning slightly toward the patient, with relaxed, still hands, are nonverbal cues associated with interest and warmth. Conversely, a slumped posture and leaning away from the patient, with arms folded across the chest and fingers tapping, are nonverbal cues that signal indifference and coldness. Patients are more likely to understand and remember information presented by an interested health professional than by a professional whose nonverbal cues signal indifference.

Eye contact is another nonverbal means of communication that is important in the dental setting. When listening to a patient, the dental radiographer should always maintain direct eye contact with the patient; the eyes should not wander. Direct eye contact is associated with interest and attention and plays a powerful role in the initiation and development of interpersonal relationships. A lack of eye contact is often interpreted as indifference or lack of concern.

2.9 Patient relations

In dentistry, the term patient relations refer to the relationship between the patient and the dental professional. Patient relations are important to all dental professionals: the dentist, the dental hygienist, and the dental assistant.

2.9.1 First Impressions and Patient Relations

The relationship between the patient and the dental professional begins with first impressions. The patient's first impression of the dental team most often involves the dental auxiliary, specifically the auxiliary's appearance and greeting.

The professional appearance of the dental auxiliary is important. The dental auxiliary should always wear a clean uniform and be well groomed. Strict attention must be paid to personal hygiene, including hand washing and maintaining fresh breath. In addition, the dental auxiliary should never eat, drink, or chew gum while working with patients.

In many offices, the dental auxiliary is the first dental professional to meet and greet the patient. The dental auxiliary should always greet patients in the reception room before escorting them to the treatment area. Patients should always be greeted by name. The dental auxiliary should address the patient using the patient's proper title (Miss, Ms., Mrs., Mr., Dr., Rev., etc.) and last name. If uncertain about the correct pronunciation of the name, the dental auxiliary should find out the correct pronunciation from the patient. The dental auxiliary should always introduce himself or herself to the patient, using both name and title. A typical first greeting is given below: Hello, Mrs. Davis. My name is Kate Miller, and I'm the dental assistant who will be working with you today. It's a pleasure to meet you. If you'll follow me to the patient treatment area, we can get started with today's appointment.

2.9.2 Chair side Manner and Patient Relations

The relationship between the patient and the dental professional develops as the professional works with the patient. Chair side manner refers to the way a dental professional conducts himself or herself at the patient's chair side. The dental auxiliary must develop a relaxing chairside manner that makes the patient feel comfortable and at ease.

The dental auxiliary must also convey a confident chairside manner. The patient must be confident about the auxiliary's ability to perform radiographic procedures. The dental radiographer must avoid comments such as "Oops!" and other statements that indicate a lack of control. The patient must feel that the operator is in control of all procedures being performed. One way to convey operator confidence is to explain to the patient exactly which procedures are about to be performed and then answer any questions the patient may have about the procedures.

In most dental offices, the dental auxiliary is responsible for performing radiographic procedures. However, some patients may be apprehensive about allowing a dental auxiliary to perform such procedures because they are accustomed to the dentist performing all procedures, including radiographic procedures. As a result, these patients may object to a dental auxiliary performing any services for them. In such cases, the dental auxiliary must try to establish a relationship with the patient by explaining the concept of the dental team. The dental auxiliary can educate and orient the patient to the dental team members and their respective roles and responsibilities. The dentist may then reinforce such information and reassure the patient before the dental auxiliary performs the radiographic procedures. (Joan M. Iannucci, 2011).

Patient relations and management skills with regard to persons with specific dental needs, specifically patients with physical or developmental disabilities, as well as pediatric, endodontic, and edentulous patients all those types need a special way of speaking.

2.9.3 Attitude and Patient Relations

The attitude of the dental auxiliary will affect patient relations. Attitude can be defined as “a position of the body, or manner of carrying oneself, indicative of a mood.” The attitude of all dental auxiliaries must be professional and should include such attributes as courtesy, patience, and honesty.

The dental auxiliary must be courteous and polite toward all patients at all times. Patience, which includes both tolerance and understanding, is important, especially when dealing with an uncooperative or difficult patient. Honesty is also a vital part of a professional attitude. Some procedures are uncomfortable in dental radiography, and the dental auxiliary must be honest and inform the patient of the potential discomfort.

2.10 Patient education

The dental radiographer must be able to educate patients about the importance of dental radiographs and also be prepared to answer common questions asked by patients about the need for dental radiographs, x-ray exposure, the safety of dental x-rays, and miscellaneous concerns. The purpose of this chapter is to discuss the importance of patient education, to describe different methods of patient education, and to review common patient questions and answers about dental radiography. (Joan M. Iannucci, 2011).

2.10.1 Importance of patient education

Educating dental patients about the importance of dental radiographs is critical, yet patient education is often overlooked by dental professionals. Many patients do not understand the value of dental radiographs. Often, the patient is simply told that “dental x-rays are required by the dentist,” and little additional information is provided. As a result, many patients fear the use of x-radiation. Others believe that dental radiographs are a way for the dentist to make extra money. To address such fears and misconceptions, the dental radiographer must be prepared to educate the patient about the value of dental radiographs.

Many patients have heard or read about the damaging effects of x-radiation. Newspaper articles, magazine articles, and television magazine shows often highlight the damaging effects of radiation and cast doubt on the necessity and benefit of radiographic examinations. Such reports are often misleading and are not well researched. As a result, these reports cause the patient to fear the use of x-radiation and to avoid all radiation exposure.

Because of the presence of such misinformation, the dental radiographer must take the time to educate the patient. In some instances, the patient may have to be completely re-educated. The dental radiographer must be prepared to explain exactly why dental radiographs are important, how dental radiographs are used, and how they are beneficial. In addition, the dental professional must be able to discuss common conditions and lesions that can be detected only through the use of dental radiographs.

Comprehensive dental health education is one of the greatest services that a dental professional can provide to the patient. Education enhances understanding. A patient who is knowledgeable about the importance of dental radiographs is more likely to realize the benefit of dental radiographs, accept the prescribed treatment, and follow prevention plans. (Joan M. Iannucci, 2011).

Patient education is also likely to decrease fears of x-ray exposure, increase cooperation, and increase motivation for regular dental visits.

2.10.2 Methods of patient education

Patient education about dental radiographs can be accomplished in a number of ways. The dental radiographer can use an oral presentation, printed literature, or a combination of both to educate the dental patient.

An oral presentation, in conjunction with sample dental images, can be used to communicate the importance of dental radiographs. For example, the dental radiographer can show the patient a prepared series of radiographs illustrating typical normal and abnormal conditions. Through the use of such radiographs, the dental radiographer includes a visual component in the educational process; visual aids enhance patient comprehension. A prepared oral presentation with visual aids allows the patient to develop greater confidence in the expertise of the dental radiographer. A prepared presentation also communicates to the patient that the dental radiographer is organized and competent.

The use of digital imaging may further aid in patient education. This helps patients view their own periapical, bitewing, or extra oral images on a

computer monitor or television screen instead of looking at detailed information on mounted radiographs.

The use of digital imaging helps explain concepts such as caries, periodontal changes, or oral diseases.

A combination of an oral presentation and printed literature is probably the most effective method of educating the dental patient about dental radiographs. The use of both approaches can stimulate a question-and-answer type of discussion about dental radiographs. (Joel M. Iannucci, 2011).

2.11 Common questions and answers

The dental radiographer must be prepared to answer common questions about the need for dental radiographs, x-ray exposure, safety of dental x-rays, digital imaging, and other concerns.

Many patients ask the dental auxiliary, rather than the dentist, questions about x-radiation. The dental radiographer can answer many of the patient's questions. However, some questions must be answered only by the dentist; such questions must be established by the dentist and understood by all members of the dental team. For example, questions about diagnosis must be answered only by the dentist. (Joel M. Iannucci, 2011).

2.11.1 Necessity questions

Patients often ask questions about the need for dental x-rays, the frequency of dental x-rays for adults and children, the refusal of dental x-rays, and the use of dental x-rays from a previous dentist. Examples of questions and answers follow:

Question: Are dental x-rays really necessary?

Answer: Yes. Many diseases and conditions such as tooth decay, gum disease, cysts, and tumors cannot be detected simply by looking into your

mouth. Many diseases and conditions produce no signs or symptoms. Without dental x-rays, these conditions may go unnoticed for a long time. As these conditions progress, extensive damage and pain may occur; these, in turn, may result in more extensive and costly treatment. Some oral diseases can even affect your general health or become life threatening.

Dental radiographs are always taken to benefit you, the patient; the primary benefit is disease detection. Through the use of dental radiographs, conditions and diseases that cannot be detected in any other way can be identified early. Early identification and treatment minimize and prevent problems, such as pain and the need for surgical procedures.

Question: How often should I have dental x-rays?

Answer: The first step to limiting the amount of radiation that you receive is the proper prescribing, or ordering, of dental radiographs. Decisions about the number, type, and frequency of dental x-rays are determined by the dentist based on your individual needs. Guidelines published by the American Dental Association are used by the dentist to aid in prescribing the number, type, and frequency of dental radiographs.

Because every patient's dental condition is different, the frequency of radiographic examinations is also different. The frequency of your dental x-ray examinations is based on your individual needs. No set interval exists between x-ray examinations. For example, a patient with tooth decay or gum disease needs more frequent radiographic examinations than a patient without such diseases.

Question: How often should children have dental x-rays?

Answer: The interval between radiographic examinations should be based on the individual needs of the child.

Because every child's dental condition is different, the frequency of radiographic examinations is different as well.

There is no set interval between x-ray examinations. For example, a child with tooth decay needs more frequent radiographic examinations than a child without tooth decay.

Question: Can I refuse x-rays and be treated without them?

Answer: No. When you refuse dental x-rays, the dentist cannot treat you. The standard of care requires that the dentist refuse treatment when a patient refuses x-rays that are necessary. Treatment without necessary radiographs is considered negligent. No document can be signed to release the dentist from liability. For example, if you were to sign a paper stating that you refused dental x-rays but released the dentist from any and all liability, you would be consenting to negligent care. Legally, you cannot consent to negligent care.

Question: Instead of taking x-rays now, can you use the x-rays from my previous dentist?

Answer: Yes. Previous dental radiographs can be used, provided they are recent and of acceptable diagnostic quality. Additional dental radiographs may be necessary, however, based on your individual needs. If your previous dental radiographs, even if recent, are not of diagnostic quality, you will have to have another radiograph taken. (Joel M. Iannucci, 2011).

2.11.2 Exposure Questions

Patients often ask questions about x-ray measurement, amounts of x-ray exposure, the use of the lead apron during exposure, dental x-radiation during

pregnancy, and the reason for the dental radiographer leaving the room during exposure. Examples of questions and answers follow:

Question: How are x-rays measured?

Answer: Special units are used to measure x-ray exposure and absorption. The radiation that reaches the surface of the skin is measured in roentgen units. The unit for dose, or the amount of energy absorbed by a tissue, is termed radiation absorbed dose (rad). Because of the small quantities of radiation used during radiographic procedures, very small multiples of these radiation units are used. The prefix milli-, meaning “one one-thousandth,” is used to express the small quantities of exposure in milliroentgens and the dose in millirads.

Question: How much radiation will I receive from dental x-rays?

Answer: Because no amount of radiation is considered safe, strict guidelines are followed to limit the amount of x-radiation. For example, the dentist custom-orders your x-rays on the basis of your individual needs. During exposure, a thyroid collar, a lead apron, fast film, digital imaging, and a beam alignment device will be used to protect you from excess radiation. Good exposure technique and careful processing are also used to limit your exposure to x-radiation.

The actual amount of x-radiation received will vary depending on the film speed, the technique used, and exposure factors. For example, when a single intraoral D-speed film

is exposed, the x-rays expose a small area of skin, and the exposure to the skin of the face is about 250 milliroentgens. With faster F-speed film, a single intraoral film results in a surface skin exposure of 125 milliroentgens.

The use of digital imaging reduces the radiation dose even further. For dental x-rays to produce permanent skin damage, such as skin cancer, exposures in

the range of thousands of roentgens are needed. Such exposures are inconceivable in dental radiography and are not possible with dental x-ray equipment.

Question: Why do you use a lead apron?

Answer: A lead apron and a thyroid collar are used to protect reproductive, blood-forming, and thyroid tissues from scatter radiation. The lead acts as a shield and actually prevents the radiation from reaching these radiosensitive organs. The lead apron protects you from unnecessary radiation exposure.

Question: Is it safe to take dental x-rays during pregnancy?

Answer: When a lead apron is used during dental radiographic procedures, the amount of radiation received in the gonadal region is nearly zero. No detectable exposure to the embryo or fetus occurs with the use of the lead apron. The American Dental Association, together with the Food and Drug Administration, has stated in the Guidelines for Prescribing Dental Radiographs that the recommended guidelines “do not need to be altered because of pregnancy.” Although scientific evidence indicates that dental x-ray procedures can be performed during pregnancy, many dentists elect to postpone such x-ray procedures because of patient concerns.

Question: Why do you leave the room when x-rays are used?

Answer: When you are exposed to x-rays, you receive the diagnostic benefit of the dental radiographs; I do not receive any benefit. An individual should only be exposed to x-radiation when the benefit of disease detection outweighs the risk of exposure. Since I do not benefit from your x-ray exposure, I must use proper protection measures.

One of the most effective ways for me to limit my x-ray exposure is to maintain adequate distance and shielding, which is why I step out of the room during your x-ray exposure (Joan M. Iannucci, 2011).

2.11.3 Safety Questions

Patients often ask questions about the safety of dental x-rays and wonder whether dental x-rays cause cancer. Examples of questions and answers follow:

Question: Are dental x-rays safe?

Answer: All x-rays are harmful to living tissue. The amount of x-radiation used in dental radiography is small, but biologic damage does occur. No amount of radiation is considered safe. As a result, dental x-rays must be prescribed only when the benefit of disease detection outweighs this risk of harm.

Question: Will dental x-rays cause cancer?

Answer: Not a single recorded case of a patient developing cancer from diagnostic x-rays exists. The radiation exposure that occurs during a dental x-ray examination is very small, and the chance that it will contribute to or cause cancer is extremely low. For example, the potential risk of dental radiography inducing a fatal cancer has been estimated to be 3 in one million. The risk of a person developing cancer spontaneously is much higher, or 3300 in one million. When these two numbers are compared, it is evident that when cancer occurs, it is much more likely to be unrelated to radiation exposure (Joan M. Iannucci, 2011).

2.11.4 Digital Imaging Questions

Question: What are the advantages of digital imaging?

Answer: Digital imaging requires less exposure to radiation which benefits you, the patient. Digital information can be stored, transmitted, and manipulated electronically.

Digital imaging also gives us instant images that are environmentally friendly, as no processing chemicals are used.

Question: Are there any risks associated with digital imaging?

Answer: Because radiation is involved, a certain amount of risk does exist. With digital radiography, your exposure is less than with traditional x-rays. Your radiation exposure time may be reduced by 50% to 80% (Joen M. Iannucci, 2011).

2.11.5 Miscellaneous Questions

Question: Can a panoramic x-ray be taken instead of a complete series?

Answer: No. A panoramic radiograph cannot be substituted for a complete series of dental radiographs. A complete series of dental radiographs is required when information about the details of the teeth and surrounding bone are needed. A panoramic radiograph does not clearly reveal changes in teeth, as in tooth decay, or the details of the supporting bone. The panoramic radiograph is useful for showing the general condition of a patient's teeth and bone.

Question: Who owns my dental radiographs?

Answer: All your dental records, including the dental radiographs, are the property of the dentist. As a patient, however, you have the privilege of reasonable access to your dental records. For example, you can request a copy of your dental radiographs or request that a copy be sent to a dentist of your choice. Digital images may also be electronically sent to a referring doctor. The dentist usually retains the original dental radiographs as part of the patient record (Joen M. Iannucci, 2011).

CHAPTER 3

Materials and methods

3.1. Material

Dental radiography patients in the dental radiography department at the Dental Teaching Hospital in Khartoum State were the target population whose perceptions and ideas were collected in the form of a patient satisfaction survey.

3.1.1 Subject group

100 patients 40 mal and 60 female

3.1.2 Dental department

- Digital
- 8 technologist

3.2. Methods

The Hogan Patient Satisfaction Questionnaire was modified, adapted and used for this dental radiography patient satisfaction study. Prior to the study, approval to conduct the study was obtained from the medical director of Dental Teaching Hospital.

The study was conducted by the following method. Dental radiography patients were met in person at the dental radiography department and were asked to fill the survey questionnaires.

Every patient was given the assurance of confidentiality and encouraged to participate in the study. Patients were assured that there would be no

negative consequences if they choose to participate or if they did not choose to participate in the patient satisfaction study. Their identity was protected.

With the instructions from the director of the dental radiography department, the Hogan Patient Satisfaction Questionnaire was modified to best fit the characteristics that pertain to the dental radiography department at the Dental Teaching Hospital. The Hogan Patient Satisfaction Questionnaire had previously been adapted for use in an academic dental health care setting. (Thomson, 2002, Thompson, Hogan, Scales, & Chen, 2003).

The core questions in the Hogan Patient Satisfaction Questionnaire were originally based on the early work of Ware, who developed and designed the Ware Patient Satisfaction questionnaire. He gave permission for using his questionnaire to Dr. Beth Hogan as a basis for her dissertation at the University of Tennessee, Knoxville. The Ware Patient Satisfaction Questionnaire had revisions and field tests over a six-year time period. Pilot testing involved 12 studies over a four-year period, and used sample sizes ranging from 363 to 640, with widely varied population socio-demographic characteristics. The content validity of the instrument was based on over 100 published studies defining the concept of patient satisfaction, as well as the consultation of experts. A copy of the modified Hogan Patient Satisfaction Questionnaire found in Appendix. Variables of Interest Demographic variables like age, sex, ethnicity, will be taken into consideration. Other variables of interest are the general Patient Satisfaction Score variable (PS Score variable) and Affective Behavior score variable (AFB Score variable). Patient satisfaction score variable was derived by computing together the variables under general satisfaction, satisfaction regarding the department, satisfaction due to staff's behavior, satisfaction about the faculty, etc. Affective Behavior Score variable is derived by computing together the

variables that denote the affective behavior of the care provider towards the patients. The lowest acceptable response for positive satisfaction to every question was determined. The response was totally subjective but considered to be an accurate evaluation.

3.2.1 Study design

The study designed to cover patient data, patient during dental radiography, patient communication, patient perception about the department, and preference for male versus female.

3.2.2 Data Analysis

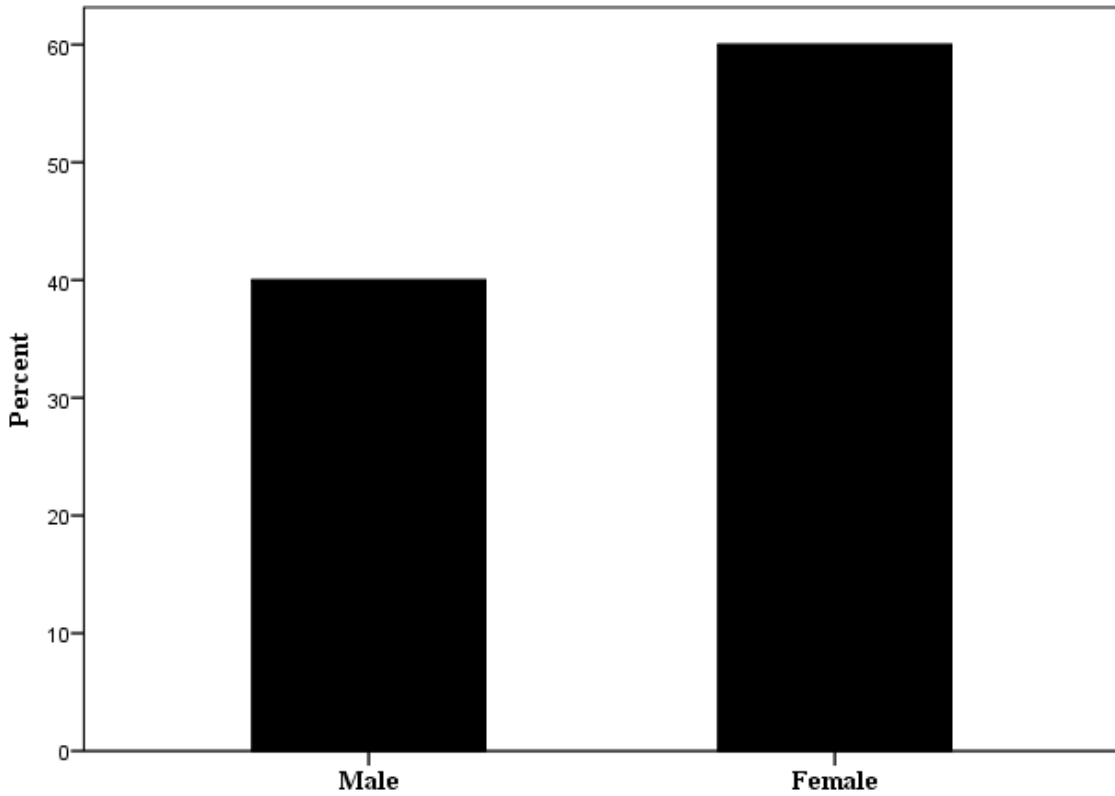
The questions from the questionnaire were taken as variables and a database was created in SPSS software using those variables. The questionnaires were numbered and filed. Responses from the questionnaires were entered manually into the SPSS database. Descriptive statistics were conducted with the variables of interest. Pearson's and Spearman's Correlation were conducted to determine if the affective behavior of the care providers influenced the level of patient satisfaction. Patient Satisfaction Score variable and Affective Behavior Score variable were used for Pearson's and Spearman's Correlation. Scatter plots were derived to determine the association between affective behavior of the care provider and level of patient satisfaction. One way ANOVA was conducted to determine the association between level of patient satisfaction and the demographic variables that were considered nominal or categorically unordered like gender, ethnic background, and marital status. Spearman's correlation was conducted to determine if the level of patient satisfaction was affected by the demographic variables that were ordinal in nature (ordered categorically, like age, educational status, and sex).

CHAPTER 4

RESULTS

Table 4-1 **GENDER**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	40	40.0	40.0	40.0
	Female	60	60.0	60.0	100.0
	Total	100	100.0	100.0	



Study group gender graph

Figure 4-1 Gender

Table 4-2 **WAITING TIME**

	Frequency	Percent	Valid Percent	Cumulative Percent
Long	46	46.0	46.0	46.0
Short	9	9.0	9.0	55.0
Average	45	45.0	45.0	100.0
Total	100	100.0	100.0	

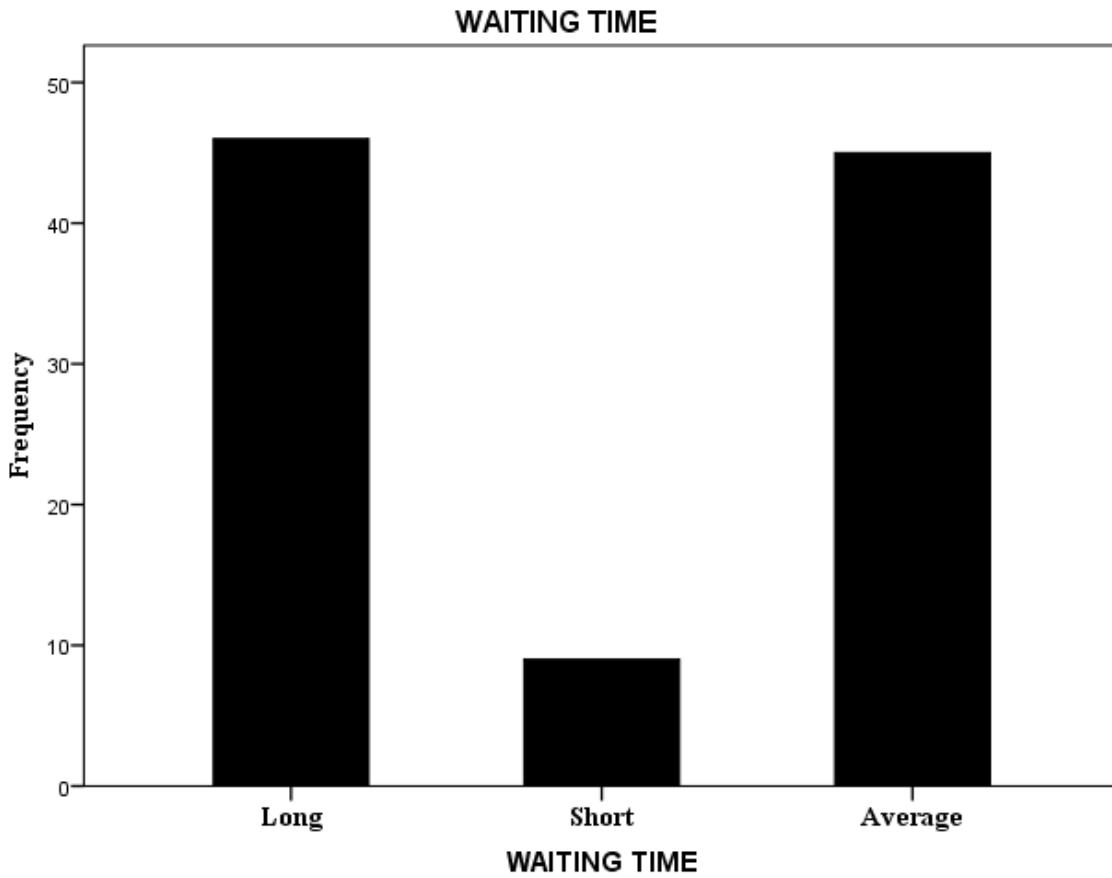


Figure 4-2 dental exam showing waiting time about 25 min

Table 4-3 PROCEDURE TIME

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Long	25	25.0	25.0	25.0
Short	75	75.0	75.0	100.0
Total	100	100.0	100.0	

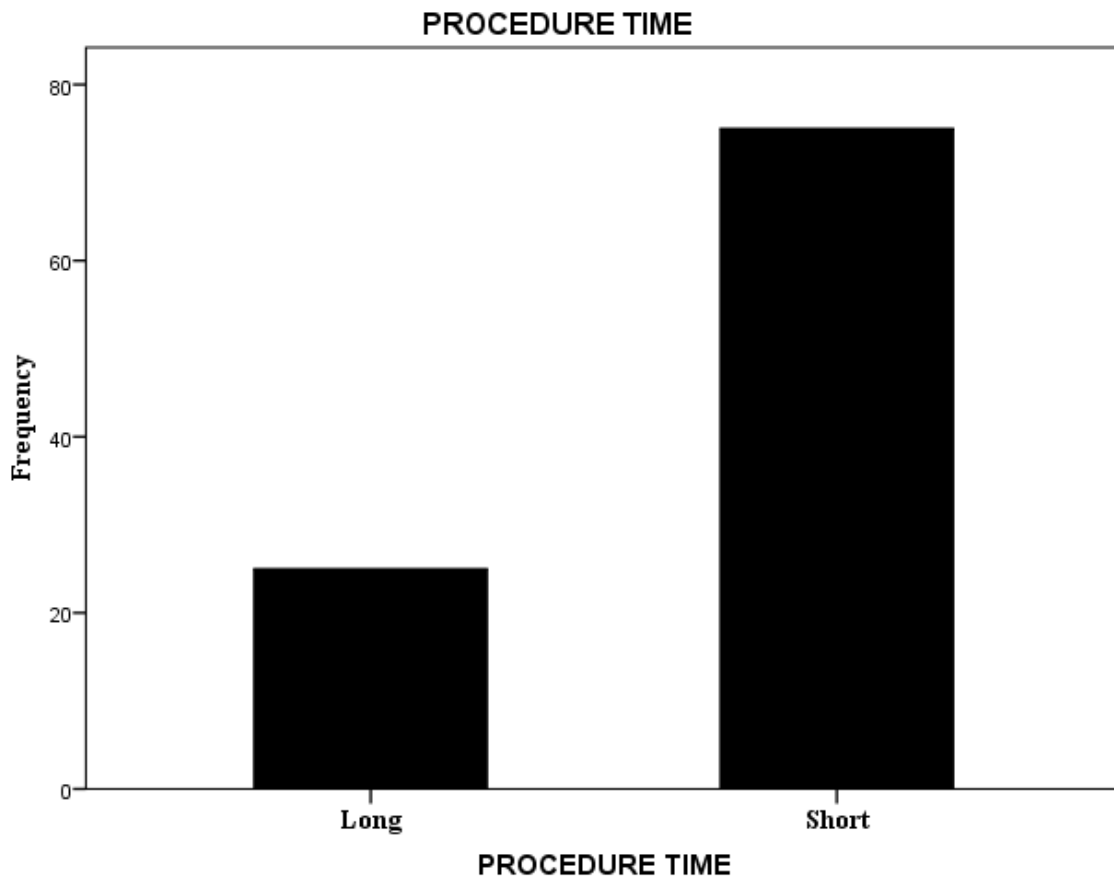


Figure 4-3 procedure time show 5 min

Table 4-4 EXPLANATION OF PROCEDURE

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid YES	68	68.0	68.0	68.0
NO	32	32.0	32.0	100.0
Total	100	100.0	100.0	

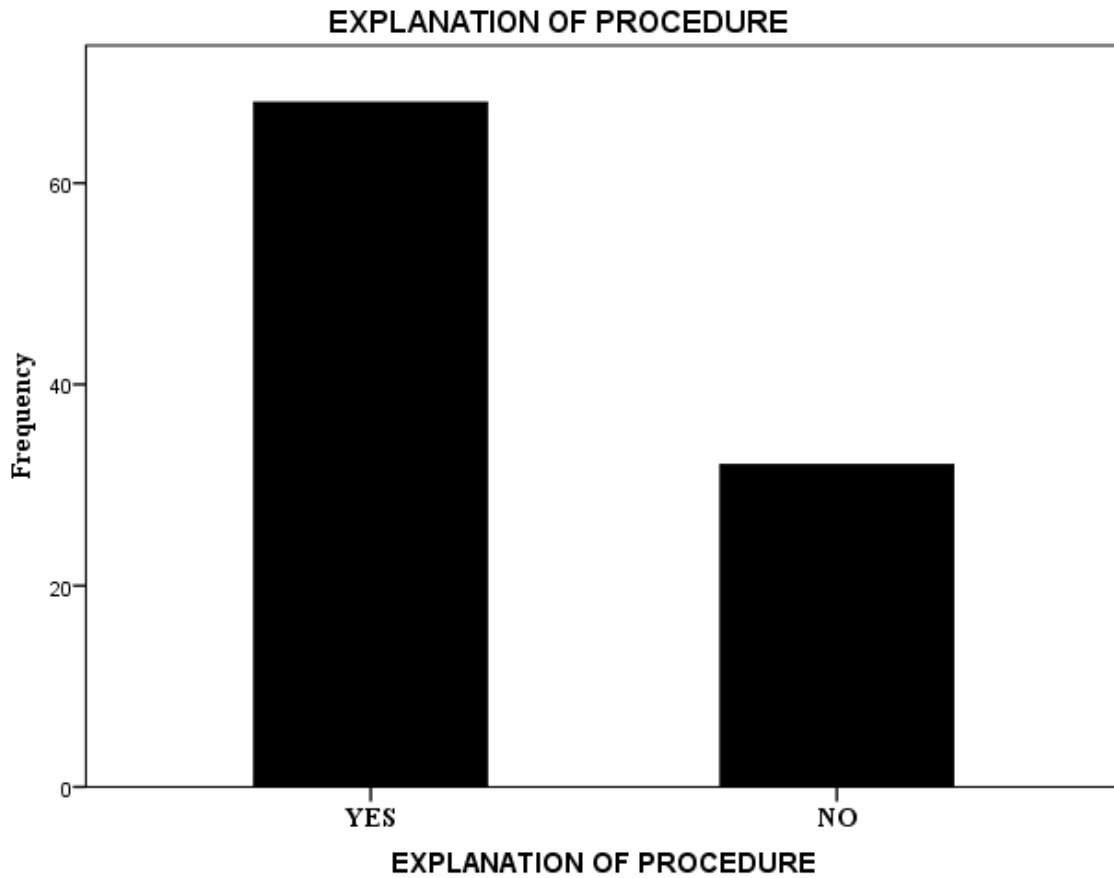


Figure 4-4 explanation of procedure show 3min

Table 4-5 PURPOSE OF THE EXAM

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid YES	43	43.0	43.0	43.0
NO	57	57.0	57.0	100.0
Total	100	100.0	100.0	

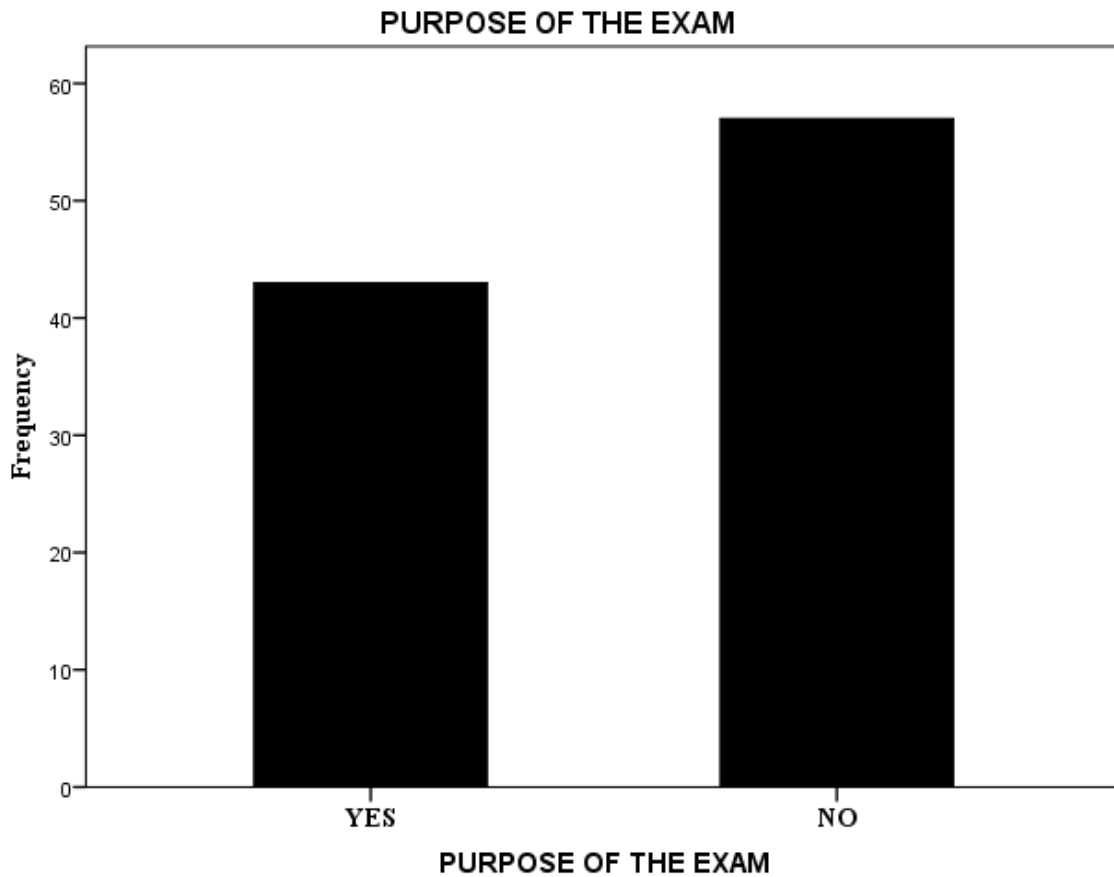


Figure 4-5 purpose of exam time 5 min

Table 4-6 RISK INVOLVED

	Frequency	Percent	Valid	Cumulative Percent
Valid YES	42	42.0	42.0	42.0
NO	58	58.0	58.0	100.0
Total	100	100.0	100.0	

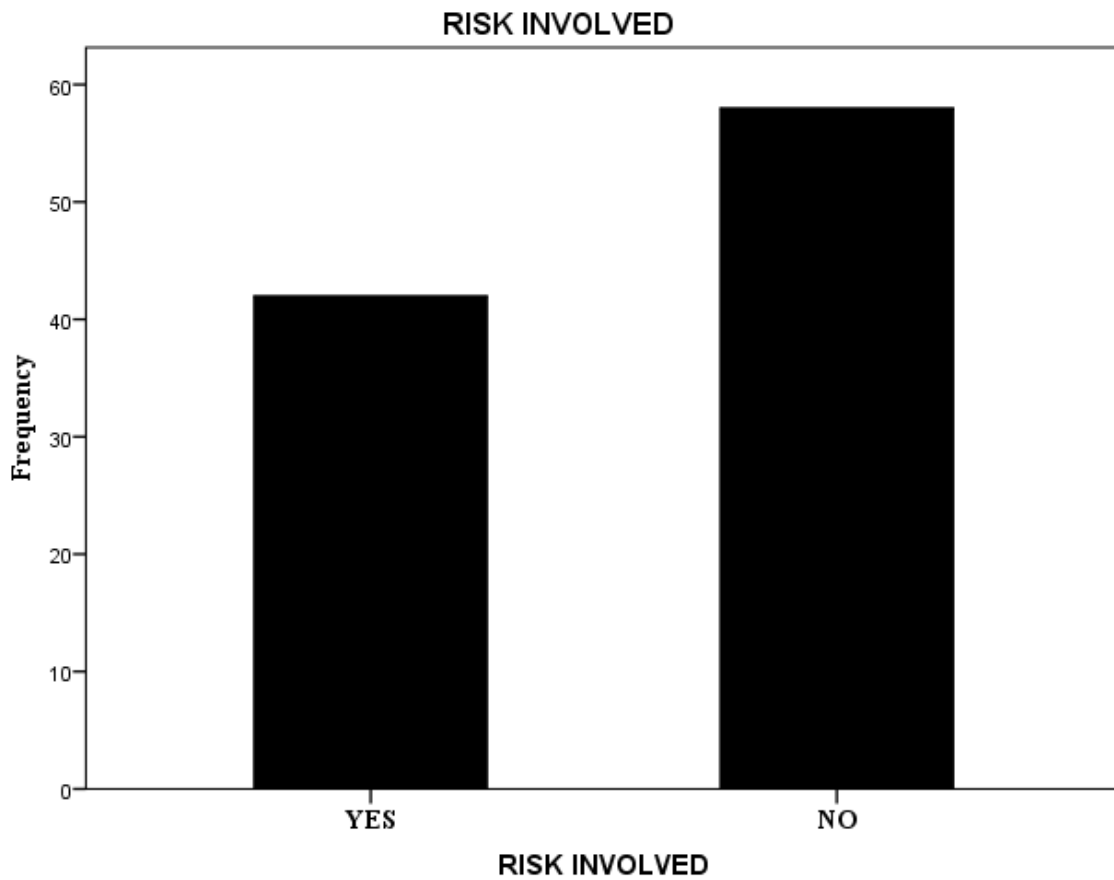


Figure 4-6 risk involved explanation 5 min

Table 4-7 IMPLICATION OF THE EXAM

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid YES	26	26.0	26.0	26.0
NO	74	74.0	74.0	100.0
Total	100	100.0	100.0	

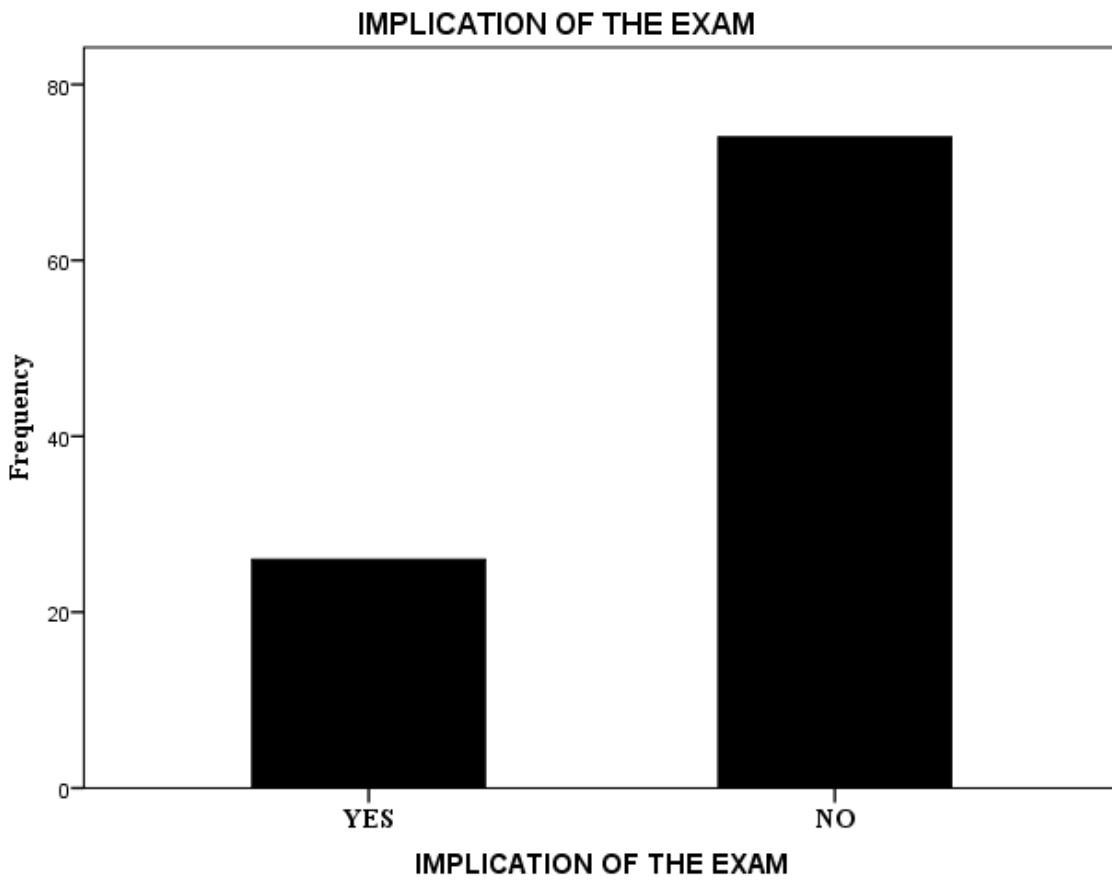


Figure 4-7 IMPLICATION OF THE EXAM

Table 4-8 PATIENT PERCEPTION ABOUT THE CENTRE

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid LOW	34	34.0	34.0	34.0
Middle	62	62.0	62.0	96.0
High	4	4.0	4.0	100.0
Total	100	100.0	100.0	

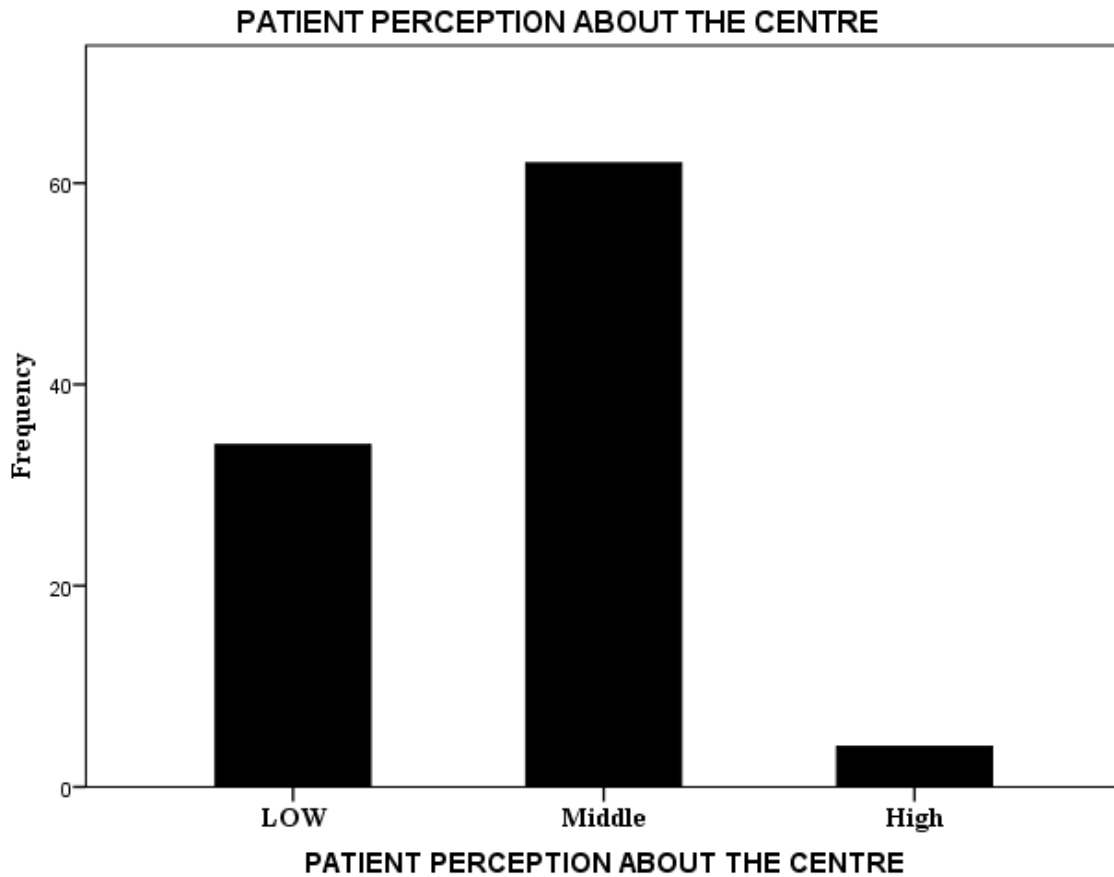


Figure 4-8 PATIENT PERCEPTION ABOUT THE CENTRE

Table 4-9PATIENET COMFORT

		Frequenc y	Percent	Valid Percent	Cumulative Percent
Valid	Good	43	43.0	43.0	43.0
	V.Good	13	13.0	13.0	56.0
	Bad	44	44.0	44.0	100.0
	Total	100	100.0	100.0	

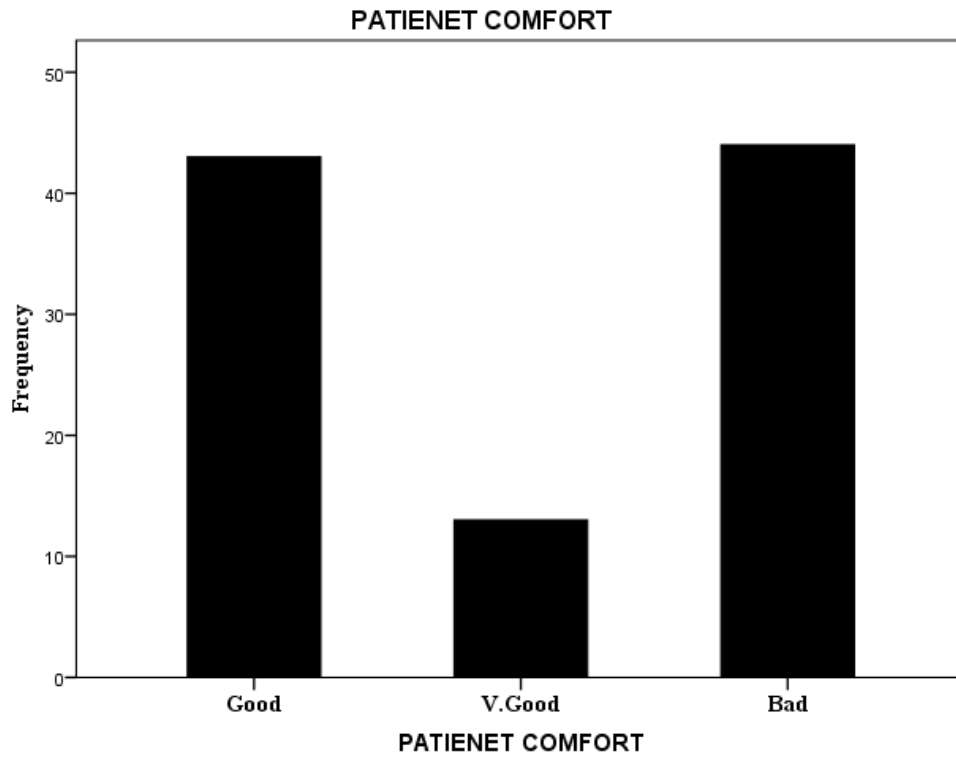


Figure 4-9 PATIENET COMFORT

Table 4-10 PATIENET PREFERENCE ABOUT MALE
VERSUS MALE

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	46	46.0	46.0	46.0
Female	54	54.0	54.0	100.0
Total	100	100.0	100.0	

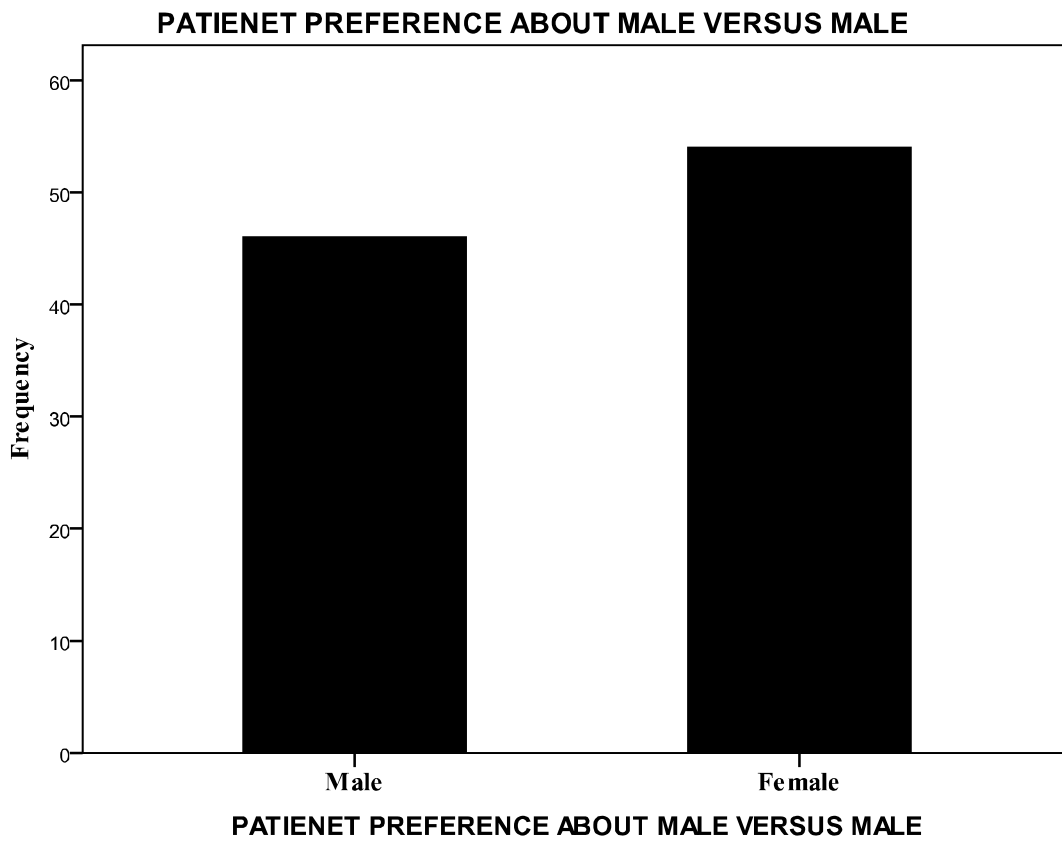


Figure 4-10

Table4-11 WAITING TIME * PATIENET COMFORT Cross tabulation

			PATIENET COMFORT			Total
			Good	V.Good	Bad	
WAITING TIME	Long	Count % within WAITING TIME	20 43.5%	3 6.5%	23 50.0%	46 100.0%
	Short	Count % within WAITING TIME	3 33.3%	4 44.4%	2 22.2%	9 100.0%
	Average	Count % within WAITING TIME	20 44.4%	6 13.3%	19 42.2%	45 100.0%
Total		Count % within WAITING TIME	43 43.0%	13 13.0%	44 44.0%	100 100.0%

Table 4-12 GENDER * PATIENET PREFERENCE ABOUT MALE
 VERSUS MALE Cross tabulation

			PATIENET PREFERENCE ABOUT MALE VERSUS MALE		Total
			Male	Female	
GENDER	Male	Count % within GENDER	28 70.0%	12 30.0%	40 100.0%
	Female	Count % within GENDER	18 30.0%	42 70.0%	60 100.0%
Total		Count % within GENDER	46 46.0%	54 54.0%	100 100.0%

CHAPTER5

DISCUSSION, CONCLUSIONAND RECOMMENDATIONS

5.1 Discussion:

This a descriptive study conducted to assess the level of patient satisfaction at the radiology department in Khartoum Dental Teaching hospital.

The study revealed that Procedure time was short for most of the patient (table 4-3), and this gives good indication about the technologist in the department, they have good experience in dental procedure.

Regarding the explanation of the procedure the result showed that most of the patient had an explanation about what will be done during the exam, so there was good communication.

The study also showed that there was less communication between the technologist and the patient regarding the purpose of the procedure, and that was because some of the technologist thinks that this kind of communication will delayed the procedure time. In addition the study revealed that more than 50% of the sample patient did not oriented about the possible risk.

Patient perception about the center showed they think it can be considered as a high level, this might be due to the establishment of a modern center that require special style of building and waiting areas.

Patient comfort during the exam revealed a good result; it could be due to manufacturer interest in patient comfort during examination.

The last variable in the questionnaire was patient preference male versus female which revealed that the majority of female prefer female technologist, the same result was noticed for male patients.

A direct way of creating value for patients is to come forth and conduct a satisfaction study to understand their level of satisfaction with the clinic. The

patients will be pleased as the management is interested to know what they feel about the clinic.

This creates as a sense of importance among the patients. By conducting satisfaction studies, the administrator makes it clear to the patients how important their perception and opinions about the clinic and the radiology technologist is by understanding the public's level of satisfaction with the clinic and perception about the radiology technologist, the administrator creates more value for them by adapting new strategies that will best satisfy the patients. Indirectly, an organization can create value for patients by using the satisfaction data to adapt new strategies such as, contracting with a health plan that is affordable by the patients, improving customer call services, enhancing integrated systems, increasing the technological advancements, and so on. The administrator is expected to execute his/her strategies efficiently to satisfy not only the patients but also the technologist to work towards the mission of the integrating continuous education and patient care. By satisfying the patients, the administrator increases the chance of attracting more patients and retaining the existing patients.

5.2 Conclusion:

Patients are satisfied about the department also long waiting time and some difficult in communication between the patient and the staff

5.3 Recommendations

Re design of the radiology department in dental teaching hospital will solve long waiting time problem and it will give the chance to increase the number of x-ray rooms.

Continuous education for the radiology staff will help a good communication between the patient and the technologist.

Patient education program is very important and it should start from the waiting area by giving brochures or by using screens that simply explains the dental radiography to help the patient in understanding the procedure.

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APPENDICE

College of Graduate Studies

Questionnaire regarding Patient Satisfaction during Dental Examination

Patient data

Age:

Gender:

Patient Satisfaction:

1. **Waiting Time:** Long short Average

2. **Procedure time:** Long short

3. **Patient communication:**

– Explanation of procedure: Yes No

– Purpose of the exam: Yes No

– Risk involved: Yes No

– Implication of the exam: Yes No

4. **Patient perception about the centre:** Low Middle High

5. **Patient comfort during exam:** Good V. good Bad

Patient preference for male versus female: Male Female