Healthcare Management

Measuring patient satisfaction of service quality in Swedish dental clinics

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Subhadra Namana, Sanar Al-Dori
ABSTRACT:
Healthcare management is a field that is related to management, leadership, and service of an organization. Due to high competition and change in the environment of healthcare organizations, managers need to embrace the innovation to respond to those changes and make the organization successful by improving the process, structure, and culture of the organization as well as to provide efficient and effective care that will lead to achieve patient satisfaction. Service quality is one of the key factor among the service innovations that contribute to business development and leading position in the business world with high competition. Patient satisfaction is important for any healthcare organization. Patient satisfaction improves hospital/clinic image, which changes into an increase in the use of services provided by the healthcare systems and increases market share. Patient satisfaction is dependent on the service quality which is the main factor in healthcare innovations.

Purpose: The purpose of this study is to understand experience levels of the patient satisfaction of service quality in Swedish dental clinics, based on the factors affecting dental service quality.

Data Sources: Interviews with staff from six clinics in Sweden, 240 patient surveys from two public and two private Swedish dental clinic, group interviews with three Swedish dental clinics, Science-Direct, Research Gate, ABI Inform, Google Scholar, Academia.edu.

Method: This study is based on the quantitative and qualitative analysis (i.e., mixed method approach) and abductive approaches to measure patient satisfaction in Swedish dental clinics through service quality. The problem is analyzed through interviews with the staff in private and public dental clinics. The factors affecting the dental service quality are analyzed through theoretical and empirical analysis. The patient’s satisfaction was measured by SERVQUAL tool through using patients’ survey that consists of 12 questions based on the four factors (tangibility, empathy, responsiveness, and Assurance). Patient survey is conducted in four dental clinics. SPSS was used to calculate mean and standard deviation for the survey’s result. After analyzing the result, group interviews with clinic 1, clinic 3 and clinic 5 was conducted to understand different values in the tool i.e., the value created, value destroyed, and value missed based on the customer perception to analyze the service quality of the dental clinics.

Findings: The result from the surveys showed that the factor empathy has highest positive affect and responsiveness has the lowest effect in four dental clinics. The lowest effect in the factor responsiveness is based on the waiting time to meet a dentist. The group interviews gave us the different values which are based on the idea of the value mapping tool in customer perspective. The value that the clinics gained trust from their patients. The value missed/destroyed is the waiting time to meet a dentist. The new opportunities are to improve the services by installing new technology products and changing the appearance of the clinic.

Keywords: Healthcare management, dental clinics, patient satisfaction, Sweden, factors, service quality.
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Sanar Al-Dori

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LIST OF ABBREVIATIONS:

- HEALTHCARE ORGANIZATIONS - HEALTHCARE SYSTEMS
- SERVQUAL - SERVICE QUALITY
- SEK - SWEDISH KRONA
- WHO - WORLD HEALTH ORGANIZATION
CHAPTER ONE

1. INTRODUCTION

In this section, we will discuss the challenges of the healthcare organizations and how it is affecting service quality and patient satisfaction.

Healthcare management is a management or administration of healthcare organizations, hospitals, hospital networks, and medical facilities. It is also defined as healthcare administration (Hannakaisa et al., 2006). Since healthcare organizations are dynamic and complex, managers in those organizations need to provide clear direction and leadership. Healthcare management or managers of healthcare organizations have several roles, functions, and responsibilities (Thompson et al., 2016). They need to coordinate the activities and to ensure the process of individual departments, whether they are running smoothly and in the best way that can meet the organization's goals, the manager is responsible in taking the important decisions to focus on the patients to ensure that they take the appropriate service as well as monitor the performance inside the organization (Panchapakesan et. al 2015; Le’Elef 2004).

1.1. BACKGROUND AND PROBLEM DISCUSSION

In the Western world, the healthcare organization is facing many challenges and changes (Costinel et al., 2013). First, medical information, technologies, and relationships with other hospitals are in constant flux where the clinics and hospitals are facing the arduous task of staying up to date. Second, there is a change in demographic population structure, an increasing number of patients and number of diseases. Third, there is pressure on governments to reduce costs in the healthcare sector while at the same time improving service quality (Martin, 2013). Fourth, many countries are facing recruitment problems to hire and attain skilled staff which is in high demand due to other reasons of retirement process (Hannakaisa et al., 2006). Furthermore, from patients’ perspective, they must wait before consulting a doctor, after meeting the doctor. This waiting period makes patients dissatisfied, which influences the service delivery of the healthcare organizations. Therefore, it is important that management should understand the patient behavior and improve their service quality to satisfy the patients (Costinel et al., 2013).

In healthcare organizations, management is responsible to carry out tasks and make decisions inside and outside the organization. They should focus on two domains to achieve the objective of the organization. The first domain is internal domain such as staff, staff relationship, quality, service, patient satisfaction, finances, and technology acquisition (WHO, 2017). The second is an external domain that is related to the demand, regulations, licensure, insurance, and accreditation (WHO 2017; Thompson et al. 2016). Ilyas (March 2017) state that management should focus on the two domains to improve the performance of the organizations. So, healthcare organizations should be able to respond and adapt to the external influences because the healthcare service is not stable.

Healthcare organizations survival and competitive advantage are based on patient’s perception of service quality (Carla et al., 2016). Previous research has shown that to gain competitive advantage, healthcare management should motivate the patients to participate in the healthcare services to improve their health. This means that the management should focus on the patients and this can be
done through several steps. First, they need to have a good relationship with the clients to improve quality of care by communicating with patients and build trust with them to survive in the market (Sharma et al., 2014). Second, they need to motivate the patients to self-manage which leads to positive results in the research as well as high-quality service and better healthcare outcomes (Gill et al., 2014). Third, they should focus on customer orientation based on the concepts-understanding, wanting, and acting. Fourth, management should focus on the recruitment of skilled staff (doctors, nurses, and physicians) as they play the main role to satisfy patients with their services and communication (Panchapakesan et al., 2015). Fifth, they need to consider the feedback given by the patients and immediate changes must be made to satisfy patients and improve their performance (Vaish et al., 2016).

In addition to that, healthcare management should have goals that will satisfy patients with the knowledge of processes and functions within the organization (HealthcareManagement, 2017). First, the management and staff should face challenges and handle them in a way that will not decrease their organizational growth. Second, the employees should be trained and motivated to provide services with care to build relationships with the patients. Third, the staff should be taught the advanced techniques in the healthcare organizations (Vaish et al., 2016). Fourth, the quality of care and services provided by the staff should convince and satisfy patients. Fifth, the managers should use the innovation services to help them in having new ways and ideas to improve the value of patient care and provide efficient and effective patient care by working on the process, structure, and service of the organization. Because leading the innovation in the healthcare management is very important due to the complexity of health services and the rapid changing in the environment of the health services (Sharma et al., 2014).

Sharma et al. (2014) states that innovation is a critical capability for healthcare organizations to sustain for long-term in the global market withstanding high competition with service management innovations (Sharma et al., 2014). To withstand competition, healthcare managers should embrace service innovation by improving the process to provide efficient and effective care which leads to achieve patient satisfaction. Service innovations are required in present days to improve service quality and care for patients as the population is growing more (Fein, 2016). From patient’s perspective, the advantages are better health or low level of illness. From an organization’s perspective, the main advantages are an increase in the efficiency of internal operations and the patient care quality (Hannakaisa et al., 2006). However, the first step towards a meaningful service innovation is to understand and measure current patient satisfaction. If healthcare providers understand what makes a patient judge quality and performance of a hospital/clinic (Nor and Wan, 2013), they can take steps to improve service quality and performance of the organization (Debajani and Tathagata, 2016).

Ofili (2014) states that there is an increased burden on health care organizations to concentrate on the development of the service quality and focus of their service delivery to meet growing customer demands (Drain, 2001). Healthcare organizations embark on research developments to determine novel and improved ways of keeping abreast with varying customer demands and how best to effectively satisfy those demands. In fact, there are more than one reasons- why a healthcare organization wants to conduct patient satisfaction research (Lin & Kelly, 1995). It could be because of self-desire and a key approach to develop its processes (Gill & White, 2009). This can either be driven by a mission to progress on the developments thereby dropping costs or a quest to expand patient satisfaction and by retaining old patients while attracting new ones (Nelson et al. 1992; Powers & Bendall-Lyon, 2003; Ofili, 2014). In fact, patients’ satisfaction effects on selection of
doctors, hospitals, clinics, as patient satisfaction plays a key role in healthcare organizations as it has potential effects on treatment outcomes (Linda et al. 2012; Martin 2013). By their experiences patient’s express their satisfaction levels about a specific hospital or clinic which in return affects the healthcare organization's fame and performance (DCunha and Suresh 2015; Riley et al. 2012).

Different European governments have discussions, which are in progress to bring changes in the healthcare organizations structure which changes radically (Quaye, 2016). For example, Denmark has more patient satisfaction than Sweden and Norway. In Nordic countries, General practitioners are the controllers of the healthcare systems. As patients focus on the service quality of hospitals and clinics in both public and private sectors, Rakhmawati et al. (2014) argue that public and private sector administrators or managers are focusing on the development of healthcare services to satisfy patients who have more expectations. The service quality which satisfies customers in the healthcare sector gives way to ISO 9001 implementation (Rakhmawati et al., 2014). Radically new medical practices are increasing due to the advance of technologies and medicines (Hannakaisa et al., 2006). But payments are done through public funds in Nordic countries of Europe (Quaye, 2016).

Karlsson et al., (2016) found that Swedish council has taken an approach to create value for patients with healthcare services by developing their organizations customer-oriented. Swedish healthcare organizations are innovating new services, new technologies, and new methods to improve their service quality. In Swedish healthcare organizations, Axelsson (2000) state that the Swedish healthcare system is decentralized one after making a lot of changes since 1980’s. The healthcare services are provided directly from 23 county councils as national government plays an only supervisory role. In 1862, centralized county councils had been made to reduce pressure on the local governments. The first hospitals in Sweden were established in the middle of the 18th century with few beds. In the 19th century, a number of hospitals with 100 beds were established all over the country. The traditional system was hospital organizations as most of the services are taken place in the hospitals. General hospitals are known as somatic hospitals and they belonged to county councils with big local governments of Stockholm, Goteborg, Malmo, and Norrkoping. While Mental and University hospitals belonged to the national government. Service management and quality management development are the key issues in the Swedish healthcare organizations (Axelsson, 2000). Nolte and Mckee (2003) state that the management produces high-quality healthcare for a reasonable price. Borgert (1992) states that even the Swedish healthcare system is a national one, but it is decentralized one. Anell (2005) states that the decentralized system allows organizational differences and as local healthcare reorganization (Elg et al., 2011). Like other western countries, Swedish service providers face three management challenges (Mattias et al., 2011):

- Demographic changes
- Medical and technological changes
- Customer expectations as demanding and well-informed healthcare co-actors.

After studying different authors’ perspectives, we understood “what is patient satisfaction?” and how it is dependent on the service quality. Then, we have decided to focus on the topic “Patient satisfaction to measure the patient experience levels based on factors affecting dental service quality” in Swedish dental clinics. We selected dental clinics to do the research study as we have experienced waiting time to book an appointment when we visited dental clinics in Sweden. We
thought of verifying it with the dental staff. Then, we conducted interviews with the dental staff to know their challenges before the research process started. We conducted interviews in six dental clinics as we have access that helped us a lot to know their challenges. After the interviews, we identified that the dental clinics in Sweden are facing challenges regarding the staff and the patients. The above-mentioned challenge is affecting patient’s satisfaction that is dependent on service quality provided by healthcare providers. The challenges in the dental clinics are: First, doctors and management are facing difficulties with staff who are neglecting services, which is causing a negative impact on clinics with the dissatisfaction of patients on clinical services and service quality. Second, the dental clinic management is unable to recruit staff with sufficient knowledge, skills and mostly staff take leaves, which is disappointing dentists with patient appointments. Third, the lack of staff is creating problems with managing appointments and patients’ treatment schedules without sufficient help while dental treatments are going on. Due to these challenges, there is a problem with the waiting time to meet a dentist and booking appointments are lagging to six months to one year in the dental clinics. These challenges are leading to patient dissatisfaction in the clinics and making patients choose another clinic. After knowing the above challenges, we started analyzing different authors’ perspectives on this research that helped us to find suggestions and recommendations.

1.2. PURPOSE

The purpose of this study is to measure experience levels of the patient satisfaction of service quality in Swedish dental clinics, based on the factors affecting dental service quality. First, we selected dental clinics for the research, as we have experienced waiting time to book an appointment when we visited the dental clinic. Secondly, we preferred six dental clinics because of the easy access to meet the staff to understand the challenges and we chose those clinics for our quantitative study to measure experience levels of patient satisfaction. Then we framed our research question, as the clinics have challenges related to factors which are affecting dental service quality. By fulfilling our purpose and answering our research question, we contribute to a better understanding of the factors that are affecting dental service quality to know the experience levels of the patient satisfaction. This study will help us to understand – how healthcare providers can focus on “service quality” to satisfy their patients and create value for their services in Swedish Dental Clinics. It can be useful for healthcare providers to know- how to identify the problem with help of the factors affecting dental service quality as an initial step in service management innovation process.

The research question for this study is “what are the experience levels of patient satisfaction measured by factors affecting service quality in the Swedish dental clinics?”

1.3. THESIS LAYOUT

The thesis paper is divided into chapters. The first chapter is the introduction, this chapter explains healthcare management and innovations in the healthcare systems along with the service quality and patient satisfaction in healthcare systems. The second chapter is the theoretical framework, which is developed according to the research question. The third chapter is the method, it has been designed according to the approach that is used for our research study. The fourth chapter is the Setting the context-Dental Clinics in Sweden, it explains about the Swedish dental clinic system,
differences between private and public healthcare systems, challenges of the dental clinics where the survey is performed, factors affecting dental service quality, and examples of other researchers. In chapter five, the results of the patient survey are analyzed. Survey results and the group interviews are discussed. Chapter six presents the conclusion of the thesis in which our limitations, managerial implications, and recommendations for future research are also explained. In chapter seven references are included. Chapter eight is Appendix, contains all the Interviews that had been conducted with the staff, Patient’s questionnaire written in English as well as translated Swedish Questionnaire for patients’ convenience, group interviews questions and results. Chapter nine contains the executive summary which explains the complete thesis in short.
CHAPTER TWO

2. THEORETICAL FRAMEWORK

In this section, we will discuss the framework that represents concepts which are based on the research study. The study focuses on measuring patient satisfaction through quality of service provided by healthcare organizations. This section begins with the concept of healthcare management and innovations in healthcare organizations, the relationship between service quality and patient (customer) satisfaction. SERVQUAL tool and their dimensions, which is used to measure factors that are affecting dental service quality.

2.1. HEALTHCARE MANAGEMENT

Healthcare is a high contact service which should have continuous interaction and communication between service provider and receiver (Patient). Management should improve service quality and care by understanding patient requirements with continuous interaction with them and provide efficient healthcare services through service management innovation. Management should train their staff to communicate with patients properly and understand their problems and rectify them in time to satisfy their customers. This, in turn, results in organizational improvement and helps healthcare systems to gain profits as customers trust them and spread positive feedback through “word-of-mouth” which is one way of information diffusion. This makes healthcare systems to sustain for long-time and flourish in the global market (Panchapakesan et al., 2015).

In addition, the healthcare management should collect feedback from patients after treatment and accordingly change the strategy to satisfy customers. The healthcare managers must be creative thinkers to be innovators, so they can be able to improve the organization (McKinney, 2016). As well as being able to determine the innovative employees to develop the organization, because it's important to have an innovative climate with innovative staff (Thompson et al., 2016). The culture of the organization is dependent on the innovative staff and the manager should establish an innovation culture by having flexibility and giving the assistance and feedback to the staff as well as collaborate with them (Thompson et al., 2016). So, innovation is important because it gives a high quality with less cost (Singh and Lillrank, 2015).

There are three types of innovation which are important in healthcare organizations. 1. Customer-focused, 2. Technology-based, and 3. Integrator (Lee et al., 2011). Customer-focused innovation concentrates on reducing patient waiting time, expenses, and medical costs. It considers a cost-effective and gives a sustainable solution. Technology-based innovations are to improve the delivery system which depends on the supply chain, which helps to improve processes that can provide high-quality care, new treatment types, diseases prevention, and reduction of delivery time of services and products, and IT applications. The integrator innovation is to improve the efficiency of healthcare services, group purchases, integrated network, SC, and IT. IT applications help all the three innovation types (Lee et al., 2011). Innovation helps the healthcare systems to sustain for a long time, as the changes made in the healthcare sector with patient feedback helps the healthcare organizations to gain competitive advantage and patient satisfaction. In our research, we will focus on “customer-focused” innovation. Because customer-focused innovation focuses on reducing patient waiting time to meet a dentist, the cost of medical treatments and their medical expenses.
Further, we will discuss service quality and customer satisfaction which are the key topics of our research study.

2.2. HEALTH SERVICE QUALITY AND PATIENT (CUSTOMER) SATISFACTION

Quality is defined as technical in nature from health professional point of view and it is operated in three constructs: Structure, Process, and Outcome. But consumers define quality as functional rather than technical. Quality has two interdependent sections: Quality in fact and quality of perception. The first states that quality, in fact, is meeting provider’s expectations whereas latter states that meeting customer expectations (Pondicherry University, 2000). Dcunha and Suresh (2015) state that quality is defined in two parts: quality in fact (means meeting organizations standards) and quality in perception (means meeting patient’s needs). The quality of the treatment helps to attract customers (Carla et al., 2016). The concept of quality of care is regarded as multidimensional and complex. Within nursing research, the definition of the quality of care starts and ends with the experience of the patients’ of the healthcare services (Ljunggren and Sjödeå, 2001). Now we understand, what quality in healthcare services is, we will now discuss the service quality in healthcare services.

According to Vassileva and Balloni (2014), the idea of service quality is the most studied area of services literature as an outcome of the increasing consumer-centric relationship orientation. It has become a key research area because of its relationship to costs, profitability, consumer satisfaction cited from (Bolton and Drew, 1991; Boulding et al., 1993), consumer retention (Reichheld and Sasser, 1990), and positive word of mouth. The origins of the service quality study occur in early theoretical works from Nordic School (e.g. Grönroos, 1983; Lehtinen and Lehtinen, 1982), and consumer satisfaction concept. Most descriptions of quality when applied to services are consumer-centered (Galloway and Wearn, 1998), with consumer satisfaction being seen as a purpose of perceived quality (Anderson and Sullivan, 1993), or according to Parasuraman et al., (1988) perceived quality being a task of consumer satisfaction (Vassileva and Balloni, 2014).

Service quality is determined as to gain focus on a customer in an organization or activity to bring changes in organization and improve performance (Pondicherry University, 2000). Dcunha and Suresh (2015) state that there has a been continuous research to identify the main dimensions of service quality in healthcare organizations and to measure patient satisfaction (Dcunha and Suresh, 2015). Healthcare organizations should focus on service quality, care to flourish and sustain in the market (Carla et al., 2016). They should satisfy patients with their care and quality; a patient’s satisfaction is based on the performance of the organization (Linda et al. 2012; Dcunha and Suresh, 2015). Successful implementation of quality of services must include three parts: A set of core concepts that provide for common terminology and ideas about quality and its meaning and application to individuals at work. Second is a systematic and common process that everyone uses for identifying and working quality issues. The third one is a set of managing elements that define the areas for change in an effective organizational change (Pondicherry University, 2000). Taylor argued that service quality and patient satisfaction should be measured separately because service quality perceptions are long-term consumer attitudes whereas patient satisfaction is short-term (Dcunha and Suresh, 2015).

The rationale to improve service quality includes increased competitiveness: Service quality increases profits through increased sales and good prices for the same quantity of healthcare service
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sales. Intentions of existing and potential customers are influenced by the service quality provided by the healthcare systems. Reduced costs: Operating margins and quality care have a direct connection. When the quality of care is high, it results in high productivity, quick patient recovery, efficient use of resources, which gives fewer costs per patient stay and high profits. Professional standards: To maintain core competence and professional integrity and to provide methods to ensure standards of conduct of profession and competence. Consumer rights: To bring changes in development and implementation of Healthcare services the right to consumer participation should be identified (PondicherryUniversity, 2000). Now, we will discuss the concept “who is a customer in the healthcare organizations?” and patient satisfaction.

Who is a customer in healthcare organizations?

A "customer" is one who looks for a service which is comfortable and suitable for his preferences and utility perceptions. The patient is one who seeks dentist advice and takes the assistance of his/her substantive needs. Patient/customer is one who seeks participation in defining a problem, policy development, and implementation based on the structural, substantive, and access needs and a participation right (PondicherryUniversity, 2000). The customer is important in the healthcare organizations to gain competitive advantage and sustain in the market. Customer satisfaction helps the healthcare organizations to improve their service quality. Customer/patient plays a key role in deciding the quality of services provided by healthcare providers with their satisfaction levels. Customer satisfaction is dependent on tangibility, reliability, and assurance. Tangibility, empathy, and assurance are also predictors of behavioral intentions. These results show us that patient satisfaction is based on the service quality they receive which makes them prefer the same healthcare organization in the future (Debajani and Tathagata, 2016). To improve service quality in the healthcare organizations, they should measure customer satisfaction levels. Satisfaction measurement is important for three reasons: the first reason is for healthcare services, high-level of patient satisfaction lowers the price related to the new patient acquisition. Second, patients who are satisfied can be easily maintained, and the value of a potential customer increases with time. The third is quality of customer care: can be improved when health-care providers are aware of their performance in taking care of potential customers (Verma and Jauhari, 2013). After understanding the reasons for measuring customer/patient satisfaction, we will discuss further the importance of patient satisfaction in the healthcare sector.

Patient satisfaction becomes very important in the healthcare sector. It is considered as an indicator of the service quality of the healthcare, so knowledge of measuring patient satisfaction is increasing in the healthcare (PondicherryUniversity, 2000). Healthcare service is intangible, as it is measured by the quality of the service provided by healthcare systems all over the world. Service quality is dependent on the customer(patient), service process, and service provider interactions (Gill et al., 2014). It is hard to provide the same service to all types of customers as they have different needs and demands (Vaish et al., 2016). Because service providers (doctors, nurses, and physicians) vary from place and based on time. Healthcare services can be produced and consumed at a time, as they cannot be stored for later use. As they cannot store healthcare services, same quality of service cannot be provided for all patients. Then comes the main problem, where the patient’s judge the quality of service provided by the healthcare organizations which leads to patient dissatisfaction. To overcome this problem, Healthcare systems should focus on the strategy, structure, and culture of the organizations (hospitals & Clinics) to improve efficiency and performance (Vaish et al., 2016). Patient satisfaction with care is a desirable output of healthcare and an important factor in
the quality of care. If health is a desired output of care and the patient is not satisfied with the quality of services provided by the healthcare providers, then healthcare has not reached its goals (Ljunggren and SjödeÅn, 2001). Now, we will see few examples of patient satisfaction and service quality.

Vredenburg and Bell (2014) state that patient satisfaction is less when doctors are not available in the clinics/hospitals. Nurses take care of patients in the absence of doctors which reduces variability in patient care (Vredenburg and Bell, 2014). In USA and Australia, nurse-based clinics are being popular to reduce the burden on the healthcare system (Randall et al., 2017). Patients are satisfied with the quality of care and treatment efficiency given by nurses as it is cost effective and efficient. They mention service employee flexibility to satisfy patients and improve quality of service and patient care (Vredenburg and Bell, 2014).

Naik et al. (2015) suggest that patient satisfaction is based on the effect of healthcare service quality. They have researched that high levels of customer satisfaction are dependent on the high quality of service that healthcare systems provide. Patients are satisfied with the management approach to solve issues. If management solves the problems of patient’s immediately- patients feel happy and diffuse that information to others which will help the organization to gain trust and customers. The patients who are happy with the treatment and management will visit the hospital/clinics again (Naik et al., 2015). Ghane et al. (2014) state that patients who take decisions for their treatment and adherence to physicians’ recommendations are more satisfied with their research analysis. Patients who are given preference to take decisions for their treatment are happy than the patients who are treated with healthcare provider decisions (Ghane et al., 2014).

For example, the research study conducted in Indian hospitals showed that “attendants” (Relative/friend/family member who take care of patients at the hospital) are the co-creators of healthcare services by giving mental support to the patients to recover soon and they are also “secondary healthcare customers” as they diffuse information of the service quality of the healthcare systems. The organizations which fail to deliver quality services will fail in the market as they cannot develop strategies to improve their quality and performance (Panchapakesan et al., 2015).

Different research studies of service quality and patient satisfaction show that they are the key aspects which affect the growth of the organizations if those issues are not managed efficiently. Further we discuss, what are the factors that are affecting service quality?

#### 2.3. FACTORS AFFECTING SERVICE QUALITY

There are several factors that can be used to measure the service quality in healthcare systems. In 1985, Parasuraman et al., (1985) identified factors like reliability, responsiveness, credibility, competence, courtesy, security, access, communication, tangibles, understanding the customer (Pondicherry University, 2000). In 1992, Ståhlnacke recognized factors such as elements of care, priorities of patients, interaction with healthcare, characteristics of patients and requirements for personal care based on their research study (Ståhlnacke et al., 1992). In 2015, Bahadori et al. (2015) identified factors such as performance, environment, support/care, waiting time, communication, responsiveness, honesty, nursing care, admission process, appointments, discharge process, physician care, comfort, cost, facilities and equipment, provider empathy, knowledge, abilities,
skills, friendly staff, and high-quality dental care which are affecting dental service quality (Bahadori et al., 2015). Panchapakesan et al (2015) recognized factors like personnel quality, administrative procedures, infrastructure, process of clinical care, hospital image, safety indicators, trust of the Hospital, Social responsibility for measuring patient satisfaction (Panchapakesan et al., 2015). Debajini and Tathagata (2016) also identified factors affecting dental service quality as tangibility, reliability, and assurance. In 2016, Carla et al., (2016) identified factors reliability, responsiveness, tangibles, courtesy, competence, access, communication, understanding the customer, caring, patient outputs, and collaboration that are affecting service quality. In 2017, Rocha et al., (2017) identified two factors tangibility and assurance as they are affecting dental service quality (Rocha et al., 2017).

All the factors which are developed by different authors in their research studies are summarized by Parasuraman et.al (1985) to five main dimensions known as reliability, assurance, responsiveness, empathy, and tangibility. The above factors are also described in the below table where we can understand the different authors’ perspectives to use the different dimensions in their research studies. As stated by Jacob et al. (2010) any factors can be added or deleted if they are not relevant to the service in the research studies.

### Table 1 Factors affecting service quality in different research studies

<table>
<thead>
<tr>
<th>No.</th>
<th>Year</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>1992</td>
<td>Elements of care, priorities of patients, interaction with health care, characteristics of patients and requirements for personal care (Katri et al., 1992, Ståhlnacke et al., 1992).</td>
</tr>
<tr>
<td>3.</td>
<td>2015</td>
<td>Performance, environment, support/care, waiting time, communication, responsiveness, honesty, nursing care, admission process, appointments, discharge process, physician care, comfort, cost, facilities and equipment, provider empathy, knowledge, abilities, skills, friendly staff, and high-quality dental care (Bahadori et al., 2015).</td>
</tr>
<tr>
<td>4.</td>
<td>2015</td>
<td>Personnel quality, Administrative procedures, Infrastructure, Process of clinical care, Hospital image, Safety indicators, Trust of the Hospital, Social responsibility (Panchapakesan et al., 2015).</td>
</tr>
<tr>
<td>5.</td>
<td>2016</td>
<td>Reliability, responsiveness, tangibles, courtesy, competence, access, communication, understanding the customer, caring, patient outputs, and collaboration (Carla et al., 2016).</td>
</tr>
<tr>
<td>7.</td>
<td>2017</td>
<td>Tangibles and Assurance (Rocha et al., 2017).</td>
</tr>
</tbody>
</table>

Several studies show that several factors determine patients’ satisfaction and service quality. These factors are related to the relation between the staff and the patient. Tangibility, reliability, responsiveness, assurance, and empathy are the most important factors that can be measured.
Healthcare Management
Measuring patient satisfaction of service quality in Swedish dental clinics

by SERVQUAL. This tool is used to measure the patient satisfaction. It’s basically a tool that is used to perform gap analysis based on the difference between expectations and perceptions of service quality (Shahin, 2003).

For example, Ståhlhacke et al. (1992) state that there are many possible factors affecting patient satisfaction with dental care. Explanatory designs of patient satisfaction have been designed, deriving from medical care. Baker built a pragmatic model of patient satisfaction in general practice, concentrating on six explanatory boxes: Elements of care, priorities of patients, interaction with health care, characteristics of patients and requirements for personal care (Ståhlhacke et al., 1992).

Another research study made in Malaysia, the study presents the patient’s satisfaction through their expectation of the service quality in the dental clinic. This study shows that the most significant service quality factors were related to empathy, assurance, and responsiveness (Jacob et al., 2010). Another research study that was performed at Tehran dental clinic shows that tangibility, reliability, responsiveness, assurance, and empathy are the key factors that affect the patient satisfaction and the result are based on patient perspective (Bahadori et al., 2015).

Another example from Rocha et al. (2017) states that expectations assessment about dental care is a key point to establish targets to quality improvement of the services provided. The research done by Rocha et al. (2017) found two factors tangibles and assurance as important as they scored high, which are regarded by survey participants and higher expectation is by males who are older than 33 years of age. The highest score for factors tangibility and assurance shows the role of dentist-patient and staff interactions. The physical appearance of the clinic and staff. The key expectation in the research study included trust development in dental staff, in their decision abilities, and putting stress on the treatment methods. Which in turn, reflects on patients’ perception where patients depend on healthcare providers’ ethics and to offer the best treatment for the clean and friendly environment. The other factors empathy, reliability, and responsiveness should be improved as tangibility and assurance scored high through a patient survey (Rocha et al., 2017).

Many people are referred daily to the dental services, by recognizing, measuring, and improving factors affecting dental service quality which can avoid resources wastage and improve patient satisfaction (Bahadori et al., 2015). Patients’ views are considered as an important factor in improving the service quality. The dental service quality is based on satisfaction of the patients need and finding the optimal solution regarding the functions and maintenance that are provided to the patients. Measuring the patient’s satisfaction through measurement of the service quality is very important in improving the dental care because the quality is considered as an important key factor in patient satisfaction (Bahadori et al., 2015).

Further, we will discuss SERVQUAL tool. Also, the factors that we chose in the research study and why we chose them.
2.4. SERVQUAL TOOL

SERVQUAL tool was mainly developed to be used in the marketing industry. It is used to perform gap analysis which is based on the difference between perceptions and expectations of quality of services. The tool can be used in wide range of services such as higher education, hotels, accountancy, travel, architecture, hospitals, construction, and in dentistry. It is concluded that any factors can be added or deleted if they are not relevant to a specific service to analyze (Jacob et al., 2010).

According to Parasuraman et al., (1985), SERVQUAL is an instrument with a good validity and reliability. The purpose of SERVQUAL is to be a methodology to uncover the areas of an organization’s service quality strengths and weaknesses. SERVQUAL dimensions and items represent main evaluation which transcends specific organizations. The SERVQUAL model assesses the service quality based on the difference between customer expectations and customer perceptions (Naik et al., 2015).

SERVQUAL has five dimensions or factors which consider the main dimensions. Parasuraman et al., (1988) states that the first factor is the tangibility which is based on physical facilities and appearance of the personnel, second one is reliability, which is the ability to perform the services accurately and dependable, third factor is responsiveness, which is willing to help customers and provide prompt services, fourth factor is assurance means knowledge and courtesy of employees and their ability to build trust and confidence for the customers and final one is empathy which is caring, individual attention the healthcare systems provide to their customers (Parasuraman et al., 1988).

The main five dimensions also contain other dimensions such as assurance and empathy which contain all other dimensions of the SERVQUAL tool. They are communication, credibility, security, competence, courtesy, understanding customers, and access (Parasuraman et al., 1988). To improve services, SERVQUAL is a multiple-item scale with good validity and reliability that sellers can use to understand the service expectations and perceptions of the customers.

This tool is designed to measure a broad spectrum of services. It is most valuable when it is used occasionally to track service quality trends. The main potential application of SERVQUAL is to determine the relative importance of the dimensions in influencing customers’ overall quality perceptions. SERVQUAL has many potential applications. It helps many retailing and service organizations to measure consumer expectations and service quality perceptions. It also helps in pointing areas which need managerial attention and action to improve service quality (Parasuraman et al., 1988).

Gibson (2009), state that the SERVQUAL has four broad themes to achieve effective service quality. Those themes are considered as four gaps pertaining to executive perceptions of service quality and the tasks related to service delivery to customers. The four gaps are Gap 1: customer expectation-management perception, gap 2: management’s perception-service quality specification, gap 3: service quality specification-service delivery, gap 4: service delivery-external communication, expected service-perceived service gap (Datta and Vardhan, 2017).
For example, the research study by Rocha et al. (2017) which is performed in Brazil highlights the necessity to evaluate the patients’ perceptions concerned with the private dental health service. When the SERVQUAL assessment and its dimensions were deepened in the factors tangibility and reliability, women showed more dissatisfaction levels than men with the services provided. In another study, John et al. (2011) show that there is no significance in women’s dissatisfaction levels greater than men’s. In another study, the authors suggested that the women are more satisfied than men because of their exposure to dental services (Rocha et al., 2017).

A research study by Andaleeb (2001) states that instead of limiting the ideas and measures of service quality to the theoretical structure and measures recommended by the SERVQUAL framework, another but related framework with its associated measures was advanced in his study. Five factors (Tangibility, responsiveness, assurance, empathy, and reliability) represented the ultimate dimensions of perceived service quality. These five dimensions were shown with complete satisfaction as the dependent variable. As a performance measure, satisfaction is taken as an important output of hospital care. Satisfaction has been distinguished from service quality in that while satisfaction and service quality have certain things in common, satisfaction is perceived as a broader concept while service quality valuation emphases on dimensions of service (Andaleeb, 2001).

In this research study, SERVQUAL tool is used for quantitative analysis, to measure experience levels of patient satisfaction using certain factors which are affecting dental service quality. So, we have chosen four factors that are considered as key factors in SERVQUAL tool. Based on other researchers, we found that the key factors are Reliability, responsiveness, empathy, tangibility, and assurance. These factors are used with SERVQUAL tool to measure the perceptions and expectations of customers/patients in different organizations. We did not include reliability factor in our study as the challenges we found in the dental clinics are not directly related to it. Reliability, as defined by (Parasuraman et al. (1985) is the ability to perform promised services dependably and accurately), did not appear in the research study as a separate dimension. However, we feel that the idea is effectively included in the assurance items of this research study. Perhaps reliability did not occur as a separate dimension because patients are hardly ever assured anything by healthcare providers in Sweden either implicitly or explicitly; fulfillment of assurances is, therefore, an expectation removed from the minds of patients.

The four factors are related to our study to know about service quality, patient perceptions and their expectations from dental clinic management. The SERVQUAL dimensions are used to develop our survey questionnaire. We are measuring patient satisfaction to know experience levels of customers using SERVQUAL tool dimensions in dental clinics. Those dimensions are assurance, responsiveness, tangibility, and empathy. They are explained in detail and show how they measure service quality and from what perspective:

- Responsiveness: The relationship between dentists keeping booked appointments while accepting patients at short notice and the patients’ perceived level of service quality, is positive and significant.

- Assurance means knowledge and courtesy of employees and their ability to build trust and confidence for the patients.
Empathy means caring, individual attention the healthcare systems provide to their customers.

Tangibles: The physical characteristics of the practice such as ambiance, decoration of the offices, surgeries, rooms, and reception areas which includes technology and equipment used will be considered and will have a significant positive effect on the patients’ perception about the quality of services (Baldwin and Sohal, 2003).

Figure 1 Model of Factors affecting service quality and patient satisfaction
CHAPTER THREE

3. METHODOLOGY

In this section, we are explaining about the research process throughout our research study.

Research is defined as something we assume to study things in a systematic way to gain knowledge. Ghauri and Gronhaug (2005) state that systematic research suggests that research is based on the logical relationships but not just beliefs. Research studies include a description of methods that are used to gather data which will argue about the results “why the results attained are useful” and will explain the limitations related to them. There are many purposes of the research. They include describing, explaining, understanding, criticizing, and analyzing (Saunders et al., 2009). Sekaran and Bougie (2013) state that research is the process of finding solutions to a problem after a thorough study and analysis of the situational factors.

Saunders et al. (2009) developed the research onion. It explains the steps to be covered to develop a research strategy. If we see it from the outside, each layer of the onion explains in detail about each stage of the research process (Saunders et al., 2009). The research onion gives an effective progression by which a research methodology can be developed. Its usefulness lies in its adaptability for any type of research methodology. It can be used in a different type of contexts (Bryman and Bell, 2011).

![Figure 2 Model of the research design](image-url)
The method is designed according to the research study, the research approach is abductive as we have started the research study with face-to-face interviews with the dental staff to understand the challenges. Then we developed a questionnaire and found survey results. After completing the survey analysis, we did group interviews to identify values in the dental clinics. We are following an abductive approach which is a combination of both inductive and deductive approaches. The research choice we made for our study is a mixed method as we did quantitative analysis with patient survey and we did qualitative analysis with face-to-face interviews and group interviews. Our research strategy is combinational as we have done interviews, survey, and group interviews. Time horizon is cross-sectional as we have limited time to complete the research. The data collection process is a compilation of both primary data and secondary data. In primary data, we have collected data from the interviews with the six dental clinics, then data is collected from four clinics (clinics 1, 2, 3, and 4) through a patient survey with sample size 240. The final data collection is with group interviews with three clinics (Clinics 1, 3 & 5) as the other clinics refused to participate in the study. Research ethics is briefly explained in the method. Validity and reliability are also explained clearly in the method.

3.1. RESEARCH DESIGN

Flick (2011) states that the research design is the explanation of how the research process will be accomplished. It is a framework which comprises the reflections that will lead to adopt the proper methodology, the method in which the respondents are selected, and how the data will be analyzed. There are several different research designs, those are descriptive, explanatory, and the exploratory (Saunders et al., 2009)

3.2. RESEARCH PROCESS

Saunders et al.,(2009) developed the research onion to describe the phases through which the researcher must go through when formulating an effective methodology.

Staff Interviews: we had six face-to-face interviews with the staff

Patients Survey: we collected 240 survey responses from four dental clinics (Clinics 1, 2, 3, & 4)

Group Interviews: we did with three clinics (Clinic 1, 3 & 5)

Figure 3 Model of our research process
The research process was initiated by interviewing two managers, one hygienist, and three dentists from six Swedish dental clinics. The gathered data from the interview helped us to identify the challenges that they were facing in the clinics. We framed our research questions by analyzing certain theoretical papers which describes the various factors and services which can be improvised to achieve better patient satisfaction in dental clinics. We prepared a questionnaire to evaluate and rate the level of patient satisfaction, quality and service afforded in Swedish dental clinics (Private and public sector). We have chosen four factors to measure the quality of service provided in dental clinics. They are assurance, responsiveness, tangibility, and empathy. The four factors are chosen based on the analysis of the challenges faced in Swedish dental clinics. The factors to measure patient satisfaction which is affecting dental service quality can be chosen based on our research study. We collected data from 240 different patients who received services from Clinics 1, 2, 3 & 4. This cross-sectional and systematic study was conducted between February and May 2018. The main criteria for choosing a particular patient for the study purpose was one who is registered with the clinic and one who receives treatment at least once in a year. The number of patients interviewed was equally divided among the clinics. Then we did group interviews with three clinics (Clinic 1, 3 & 5) to understand the different types of values with the idea of the value mapping tool in customer perspective.

### 3.3. RESEARCH APPROACHES

There are two types of approaches, the deductive and the inductive approach. When both the methods are combined for the research study, it is called abductive approach. Robson (2002) states that the deductive approach develops the hypotheses on a pre-existing theory and then formulates the research approach. Deductive approach is reliable to contexts where the research work is related to examine whether the observed content is suitable for expectation based on the previous research work. The deductive approach is considered for specifically suited to the optimistic approach, which gives permission to the formulation of hypotheses and the statistical testing of results to the best level of probability. However, a deductive approach can be used with qualitative research methods, but the expectations formed by pre-existing research work would be formulated differently than through hypothesis testing (Saunders et al., 2009). The deductive approach is characterized as the improvement from general to specific: the general theory and knowledge base are fixed, and the specific knowledge achieved from the research process is tested against it (Saunders et al., 2009).

The inductive approach is described as a step from the specific theory to the general theory (Bryman and Bell, 2011). In this approach, the observations are important and foundation for the researcher. In this approach, there is no framework which can be written initially that informs the data collection and the research focus can be formulated after the data collection. Although this is the point where new theories are formulated, it is also true that as the data is analyzed- it can fit into an existing theory (Bryman and Bell, 2011). Easterby-smith et al. (2008) states that the inductive method is more commonly used in qualitative research, where the lack of a theory for the research process may be of advantage by lowering the potential for researcher bias in the data collection phase (Bryman and Bell, 2011). Interviews are carried out on a topic and then the data can be tested for patterns between respondents. However, this approach can be used effectively
within positivist methodologies, where the data is tested first, and methods are used to inform the generation of results (Saunders et al., 2009).

Abductive reasoning also known as the abductive approach is used to discourse weaknesses related to deductive and inductive approaches. Mainly, a deductive approach is criticized for the lack of clarity in terms of how to select theory to be verified through hypotheses formulation. Inductive approach is criticized because no amount of empirical data will certainly allow theory-building. Creswell (2002) states that abductive approach is the alternative to both inductive and deductive approaches to reduce the weaknesses by accepting a pragmatist perspective (Saunders et al., 2009).

In abductive approach, the research process begins with ‘surprising facts’ or ‘puzzles’ and the research process is keen in their explanation. ‘Surprising facts’ or ‘puzzles’ may arise when a researcher meets with empirical phenomena that cannot be clarified by the current choice of theories (Bryman and Bell, 2011). When a researcher follows an abductive approach, she/he tries to choose the ‘best’ description among many choices to explain ‘surprising facts’ or ‘puzzles’ recognized at the beginning of the research process. Despite its growing popularity in the business studies, application of abductive reasoning in practice is challenging and you are advised to stick with traditional deductive or inductive approaches when writing your dissertation if it is the first time you are writing a dissertation (Saunders et al., 2009).

Our method of research approach is “abductive” as we have observed the research gap after conducting interviews and formulated our research questions according to the empirical and theoretical data we collected. We have first interviewed managers and dentists in Swedish public and private dental clinics. Then we have reviewed scholarly articles, books, and Journals to understand the factors which are affecting dental service quality and patient satisfaction. Finally, we did group interviews with three dental clinics 1, 3 & 5 to know the implications. Abductive research approach is chosen as we started our research process with staff interviews but not from theories. Our tentative research question is: “What are the experience levels of patient satisfaction measured by factors affecting dental service quality in Swedish dental clinics?”

3.4. RESEARCH CHOICES

The choices outlined in the research onion are the mono method, the mixed method, and the multi-method (Saunders et al., 2009). The mono-method includes using one research approach for the study. The mixed-methods includes the use of two or more methods of research, and usually refer to the use of both a qualitative and a quantitative method. In the multi-method, a wider selection of methods is used (Bryman and Bell, 2011). The main difference between the mixed method and the multi-method is that the mixed-method includes a combined methodology that creates only one dataset (Saunders et al., 2009). Tashakkori and Teddlie (2003) state that the multi-method approach contains the research method which is divided into separate segments, with each set produces a specific dataset, then each dataset is analyzed using techniques derived from quantitative or qualitative methods (Bryman and Bell, 2011).

The quantitative approach is concerned with quantitative data. It holds several obtained statistical standards for the validity of the approach, like the number of respondents that are needed to establish a statistically significant result. This research approach, it can be used to examine a wide range of social development, including feelings and subjective viewpoints. The quantitative approach can be most effectively used for situations where there are many respondents available,
where the data can be measured using quantitative methods, and where statistical methods of analysis can be used (Saunders et al., 2009).

The qualitative approach is retrieved from the constructivist paradigm. This approach needs, the researcher to neglect- imposing their own perception of the meaning of social development upon the respondent. The goal is to examine, how the respondent interprets their own reality (Bryman and Bell, 2011). This shows the challenge of designing a methodology that is designed by the respondent rather than by the researcher. An effective means by which to do this is through interviews, or texts, where the response to a question can be open. Furthermore, the researcher can frame the questions throughout the process to ensure that the respondent will expand upon the information given. Qualitative research is normally used for testing the meaning of social phenomena, rather than seeking a causative relationship between established variables (Saunders et al., 2009).

In our research, we are using “mixed methods” (Quantitative and Qualitative) as we are gathering data through a patient survey (which is a quantitative study) from Private and Public dental clinics and we have already interviewed dentists and managers (qualitative analysis) before our research work progressed to understand the challenges in Swedish Dental clinics what they are facing in reality. We found the research gap between healthcare providers, staff, and customers. Our qualitative analysis also includes group interviews which are conducted to understand the different values with the idea of the value mapping tool in customer perspective.

3.5. RESEARCH STRATEGY

The research strategy is how the researcher designs to carry out his/her work (Saunders et al., 2009). The strategy includes several different approaches, such as experiments, action research, case study, grounded theory, ethnography, and archival research.

Hakim (2000) states that the experimental research refers to the strategy of developing a research process which helps to examine the results of an experiment against the expected results. It can be used in all areas of research, with a limited number of factors (Saunders et al., 2009). Lewis used the term ‘Action research’ in 1946. Action research is considered as a real-world approach to a specific research problem within a community of practice (Bryman and Bell, 2011). Ethnography is engrained firmly in the inductive approach. It contains the close observation of people, observing their cultural interaction and their significance (Bryman and Bell, 2011). An archival research strategy is a strategy where it uses administrative records and documents as the main source of data collection. It is the strategy where the research is directed from existing materials (Saunders’ et al, 2009). Glaser and Strauss (1967) states that grounded theory is a qualitative approach that draws on an inductive approach whereby designs are derived from the data as a requirement for the study. Grounded theory is a theory building with a combination of deduction and induction (Saunders’ et. al 2009).

Robson (2002) states that a case study is a strategy to do a research that has an empirical investigation of a specific contemporary phenomenon within its real-life context by using various sources of evidence. Yin (2003) argues that the case study research is the single unit assessment to create its key features and draw generalizations (Bryman and Bell, 2011). It has an ability to generate answers to the questions ‘why’, ‘what’, and ‘how’ questions, although ‘what?’ and ‘how?’ questions are related to survey strategy. This case study strategy is used mostly in explanatory and
exploratory research. The data collection techniques are different and can also be used in combination. Those are interviews, observation, documentary analysis, and questionnaires. If we are using a case study strategy, we have to use and triangulate different types of data. Triangulation refers to the use of various data collection methods within one single study to ensure that the data tells us what we think. Qualitative data gathered using semi-structured group interview may be a valuable way of triangulating quantitative data gathered by questionnaire. There are four case study strategies: single case vs multiple cases and holistic case vs embedded case. We can choose the strategy based on our research method (Saunders et al., 2009).

Surveys are used in quantitative research works and involve sampling a representative proportion of the population (Bryman and Bell, 2011). Surveys make quantitative data that can be analyzed empirically. Surveys are associated with the deductive approach. It is a common strategy which is used in business and management research and it is used to answer questions like who, what, where, how much, and how many. Surveys should be used for exploratory and descriptive research methods.

In few circumstances, extensive interviews should be taken to get a grip on the situation and understand the phenomenon. When the data shows some methods regarding the phenomenon of interest, theories are developed and formulated. More rigorous methods, like an experimental method, for example, are used to test the hypotheses. Combination of methods can be used in many research studies to reduce the confusion (Sekaran and Bougie, 2013).

According to our research approach and research choice, we are using abductive approach and mixed method (i.e., qualitative, and quantitative) which leads our research to a combinational strategy where our data collection methods are used in combination of face-to-face interviews, surveys, group interviews. As we have begun from the empirical analysis that led us to find relevant literature related to our research topic and made us focus on the factors affecting dental service quality to measure patient satisfaction levels in Swedish dental clinics. We are comparing public and private dental clinics to know the patient satisfaction levels which are dependent on the service quality provided by Swedish healthcare systems.

**3.6. TIME HORIZONS**

The Time Horizon is the time framework within which the thesis is intended for completion (Saunders et al., 2007). Two types of time horizons are mentioned in the research onion: the cross-sectional and the longitudinal (Bryman and Bell, 2011). The cross-sectional time horizon is one already established, whereby the data must be collected. This time horizon is used when the experiment is concerned with the study of a specific phenomenon at a specific time. A longitudinal time horizon refers to the collection of data continuously over an extended period. This is used where a core factor for the research is examining change over time (Goddard & Melville, 2004). This has the advantage of being used to study change and development. (Saunders et al., 2009).

We follow cross-sectional time horizon for our research method as we collect data in a fixed time as there is a time limit for our thesis project and we should complete the survey and analysis in this time limit and submit the results and findings.
3.7. DATA COLLECTION

Data collection and analysis is dependent on the methodological approach used in the research work (Bryman and Bell, 2011). The process used in this phase of the research contributes to the study of overall reliability and validity (Saunders et al., 2009). Regardless of the approach used in the thesis, the data collected can be separated into two types: primary data and secondary data.

**Primary Data**

Primary data is retrieved from first-hand sources. This can be historical first-hand sources or the data derived from the respondents through survey or interviews (Bryman and Bell, 2011). For example, data retrieved from statistics such as the census can constitute primary data. The primary data is best stated as the data that is being analyzed by itself, but not through the prism of another data analysis (Saunders et al., 2009).

Our primary data is derived from the interviews of dentists and managers, patient survey, and group interviews.

**Face-to-face interviews**

One-to-one interviews are the face to face or telephone interviews known as non-standardized interviews. These interviews may be structured, semi-structured, and unstructured. Telephonic interviews offer potential advantages with access, speed, and cost (Saunders et al., 2009). This method will help to save time and cost because of the distance to conduct face-to-face interviews. Data collection through telephonic interviews is beneficial and convenient to gather data in less time-period. Face-to-face interviews help us to establish integrity and make us easy to demonstrate our competence. Face-to-face interviews have advantages as the interviewer can explain the research requirements and should follow ethics while conducting the interviews (Saunders et al., 2009).

One of the researcher had the opportunity to perform face to face interviews with selected dentists and managers as she have access to those concerned clinics with the help of the dentist Dr. Ali Habib. The dentists and managers are the colleagues of dentist Ali Habib. She got an opportunity to meet them in the dental clinics to explain about the research study. The researcher explained the purpose and objective of the research study to the interviewees. The dentists and the managers have accepted the proposal for participating in the face-to-face interviews after knowing the research topic. They showed special interest in the topic to analyze the experience levels of the patient satisfaction in their clinics. Then we authors developed the questionnaire and mailed them before two days and they have responded to their interview schedules. Two face-to-face and four telephonic interviews were conducted. We have collected data from six face-to-face interviews with the dental staff who are working in the Swedish dental clinics. These interviews covered three public and three private dental clinics. The interviews are semi-structured based on the interviewee. See appendix 8.1 for the semi-structured questions for the dental staff. The interviews are listed below in Table 2.

**Table 2 Interview details of the public and private doctors**
<table>
<thead>
<tr>
<th>NO.</th>
<th>Name of the dental clinic</th>
<th>Location of the clinic</th>
<th>Public/Private</th>
<th>Doctor / Manager Name</th>
<th>Position</th>
<th>Type of interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Breared folktandvården</td>
<td>Varberg</td>
<td>Public Clinic</td>
<td>Dr. Berndt-Göran Isberg</td>
<td>Manager</td>
<td>Face to Face interview</td>
</tr>
<tr>
<td>2</td>
<td>Folk tandvården Uddevalla city</td>
<td>Uddevalla</td>
<td>Public Clinic</td>
<td>Rowaid Nihad</td>
<td>Hygienist</td>
<td>Face to Face interview</td>
</tr>
<tr>
<td>3</td>
<td>Abbas Dental AB</td>
<td>Helsingborg</td>
<td>Private clinic</td>
<td>Dr. Hussein Abbas</td>
<td>Manager</td>
<td>Telephonic interview</td>
</tr>
<tr>
<td>4</td>
<td>Privattandläkarna</td>
<td>Stockholm</td>
<td>Private clinic</td>
<td>Dr. Yazin Baithoon</td>
<td>Dentist</td>
<td>Telephonic interview</td>
</tr>
<tr>
<td>5</td>
<td>Tandläkarna på Hörnet</td>
<td>Stockholm</td>
<td>Private clinic</td>
<td>Dr. Osama Pairo</td>
<td>Dentist</td>
<td>Telephonic interview</td>
</tr>
<tr>
<td>6</td>
<td>Folk tandvården</td>
<td>Strängnäs</td>
<td>Public clinic</td>
<td>Dr. Zaid Alkhateeb</td>
<td>Dentist</td>
<td>Telephonic interview</td>
</tr>
</tbody>
</table>

**Clinic 1:** BrearedFolk tandvården in Varberg is a public dental clinic. We had an interview with the manager named Dr. Berndt-Goran Isberg. The clinic is registered with 5000 number of patients. The staff in the clinic are 3 doctors- 2 full-time dentists and one-half time. They have six nurses.

**Clinic 2:** Folk tandvården in Uddevalla is a public dental clinic. We had an interview with the hygienist named Rowaid Nihad. The clinic is registered with 15500 number of patients. The number of staff is 28 in this clinic. 9 dentists, 4 hygienists, and 15 nurses.

**Clinic 3:** Abbas Dental AB is a private dental clinic in Helsingborg. We had an interview with the dentist named Dr. Hussein Abbas. The clinic is registered with 3000 number of patients. The clinic has 2 dentists, 3 nurses, and one hygienist.

**Clinic 4:** Privattandläkarna is a private dental clinic in Stockholm. We had an interview with the dentist named Dr. Yazin Baithoon. The clinic is registered with 3500 number of patients. The clinic has 3 dentists, 3 nurses, and one hygienist.

**Clinic 5:** Tandläkarna pa Hörnet is a private dental clinic in Stockholm. We had an interview with the dentist named Dr. Osama Pairo. The clinic is registered with 4000 number of patients. The clinic has 5 dentists, 5 nurses, and one hygienist.

**Clinic 6:** Folk tandvården is a public dental clinic in Strangnas. We had an interview with the dentist Dr. Zaid Alkhateeb. The clinic is registered with 10000 number of patients. The clinic has 10 dentists, 15 nurses, and 5 hygienists.
Survey

Surveys are associated with the deductive approach. Survey strategy allows us to collect quantitative data that can be analyzed quantitatively using inferential and descriptive statistics (Saunders et al., 2009). For example, in a business perspective, surveys are considered about consumer decision making, customer satisfaction, job satisfaction, the use of health services, and management information systems. These are all one-time surveys (Sekaran and Bougie, 2013).

In parallel with the interviews, surveys are done with 240 patients to measure their satisfaction with four Clinics 1, 2 and Clinics 3, 4 in Sweden. We initially planned to perform 75 surveys in each clinic but due to a shortage of time, we were able to perform only 60 surveys per clinic.

Data collection was done using self-administered questionnaire, which is designed for the study based on SERVQUAL model. The questionnaire had two sections: like Name of the clinic, age of the patient, registration date of the patient, and gender. A 12-item questionnaire was designed to measure four service quality dimensions including tangibility (three questions), Assurance (two questions), responsiveness (three questions), and empathy (three questions). A five-point Likert scale was used to assess the dimensions (1- Strongly agree to 5- Strongly disagree). In this research study, the dimensions are considered from SERVQUAL model which is described as a valid and reliable model for survey analysis, but the questions are changed based on dental clinic challenges and services using previous researchers’ questionnaire. See the questionnaire in English as well as in Swedish at appendix 8.3.

Data were analyzed using IBM SPSS statistics 24.0 using means, standard deviations, which was used to determine consistency between patient responses and the proposed SERVQUAL model.

The modified questionnaire’s validity is confirmed using four dental faculties, including (Swedish native) Dental manager and three dentists who are involved in the survey. Our supervisors also verified the questionnaire twice before sending it to the clinics for the survey. The questionnaire was translated into Swedish by a dentist who is proficient in Swedish. It is verified by the manager of the dental clinic who is a Swedish native person. The other two dentists who agreed to the survey also verified the questionnaire and accepted for participating in the survey. Reliability is confirmed by Cronbach’s α coefficient (α-0.883). See table 3 for the Cronbach’s α values assigned to the four factors and for all the items. Reliability should be more than 0.7 for a survey analysis. If the reliability of Cronbach’s alpha is lower than 0.7, it means that the number of items is less than required. The items which are related to the factors are three items per factor in our survey questionnaire. If it is more than four or equal to four. The alpha coefficient will be more than 0.7 per factor. This low value may be recognized to the nature of items or nature of sample size. However, the results of different studies may be understood with attention with respect to this dimension. Data collection lasted for two months. A researcher was stationed at the clinic and distributed the questionnaire to the patients after their treatment along with dentist in Clinic 1. In the other three clinics 2, 3, and 4, they did the survey by distributing the questionnaire after the treatment by the dentist himself.

Table 3 Reliability coefficient for Survey result

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Items</th>
<th>Cronbach’s α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangibility</td>
<td>Q1, Q7, Q10</td>
<td>0.540</td>
</tr>
</tbody>
</table>
The factors tangibility (0.540), responsiveness (0.356), assurance (0.183), empathy (0.169) have less Cronbach’s alpha as we have developed only three items per factor. But actually, there should be four items, or more than four items assigned to each factor. We understood this after finding the result of Cronbach’s alpha while executing survey results in the SPSS software. The researcher should be aware of this before assigning the items to the factors. So, we authors feel that the survey results may differ if more items are assigned to each factor to measure the experience levels of the patient satisfaction. But, for all the items we got high Cronbach’s alpha (0.883) which helped us to continue with our results as it is greater than 0.7 which is required for the survey. Researchers should focus on the items which should be assigned per factor before the beginning of the factor analysis.

<table>
<thead>
<tr>
<th>Responsiveness</th>
<th>Q2, Q3, Q9</th>
<th>0.356</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assurance</td>
<td>Q4, Q6, Q11</td>
<td>0.183</td>
</tr>
<tr>
<td>Empathy</td>
<td>Q5, Q8</td>
<td>0.169</td>
</tr>
<tr>
<td>Total on all items</td>
<td>Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q9, Q10, Q11</td>
<td>0.883</td>
</tr>
</tbody>
</table>

Table 4 Response rate of the distributed questionnaire

<table>
<thead>
<tr>
<th>Description</th>
<th>Number and Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample size</td>
<td>300</td>
</tr>
<tr>
<td>Questionnaires returned</td>
<td>240</td>
</tr>
<tr>
<td>Raw response rate</td>
<td>95%</td>
</tr>
<tr>
<td>Complete questionnaires</td>
<td>240</td>
</tr>
<tr>
<td>Number of unusable questionnaires</td>
<td>60</td>
</tr>
</tbody>
</table>

The required sample size is dependent on a number of issues which contains the desired power, alpha level, number of predictors, and expected effect sizes. To know how many cases are needed, we used this formula $n=50+8*11$ i.e., $n=50+8*m$; where $n$ is sample size, $m$ is a number of independent variables. $240=50+8*11=138$, i.e., 240 $>138$ cases, which is required to confirm the sample is valid for our statistical analysis as 240 is greater than 138 number of cases.

Group Interviews

In a group interview, our role is to ensure that all the participants in the group can state their opinions about the issues discussed and the data is collected. The main role will be the interviewee role as he/she should explain the purpose clearly to the participants, motivate them to relax and take comments from them about the given topic with detailed discussion (Saunders et al., 2009). To get important insights on the topic, we should allow the participants to freely discuss their point of views. It cannot be like an individual (face-to-face) interview as group participants have different perceptions about a topic, one may dominate the discussion in the group which may result in the feeling of inhibition to other participants. This can lead participants to go with the same answers given by the other participant even if they have other perception of the topic discussed. But, we have advantages from group interviews than one-to-one interviews as a dynamic group can generate new ideas and evaluate them. The group interviews help us to understand in depth of the issue as more than one person discusses and give suggestions/ comments on the topic (Saunders et al., 2009).
We conducted group interviews with three clinics, i.e., clinic 1, 3 & 5. Group interviews are conducted with three clinics as the other clinics refused to participate in it. We have conducted group interviews with one manager, one dentist, and one patient to understand different perceptions of the participants to analyze the survey results. In clinic 1, a dentist, a manager, and a patient participated in the group interview. In clinic 3, a dentist who is also the manager, and a patient participated in the group interview. The clinic 3 patient refused to give his name for the interview. In clinic 5 (see table 2), only one dentist gave the telephonic interview as a manager is not interested to participate in the group interview and patient is not accessible for us because of the long distance. The interview is conducted at the clinic 5 which has implemented new services. We conducted the interview with clinic 5 as we want to know the new services and the new ideas that are implemented in the clinic 5. The group interviews are conducted in these three clinics as they accepted to answer our questions when we have sent our proposal with the survey results and developed group interview questions. They are interested to know the survey results and depending on the group interview results the clinic management want to improve their quality of services to gain patient satisfaction. The other clinics refused to participate as they are busy with their schedule.

A value mapping tool is designed to help businesses create a value proposition to support sustainable business modeling. The tool has few goals. First, to understand the advantages and disadvantages of the value proposition of the value network of stakeholders who are involved in the creation, delivery, and receipt of value connected with the delivery of product/service. Second, to identify opportunities for business model restructure and rearrangement of interests to lessen the negative outputs and progress the overall outcome for the investors in the value network for the environment and society (Bocken et al., 2013). The simplified value mapping tool gives less depth but seems like appropriate for a quick assessment of main issues. The group interviews conducted before using this tool have shown the potential for conceptualizing and supporting in value transformation (Bocken et al., 2013).

In our research study, by the idea of the value mapping tool from a customer perspective is used by emphasizing on different types of values such as the value opportunities, value missed, destroyed, and value captured. The interview questions are developed based on the idea of the value mapping tool using customer perspective to understand the different values in the clinics. We did not use value mapping tool as a whole in the research study but we just used it as an idea to develop our group interview questions to understand different values like value captured in the dental clinics. The values are also considered only in customer perspective as the research study is related to patient satisfaction. We did group interviews in Swedish dental clinics 1, 3 & 5. These group interviews will help us to know about the different values emphasized in the questionnaire to analyze the managerial implications.

Secondary Data

Secondary data is derived from the work of other researchers (Saunders et al., 2009). For example, the conclusions of a research article, Journal, books, and case studies can constitute secondary data because it is the information that has already been developed by another researcher. Similarly, analyses performed on statistical surveys can constitute secondary data (Saunders et al., 2009).
We are using secondary data from other researcher’s works i.e., Journals, scholar articles from databases such as ABI INFORM, SCIENCE DIRECT, RESEARCHGATE, ONE SEARCH, AND GOOGLE SCHOLAR to understand the analyses performed for the factors affecting dental service quality and different perceptions of patient satisfaction.

3.8. RELIABILITY AND VALIDITY

A specific emphasis must be paid on Validity and Reliability to reduce the negative outcomes for a research design(Saunders et al., 2009).

Reliability

It refers to the extent to which the data collection methods lead to consistent findings. Easterby-Smith et al (2008) state that reliability can be assessed by asking the below three questions: Will the procedures yield the same output in other instances? Will similar observations be grasped by other observers? Is there transparency in how sense was made from the raw information? (Saunders et al., 2009).

Reliability was confirmed with Cronbach’s α coefficient (α=0.883) for four dental clinics. The Cronbach’s alpha coefficient should be greater than 0.7. We have alpha value 0.883 for total 12 items, which is higher than the limit. But for our items in the factor analysis have less than 0.7 as the number of items is less for each factor. The items should be equal to or more than four per factor to get high value for Cronbach’s alpha coefficient. After completing data analysis and retrieving the alpha value, we observed that the value is low for the factors. Then we confirmed that it is because of the number of items assigned to each factor should be greater than or equal to four. But we have three items per factor which made our research problematic. So, we suggest future researchers that to make the research reliable they should assign four items per factor. Reliability can be problematic sometimes, as patients sometimes give survey answers in a way that their original point of view will not be shown as it is a public survey, as the dentist of the clinic directly gave the questionnaire. The patient feels uncomfortable to give his/her true opinion about the services of the clinic while the dentist is handling the questionnaire to them. Reliability method can be problematic as the patient data may have missing values based on variance components leading to inaccurate reliability ratings.

Validity

It is related to whether the findings are about what they seem to be about. Do two variables have a causal relationship? Example, in an electronic factory, employees lack knowledge about product displays as they rarely visit the place where they are displayed. This lack of validity in the assumptions was minimized by a research design that was built in the opportunity for group interviews after the survey results have been analyzed (Saunders et al., 2009).

The Swedish questionnaire was verified by the manager who is a Swedish (native) person and accepted by her to do the survey in the clinics. The questions are translated by a dentist who has the Swedish language as his second language. The authors have taken the specific case to make sure that the questions are valid, as they are developed based on the previously validated questionnaire as base as well as verified by our supervisors twice and accepted by them.
There is the strong possibility that some respondents will not respond to patient satisfaction surveys in the item of questionnaires or not be familiar enough to deliver the correct responses in case of a survey. In such condition, the response will be insufficient and will not represent a generalizable assessment as the individuals who answered may be typically different from those who did not answer to the survey. For example, few patients may not react at all due to lack of interest or reply incorrectly to hide their original opinion as dentists gave the questionnaire directly. Powell et al (2004) observed that having a sample size that is not illustrative of the more people is risky as the service provider may be misled by the result of the research (Ofili, 2014). The service provider may be attracted to change its services in reaction to the research results without understanding that the research gave the wrong results. If the reaction is too little it may end up giving the incorrect results and if the sample size is not correctly selected it may also lead to the wrong outcomes. The sample size should be generalizable and the answers should not be low as it will contradict the effect made by receiving the correct sample size (Ofili, 2014).

The sample size required for our research is \( n = 138 \) based on our number of items, and we have 240 survey results from four clinics. Which is good enough for our analysis to get valid results. The sample size of 240 is helping us to validate our research analysis which is greater than the required sample size. To know how many cases are needed, we used this formula \( n = 50 + 8 \times m \); where \( n \) is sample size, \( m \) is a number of independent variables. \( 240 = 50 + 8 \times 11 \); i.e., \( 240 > 138 \) cases, which is required to confirm the sample is valid for our statistical analysis as 240 is greater than 138 number of cases.

3.9. RESEARCH ETHICS

Cooper and Schindler (2008) state that ethics are the standards of behavior which guide moral choices about our behavior and our relationships with others. Research ethics are related to the formulation of our research topic, the design of our research and gain access, data collection, processing and storing our data, analyzing our data and finalize our research findings in a moral and responsible way. Within business and management research, two dominant philosophical views are there. They area Deontological view which states that the ends served by the research can never defend the practice of research which is unethical. The teleological view which states that the ends served by our research defend the means. Consequently, the advantages of our research findings would be calculated against the costs of acting unethically. A code of ethics will give you a statement of principles and methods for the conduct of our research stressing what is and what is not regarded as ethical (Saunders et al., 2009).

We have followed research ethics while formulating our research topic, the design of our research, to gain access to our survey analysis, data collection, while processing and storing our data, analyzing our data, and finalizing our research findings in a moral and responsible way. We requested the dental staff from the six dental clinics by explaining the research study to give us appointment for the interviews. . The research study and purpose of our study was explained clearly to the interviewees. The interview questions are mailed to the interviewees before two days and we received the appointment schedule to take interviews.

Then comes our survey analysis, it is conducted with the permission of the dentists and managers of the clinics after verifying the questionnaire by them. The questions are developed with the help of previous research studies questionnaire according to our findings in the interview results. The
questionnaire is also verified twice by our supervisors and the dental staff before handing it to the
patients for responses. The dentists in three clinics have given the questionnaire to their patients
after the treatment. In one clinic, the questionnaire was handed over by one of our researchers
directly to the patients in the presence of the dentist after their treatment procedure.

Then, finally, we did our group interviews with a dentist, a manager, and a patient. The questions
for the group interviews have been sent one week before to the managers of the clinic through
email and they gave appointment for the group interviews. The group interviews were taken in a
smooth way by explaining our survey results and showing them the findings of our survey analysis
with an explanation of the factors which are affecting dental service quality. The managers, dentist
and the patients are given time to think about the questions and discuss with the interviewer about
their perceptions. The research process went smoothly with the support of each person who
participated in the study. The patients who participated in the study gave their opinions without
any hesitation and they are treated well by the interviewer.
CHAPTER FOUR

4. SETTING THE CONTEXT

In this section, we have discussed Swedish dental clinics where we conducted the face-to-face interviews to analyze challenges about service quality and patient satisfaction. Then we have done the survey analysis in the clinics to measure experience levels of patient satisfaction with the help of the factors which are affecting dental service quality. Finally, group interviews are conducted to know the implications of the research study.

DENTAL CLINICS IN SWEDEN

The Swedish public dental service delivers general, specialist dental care and hospital dental care. The goal is to achieve improved dental health, the dental care providers help patients to improve their dental and oral health (Swedish Municipalities and County Councils, 2014). In 1924, the Swedish parliament wrote a report on dental care for their population. In 1938, dental services were established first for children, then it was expanded to elders. In the 1960s, new profession dental hygienists were added. Currently, each county council area/region has one public dental clinic with total 21 regional public organizations. Swedes have good dental health and every year; free dental services are provided for children and teenagers resulting excellent dental health. Mostly the patients aged between 75-84 years have their own teeth compared to twenty years back. Specialist dentists perform complicated dental services. 98% of children and 40% of adults receive dental services from public dental clinics (Swedish Municipalities and County Councils, 2014). The overall population of Sweden is 9,580,424. The number of dentists in Swedish public dental clinics are 14,454. A number of the active dentists is 7,528. Hygienists are 3,749. 12,000 assistants. 4065 clinics are in practice. The Swedish private dental clinics are 3,463. The number of dentists is 5-9, allotted per clinic based on a number of patients registered. The number of hygienists, nurses are hired based on the necessity in the clinics by the manager of the clinics (Kravitz et al., 2015).

We differentiate public and private dental clinic services as the process will differ in both the healthcare systems as we are doing a patient survey in both the clinics to know the service quality and patient satisfaction in those two sectors. In public sectors, there is no competition as the government takes care to provide services to their citizens. A number of heterogeneous services/uncontrollable quantities as decisions are taken by politicians. In all public sectors, there is one system approach. Lack of human resources because of less salary. Healthcare services are not profit oriented as the government provides free treatment by handling most of the costs for their citizens (Vaish et al., 2016). But in private sectors, Hospitals compete with others to improve their quality of services to satisfy patients. Private hospitals will have fewer patients as most of them cannot afford the cost. Homogeneous services and controllable quantities. The personalized approach in the industry. Human resources are sufficient as salaries are high. Healthcare services are profit oriented to gain maximum shareholder value (Vaish et al., 2016).

In Sweden, People mostly prefer going to public hospitals and clinics as they provide services with reasonable price and the half of the cost of the treatment is taken care by the government through forsakringskassan. The Swedish dental clinics provide dental services as follows: For patients below 23 years, the treatment is free. Then, for patients’ above 23 years they have three payment plans: the first one is for one year, for the first registration fee, the patient should pay 3000 SEK,
then the insurance from Forsakringskassan (Swedish insurance check) is valid from the second time, after that the patient should pay half of the price until it covers 15000Sek. After 15000Sek, the patient should pay only 20% or 30% of the total treatment price. The second one, the dental clinics have ten different types of packages similar to insurance as the patient should pay every month for three years to the clinic. This may include teeth fillings and root canal treatment. For other major surgeries, the patient should pay again. It depends on the packages the patient selects. And the third one, beauty concerned treatments like teeth whitening, teeth settings, and the patient should pay full amount without any discounts.

The payment in the private dental clinics is similar as public dental clinics for the patients aged below 23 years it’s free. The patients aged above 23 years should pay 3000sek and can have insurance from Forsakringskassan (Swedish insurance check). The prices are different from public clinics but should not exceed government limited price list. Another option is, the patient and the private clinics have an agreement about the payment method as they can pay the fee in installments to the clinic until the end of the treatment.

**CHALLENGES**

We gathered data from the face-to-face interviews with 3 dentists, 2 managers, and one hygienist from Clinic 1, 2, 3, 4, 5 & 6 (See table 2). The data given below describes the challenges in the public and private dental clinics.

**Table 5 Challenges of Public dental clinics**

<table>
<thead>
<tr>
<th>Name of the clinic</th>
<th>Clinic 1</th>
<th>Clinic 2</th>
<th>Clinic 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>5000</td>
<td>15,500</td>
<td>10000</td>
</tr>
<tr>
<td>Number of staff</td>
<td>3 dentists, 6 nurses, one hygienist</td>
<td>9 dentists, 15 nurses, 4 hygienists</td>
<td>10 dentists, 15 nurses, 5 hygienists</td>
</tr>
<tr>
<td>Problem in the clinic</td>
<td>The clinic has a problem with the staff leaves and recruiting new skilled staff who can integrate with the staff.</td>
<td>The clinic has a problem in appointment booking and they are late by six months. Problem with appointment booking as there is lack of coordination between the staff and the reception.</td>
<td>Cannot handle booking appointments as staff is less and patients are more.</td>
</tr>
<tr>
<td>Problem with the patients</td>
<td>Appointment delay.</td>
<td>The patients come late for their booked appointments. New patients cannot be registered.</td>
<td>The staff leaves make the appointment booking difficult to the patients.</td>
</tr>
</tbody>
</table>

The three public dental clinic challenges are discussed in the above table 5 based on the results of the face-to-face interviews.
Table 6 Challenges of Private dental clinics

<table>
<thead>
<tr>
<th>Name of the clinic</th>
<th>Clinic 3</th>
<th>Clinic 4</th>
<th>Clinic 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>3000</td>
<td>3500</td>
<td>4000</td>
</tr>
<tr>
<td>Number of staff</td>
<td>2 dentist, 3 nurses, and one hygienist</td>
<td>3 dentists, 3 nurses, and one hygienist</td>
<td>5 dentists, 5 nurses, and one hygienist</td>
</tr>
<tr>
<td>The problem in the clinic</td>
<td>Problem with payment issues.</td>
<td>Difficult to arrange appointments to the patients.</td>
<td>The break can be reduced to half an hour which is comfortable to see more patients.</td>
</tr>
<tr>
<td>Problem with the patients</td>
<td>Problem with treatment discussions.</td>
<td>The cost of the treatment varies based on the treatment plans. The appointments are full which makes other patients wait for a long time.</td>
<td>The problem is with the appointments.</td>
</tr>
</tbody>
</table>

The three private dental clinic challenges are discussed in the above table 6 based on the results of the face-to-face interviews.

To measure patient satisfaction experience levels, we are considering four factors. We focus on four factors tangibility, responsiveness, assurance, and empathy which are affecting dental service quality in Sweden. We are giving examples of dental service quality and patient satisfaction in dental clinics.

To improve service quality and gain patient satisfaction, the Swedish dental clinic management are trying to make changes in their organizations with service management innovations. The dental clinic providers’ key role is to improve service quality and gain patient satisfaction. As service quality is dependent on patient satisfaction, Patient perceptions determine failures and gaps. To improve quality, dental clinic providers should develop strategies. There are factors affecting dental service quality— the main factor is assurance i.e.; dentist skills and abilities are very important for patients. Knowledge, communication, and employee behavior are considered very important for patients as they gain confidence and feel safe while consulting a dental clinic (Ståhlnacke et al., 1992).

Previous dental service studies show the patient perspective, there is a number of factors when selecting a dentist and researchers examined factors that are affecting patient satisfaction with dental care services. Literature shows that the internal factors are quality of service, the attitude of the dentist, professional competence, treatment procedures and friendly staff are the attributes which customers observe while choosing a dentist. External factors are clinic atmosphere, parking facilities, and location of the dental clinic (Harcar et al., 2011).

Dental service quality contains: ensuring the oral health, satisfying, and fulfilling patient desires and needs, providing best solutions about maintenance, function, and esthetics in a suitable way.
that will cause less harm and inconvenience to the patients. Research study shows that the quality, satisfaction, and dissatisfaction with health care services are decided by factors like good relations between doctor and patient, availability of infrastructure, consultation time and information, waiting time (Jacob et al., 2010).

Abrahamsson et al. (2002) state that most of the patients expressed that they have seen lack of empathy and respect from the dentist as one of the most important factors behind their dental fear. The staff is kind and helpful, but patients did not focus on the staff as they are worried about their treatment. Both technical and medical skills are considered while improving service quality in most Asian countries (Bahadori et al., 2015).

Feedback on satisfaction concerned with dental care is vital for the continuous development of the service delivery method and output. Dental complaints made by patients may lead to anxiety and stress among dental care providers. Dissatisfaction and complaints lead to a change of dentist which will have ramifications related to the family and friends’ perceptions of the dental patients. The dental clinics of colleges of dentistry, teaching institutions strive to balance between meeting the patients’ needs, students, and dentists. Patients’ satisfaction with the dental care they receive is critical as it will influence their method of service utilization. It is shown that patients who are satisfied with dental care have better obedience, few un-attended appointments, less anxiousness, pain, and perception. Dentist-patient relations during the treatment period have been demonstrated to affect patients’ compliance with clinical advice and commitment to scheduled visits. Therefore, data on patients’ feedback and satisfaction are required to evaluate the service being provided (Mahrous and Hifnawy, 2012).
CHAPTER FIVE

5. RESULTS AND DISCUSSION

In this section, we discussed the survey results and group interview results. We have shown the results of our survey by comparing both public and private sectors, after that public dental clinic results and private dental clinic results. The group interviews results are shown for three clinics 1, 3 and 5 along with survey results of those clinics.

The goal of this chapter is to analyze primary data that was collected from the patient survey and to enable answers to the research question that are stated as how patients see service quality and to find out their experience level of satisfaction from the services they acquired from the public and private dental clinics in Sweden. The objective of the research study which is related with the description of the practical phenomena of service quality and the patient satisfaction will be accomplished. The factor analysis is used to conclude if the instrument for measuring service quality was appropriate in the perspective of the dental health care sectors. The descriptive statistics are used to analyze the gap score and also to summarize the different means in relation to the perceptions and expectations of the patients. The gaps are derived from calculations made considering the differences between perception and expectation score for each factor (perception - expectation). It is also essential to check the extent of reliability and validity if the instrument that is applied to enable the measurement of service quality at the dental clinics. The factor analysis was to test validity and the Cronbach’s Alpha was to test reliability. SERVQUAL is used to do the above analysis.

The empirical data is collected from face-to-face interviews. The patient survey was performed with 240 patients in four clinics (public dental clinic 1 & 2 and private dental clinic 3 & 4). We have focused mainly on four factors affecting dental service quality which is influencing patient satisfaction in Swedish Dental clinics. The four factors are Assurance, responsiveness, tangibility, and empathy.

Both private and public clinics

The results showed that most patients were female (56.7 percent), 35-45 years, who are regular patients to the dental clinics. The 12-item questionnaire with mean, standard deviations (Sd) is shown in the tables. The key items were: Tangibility: cleanliness, materials, and supplies (4.69), Responsiveness: easy and quick treatment (4.35); Assurance: dental skills (4.71); and Empathy: paying attention to the patients’ needs and demands (4.8). The results show that empathy (4.8) and responsiveness (4.35) had the highest and lowest effects on dental service quality. Also, the results indicated that all variables had acceptable loading factors for measuring latent variables. In statistics, latent variables are variables that are not directly observed but they are inferred (through a mathematical model using SPSS software) from other variables that are directly measured to get final results.
Table 7 Demographic profile of the respondents

<table>
<thead>
<tr>
<th>Demographic variables</th>
<th>Number of respondents</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinic 1</td>
<td>60</td>
<td>25.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Clinic 2</td>
<td>60</td>
<td>25.0</td>
<td>50.0</td>
</tr>
<tr>
<td>Clinic 3</td>
<td>60</td>
<td>25.0</td>
<td>75.0</td>
</tr>
<tr>
<td>Clinic 4</td>
<td>60</td>
<td>25.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-30</td>
<td>51</td>
<td>21.3</td>
<td>21.3</td>
</tr>
<tr>
<td>35-45</td>
<td>79</td>
<td>32.9</td>
<td>54.2</td>
</tr>
<tr>
<td>45-60</td>
<td>65</td>
<td>27.1</td>
<td>81.3</td>
</tr>
<tr>
<td>60-75</td>
<td>37</td>
<td>15.4</td>
<td>96.7</td>
</tr>
<tr>
<td>75-90</td>
<td>8</td>
<td>3.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>104</td>
<td>43.3</td>
<td>43.3</td>
</tr>
<tr>
<td>Female</td>
<td>136</td>
<td>56.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Registration date</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000-2005</td>
<td>15</td>
<td>6.3</td>
<td>6.3</td>
</tr>
<tr>
<td>2005-2010</td>
<td>40</td>
<td>16.7</td>
<td>22.9</td>
</tr>
<tr>
<td>2010-2015</td>
<td>63</td>
<td>26.3</td>
<td>49.2</td>
</tr>
<tr>
<td>2015-2018</td>
<td>122</td>
<td>50.8</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 7 represents the data from four dental clinics 1, 2, 3, & 4. The total number of samples is 240. The sample size shows that our survey is valid to know the experienced levels of the patients in dental clinics to measure patient satisfaction with the factors affecting the dental service quality. The sample population responded more is with females (136) aged 35-45 years with the registration date in between 2015-2018 with 122 number of samples.
Figure 4 Graphs represents the percentage of Age, Gender, and registration date

The graphs represent the percentage of the age, gender, and the registration date of the customer satisfaction. The graph 1 shows that the highest percentage of customer satisfaction is in between 35-45 years of age who actively participated in the survey. The graph 2 shows that mostly women showed interest to participate in the survey. The graph 3 shows that the patients participated in the survey are registered in the clinic in between 2015-2018.

Table 8 Descriptive Statistics for the total sample

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>STATEMENTS</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>STD.Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>I like the appearance of the clinic.</td>
<td>240</td>
<td>2.00</td>
<td>5.00</td>
<td>4.5375</td>
<td>0.75894</td>
</tr>
<tr>
<td>Q2</td>
<td>I am satisfied with the responsiveness of the staff.</td>
<td>240</td>
<td>3.00</td>
<td>5.00</td>
<td>4.8375</td>
<td>0.40220</td>
</tr>
<tr>
<td>Q3</td>
<td>I am comfortable with the quality of the treatment provided by the clinic.</td>
<td>240</td>
<td>4.00</td>
<td>5.00</td>
<td>4.8542</td>
<td>0.35368</td>
</tr>
<tr>
<td>Q4</td>
<td>Nurses respond well when I ask help from them.</td>
<td>240</td>
<td>2.00</td>
<td>5.00</td>
<td>4.7833</td>
<td>0.50410</td>
</tr>
<tr>
<td>Q5</td>
<td>Doctors respond well when I ask about the treatment procedures.</td>
<td>240</td>
<td>2.00</td>
<td>5.00</td>
<td>4.7583</td>
<td>0.54113</td>
</tr>
<tr>
<td>Q6</td>
<td>I am happy with the dental services</td>
<td>240</td>
<td>3.00</td>
<td>5.00</td>
<td>4.8250</td>
<td>0.44180</td>
</tr>
</tbody>
</table>
Healthcare Management
Measuring patient satisfaction of service quality in Swedish dental clinics

<table>
<thead>
<tr>
<th>Q</th>
<th>Question</th>
<th>N</th>
<th>Sum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q7</td>
<td>I am satisfied with the clinic opening hours.</td>
<td>240</td>
<td>1089.00</td>
<td>4.5375</td>
<td>0.75894</td>
</tr>
<tr>
<td>Q8</td>
<td>I can easily book an appointment that is suitable for me.</td>
<td>240</td>
<td>1161.00</td>
<td>4.8375</td>
<td>0.40220</td>
</tr>
<tr>
<td>Q9</td>
<td>I am not waiting too long for an appointment/meeting a dentist.</td>
<td>240</td>
<td>1142.00</td>
<td>4.7583</td>
<td>0.54113</td>
</tr>
<tr>
<td>Q10</td>
<td>I will recommend this clinic to my family and friends.</td>
<td>240</td>
<td>1148.00</td>
<td>4.7833</td>
<td>0.50410</td>
</tr>
<tr>
<td>Q11</td>
<td>I don’t find racial discrimination while consulting the doctors or nurses.</td>
<td>240</td>
<td>1158.00</td>
<td>4.8250</td>
<td>0.44180</td>
</tr>
</tbody>
</table>

Reliability coefficient for all items is 0.883

Table 8 represents the descriptive statistics of all the items with mean and standard deviation. The highest effect is with item 11(5.00) which shows that there is no racism at all in the Swedish dental clinics. The lowest effect is with item 9 (3.366) which shows that there is an issue with the waiting time to meet a dentist or get an appointment. The total Cronbach’s alpha is given at the end of the table. The alpha coefficient (0.883) for all items is higher than the limited value i.e., 0.7.

Table 9 Patient experience levels based on dental service quality

<table>
<thead>
<tr>
<th>Factors</th>
<th>Item</th>
<th>N</th>
<th>Sum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangibility (4.69) α = 0.540</td>
<td>Q1</td>
<td>240</td>
<td>1089.00</td>
<td>4.5375</td>
<td>0.75894</td>
</tr>
<tr>
<td></td>
<td>Q7</td>
<td>240</td>
<td>1126.00</td>
<td>4.6917</td>
<td>0.71792</td>
</tr>
<tr>
<td></td>
<td>Q10</td>
<td>240</td>
<td>1164.00</td>
<td>4.8500</td>
<td>0.46013</td>
</tr>
<tr>
<td>Responsiveness (4.35) α = 0.356</td>
<td>Q2</td>
<td>240</td>
<td>1161.00</td>
<td>4.8375</td>
<td>0.40220</td>
</tr>
<tr>
<td></td>
<td>Q3</td>
<td>240</td>
<td>1165.00</td>
<td>4.8542</td>
<td>0.35368</td>
</tr>
<tr>
<td></td>
<td>Q9</td>
<td>240</td>
<td>808.00</td>
<td>3.3667</td>
<td>1.61029</td>
</tr>
<tr>
<td>Assurance (4.71) α = 0.183</td>
<td>Q5</td>
<td>240</td>
<td>1142.00</td>
<td>4.7583</td>
<td>0.54113</td>
</tr>
<tr>
<td></td>
<td>Q8</td>
<td>240</td>
<td>1071.00</td>
<td>4.4625</td>
<td>0.86702</td>
</tr>
<tr>
<td>Empathy (4.8) α =0.169</td>
<td>Q4</td>
<td>240</td>
<td>1148.00</td>
<td>4.7833</td>
<td>0.50410</td>
</tr>
<tr>
<td></td>
<td>Q6</td>
<td>240</td>
<td>1158.00</td>
<td>4.8250</td>
<td>0.44180</td>
</tr>
</tbody>
</table>
Survey results for both public and private clinics

Table 9 shows empathy (4.8) has the highest effect on the dental service quality in four dental clinics. Responsiveness (4.35) has the lowest effect on the dental service quality. The dental clinics in Sweden have empathy as the highest factor which is positive outcome and patients are happy with the clinic services, nurses’ services. They like the appearance of the clinics, happy with clinic opening hours, satisfied with the dentist explanation about the treatment procedure. The appointment availability satisfies patients. The main issues in all the four clinics are waiting time to meet the dentist, as they are waiting too long for booking an appointment to meet the doctor.

Individual analysis of public and private dental clinics:

Public dental clinics

We gathered sample size of 120 from the public dental clinics in Sweden, named Clinic 1 and 2. The highest population who responded more to our survey are females (68), aged 35-45 with 56.7 %. The number of people (42) out of 120 responded to our survey are from registration date 2015-2018.

Survey Results

(Refer table 14 in appendix 8.5) Empathy (4.93) has highest effect and responsiveness (4.06) has the lowest effect in the public dental clinics. The clinic has a good appearance, opening hours are good, and the dentist-patient relationship is good. The patients are happy with the staff response, they are comfortable with the quality of the treatment provided by the clinic. Nurses help the patients when they ask help. Doctors explain the treatment procedure clearly before they start the treatment. The services provided by the clinic are very good. They recommend the clinic to their family and friends, they didn’t find any racial difference in the clinic.

Private Dental clinics

We collected 120 samples from private dental clinics in Sweden. We collected them from Clinic 3 and 4. The number of people answered in the survey is females (68) with 56.7%. The age of the sample population is between 45-60 years. The sample population responded is 80 registered in a clinic in between 2015-2018.

Survey Results

(Refer table 16 in appendix 8.5) Assurance (4.88) has the highest effect and responsiveness (4.63) has the lowest effect in the private dental clinics where we conducted our survey. Patients are happy with the following factors such as clinic opening hours, the response from staff, quality of the treatment, explanation given dentist about the dental treatment procedure and booking appointments. They face issues with waiting time to meet a dentist. The clinic doesn’t have any racial discrimination.

Group interviews
The group interview questions are developed according to the idea of value mapping tool from a customer perspective to understand the different types of values in the clinics 1, 3 and 5. The group interview is conducted with a manager, a dentist, and a patient. The clinic 3 has the manager and the dentist job role with the same person. So, the answers are given by him in both perspectives. Clinic 5 has only dentist perspective as a manager is not interested to participate in the group interview. We couldn’t meet a patient because of the long distance. The interview is conducted in clinic 5 to know the implemented new services. General group interview results are explained in the below table 10.

### Table 10 Group interviews

<table>
<thead>
<tr>
<th>Name</th>
<th>Clinic 1</th>
<th>Clinic 3</th>
<th>Clinic 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptive results</td>
<td>The clinic has very good results for all the factors. The main issue with the clinic is with the appointment booking and waiting time to meet the dentist. The clinic has more responses from females (41) aged between 35-45 years and a number of people (22) are from registration date 2010-2015 and 2015-2018.</td>
<td>The results show that the clinic has very good results with all factors. They have a very little issue with the clinic appearance from the patient perspective. The clinic has maximum sample results from females (34) aged between 45-60 years from the registration date 2015-2018 (58 people).</td>
<td>The survey is conducted by themselves. The survey results are shared with us to understand the implications of the newly implemented services in the clinic.</td>
</tr>
<tr>
<td>Survey results</td>
<td>Empathy (4.89) has the highest effect and responsiveness (4.30) has the lowest effect in this clinic.</td>
<td>Assurance (4.84) has the highest effect and Tangibility (4.71) has the lowest effect on the dental service quality.</td>
<td>The clinic has tangibility and responsiveness with highest effect and empathy with the lowest effect.</td>
</tr>
</tbody>
</table>

Results from group interviews are given in table 13. Refer appendix 8.4.

**DISCUSSION**

Mostly in European countries (Sweden, Norway, Finland, Denmark, Italy, Romania), healthcare organizations are maintained by the government (public healthcare systems). The Scandinavian countries will have same structure and culture as healthcare policies are implemented for the entire system. But in the USA, UK, UAE, and Asian countries have private healthcare systems where
there is more competition and performance related issues which affect the healthcare organizations growth to sustain for a long time. Private healthcare organizations depend on the patient satisfaction as patients diffuse information about hospitals/clinics service quality and their performance through “word of mouth”.

In the study, to know the challenges in the Swedish dental clinics we conducted face-to-face interviews with the staff of the private and public dental clinics with managers, dentists, and hygienists. With the help of the interviews, we identified that they have challenges with the staff recruitment as they need staff with good experience, knowledge, who can coordinate with dentists and other staff. The dental clinic management is not able to hire educated staff while recruiting because they are less in numbers and sometimes management hesitates to hire staff because they do not have enough rooms in the clinic to accommodate them. The dentist cannot spend more time for the treatment procedure on one single patient as he has limited number of working hours. The major problem faced by the clinic is that they are not able to attend the patients as per the scheduled appointment time. Appointment with doctors are getting delayed either due to unavailability of doctor/staff or patients arrive late. The dentist’s opinion to solve this problem is to increase the number of working hours to reduce the appointment delay. Another reason which is causing a delay in appointment is that the number of patients is greater in numbers and number of staff to attend them are less in numbers.

Due to this reason, dental clinics are not able to find enough time to treat a patient. They even face more problems when any one of the staff takes leave or not available on time. Teamwork plays a vital role in dental clinics. Few patients skip their appointments and cause problems to the dentist as he cannot give that appointment to other patients. Doctors are unaware of patient presence until the booking time. While comparing private and public dental clinics with regards to a number of patients available, public dental clinics have more number of patients. Public dental clinics do not accept new patients in the clinics if they are not registered with the clinics. But private dental clinics can accept new patients and use this as an opportunity to gain competitive advantage. The private dental clinics have an issue with the payment from the patients. Dentists want to complete the treatment soon and go for next patient as they do not have enough time to discuss the treatment procedure with the patients. In private dental clinics, management tries to improve its clinical services by analyzing feedback from the patients. The staff gets an affordable salary, the management is flexible to the staff needs and provides a good environment. After knowing all the challenges, we started analyzing the challenges in other clinics with the help of other authors’ Journals and articles. Then we understood that many researchers found same challenges in dental clinics and they have studied the quality of services provided and patient satisfaction based on the factors which are affecting dental service quality. Then, we planned to do our quantitative analysis in the dental clinics in Sweden to measure the experience levels of the patient satisfaction with the help of factors affecting dental service quality. We did quantitative analysis using SERVQUAL tool which is used to measure customer expectations and perceptions developed by Parasuraman et.al (1985).

To investigate the impact of dental service quality on patient satisfaction, data analysis was conducted to measure experience levels of patients. The results showed that there is the clearly significant (results to be noted as they are highest for all factors) impact of service quality on patient satisfaction. It means that if a dental clinic tries to improve their quality of services it will in return improve the satisfaction level of their patients. This specific finding is similar to the literature (Costinel et al., 2013) state that from patient perspective they found that they are waiting to meet a
dentist before the treatment procedure begins and after starting the treatment procedure. This waiting period is making the patients dissatisfied. (Rocha et al., 2017) state that they found through patient survey that the factors assurance and tangibility with high scores where it showed that the role of dentist-patient relationship is good and the physical appearance is good, which is the basis for the current research. They also found a considerably positive effect of service quality on patient satisfaction. Moreover, researchers around the globe have systematically explored the relationship between service quality and patient satisfaction not only in dental services but also in other industries and found positive implications. We will now, see how patient satisfaction is dependent on service quality in the healthcare organizations.

In our research study, we observed that public dental clinics (refer table 15 in the appendix 8.5) have a highest effect for factors like Empathy (4.93) and responsiveness (4.06) has the lowest effect. Assurance (4.88) has the highest effect and Tangibility (4.7), Responsiveness (4.63) has the lowest effect in the private dental clinics (refer table 17 in the appendix 8.5) where we conducted our survey. But the overall result for four clinics gives Empathy (4.8) have the highest effect on the dental service quality. Responsiveness (4.35) has the lowest effect on the dental service quality.

Patient satisfaction plays a vital role in every healthcare organization in the competitive world. New Innovations in service management plays a significant part to sustain in the service industry. As patients judge the quality and care the main priority is given to them while they approach any healthcare organization (Panchapakesan et al., 2015). Management should concentrate on the needs and demands of patients while treating them by improving service quality and patient care. Communication and decisions should be taken according to the needs of the customers to improve efficiency and performance (Vaish et al., 2016). By theoretical analysis, we understood that patients play a key role in the development of healthcare organizations. So, we focused on the service management innovations and strategies to improve healthcare organizations by satisfying patients with service quality and care. Management should take the responsibility to improve quality of service provided. They should conduct classes for staff to motivate and develop patient care services. Classes to improve communication skills of staff should also be conducted. Staff should communicate in a friendly manner with patients while explaining about treatments, facilities, and other procedures in the healthcare organizations. Healthcare policies should be implemented in all countries to improve service quality and patient care.

Patient satisfaction is being identified to show the importance of the achievement and existence of any service provided in the current competitive world. One of the most valuable components of the SERVQUAL analysis is the capability to define the relative significance of the different dimensions in influencing patients’ overall service quality perception. Studies have shown insights into the relevance of the SERVQUAL model as a tool for measuring service quality in the dental healthcare sector. From previous research studies, it is observed the accomplished expectations and perception scales in hospital services seen different measures for reliability and validity. However, this tool showed factor uncertainty (doubt about the Cronbach alpha coefficient values for each factor) as its factor loading was unpredictable (if more items are assigned to each factor then the values for every factor changes) with the originally defined SERVQUAL model (SERVQUAL tool has each factor assigned with more than 4 items to get high Cronbach alpha value).

Studies measuring satisfaction with dental clinic services found that various factors affect satisfaction, due to different methods of assessment. Al Mudaf et al.(2003) cited from (Jacob et al.,
2010) found reasonably high levels of satisfaction with three dental fields using a specially designed questionnaire measuring satisfaction. Esa et al. (2006) cited from (Jacob et al., 2010) using a nominal group method measured the success of the dental health service by assessing the amount of satisfaction and dissatisfaction. Clow et al. (1995) cited from (Jacob et al., 2010) observed specific variables assumed to affect patient expectations directly or indirectly, as patient expectations affect the perceived service quality.

This modified SERVQUAL questionnaire has good to excellent reliability, and the questions in each dimension have required levels of internal stability. In our study, all dimensions have positive satisfaction scores except responsiveness, which imply that three factors exceeded patients’ expectations. A similar finding was noted in other studies using SERVQUAL tool. A negative gap is usually attained because normally expectations of an ideal service are rarely satisfied. According to the SERVQUAL model, the lesser the “quality gap” the higher the satisfaction. Based on our results, the waiting time to meet a dentist should be reduced and appearance of the clinic should be changed. The other three factors, tangibility, assurance, and empathy have highest rated levels of patient satisfaction. In our study, based on the four themes stated by Gibson (2009) cited from Datta and Vardhan (2017)-we selected gap 1 i.e., customer expectation – management perception in the SERVQUAL four themes to achieve effective service quality. The results from four clinics 1, 2, 3, & 4 and management perspectives are mentioned based on it in the below table 11.

Table 11 Gap analysis between customer expectation and management perception

<table>
<thead>
<tr>
<th>Clinic Names</th>
<th>Customer expectation</th>
<th>Management Perception</th>
</tr>
</thead>
</table>
| Clinic 1     | The patient wants to change the booked appointment which is not possible.  
               They are waiting too long for the treatment procedure.  
               Sometimes, the dentist comes late to the clinic.  
               Patients feels they should be reminded about the check-up date before they visit. | The challenge is to recruit people who can work together and integrate with the team.  
               Problem with budget is, it should always be positive, and the economic result should be good.  
               Other problem with the staff is lack of educated people.  
               Sometimes the number of the rooms- can’t let you increase the number of the staff. |
| Clinic 2     | The patients are happy with the clinic services.  
               The feedback is positive from most of the patients about the clinic services. | Lack of the staff.  
               The clinic doesn’t accept new patients.  
               Some of the patients don’t come on their appointment time. |
| Clinic 3     | Some patients say that the appearance of the clinic should be modified. | They have a problem with the payment, the patient complains about the payment issues. |
Few patients are happy with the clinic services.

Clinic 4

- The patients are happy with the clinic services and with the staff.
- Most of the patients are having positive feedback about the clinic.

Difficulties to arrange appointment for the patients.
Problem with treatment discussions between the dentists and patients. For example, the same patient can have different treatment plans.

The customer expectations and staff perceptions are discussed in the above table 11 for the four clinics where the survey is conducted. The patient expectations are different from the staff perceptions. For example, in clinic 1, patients’ want to change their scheduled appointments to their comfortable date, but the staff wants to reduce the waiting time to book an appointment which is critical to the patients who wants to book a new appointment. In clinic 3, the patients expect to modify the appearance of the clinic. But the management thinks that they should focus on the payment issues faced by their patients. The above differences lead to a gap which is affecting the patient satisfaction and service quality in the clinics.

In our study, there was an essential relationship between patient satisfaction and dental appointment for pain relief. Dental treatment differs extensively from cleaning of teeth to minor dental surgical ways. A number of patients visit dental clinics for treatment on an appointment schedule, as most dental procedures take significant time. On the other side, patients with critical pains visit hospitals without taking appointments. Dental pains are severe and unbearable. Patient tends to be highly satisfied when he/she gets a relief from pain after the treatment. The dental clinic services are rated by the patients based on the quality provided by the management of the clinics. The dental clinic management in Sweden is always up to date in improving its services to satisfy the patients. They are always concerned about the patients’ needs and take effective care of their patients to gain satisfaction.

Similarly, there is a considerable relationship between patient satisfaction and age, gender, registration date. Researchers have studied the patient satisfaction at different age groups. Young et al. (2000) cited from (Jacob et al., 2010) observed that the older patients are more satisfied with health care services than the younger patients. In contrast, Lahti et al. (1996) cited from (Jacob et al., 2010) found older patients to be less satisfied. They said that the dental health position of the younger patients will be better than that of elder people leads to better dental understanding. In our study, we observed that men were found to be more dissatisfied than women. Gopalkrishna and Mummalaneni (1993) cited from (Jacob et al., 2010) also identified women as being more satisfied than men, assigning greater publicity to dental services among women, a potential purpose to moderate their expectations. Jacob et al. (2010) found the respondents from the “other” competitions were more satisfied, but the small numbers in their study are not illustrative of the population to assume. Ngo-Metzger et al. (2004) cited from (Jacob et al., 2010) found racial or ethnic minorities were more expected to describe poor quality of care. This phenomenon is properly well documented in other studies also. In our study, we observed 136 women (56.7%) are more satisfied than 104 men (43.3%) on the service quality provided by the dental clinics in Sweden.
But the other researchers, Rocha et al. (2017) and John et al. (2011) state that women were more dissatisfied in their research studies. In our study, we found from the survey results that the public dental clinics have more responses from the age group 35-45 years and private dental clinics have more responses from the age group 45-60 years. We finally, understood that patient satisfaction can be noticed from any age groups.

In our survey we found that clinics 1, 2, and 4 find major problem while booking appointments with dentist. Patients are made to wait for longer periods which in turn leads to dissatisfaction among them. Patients are not happy with the appearance of the clinic 3. Instead patients are happy with the opening hours, nurse response, clinic services, and explanation given to them about the treatment procedure. Patients are happy with the quality of the treatment in the four clinics where we conducted our survey. There is no racism in Swedish dental clinics. We understood that factors play a key role in deciding, how healthcare services are influencing patient satisfaction and experience levels with their quality of services.

The patients gave feedback to improve the services for Q12 (Refer appendix 8.3): In clinic 1, patients say that they are not able to change the appointment timings. Patients are made to wait too long for the treatment as the dentist comes late sometimes. They are waiting too long for treatment procedure in-between visits. Patients are asking to send a reminder about checkup date in the clinic. Few patients gave feedback that they are satisfied with the clinic services and they are comfortable with the clinic. They are very happy with the services provided by the clinic. In clinic 2, the patient is happy and comfortable with the clinic services. Patients feels that every aspect in the clinic are pleasing and satisfactory and they feel that nothing to be improvised. Everything is good and comfortable. In clinic 3 patients were unhappy about the internal infrastructure and ambience of the clinic. They just wanted some renovations in the clinic and they were happy about the other aspects provided in clinic. Clinic 4, the patients are very happy with the clinic services and the staff. They did not comment on any issues related to clinical services. The patients’ responses in our study clearly show that the dental staff are required to perform their job with high assurance, to exhibit good work discipline, to appear neat, and to be polite. Although the patients’ expectation concerning waiting time, the appearance of the clinic is moderate. The perception was also moderate, proposing that substantial development is required in those areas. Result of our study will help the management to invest their funds in appropriate service and to achieve better satisfaction by patients.

From the group interviews, we found that the public dental clinics have challenges about waiting time and staff leaves. The manager is aware of the problem and she discusses with the staff to reduce waiting time and want to provide comfortable appointment timings to the patients. The dentist feels that the waiting time is only the issue which is harder for them to deal as they should manage staff leaves and patient appointments according to the treatment plans. According to the dentist response, they have hired a new dentist to reduce waiting time for the patients. Now, patients can easily meet the dentist for their treatment. The patient who participated in the group interview said that the clinic is very good at services, quality of the treatment, and care given by staff. They also felt that staff respond to their needs immediately.

In private dental clinics, the customer is happy with the services of the clinic and with the dental treatments, but they want to improve the clinic internal infrastructure and ambience. The management is happy to see the positive feedback about their services and dentist skills and the
clinic manager wants to improve the appearance of the clinic according to the feedback from the patients. Based on our research study, the analysis is done with face-to-face interviews, survey analysis, and group interviews. By observing all this, we state that healthcare systems are improving their services based on the feedback given by their patients in dental clinics. The dental clinics, both public and private sector consider their patient's views and they are modifying their quality of services to gain patient satisfaction. We observed, positive outcomes from our research study about the service quality of the dental clinics from patient/customer perspective. The main aspect on which the health care providers should immediately look up is the duration of time period for which the patients are made to wait before meeting the doctor. Duration of waiting period should be reduced in order to achieve higher patient satisfaction. The healthcare providers of the dental clinics are discussing this issue by conducting monthly analysis to reduce it in their clinics by recruiting skilled staff to gain patient satisfaction.

Based on the group interview from Clinic 5, we identified that it implemented new services with patient survey results and their suggestions. Results from clinic 5 showed that responsiveness and tangibility got the highest score. On another hand, empathy is with the lowest score. That means dentist/patient relationship is good, quality of services is good, explanations given by doctors about treatment procedure are pleasing and patient are happy to know about the treatment procedure. Appearance of the clinic is good. The main aspects that needs to be addressed and improvised are comfort levels provided to patients, respect given by staff and amount of pain that the patient feels during the treatment process (i.e., treatment procedure should be done in such a way that patient feels only minimal amount of pain). The clinic has implemented new services with service management innovations like changing the appearance, comfort levels by providing WIFI, charger ports, Varieties of Coffee, and Toilet maintenance. The clinic management came up with a new idea to involve patients in their process of service management to satisfy them. The clinic is changing the services according to the needs of the patients to make them happy and want their potential customers to visit the clinic again.

Managers in the dental clinics should find new ways and new services to satisfy patients and this leads to gain competitive advantage. Clinic 5 group interviews revealed that new ways/new services related to service management innovations are being implemented in the dental clinic by modifying the clinic services (such as placing new coffee machine in the clinic with different varieties, providing WIFI access, changing the appearance of the clinic). These changes are done based on the survey results and patient suggestions. The private dental clinic started new service by involving patients in the process development to improve their clinic services and which leads to gain competitive advantage by satisfying their customers. As, we know from the literature, according to (Danielsson and Strigård, 2012) and (Lee et al., 2011) Innovation is managing the process development and creating new ideas (like involving patients in the process development) and grasping new opportunities to develop new services for customers. Managing or implementing new services is the service management innovation in the healthcare sector. From the interview results, three clinics who participated in the group interviews are modifying or implementing new ways of managing. The clinics are under improvising processes which is helping them to grasp new opportunities to improve (Clinic 3 wants to change the appearance of the clinic) (the clinic 1 wants to reduce appointment waiting time by hiring new skilled staff) and creating new skills (training staff to communicate with patients) to develop new services for customers.
There may be many reasons to occur errors in any customer satisfaction research study. This study was conducted to measure the experience levels of the patient satisfaction in a limited time. The nature of the analysis may create bias in the questionnaire responses. In this study, the responses may be influenced by the individual patient mood, past experiences, tendency to rate with more or less severity, gratitude, which may be the reasons behind high expectation and perceived outcome. The number of patients registered in the each clinic are 4000-15000. But the number of surveys gathered are 60 per clinic due to fixed time for our research work. So, this may show difference in the results of the expectations and perceptions if more number of surveys are collected. The accuracy of the ratings also sometimes differ by the effect of methodological factors like response rate, questionnaire format, and data collection method (For example, when questionnaire was handover by the dentist himself, patient may not respond accurately to the given questions to maintain good relationship with them). The validity and reliability factors also differ because of the above stated reasons.
6. CONCLUSION

In this section, we discussed about the conclusion, limitations of the research, managerial implications, and future research.

The purpose of our research is to measure the experience levels of the patient satisfaction based on the factors affecting dental service quality. The challenge (about waiting time to book an appointment) what we faced when we visited the dental clinic is still existing in the clinics. The research study showed that the dental clinics have highest experience levels of the patient satisfaction. The healthcare providers are improving the service quality based on their patients’ feedback to satisfy them. The value captured in the dental clinics is that the patients are highly satisfied with the clinical services in Sweden. The dentist-patient relationship is good, which is a key factor in any service sector. The only issue is with the appointment booking and appearance of the clinic which is found in the interviews, survey results, and the group interviews. The research study showed that the Swedish dental clinic management are implementing new methods and new ways to improve service quality in the clinics based on the feedback of the patients. Patients are being involved in the process development of dental clinics to understand their expectations and perceptions in implementing services. The gap analysis showed that patient expectations and management perceptions differ in the service quality of the healthcare organizations.

Our research limitations are specified to measure “patient satisfaction” experience levels with mean and standard deviation. We focused on patient satisfaction related to doctors’ and nurses’ services and its quality in Swedish dental clinics. We measured experience levels of the patient satisfaction according to the factors which are affecting the dental service quality. We selected four important factors to measure the patient satisfaction. They are assurance, responsiveness, tangibility, and empathy. Cronbach’s alpha is 0.883 for total items in the survey analysis. The alpha coefficient is less than 0.7 for factors assurance, responsiveness, tangibility, and empathy in the research. The alpha coefficient will be high if the items are 4 per each factor in the factor analysis. Which is unfortunately low in the research that makes the research reliability problematic. The low value of Cronbach’s alpha may be credited to the nature of items. However, the results of several questions may be taken with care with respect to this dimension. The sample size is 240 for our research which should be $n \geq 138$ for the research study. The sample size is limited to 240 as the time horizon is cross-sectional that made us to gather limited number of survey results from the total number of patients registered per each clinic. The Swedish public dental clinics are 4065 in practice, private dental clinics are 3,463 in practice. But we got an opportunity to do the quantitative and qualitative studies in only two private and two public dental clinics.

Implications are that the managers should focus on the challenge, how they can reduce the gap between patients’ expectations and their perceptions as a large framework of shared assurance of the key providers in the healthcare sector. The healthcare providers should understand patient satisfaction levels based on the factors affecting dental service quality. They should understand the lowest effect factors and improve those areas to satisfy their patients to gain competitive advantage. The main role of healthcare providers is to understand their customers and make them visit the healthcare organizations with trust and confidence. The private dental clinics in Sweden are
implementing new services based on the patient feedback and involving their customers in their development process to satisfy them. The dental clinics, which are still facing problems should follow the new service innovations to improve their clinics and make their patients happy by developing their clinics with the feedback given by their potential customers. The main challenge the dental clinics are facing waiting time to book an appointment/ to meet a dentist. The private dental clinics should focus on the appearance of the clinic to satisfy their potential customers. The dental clinic management in both private and public sector should focus on the above challenge to reduce the effect and improve the services in booking appointments, the appearance of the clinic, staff recruiting to gain patient satisfaction.

Future research should emphasis on finding a process to minimize the gap between patients’ expectations and their perceptions. The items assigned to each factor should be verified before survey analysis as it will be problematic for reliability of the research study. The sample size can be more than 500 to get more validated results for measuring patient satisfaction. The management should also focus on the four themes in the SERVQUAL to gain patient satisfaction.
CHAPTER SEVEN

7. REFERENCES


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MAHROUS, M., SAAD, & HIFNAWY, T. 2012. Patient satisfaction from dental services provided by the College of Dentistry, Taibah University, Saudi Arabia. Journal of Taibah University Medical Sciences, 7, 104-109.


CHAPTER EIGHT

8. APPENDIX

8.1. Interview Questions and Responses from Employees of Dental Clinics:
The Empirical data was gathered by interviewing doctors and managers in Swedish Dental clinics to understand the challenges they are facing. The interviews are done by using the below questions which helped us to formulate our tentative research questions. Sample A and Sample B questions are asked for different interviewees to get accurate answers about their challenges in the clinics.

Questions for the manager:
Sample A
1. What are the biggest challenges in your clinic management?
2. What is the strategy implemented to solve the challenges in your management?
3. How you organize your work in the clinic?
4. How you manage to coordinate with appointments/ schedules?
5. How many numbers of patients are required to maintain a clinic for a long time?
6. How many Numbers of the staff are required to run the clinic?
7. How the teamwork in the clinic goes on?
8. Do you think the current staff can handle the number of patients you have now?

Sample B
1. How you manage your patients while they have a problem to take an appointment for their emergency dental issues?
2. How you and your staff coordinate with your patients while the patients have some problems with dental treatments.
3. How patient-doctor relationship works while you are treating a patient for a long time?
4. Are your patients happy with your clinic, your staff, and your management skills?
5. Have you changed/ implemented anything to improve your quality of care to satisfy your patients in recent times. If yes, what you have changed?
6. Do you motivate your staff to take care of patients? Do you identify any change when you motivate them? Did you see any improvement in your nurses’ work after telling them their responsibilities?

Questions for the Staff:
1. What are the problems that you are facing in your work?
2. Do you think your clinic is facing problems inside the staff?
3. Do you think your clinic is facing problems with the Patients?
4. How the teamwork in the clinic goes on (the relationship between the staff)?
5. How many numbers of Patients you have now and how many patients you need to maintain a clinic for a long time?
6. How many Numbers of staff you have now and how many staff you need to maintain a clinic for a long time?
7. Do you think the current staff can handle the number of patients you have now?
8.2. Interview results of Managers and doctors from Public and Private dental clinics:

Table 12 Results from face-to-face interviews

<table>
<thead>
<tr>
<th>NO.</th>
<th>CLINIC DETAILS</th>
<th>INTERVIEW RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Dr. Berndt-Göran Isberg Manager (Retired) Breared folktandvården Public clinic</td>
<td>1. What are the biggest challenges, what is the problem that you are facing? The problem is to find people that can work together and integrate with the team. Problem with income budget should always be positive, the economic result should be good. Other problem with the staff, lack of educated people, like not easy to find educated people who can integrate with the team. Sometime the number of the rooms can’t let you increase the number of the staff.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. How many number of staff you need to run the clinic? It depends on the number of patients.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. How many patients do you need to run the clinic? Nearly 5000 patients who are registered in the clinic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. How many number of the staff you have now? 3 doctors, 2 full time and 1 half time and 6 nurses.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Are the current staff can cover the number of patients you have? Yes, but because of the sick leave and the holidays we had lack of staff and my plan is to expand the number of the staff for the next coming years. I may increase it by 1 more doctor and 1 hygienist and 1 nurse. These can cover up to 2500 patients. We always need to have new patients and that’s why I’m planning to increase the number of staff.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Do you think if you increase the number of the patients you may face problem like delaying in the appointment? Currently, we have a delay in the appointment because of the sick leave and the holidays for the staff.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. How you solve the problem of delay? I will hire a new nurse.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8. How do you decide the number of the staff you need? By experience</td>
</tr>
</tbody>
</table>
|   | Dr. Osama Pairo  
Dentist  
Tandläkarna på Hörnet  
Private clinic | 9. Do you have rules to follow?  
Yes, I have rules to follow, some rules like all my staff should have full-time job and I can divide the number of the staff until I can control the budget.  
I do and analyze the budget by myself.  
I am responsible to control the incomes of the clinic.  
10. Do you decide the salary for the staff?  
There is a rule for the salaries and its decided by the manager of Halland. |
|---|---|
| 2. | 1. What are the problems that you are facing in your work?  
The time for the patients is not enough. The working hours are not enough.  
The break is 1 hour instead of half an hour.  
Delay in the appointment.  
2. Do you think your clinic is facing problems inside the staff?  
No  
3. Do you think your clinic is facing problems with the Patients?  
Only with the appointments.  
4. How is the teamwork in the clinic goes on (the relationship between the staff)?  
Good  
5. How many numbers of Patients you have now and how many patients you need to maintain a clinic for a long time?  
Approximate 4000 patients.  
6. How many Numbers of staff you have now and how many staff you need to maintain a clinic for a long time?  
5 dentists and 2 of them work full time, 5 nurses and 1 hygienist.  
7. Do you think the current staff can handle the number of patients you have now?  
No, because there is delay in the appointments. Because the working hours are not enough. |
| 3. | Dr. Zaid Alkhateeb  
Dentist  
folktandvården Strängnäs  
public clinic | 1. What are the problems that you are facing in your work?  
Difficult to arrange a meeting for the patients because there are a lot of patients and the number of the staff is few.  
2. Do you think your clinic is facing problems inside the staff?  
The number of the staff is few and we may face a problem when one of the staff have sick leave or take holiday. |
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3.</td>
<td>Do you think your clinic is facing problems with the Patients? Difficult to arrange a meeting for the patients.</td>
</tr>
<tr>
<td>4.</td>
<td>How is the teamwork in the clinic goes on (the relationship between the staff)? The relationship is good.</td>
</tr>
<tr>
<td>5.</td>
<td>How many numbers of Patients you have now and how many patients you need to maintain a clinic for a long time? Approximate 10000</td>
</tr>
<tr>
<td>6.</td>
<td>How many Numbers of staff you have now and how many staff you need to maintain a clinic for a long time? The number of the staff are approximate 30 and 10 of them are dentist and 6 from the dentist work full time.</td>
</tr>
<tr>
<td>7.</td>
<td>Do you think the current staff can handle the number of patients you have now? No.</td>
</tr>
</tbody>
</table>

| 4. | Dr. Hussien Abbas  
Manager Abbas dental lab  
Private clinic | 1. | How you manage your patients while they have a problem to take an appointment for their emergency dental issues? I give time according to my schedule if I have time I will accept the patient. |
|   |   | 2. | How you and your staff coordinate with your patients while the patients have some problems with dental treatments. I don’t have a problem with the treatment, but I have a problem with the payment, the patient complains about the payment issues. |
|   |   | 3. | How patient-doctor relationship works while you are treating a patient for a long time? I like to have more time for the treatment more than discussions. |
|   |   | 4. | Are your patients happy with your clinic, your staff, and your management skills? Yes. |
|   |   | 5. | Have you changed anything to improve your quality of care to satisfy your patients in recent times? If yes, what you have changed? I improve inside the clinic by changing and improving the tools and equipment. |
|   |   | 6. | Do you motivate your staff to take care of patients? Did they change when you motivate them? Did you see any improvement in your nurses work after telling them their responsibilities? |
|   | **Rowaid Nihad**  
|   | **Hygienist**  
|   | **Folktandvården**  
|   | **Public clinic**  
| 5. | Yes. I always try to provide the staff flexibility, good salary, and good environment.  
|   | 1. **What are the problems that you are facing in your work?**  
|   | Lack of the staff  
|   | The clinic doesn’t accept new patients  
|   | Some of the patients don’t come on their appointment time.  
|   | 2. **Do you think your clinic is facing problems inside the staff?**  
|   | No  
|   | 3. **Do you think your clinic is facing problems with the Patients?**  
|   | There is no coordination between the reception and the staff and this cause problem with booking the appointment.  
|   | 4. **How is the teamwork in the clinic goes on (the relationship between the staff)?**  
|   | Good  
|   | 5. **How many Numbers of staff you have now and how many staff you need to maintain a clinic for a long time?**  
|   | The total number of the staff are 28. 9 dentists and 4 hygienists and the rest are nurses.  
|   | 6. **Do you think the current staff can handle the number of patients you have now?**  
|   | No, because there is delay in the appointments. We are late for 6 months.  

|   | **Dr. Yazin Baithoon**  
|   | **Tandea Private dental clinic**  
| 6. | 1. **What are the problems that you are facing in your work?**  
|   | Difficulties to arrange appointment for the patients. Treatment discussions between the dentists within the clinic, for example the same patient can have different treatment plans.  
|   | 2. **Do you think your clinic is facing problems inside the staff?**  
|   | No  
|   | 3. **Do you think your clinic is facing problems with the Patients?**  
|   | The first problem regarding the cost of the treatment that can be change due to the treatment plan. The second problem is the difficulties to have an appointment because its full booked.  
|   | 4. **How is the teamwork in the clinic goes on (the relationship between the staff)?**  
|   | The relationship is good.  

60
5. How many numbers of Patients you have now and how many patients you need to maintain a clinic for a long time? Approximate 3500

6. How many Numbers of staff you have now and how many staff you need to maintain a clinic for a long time? 3 dentists full time, 3 nurses and 1 hygienist.

7. Do you think the current staff can handle the number of patients you have now? Yes.

---

8.3. Survey: Measuring Patient satisfaction in Dental Clinics

This survey is to measure patient satisfaction through service quality in Swedish Public and Private Dental clinics. We have prepared the questionnaire and sent it to the Dental clinics where patients will fill in the survey after the treatment in front of the dental doctors. The questionnaire is translated into Swedish and sent to the clinics as patients can easily fill in the survey.

The below one is Questionnaire in English:

<table>
<thead>
<tr>
<th>Halmstad University</th>
<th>Patients Survey</th>
<th>Master Thesis 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Survey: Measuring Patient satisfaction in Dental Clinics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinic Name</td>
<td>Age:</td>
<td></td>
</tr>
<tr>
<td>Registration date</td>
<td>Gender:</td>
<td></td>
</tr>
</tbody>
</table>

This survey will be used in our Master thesis for Halmstad University. Please answer below questions to understand your feedback about the clinic services.

1. I like the appearance (cleanliness, tidy, neatness) of the clinic.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

2. I am satisfied with the responsiveness of the staff.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

3. I am comfortable with the quality of the treatment provided by the clinic.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

4. Nurses respond well when I ask for help from them.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

5. Doctors respond well when I ask about my treatment procedure/plan.
<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

6. I am happy with the services that are provided by the clinic.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

7. I am satisfied with the clinic opening hours.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

8. I can easily book an appointment that is suitable for me.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

9. I am not waiting too long for appointment/ meeting a dentist.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

10. I will recommend this clinic to my family and friends.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

11. I don’t find racial discrimination while consulting doctor/ nurses.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

12. What can be improved in the clinic to satisfy the patients?

The Below questions are translated into Swedish by the dental doctor Ali Habib who made our work easy as Patients can easily understand the language and fill the survey.

Högskolan i Halmstad Patients undersökning Examensarbete 2018

Undersökning: Mätning av patient nöjdhet/tillfredställande under besöket hos oss.
Vi är två master studenter på Högskolan i Halmstad, vi går sista terminen och gör vårt examensarbete om tandvården. Skulle uppskatta om ni kan fylla i enkäten och lämna till receptionen.
Sanar Al-Dori och Subhadra Namana

<table>
<thead>
<tr>
<th>Klinikens namn:</th>
<th>Älder:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient sedan:</td>
<td>Kön:</td>
</tr>
</tbody>
</table>

1. Jag gillar klinikens utseende.

<table>
<thead>
<tr>
<th>Instämmer helt</th>
<th>Instämmer delvis</th>
<th>Neutral</th>
<th>Instämmer delvis inte</th>
<th>Instämmer inte alls</th>
</tr>
</thead>
</table>

2. Jag är nöjd med personalens ansvar.

<table>
<thead>
<tr>
<th>Instämmer helt</th>
<th>Instämmer delvis</th>
<th>Neutral</th>
<th>Instämmer delvis inte</th>
<th>Instämmer inte alls</th>
</tr>
</thead>
</table>
Healthcare Management
Measuring patient satisfaction of service quality in Swedish dental clinics

   | Instämmer helt | Instämmer delvis | Neutral | Instämmer delvis inte | Instämmer inte alls |
   | Instämmer helt | Instämmer delvis | Neutral | Instämmer delvis inte | Instämmer inte alls |
5. Jag får all information jag behöver angående behandlingen och kostnaden av tandläkaren.
   | Instämmer helt | Instämmer delvis | Neutral | Instämmer delvis inte | Instämmer inte alls |
6. Jag är nöjd med klinikens tjänster i helhet.
   | Instämmer helt | Instämmer delvis | Neutral | Instämmer delvis inte | Instämmer inte alls |
7. Jag är nöjd med klinikens öppettider.
   | Instämmer helt | Instämmer delvis | Neutral | Instämmer delvis inte | Instämmer inte alls |
8. Det är lätt att boka en tid som passar mig.
   | Instämmer helt | Instämmer delvis | Neutral | Instämmer delvis inte | Instämmer inte alls |
   | Instämmer helt | Instämmer delvis | Neutral | Instämmer delvis inte | Instämmer inte alls |
    | Instämmer helt | Instämmer delvis | Neutral | Instämmer delvis inte | Instämmer inte alls |
    | Instämmer helt | Instämmer delvis | Neutral | Instämmer delvis inte | Instämmer inte alls |
12. Vad kan det utvecklas/ändras på kliniken för att öka patient nöjdhet?

The above questionnaire is sent to the clinics. The above questionnaire is based on the four factors we selected for our survey and for each factor three questions are assigned to measure patient satisfaction using factors that are affecting service quality. The four factors selected for our survey are Assurance, Responsiveness, tangibility, and empathy. We are using “SERVQUAL” tool to measure patient satisfaction and SPSS statistics 24.0 to calculate mean and standard deviation for our survey results and findings.
We did group interviews with the idea of value mapping tool from customer perspective to understand different types of values in the tool: value missed, value destroyed, value captured, and value proposition in the dental clinics 1, 3.
8.4. Group interviews: Questions and results

CLINIC 1:

Questions for the staff

Answers by the Manager:

Dr. Linnea Berg, new manager of Folktandvården Breared

1. We identified from the above result that the dentist-patient relationship is good, dentist skills are good, patients are happy with clinic services, opening hours, appearance of the clinic, staff and quality of the treatment and they have issues with booking appointments and consulting the dentist. How do you feel about it and which service is attracting your patients in your clinic? I am happy that our patients are satisfied with our treatment, both odonatological and service. As a manager it is always nice to know that our staff is treating patients with respect and empathy. We are aware about long waiting time for booking appointments and occasional delay before start of treatment. These are issues we are addressing at all times and working to eliminate.

2. What is the positive outcome (value captured) you observed from your clinic? From the study I conduct that the positive outcomes are the clinics appearance, opening hours, service, staff, and quality of treatment, which I believe to be the core of the clinic and a strong foundation to stand on and evolve from.

3. What is the critical service (value destroyed/missed) you observed from the clinic? From the study I conclude that our waiting time dilemmas are something that both we as staff and our patients are concerned about, hence something to work even harder with.

4. What are the new opportunities you need to improve service quality in the clinic to satisfy your patients? We need to improve our waiting times even more, to ensure that our patients get the treatment need within a reasonable time and on a time that suits our patients.

Answers by a dentist:

Dr. Ali Habib dentist at Folktandvården Breared

1. We identified from the above result that the dentist-patient relationship is good, dentist skills are good, patients are happy with clinic services, opening hours, appearance of the clinic, staff and quality of the treatment and they have issues with booking appointments and consulting the dentist. How do you feel about it and which service is attracting your patients in your clinic?
   a. I am satisfied with the results and this is what I am waiting to hear from our patients. We are working hard every day like a team to make our patients happy and can smile.
   b. We didn’t have full staff because of sickness and other issues, that’s why it is difficult to get an appointment and have waiting time. Now we have a new dentist, the staff is full, and we are working to reduce waiting time and be able to get new patients.
2. **What is the positive outcome (value captured) you observed from your clinic?**
   The positive outcome is the good relationship between the patient and the dentist. When the patient trusts the dentist means that the services we offer is professional and of high quality.

3. **What is the critical service (value destroyed/missed) you observed from the clinic?**
   The waiting time and this is what we already know and discuss about in our meetings every month. One of our goals is to decrease it.

4. **What are the new opportunities you need to improve service quality in the clinic to satisfy your patients?**
   To improve our waiting time.
   Thank you to share the results with us in the clinic, it helps us to concentrate and find plans to eliminate waiting time issue.

**Answers by patient:**

*Lena Persson, patient at Folktandvården Breared*

1. **How do you feel about the service quality provided by the clinic?**
   I think that the clinic has a very good quality in both responsiveness and care.

2. **What are the positive benefits (value captured) you find in the clinic that satisfies you?**
   The most positive things in the clinic are care taking and responsiveness.

3. **What are the critical services (value destroyed) you see in the clinic?**
   It’s difficult to get a new appointment when I need to revisit or change the time of my already booked appointment.

4. **What you want in the clinic (managers) to improve to satisfy you? (new opportunities)**
   The clinic needs to reduce the waiting time.

**CLINIC 3:**

**Questions for the manager and the dentist:**

1. **We recognized that dentist skills are good while treating patients and patients trust the dentist. The patient is happy with the appointment booking. In another hand, the patient is also very happy with the services provided by nurses. The appearance of the clinic should be improved. What makes the customer attractive to your clinic?**
   How do you think about these results?
   I am happy with the result and I see that the most important thing from the result is that the patient trusts the dentist, I consider this as an important thing that you should build a good relationship with the patients. Customers are happy with the dentist treatment, appointment booking and services of the clinic.

2. **What is the positive outcome (value captured) you observed from your clinic after the patient survey?**
   From the above result, I realized that, it is very important now to focus on the clinic appearance.

3. **What is the critical service (value destroyed/missed) you observed from the clinic?**
I observed that I should increase the number of nurses. To have a good nurse with a proficient in her work.

4. **What are the new opportunities you found to improve service quality in the clinic to satisfy your patients?**

   I need to increase the number of nurses because I need at least 2 or 3 assistances and it should be expert nurses also I need to improve the appearance of the clinic.

**Questions for the patient:**

5. **How do you feel about the service quality provided by the clinic?**

   I am satisfied with the service.

6. **What are the positive benefits (value captured) you find in the clinic that satisfies you?**

   Very nice dentist, good info about the treatment procedure, very easy to book an appointment that suits me.

7. **What are the critical services (value destroyed) you see in the clinic?**

   I am not happy with the appearance of the clinic.

8. **What do you want in the clinic (service providers) to improve to satisfy you? (new opportunities)**

   Renovate the clinic.

**CLINIC 5:**

The clinic 5 have done patient survey themselves and they shared their results and the dentist gave us answers to our developed questions based on the idea of the value mapping tools with different values to know the implications.

The clinic has tangibility and responsiveness with highest effect and empathy with the lowest effect. That means the clinic is with good appearance, Dentist explains treatment procedure clearly to the patient, the patients are satisfied with the quality of treatment, the opening hours of the clinic are good. The clinic has the lowest effect with factor empathy. It shows that nurses should help the patients when they ask. The services should be improved to satisfy patients.

How do you feel about these outcomes from the patient feedback and what you want to improve to make the patients satisfied? What are the positive outcomes and critical issues in your clinic?

What are the new opportunities in your services based on your clinic?

The answer:

These parameters have already been identified and set in motion. Therefore, the patient satisfaction is very high due to the engagement of the patients themselves in the actual process of the clinic services. What I feel about the result is that we got a positive result. We implemented new services and new ways to satisfy the patients and as we want them to visit the clinic again. So, we are covering all their needs to make them happy. We have provided new services according to the feedback given by the patients in the survey.
The positive outcome is that patients are involved in the clinical services to improve the process by introducing new ways. This made us gain patient satisfaction as the patients are giving suggestions and their feedback in the meetings and we are implementing them.

The critical issue in the clinic is that the nurses should be motivated to help the patients when they need something. As, we have more number of patients and we should coordinate with the nurses about each patient in their treatment procedure. It may sometimes lead to pressure on the nurses to coordinate with staff as well as with the patients’ requirements.

The new opportunities are we want to implement new services and modify our equipment with modern technology frequently to satisfy our patients.

The results from the group interviews are discussed in the below table:

Table 13 Group interview results

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<th>CLINIC 1</th>
<th>CLINIC 3</th>
<th>CLINIC 5</th>
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<tr>
<td>Results</td>
<td>The manager is happy to know that their staff is treating patients with</td>
<td>The dentist and manager are same for this clinic.</td>
<td>Manager is not interested to participate.</td>
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<td>from group</td>
<td>that their staff is treating patients with respect.</td>
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<td>(Manager</td>
<td>The manager is aware of long waiting time for booking appointments.</td>
<td>The manager is happy by knowing that the patients trust the dentist and</td>
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<td>he feels as an important thing to build a good relationship with the</td>
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<td>patients which will make them gain satisfaction from the patients.</td>
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<td>These are the issues they are working to eliminate.</td>
<td>The manager is happy by knowing that the patients trust the dentist and</td>
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<td>Value captured for their clinic is that appearance, opening hours,</td>
<td>The value proposition of the clinic is that the customers are happy with</td>
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<td>service, staff, and quality of treatment which she believes to be the</td>
<td>the dentist treatment and they are satisfied with the clinic services,</td>
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<td>The value missed/ destroyed is waiting time dilemmas are something that</td>
<td>The value proposition of the clinic is that the customers are happy with</td>
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<td>they both as a staff and their patients are concerned.</td>
<td>the dentist treatment and they are satisfied with the clinic services,</td>
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<td>The manager responded for new opportunities that they need to improve</td>
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<td>their waiting times, even more, to ensure that their patients get the</td>
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<td>treatment needed within a reasonable time and on a time that suits their</td>
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67
appearance of the clinic to satisfy their potential customers as they have given feedback about the clinic appearance. The manager said that the clinic is investing more money to make changes in the clinic appearance and provide good facilities to their customers as they want their customers to visit their clinic again.

The value missed/destroyed in the clinic is about the lack of skilled and proficient nurses. The manager said that he wants to increase the number of nurses who have good skills in their work to provide comfortable services to their customers.

The new opportunities in the clinic are the clinic management must renovate the clinic according to the feedback from the patients. They are also trying to hire new staff as they want to have 2 or 3 assistances while treatments are
### Dentist Perspective

The dentist is satisfied with the results and this is what he is waiting to hear from their patients. They are working hard every day like a team to make their patients happy and to smile. They didn’t have full staff because of sickness and other issues, that’s why it is difficult to get an appointment and they have to wait for long time. Now they have a new dentist, the staff is full, and they are working to reduce waiting time and be able to get new patients. The value captured is the good relationship between the patient and the dentist. When the patient trusts the dentist means that the services they are offering are professional and of high quality. The value missed/destroyed is the waiting time and this is what they already know and discuss in their meetings every month. One of their goals is to decrease it. The new opportunities they want to reduce their waiting time. He thanked us as we shared the results with them about the clinic services, as it helps them to concentrate and find plans to eliminate the waiting time issue.

### Manager and dentist are same.

The dentist answers are: the survey parameters have already been identified and set in motion. Therefore, the patient satisfaction is very high due to the engagement of the patients themselves in the actual process of the clinic services. The clinic implemented new services and new ways to satisfy the patients as the staff wants the patients to visit the clinic again. So, the staff is covering all their patient needs to make them happy. The value captured is that patients are involved in the clinical services to improve the process by introducing new ways. The value missed in the clinic is that the nurses should be motivated to help the patients when they need some help. The new opportunities are we want to implement more new services and modify our equipment with modern technology.
Healthcare Management
Measuring patient satisfaction of service quality in Swedish dental clinics

The patient thinks that the clinic has a very good quality in both responsiveness and care. The value captured in the clinic are caretaking and responsiveness. Value missed/destroyed is that they face difficulty to get a new appointment when she needs to revisit or change the time of her already booked appointment. The clinic needs to reduce the waiting time is the new opportunity she wants.

The patient is satisfied with the services of the clinic. The value captured from the clinic from the customer perspective is that the dentist is a skilled person, the appointment booking is very easy and comfortable, the treatment procedure is explained with details by the dentist before treatment begins. The value missed/destroyed in the clinic is the appearance of the clinic. The clinic should improve the clinic appearance to satisfy their patients.

Not available as the clinic is far from our research area.

8.5. Results for the Public and private dental clinics

Public dental clinics:

Table 14 Descriptive Statistics

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Table 15  Patient experience levels based on dental service quality

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Private dental clinics:

Table 16 Descriptive Statistics

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### Measureing Patient Satisfaction of Service Quality in Swedish Dental Clinics

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### CHAPTER NINE
9. EXECUTIVE SUMMARY:
The research study is about understanding the experience levels through factors which are affecting the service quality of the patients to measure service quality in the healthcare organizations in Sweden. The research is based on the factors affecting dental service quality. The research is conducted to understand patient satisfaction levels based on the factors such as tangibility, assurance, empathy, and responsiveness that affect dental service quality. The research study is conducted in the dental clinics after interviewing the dental staff and understanding the challenges they are facing. Based on the interview results the research study is designed to measure the patient satisfaction in those clinics to understand the patient experience levels. The challenges are about the waiting time to book an appointment, recruiting educated staff, and managing appointments based on the available schedules. The purpose is to measure the experience levels of the patient satisfaction of service quality in the Swedish dental clinics.

BACKGROUND
Many other researchers conduct the research study to measure patient satisfaction in other healthcare sectors. Our research study is the first one in Swedish dental clinics about measuring experience levels of the patient satisfaction based on the factors affecting the dental service quality. Previous research studies on this topic are not found in Swedish healthcare organizations. The research involves dental staff from six dental clinics. The survey is conducted with 240 respondents from four dental clinics. The research is done for a master thesis project by Halmstad University Master students to analyze the management role and to measure customer satisfaction experience levels. The research study is done by comparing private and public dental clinics to know the different perspectives in implementing new services to improve the quality of the services.

METHOD
The research process was initiated by interviewing two managers, one hygienist, and three dentists from Swedish dental clinics. The gathered data from the interview helped us to identify the challenges that they were facing in the clinics. We framed our research questions by analyzing specific theoretical papers which describes about the different factors and services which can be improvised to achieve better customer satisfaction in dental clinics. We prepared questionnaire to evaluate and rate the level of patient satisfaction, quality and service afforded in Swedish dental clinics (Private and public sector). We have chosen four factors to measure the quality of service provided in dental clinics. They are assurance, responsiveness, tangibility, and empathy. The four factors are chosen based on the analysis of the challenges faced in Swedish dental clinics. The factors to measure patient satisfaction which are affecting dental service quality can be chosen based on our research study. We collected data from 240 patients who received services from Clinics 1, 2, 3 & 4. This cross sectional and systematic study was conducted between February and May 2018. The main criteria for selecting a patient for the study purpose was one who is registered with the clinic and one who receives treatment at least once in a year. The number of patients interviewed were equally divided among the clinics. Then we did group interviews with three clinics (Clinic 1, 3 & 5) to understand the different types of values with the idea of the value mapping tool in customer perspective.
FINDINGS AND CONCLUSIONS

The major findings are that the patients are satisfied by the services provided by dental clinics and the factors affecting dental service quality have highest scores showing that the services are good. The dental clinics should focus on the appearance of the clinics. They should reduce the waiting time to book an appointment. The gap analysis showed that the customer expectations and management perceptions differ in the quality of the services provided by the dental clinics. The research study shows that the items should be more to analyze the factors and sample size can be more than 500 to get more validated survey results. The costs provided by both private and public dental clinics are reasonable and patients in Sweden are benefited by Government insurance policies as they can pay from the insurance amount to the clinics. The research helped us to understand the Cronbach’s alpha value, and why it should be higher than 0.7. The SERVQUAL model and its themes are helpful to our research as we could compare the customer expectations and management perceptions with our results.

RECOMMENDATIONS FOR FURTHER ACTION

The future research should focus on the implementation of gap analysis on SERVQUAL themes 1, 2, 3, and 4. As there exists gap between customer expectations and management perceptions in theme 1, management should focus on the gap 1 in the SERVQUAL to improve their quality of services to gain patient satisfaction. The reliability alpha coefficient should be verified by adding more items to each factor before developing a questionnaire. The sample size can be more than 500 to get more accurate results for measuring the experience levels of the patient satisfaction as the clinics have more than 5000 to 15000 patients. But it is a time-taking process as patients don’t attend the dental clinics as to other general clinics. The patients’ visit the dental clinics if they have major dental issues and they find hard to book an appointment as other patients have already booked appointments for their treatment procedures. Dental clinic management should take care of the challenges to eliminate them by implementing new ways of service management innovations.
Subhadra N amana received Bachelor's degree in Computer science of Engineering in 2008 from Vignan Institute of technology and Science (India). Subhadra is pursuing Master's in Industrial management and Innovation at Halmstad University.

Sanar Al-D ori received Bachelor's degree in Industrial and system Engineering in 2013 from Qatar university. Sanar is pursuing Master's in Industrial management and innovation at Halmstad University.