A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction

Obaidah Schakaki* and Alison Watson

Management of Quality, University of Leicester, UK

*Corresponding Author: Obaidah Schakaki, Management of Quality, University of Leicester, UK.

Received: July 10, 2017; Published: September 18, 2017

Executive Summary

This research has a noble goal by giving patient the best possible service and makes him/her satisfied as much as possible during their dental treatment. This could happen when the management, dentists and assistants understand the best Total Quality Management methods they should apply to make their patients satisfied.

This research shows the connection between Total Quality Management and patient satisfaction. The research analyse the initiatives where some are found effective and others weren't.

The author wrote a set of recommendations and findings at the end of the research to enhance the future application of Total Quality Management in dental practice to reach a win-win situation for both dental centre and patient.

Chapter I
Introduction

Consumers still can be attracted by the word “Quality”. You can sell products from same category but differ in quality with complete variety in prices. In addition some customers prefer to choose products or services that are made in some countries than others like German automotives, Belgium chocolates, Japanese electronics and watching English Premier League. All that is because the echo of the word “Quality” and how much it can affect the strength of its reflection that will not only give the good impression to the product but also to the factory, the city, or the country. Therefore, the science of quality became more and more important for all industries and businesses. Uncounted studies and researches were done about quality also new sciences, techniques and methods such as Total Quality Management, Six Sigma, Benchmarking...etc rise to the world of business and become more desired and demanded for most of the sectors like healthcare, industrial, hospitality...etc [1].

"Whenever a Japanese company has faced a crisis of any kind, they have turned to the introduction of TQM as a principal pillar for their management activities" [2]. Quality becomes essential in today marketplace. Products and services don't depend on price as before. Consumers became more aware of quality and the value of quality. Even quality is playing an important role in pricing sensitivity and cost reduction methodologies. You can ask many people and get answers about the last shape of Rolls-Royce automobile but if you ask them about the last shape of Tata automobile they may not know. Quality has no limits in variations and it has many standards to follow. The concept of quality is also differing from place to place, German quality is different than Japanese quality, and Chinese quality is different from American quality “This process of continuous improvement is the hallmark of the Total Quality movement and a key to Japan’s economic ascendancy” [3]. Not only each country but also each manufacturer has its own quality fingerprint which differentiate it from competitors even with slight differences. Therefore, many sectors and profit or non-profit organization feel the importance and the demand of quality and implement it in their business. Also many methods, tools, techniques, approaches, and models developed for quality and many books, articles and researches done about quality.

Citation: Obaidah Schakaki and Alison Watson. "A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction". EC Dental Science 14.3 (2017): 114-149.
Total Quality Management is a concept of quality that cares about customer satisfaction by producing value for money and products. “Total quality management is an approach to improving the effectiveness and flexibility of business as a whole. It is essentially a way of organizing, involving the whole company, business or organization, every department, every activity, every single person at every level” [4]. Total quality management became more popular nowadays because it has no limitations. Every total quality management department can design his own model to test it on the organization, this model may success and may fail; if then it needs to be redesigned and retested however, the model which work for a firm may not work for another. Total quality management has shifted nowadays from the classic school to the new modern school which includes many modifications and developments that are more flexible and fits the current demand [5]. “It is argued that the senior management of an organization are always keen to know both where they are positioned in relation to the competition and also their perceived status within the industry and the marketplace” [2].

Purpose of the research

This research explores the relation between TQM activities and measures and dental patient satisfaction through analysing investigated data.

Research Question

The key question is as follows.

Q: How effective is the practice of TQM in keeping the dental patient satisfied?

The following subsidiary questions will be answered through the collected primary and secondary data from the interviews.

Which kinds of TQM methods are the most common to be implemented at the dental clinics?

Are there TQM methods that have conflict with the satisfaction of the dental patients?

Research Objectives

These questions will lead us to explore narrow areas and to go more deep in discovering the relation between TQM and different medical departments in particular. This research could also help the management to make more accurate decisions and to avoid reinventing the wheel and make the implementation easier. Focusing on the dental patient is because the patient does several visits during treatment which cause more interaction between him/her and the hospital which will gain him/her more exposure. In addition, it is to enrich the few researches on hospitals and dental centres.

Research Reasons

The subject of this research was picked after analysing political, economical, social, and technologies reasons behind, by using PEST analysis to define the macro-environmental factors.

Political Analysis

The Government of Saudi Arabia doesn’t intervene too much in the dental treatment despite its high influence on the health of the nation. It focuses more on dental prevention awareness. Although most of the governments in the Middle East go with the same direction, but Saudi Arabia had established dental centres and clinics in hospitals to provide the primary dental care. However, the demand is still high and the private sector hasn’t reach with the insurance industry obvious definite plans for treatment and prevention. On the other hand the weakness of the labour law and the high trade restrictions are both limiting the private sector to go thorough healthy investments but drive it to more monopoly direction.

Economical Analysis

Saudi Arabia is one of the few countries who didn’t suffer from the world financial crisis in 2008 while on the contrary Saudi Arabia economy remains growing fatly due to the dramatic increase of the oil barrels price. In 2011 total of the state budget was
approximately 154,650,000,000\$ (USD), and 6.9% rate in the total budget was allocated to the Ministry of Health (MOH) to have approximately 10,630,000,000\$ [6]. In 2011 Saudi Arabia estimated population was 28,376,355 people who have an average life expectancy at birth of 73.8 years. The Ministry Of Health expenditure per capita is 375\$. The Rates per 10,000 of the population for hospital beds is 20.7 and for dentists is 3.5 [7].

Social Analysis

In 2011 population growth rate is 3.19 also, population under 5 years is 11.2%, over 15 years is 31.1%, between ages 15 - 64 is 65.4% and population from 65 years and above is 2.9% [7]. The culture aspects and health consciousness in Saudi Arabia vary geographically. In major cities you find higher health consciousness than small cities or villages and this is due to the size of healthcare provided and number of health workers in this place. However, most of the dentists prefer to live in major cities seeking for more luxurious lifestyle.

Technological Analysis

Saudi Arabia research and development activities are limited and it is not considered as an industrial country. Therefore, most of the technologies are outsourced and imported from other countries.

Structure of the report

The research introduces five chapters, and each chapter consist of few sub-chapters. Chapters are; Introduction, Literature review and theory, Data and methods, Analysis and results and Discussion and conclusions followed by references and appendices. The author used over 60 references to get a clear picture of quality management in healthcare and dental industry. The first chapter introduce purpose, main question, objectives, reasons and structure. The second chapter illustrate theoretical framework and general information on quality management, Total Quality Management and Total Quality Management in healthcare management and dental practice. The third chapter describes data and methods used in this research. The fourth chapter analyse the results of interviews, questionnaires and data. The last chapter conclude and discuss the findings, theoretical and practical implications, limitations, directions for future research and reflections.

Chapter II

Literature Review and Theory

Many hospitals and dental centres have accreditation by international regulators, but to how extent does that affect the patient directly or indirectly? TQM is always a hot topic for discussion due to its important reflections on any organisation. Only few studies discuss the implementation of TQM in the dental industry. Quality is the road to perfection and it is important for any product or service consumer because it leads to customer satisfaction. In healthcare, quality is very critical and nonnegotiable because it is about human health and life which is very precious to all of us and our beloved. However, customer preference and satisfaction is essential for organizations to be profitable financially or ethically. Good quality products lead to satisfied customers which end to win-win situation. Quality management could be implemented in different ways on employees’ level such as managers and non-managers, on customers, on processes, few departments or across all the organization. In the coming future it is expected to reach higher level of quality that we have nowadays and maybe a new practice or methodology will evolved to foster new quality era. TQM is hard work, often demanding too much from an organization, but when the principles of TQM are fully embraced and vigorously pursued, the results can be astounding. Quality control was introduced to analyse collected data in companies and reflect it in electronic tools to produce charts and reports. On the other hand quality assurance is applied by organizations to reach required results through effective and transparent activities. A new trend of JCI accreditation for hospitals and clinical facilities is well observed in the Middle East in the recent years. Also TQM standardization is improved in the companies by applying business processes and quality auditing. Business processes should be created by the agreement of all process users regardless their employee grade. Therefore there is no standard processes to apply otherwise we will find the whole companies are
copies of each others. Nowadays, quality is an essential function in all reputed companies because of its importance to leverage the business and to reach customer satisfaction and better work outputs. In non-profit organization quality is more about effectiveness while in profit organizations it is more about productivity. Also using IT, information System and technologies will lead to better quality and reduce errors. Quality should be the responsibility of each individual in the organisation.

Theoretical Framework

At the beginning, the author was searching for a question that links his bachelor in dental surgery with his current MBA program. This question should have a noble goal and return the benefit at the end on the patient who is the focus of the healthcare lens. Quality of service will definitely lead to patient satisfaction, and using TQM methods can measure how far they can satisfy patients. Many hospitals and dental centres have accreditation by international regulators, but to how extent does that affect the patient directly or indirectly?

TQM is always a hot topic for discussion due to its important reflections on any organisation. Quality has many definitions, and it can be defined as “Betz Dearborn Ltd. define quality as: ‘That which gives complete customer satisfaction’, and Rank Xerox as ‘Providing our customers, internal and external, with products and services that fully satisfy their negotiated requirements’. North-West Water Ltd. use the term ‘business quality’ and define this as: Understanding and then satisfying customer requirements in order to improve our business result...etc” [8].

This research will focus on the service quality due to “Without a focus on service quality, organizations will face problems and complaints from both employees and customers, and associated financial and other costs...etc” [8].

“The dimensions that influence service quality are: access, communication, competence, courtesy, credibility, reliability, responsiveness, security, tangibles and understanding/knowing the customer” [9]. If the management works on those TQM dimensions, most probably, the organization will have high customer and employee satisfaction rate which will reflect on its success.

Only few studies discuss the implementation of TQM in the dental industry. However, some of these studies had been done in the United Kingdom, Italy, Switzerland and United States of America, which are going to add value to the author’s research, by bringing experience in applying TQM to the dental practice and measure patient satisfaction.

The following studies beside others are going to be the main pillars in the author’s research:

Priority Health Services, in England established a quality management approach to maintaining a high quality of care and service, which integrates TQM and clinical audit activity [10].

In Italy, a paper discussed the most relevant quality factors and communication activities that are suitable as competitive levers in dentistry [11].

The author, Prizew winner of the European Quality Award 2000 describes his approach to introduce the European Foundation for Quality Management (EFQM) Excellence Model in his dental practice [12].

One of the American studies in the dental industry was discussing the development of a framework and an instrument for measuring perceived total quality management practices, also which TQM practices have been adopted in a health care setting, and examine the relationship between the use of TQM principles and such traditional business outcomes [13].

This chapter presents the literature review and theory that the author depends on his research. It discussed different areas in Total Quality Management including history, industry, healthcare and dental care. There are some textbooks and articles where they are considered as main pillars that the research stands on, which will be mentioned later in details.

This chapter will start from general information and details about Total Quality Management and cascade down in more details to reach the practice of Total Quality Management in the dental industry. However, most of the studies that the author founds come from western practice.
A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction

Quality Management

There is no specific definition for quality. Quality is a general subjective term which has many definitions by different authors and philosophers. “At this point it is important to define what we mean by “quality”. In the quality management context, the term is not restricted merely to the nature or quality of a product or service as such, but refers instead to the extent to which the product or service meets customer expectations” [12]. Quality is the road to perfection and it is important for any product or service consumer because it leads to customer satisfaction. In addition, quality helps in marketing as it increase the word of mouth and enhance the perception of end users. Therefore, most of the organizations care about quality and some of them follow some quality standards such as ISO and/or establish quality department to be a necessary department in the organization. Quality management is having more attention in the recent years with new methodologies and ideologies from different cultures. Also quality management becomes an essential element in business and economy.

Quality could change the mindset of customers and their buying behaviour also their recommendations and the way they choose the product or service. In healthcare quality is very critical and nonnegotiable because it is about human health and life which is very precious to all of us and our beloved, therefore the value of quality is a core in healthcare “core values; Putting patients first, meeting and exceeding patient expectations, getting the service right first time, reducing the costs of poor quality and staff empowerment and recognition” [10]. Usually high quality products or service are more expensive than others because of the appreciation and demand from customers while from the industrial point of view quality doesn’t means in necessary to raise the cost, in fact usually it reduces the cost especially when using some quality methodologies such as Total quality Management or Six Sigma.

Some organizations react passively to quality according to their customers feedback while others react actively to quality to force their own quality in the market “Management and organization of total quality; Service vision, organizational structure, development of departmental quality plans, integration with business-planning process and levels of responsibility for quality” [10]. Each type has pros and cons such as resistance, predomination, speed of action and reaction, variety of products or services, ability and flexibility to change, customer or market driven...etc. However, customer preference and satisfaction is essential for organizations to be profitable financially or ethically “PandD’s factory manager said: Winners are those companies which have the best ability to foresee the customers, needs and rapidly adapt according to that. There is only one way to be successful with that total participation in continuous improvements” [14].

One of customer satisfaction definitions is “Customer Satisfaction: The organization’s ability to meet or exceed customer expectations. Providing processes for understanding and addressing customer needs, expectations, and complaints. Developing methods which encourage staff to interact with customers and thereby acquire information about those customers. Developing ways to evaluate causes of patient attrition” [13]. One of the reasons that help Germany to overcome the last global financial crisis is the “Made In Germany” concept which creates large platform from loyal customers and prove the category of products they have. “In fact, reputation plays a key role in order to establish expected service which, among other factors, influences customer satisfaction” [15]. Good quality products lead to satisfied customers which end to win-win situation. “Another interesting insight on the idea of quality is that there are two aspects for quality, where one aspect can be represented by ‘Sphinx of Giza’, which indicates indefinable beauty, and the other one can be explained with the decades old pyramids in Egypt, which radiates the greatness of absolute engineering. Precisely, the idea of quality can be a blend of ‘beauty and perfection in engineering’; The author sees that each of the products or services across the market can be read in the light of this insight or analogy” [16].

Total Quality Management

Quality management could be implemented in different ways on employees’ level such as managers and non-managers, on customers, on processes, few departments or across all the organization, and the last one is the best because the quality will be implemented on a large scale to consist everything. This can be done by using quality control, quality assurance, performance improvement, total quality management...etc.

Citation: Obaidah Schakaki and Alison Watson. “A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction”. EC Dental Science 14.3 (2017): 114-149.
Most successful civilizations were famous for the quality of their constructions and different industries such where in India, Egypt, Levant, Iraq and Andalusia...etc in the ancient history of Byzantine, Babylonian, Romania, Greek, Pharaonic and Islamic...etc. In the twentieth century quality management start to be more mature in business practice and studies. “The first thoughts on quality management have started in 1910 in the form of ‘QUALITY INSPECTION’ which refers to the analysis by a source on a work done by a team or the whole company, sometimes with respect to a specific project. This was an initiative taken to reduce the rate of faults in the process of production, so that additional cost for production can be reduced” [17].

During the years customers start to be aware about how important quality is and therefore their demand and expectations increased and due to this the quality curve inclined to compensate this. In the coming future it is expected to reach higher level of quality that we have nowadays and maybe a new practice or methodology will evolved to foster new quality era “Where customers expectations of services are dynamic and constantly rising, companies need to adopt a continuous improvement approach to quality to ensure their competitive position” [18].

“Total Quality Management (TQM) is a coherent management philosophy, which has been shown to consist of a common set of assumptions and practices in various organizations [19]. Applied in US industries in the 1980s, it improved business positions by overcoming threats from global competition and other changes in the business environment [20]. TQM is hard work, often demanding too much from an organization, but when the principles of TQM are fully embraced and vigorously pursued, the results can be astounding. When TQM fails, it is not because the basic concept is faulty; observers have argued that the problem lies either with the failure to implement fully all of the key TQM practices or with the absence of complementary assets that must be combined with TQM to achieve competitive advantage [19,21]. Inappropriate performance measurement can act as a barrier to TQM implementation [22-24]. The continuous improvement cycle consists of establishing customer requirements, meeting the requirements, measuring success, and continuing to check customers’ requirements to find areas in which improvements can be made. Customers may be internal or external, depending on whether they are located within or outside the organization. Internal customers are working towards external customer satisfaction [20]. Many studies have been done on determining critical success factors (CSFs) in the areas of quality of service, operation overheads, demands for products and service, product life cycle, information management, employee performance appraisal, research and development, and supply and customer satisfaction [22,25-27].

Quality control was introduced to analyse collected data in companies and reflect it in electronic tools to produce charts and reports. The author found this practice in Siemens Healthcare in Saudi Arabia under quality department where they apply quality control on almost all company departments which give top management a helicopter view overall the company performance any time they want. Also, a film called Moneyball starring Brad Pitt and Jonah Hill shows a baseball team that has an employee who analyse data through computer generated analysis to acquire efficient players [28].

On the other hand quality assurance is applied by organizations to reach required results through effective and transparent activities. The author had found many of Ernst and Young advisory practice in Saudi Arabia is about providing business processes for other organizations. Also internal audit is usually checking the current policies and processes that the company is utilizing. “The manager, or in the case of our system the practice owner, is required to demonstrate that she/he defines, communicates and practices clearly formulated values, which the team is easily able to follow” [12].

Total Quality Management is defined by the British Standards Institution standard BS 7850-1:1992 as “A management philosophy and company practices that aim to harness the human and material resources of an organization in the most effective way to achieve the objectives of the organization” [29]. In 1990s a lot of companies and factories were in race to be ISO certified. A new trend of JCI accreditation for hospitals and clinical facilities is well observed in the Middle East in the recent years.
Also TQM standardization is improved in the companies by applying business processes and quality auditing. Business processes enhance the flow of work and reduce errors. By auditing company processes a higher and advanced level will be reached each time until these processes develop to be best practice.

Business processes should be created by the agreement of all process users regardless their employee grade. However some companies use consulting firms to help them writing their processes in the most efficient way but at the end the process owners are the most important stakeholders in creating and developing the process. On the other hand if the process was designed by the manager only then the process will not be stable as it reflects the way of this manager like to work with, regardless how his team or the work prefer to work with. In this case if the manager changes then the process will probably change too, therefore it is very important to buy-in the process from the entire stakeholder.

Each organization has its own processes which usually are different than other organization even if they are competitors or working in the same industry. Therefore there is no standard processes to apply otherwise we will find the whole companies are copies of each others. It is like the striker in a football team as each team has his own striker but each striker scores the goals in a different way than the striker in the other team.

Nowadays, quality is an essential function in all reputed companies because of its importance to leverage the business and to reach customer satisfaction and better work outputs. “First, I believe the discussions and work done locally within the quality groups is probably the most valuable and important element within the quality chain. Local groups, close to clients, are better placed to identify needs and areas for improvement. As long as we feel empowered to make change then real quality will result” [10].

In non-profit organization quality is more about effectiveness while in profit organizations it is more about productivity. Many organizations are going through standard implementation and accreditation such as ISO, EFQM and JCI...etc. Usually organisations are using these standards for several purposes like to achieve and to maintain high-level of quality, marketing, increase customer satisfaction, follow global standardization, improve business quality, development, self-assessment and other purposes. This could be done by hiring a quality team or via quality consulting companies which prepare the organisation to pass the evaluation and get accredited.

Usually effectiveness cost less to the organisations and this is why non-profit organisation focus should be more into effectiveness. Also using IT, Information System and technologies will lead to better quality and reduce errors. In the quality department of SIEMENS Healthcare Saudi Arabia, they programmed tools to generate reports and analysis about the efficiency and productivity of all departments. These tools simplified managing the company and tracking the business and they enhanced the quality dramatically.

Quality should be the responsibility of each individual in the organisation, and it should be driven by the leaders of the organisation and to involve them in the correction actions, preventive actions, continuous improvement and creating high performance culture.

“It can be seen from the areas outlined above that there is a great deal to be taken into account when considering any service improvement or innovation. Any targets set under the CQUIN framework will have to respond to these potential barriers and, as such, will require very careful consideration to ensure they address a wide variety of competing demands and pressures. This is a complex process and is dependent on a thorough understanding of the services for which targets are set and the potential impact in each of the above areas. In reality, it is likely that change will be incremental within the CQUIN framework and, during at least the first few years of implementation, will focus on establishing robust systems of recording and reporting on performance rather than demonstrating extensive innovation and improvement as a result of these constraints and challenges. Taking into consideration previous research an initial hypothesis is that no single approach or measure could be considered to result in the most efficient and productive provision of community nursing services due to both the apparent lack of baseline data against which to demonstrate improvement and an agreed set of quality or outcome measures” [30].
Total Quality Management in Healthcare and Dental care

Gupta wrote about healthcare performance improvement, patient flow management, regional optimization and reducing unnecessary patient waits. He gives cases about the usage of benchmarking in German and Austrian healthcare institutions. In Germany, benchmark used to determine the number of physicians and beds and what are the maximum and the minimum per 1000 population, also they used it to enhance cost efficiency, quality and efficiency, and includes comparisons of disease management programs. In Austria, they used benchmarking to examine opening and closing facilities, patient flow, and the impact of financial incentives on utilization of new technologies, service organization and operation researches [31]. Thus, German healthcare institutes may tend to do more external benchmarking while Austrian may tend to do more internal benchmarking however, others found that internal benchmarking is more common in used than external benchmarking in healthcare. "External benchmarking of Health care organizations, like those in other industries, will not want others to see their weaknesses if they look bad, while those that look the best will worry that practice "secrets" could be discovered and used to a competitor’s advantage. On the other hand, because of a localized nature in the provision of health care services, it is possible to benchmark against other providers in different regions or parts of the country that do not directly compete” [1,32].

As long as the healthcare providers are keen to provide a premium service to their patients because of the noble goal behind and its direct relation to humanity, so the reputation of their organizations is very critical and important. Therefore, quality is an essential component in healthcare provider’s organisations and behaviour. In Saudi Arabia, usually reputed hospitals are proud of their quality accreditation and they do a lot of investment to be accredited. “an amalgamation of all expectations, perceptions and opinions of an organization developed over time in relation to organization’s qualities, characteristics and behaviour, based on personal experience, hearsay or the organization’s observed past actions [33]. The same definition of reputation can be applied to professional services such as health care.” cited in [11]. In addition to that, patient service or customer service is having a lot of focus in hospitals especially in private hospitals where customer satisfaction reflect on the profitability of the hospital, so you can see call centres to take appointments, complaints or requests and also customer surveys about quality of services "However at the same time we have to use customer service as a way of making the patient feel good about our practice and us” [12].

Many healthcare providers do a lot of efforts from quality perspective to gain customer satisfaction. This could be done through having high-end technologies, competitive prices, enhance patient flow and applying different methodologies like door to balloon in cardiac emergencies to gain time and also to increase beds turnover like in orthopaedic departments by doing in-home physiotherapy treatments to the patients another example is using Information System technology and radiology packs and IT lab systems to reduce paper work and errors and having faster results and data. “Customer satisfaction is influenced by perceived service quality, price, situational and personal factors [15,34] and by the comparison of expected service with perceived service performance [35]. In health care services, patient satisfaction has been defined as positive evaluations of distinctive dimensions of the health care” [36]. However, Total Quality Management is more applicable on hospital administration process due to administrative are more flexible to process changes than doctors because of personalities and the type of work. “In health care, Total Quality Management typically has focused more on administrative processes and less on actual medical services delivery, owing to greater acceptance by administrators than by professionals” [13].

Since Total Quality Management science shined in early 90’s and the World Health Organization believes in it and encourage implementation of Total Quality Management in the healthcare sector. “The first attempts to formulate quality standards for medical practice date back to the last century. Since 1990 the World Health Organization has been involved in the implementation of quality management initiatives within the healthcare sector” [37].

Hence dental centres in Saudi Arabia are usually private centres because of the regulations of the insurance policies which cover only treatments as in many countries and not covering cosmetics as in most countries, thus customer satisfaction is a main pillar where dental centres profits come from "Revenue, profitability, and new patients were higher in those practices in which the dentist reported using total quality principles longer than one year” [13].
Minimizing risk and errors as much as possible is mostly a goal in all healthcare sector providers because it affects human life. Therefore it is common to see hospitals applying different quality methodologies such as Lean Six Sigma, Root Causes Analysis, Total Quality Management, Fishbone Charts, Flow Management and Incidence Reporting and Analysis. However, quality has different views between medical staff and patients, as medical staff could care about processes, technology and time effectiveness while patients care more about effective treatment, cleanliness and disinfection and this is more predominant in dental care. Instrument sterilization and clean packing is becoming under focus of well-educated and aware patients.

Another important factor in dental patient satisfaction is dental appointments because usually the dental time slots are not accurate and depends on the dental case which the dentist is treating and in some treatments the patient need to visit the dentist few times just for one case such as in root canal treatment and prosthesis. Thus, good time management increase patient satisfaction, and in some hospitals and large dental centres they do have call centre to manage dentist slots and patient appointments.

Quality in dental practice is not expensive but demanding! Quality practice in dentistry is not an extra cost to the dental centre but to have patient satisfaction and to do a healthy practice you need to have some essentials in your dental clinic like sterilization machine, IT system to manage appointments and maybe archiving patient data and x-ray images. So, it is important to understand that standard quality is a must in any dental clinic and not an extra cost.

In Saudi Arabia, many dental centres advertise their clinics through newspapers and SMS services to attract patients to come to their clinics having special discounts and promotion while most of the patients go to clinics based on a “word of mouth” from someone who has a successful experiment with the dentist, mainly because the quality of work and management in his/her clinic and this leads to waste unnecessary expenses on wrong marketing than necessary quality. “In the case of dentistry, advertising appears to be ineffective [38], probably because the choice of a doctor is influenced very little by commercial advice” [11]. In nature, dental surgeons put more efforts on clinical techniques which is not obvious or understandable with less value to regular patients, as patients usually look into tangibles or things that have more sense to their knowledge. “Dentists pay particular attention to the latest developments in clinical techniques, but they pay less attention to systematically collecting data on the needs or expectations of the customer or acting as a total quality champion for their organizations” [13].

Since the dental care is considered as a part from the healthcare and share a lot of similarities and common science, they share also many challenges and obstacles “Comparing the extent of activity by category reveals that dentists, like other health care professionals [39], were most concerned with quality assurance” [13].

High quality dental instruments, materials and machines are expensive and these affect the setup of many commercial dental clinics when they compromise this type of quality to increase profit and be competitive. Also many of them spend their budgets on marketing and decor and spend less on quality needs. Usually this affect business continuity on the long term and we can find a lot of dental centres in Saudi Arabia had passed this unsuccessful experience because of business men who have no experience in healthcare market or dentists who have no enough experience and business knowledge to run business and they run the dental centre as a retail shop!

Another challenge is the awareness of Total Quality Management importance in dental field. The lack of practicing Total Quality Management in dental field could has different reasons such as very few articles and research about this subject, no enough studies show the reflections of Total Quality Management on the dental field. Some management, dentists and staff don’t know Total Quality Management and how it could affect their business. In addition, greed and fast profit driven attitude especially for commercial dental centres.
Chapter III
Data and Methods

This research relays on a proper scientific research method and follow similar methodologies that were applied on healthcare Total Quality Management researches. In this chapter the researcher will illustrate how the data was collected, which methods he follows, type of sampling, the execution details of interviews and questionnaire and research ethics.

Data was collected from one private hospital that have dental department and from four dental centres. This data heavily collected from interviews. The 'structured interviews' was done with dentists, nurses/dental assistants and hospital management/quality departments. Structured interviews used to eliminate bias and to save time [40]. Interviews set through official meeting requests with full explanation of the purpose of the meeting and who could be exposed to this meeting such as tutor and/or the University of Leicester.

Collecting data directly from patients who are under treatment in these hospitals could not be possible due to the researcher is not working in these hospitals and it is very difficult to get approval from these hospitals to interact with patients or to check their records for the sake of patient information confidentiality. Those obstacles were discussed previously between a hospital quality director and the researcher. Therefore, 'self-report questionnaires’ asked patients about hospitals or dental clinics that they go to, regardless the selected hospitals for interviews to respect their policies about confidentiality. The questionnaires collected via emails, asking friends or known volunteers. This ‘self-reports questionnaires’ were based on the principles of Schwab who defined it as the “questionnaires that ask respondents to provide information about themselves” [41].

The research applied 'non-probability sampling' and used 'convenience sampling type'. "It also perhaps ought to be recognized that convenience sampling probably plays a more prominent role than is sometimes supposed. Certainly, in the field of business and management, convenience samples are very common and indeed are more prominent than are sample based on probability sampling" [42,43]. The aim was to collect data from 5 patients to duration of 10 working days to reach the number of 50 patients. However, this number reliant on patients who accept to be involved in the questionnaires.

The researcher was aiming to do 5 interviews and 50 questionnaires.

Interview:
2 in management position such as in quality department, head of dental department, COO or patients services department.
2 dentists with different specialties
1 dental assistant

Questionnaires:
Supposed to be done with 5 patients’ everyday for duration of 10 days.

This research relays on a proper scientific research method and follow similar methodologies that were applied on healthcare Total Quality Management researches. "Design/methodology/approach – The research is based on a model that highlights the reciprocal influence between patient satisfaction and dentist reputation. The model points out that experience/behaviours, explicit communication and word-of-mouth are antecedents of both patient satisfaction and dentist reputation. This research is based on interviews with senior dentists, focus groups with patients and a survey of dentistry patients” [11].

The research method involves phases such as a phase for collecting data and a phase for analyzing the data. Describing the stages in sequence assure how the authors follow the research method. However the measures indicate internal validity usage as the authors were matching between their observations and the theoretical ideas they develop [43]. However relaying on the agent theory shows incompat-
A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction

ibility in the results of author’s experiments and constructs which helped to prevent premature closure due to the necessity to prove the hypotheses. Some modifications to sake improvement were done in their internal validity criteria”[44], which enable testing the findings. Such variables would be precious in determining and testing the results[45].

The research title is “the effectiveness of Total Quality Management in dental patient satisfaction” and it was chosen to discover more the relation between Total Quality Management and dental patients while this area is still need such and more researches. The following organizations were involved in the research; The Saudi British Hospital in Riyadh, Binrushd Ophthalmic Centre in Riyadh, Shaheen World Centre in Riyadh, Lasting Smile Dental Centre in Riyadh and Shaar Dental Centre in Mecca.

Fruitful interviews were done with decision makers and employees (Owners, Managers, Dentists and staff) and take their opinion on Total Quality Management measures in their organization and how it affect their patients which will be mentioned in details later. The plan was to do 5 interviews while the researcher succeeded to do 8 interviews. However, interviews contributed positively to the research because it gives more freedom to express thoughts instead of forcing the interviewees to answer what is in the questioner only beside that you can feel the expressions, body language and the tone of the interviewee in addition it was easier to get more details and clarifications. On the other hand, it wasn’t easy to take appointments for interviews and to convince the interviewees why to have this dialogue! Also each interview took several hours to prepare and to wait the interviewee until he finish from patients or they gave you a too early or a too late time to do it beside the time it takes to do the interview. Other difficulties were data recording and confidentiality, in data recording the general manager of Shaheen World refused to record any interview with him or with his employees and only allow to note down during the interview. About confidentiality, The Quality Director of Specialized Medical Centre Hospital refused to be involved in the research through interview or through direct contact with patients to fill the questioner due to data confidentiality, she consider this as an exposure to confidential patient data. The interview method was direct semi-structured interviews. “Among these methods the research adopts direct semi-structured interviews. The selection of direct interviews is because they are easier for the author who works in the same hospital. Semi-structured interviews are also preferable because of proper rationale that they encourages further discussion between the interviewer and interviewee, along with an opportunity to keeps discussion within a structured format [46]. This method is most suitable for this topic, as it does need opportunity for the interviewer to ask for explanations, which is indeed necessary when researching about quality management [47].

Questionnaires were targeting patients and collecting the data and info from them directly followed by analysis to reach a beneficial results and conclusion. The patients sample where randomly taken from different cities in Saudi Arabia without selection for a specific hospital or dental centre. Questionnaires saved more time than interviews and it transfer transparently the impression from customers. Most of the questions were close-ended and only few were open-ended questions “In questionnaires the research mainly uses close-ended questions, though some open-ended questions are also presented. The close ended questions help to gather data with-out much time and objectivity, where the open ended questions allow the research to get opinions in detail [46]. Another important aspect related to questionnaire is that the research will not use leading questions or any enquiry encroaching to the personal terrain of the respondents [43].

The plan was to target 5 patients each day to duration of 10 days to reach 50 patients. The actual was only 21 patients who contribute in the questionnaire in duration of 14 days. Although, the questionnaire circulated directly to the participants or by email which reduced the time to spend for explanation but replies take more time to be reached and many times with no response.

The data was analysed through analytical induction and logical analysis methods. The aim of using these methods is to answer dissertation question “How effective is the practice of TQM in keeping the dental patient satisfied?” sub questions “Which kinds of TQM methods are the most common to be implemented at the dental clinics?” and “Are there TQM methods that have conflict with the satisfaction of the dental patients?”.  

Citation: Obaidah Schakaki and Alison Watson. “A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction”. EC Dental Science 14.3 (2017): 114-149.
A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction

From an ethical point, the researcher applies to ethical approval to the University Of Leicester before starting the research and then he followed the requirements to keep this research under research methods ethics. All participants were informed about the objective and the purpose of this research, and define transparently, who may be exposed to (Tutor and researcher) and for the benefit of the University Of Leicester. Also data was utilized only for the purpose of this academic research. Also, the researcher respects each participant ideology and culture and gives freely the full right to answer selective questions if he/she doesn't want to answer all the questions and if he/she doesn’t want to mention his/her name in the survey.

Chapter IV
Analysis and Results

“Satisfied patients are not motivated enough to share their experience with others. Unsatisfied patients are seven times more willing to share their experience with others. It is nine times more expensive to get new patients vs. maintaining existing patients. Patients trust more to referrals vs. finding random dentist” [48]. In dentistry it is usually more often to hear comments from unsatisfied patients who have unsuccessful experience with their dentist than satisfied patients. Therefore, dentists give high priority for their reputation as it is their strongest marketing strategy and where their successful can be measured. “Communication and doctor-patient relationship is vital, not only to service quality perception but also for the choice of dentist. The information collected in the focus groups is consistent with data of the research of Barnes and Mowatt [49] according to which referrals are the first source of contact for choosing the dentist (56 percent of cases through friends – 36 percent – and family – 20 percent, while only 26 percent of cases, the dentist is chosen on the basis of advice from other doctors) or with the data of Crane and Lynch [50] according to which 81 percent of 1,627 patients, indicated that they recommended their dentist to other persons seeking dental care. To sum up, both quantitative and qualitative data show that doctor-patient relationship quality is the most relevant factor for patient satisfaction” [11].

Interviews Data

The plan was to do five interviews while the researcher succeeded to reach eight interviews to compensate the reduction in the targeted number of questionnaires which wasn’t achieved. Four in management position, (Three general managers and a shareholder dentist). Three dentists in different specialties (Orthodontic, Fixed Prothodontist and Implantologist). And finally with a team leader of dental office administration. The interviews were done for the following dental centres.

A. Shaheen Dental Centre, Riyadh (respondent# 1,2,3 and 4).
B. Lasting Smile, Riyadh (respondent# 5).
C. Al Shaar Dental Centre, Mecca (respondent# 6).
D. Saudi British Hospital, Riyadh (respondent# 7).
E. Binrushd Ophthalmic Centre – Dental Clinics, Riyadh (respondent# 8).

<table>
<thead>
<tr>
<th></th>
<th>General Manager</th>
<th>Management</th>
<th>Dentist</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shaheen Dental Centre</td>
<td>R1</td>
<td>R2</td>
<td>R2,R3</td>
<td>R4</td>
</tr>
<tr>
<td>Lasting Smile</td>
<td>R5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Al Shaar Dental Centre</td>
<td>R6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saudi British Hospital</td>
<td></td>
<td></td>
<td></td>
<td>R7</td>
</tr>
<tr>
<td>Binrushd Ophthalmic Centre</td>
<td></td>
<td></td>
<td></td>
<td>R8</td>
</tr>
</tbody>
</table>

*Table 1*

Question 1
What are the key practices you implement at this hospital/dental centre for Total Quality Management?

Respondent# 1:
- a. Latest technologies and best materials (High technology and materials).
- b. To do patient survey after treatment (Apply surveys).
- c. To have convenient parking area (Interior design and external facilities).
- d. Advance IT management and filing system (IT and data management).
- e. Hire consultants for improving (Hire consultants).

Respondent# 2:
- a. Dentist-patient communication (Dentist-patient communication).
- b. High quality of work (High quality of work).
- c. Using high technology and best materials (High technology and materials).
- d. Assure patient privacy and info confidentiality (privacy and confidentiality).
- e. Advanced data management (IT and data management).
- f. To have a comfortable waiting area (Interior design and external facilities).

A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction

Respondent# 3:
   a. High quality of work. Knowledge transfer to patient (High quality of work, Dentist-patient communication).
   b. Dentist-patient communication (Dentist-patient communication).
   c. To have high qualified staff (Qualified staff).
   d. High standard of Infection control, cleanness and hygiene (Infection control).

Respondent# 4:
   a. Offer patient survey after treatment (Apply surveys).
   b. Advance IT management system (IT and data management).
   c. Do call for appointment confirmation (Appointments).
   d. Good welcoming and professional reception attitude (Professional customer service).

Respondent# 5:
   a. High-end and recent technology (High technology and materials).
   b. Also using best materials and instruments (High technology and materials).
   c. Work with qualified dental laboratories (High quality of work).
   d. Follow up with patient after finishing his/her treatment (Professional customer service).

Respondent# 6:
   a. To have a fancy interior design with luxury furniture (Interior design and external facilities).
   b. To have high-end technologies (High technology and materials).
   c. To use best materials (High technology and materials).
   d. Give priority to infection control, cleanness and clinical hygiene (Infection control).

Respondent# 7:
   a. They have dedicated employees for patient care services to check them by visiting them in the clinics or call them to check their satisfaction (Professional customer service).
   b. Having high-end technologies (High technology and materials).
   c. Doing workshops to educate staff, nurses and receptionist of how to deal with patients (Qualified staff).
   d. Encourage dentists to attend scientific congresses (Qualified staff).

Respondent# 8:
   a. Regular and sudden check up on cleanness, infection control, instruments sterilization expiry date and clinical hygiene by the medical director himself and the head of nurses (Infection control).

Citation: Obaidah Schakaki and Alison Watson. “A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction”. EC Dental Science 14.3 (2017): 114-149.
Question 2
What actions had been done in the clinical and non-clinical facilities to seek patient satisfaction?

**Figure 2**

Respondent# 1:
- Trying as much as possible to have a convenient parking area (Interior design and external facilities).
- Give special discounts and promotions like dental whitening (Promotions and marketing).

Respondent# 2:
- Having a nice decoration with a comfortable waiting room (Interior design and external facilities).
- To have dentist-patient communication (Dentist-patient communication).

Respondent# 3:
- Listen carefully to the patient and explain the treatment plan for him/her (Dentist-patient communication).
- To use best materials and work with qualified dental laboratories (High quality of work).

Respondent# 4:
- Calling patient for appointment confirmation (Appointments).
- Send SMS to remind patient for his/her next appointment (Appointments).

Respondent# 5:
- To call patient after treatment and ask him/her about their satisfaction and how do they feel and if they have any complaint (Professional customer service).

A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction

Respondent #6:
- Choosing colours carefully which psychologically comfort the patient (Interior design and external facilities).
- Well dressed receptionist with smile and hospitality attitude (Professional customer service).

Respondent #7:
- Continuous decor renovation (Interior design and external facilities).
- Cleanliness and infection control (Infection control).
- Call patient and check his/her satisfaction and if complaint (Professional customer service).

Respondent #8:
- There is a survey which is usually given to the patient about the hospital in general, but they like to implement calling patient after treatment to check satisfaction (Apply surveys).

**Question 3**
Mention two important reasons why you think your patients are satisfied and how you’ll sustain them?

![Figure 3](image-url)

**Figure 3**

Respondent #1:
- Dentist-patient communication (Dentist-patient communication).
- Competitive prices (Promotions and marketing).
- To hire consultants to implement continuous improvement (Hire consultants).
Respondent# 2:
   a. Dentist-patient communication (Dentist-patient communication).
   b. High quality work (High quality of work).
   c. To use best dental materials which enhance the quality of results (High technology and materials, High quality of work).

Respondent# 3:
   a. Listing carefully and explain clearly (Dentist-patient communication).
   b. Knowledge transfer (Dentist-patient communication).
   c. To use social media to keep patient aware of general dental health and hygiene (Promotions and marketing).

Respondent# 4:
   a. Sending SMS to remind patient of their dental appointment (Appointments).
   b. Being nice in the reception (Professional customer service).
   c. To improve methods of patient communication (Dentist-patient communication).

Respondent# 5:
   a. Hospitality and nice attitude with patients (Dentist-patient communication).
   b. To select always the best materials for dental treatments to ensure best possible results (High technology and materials, High quality of work).

Respondent# 6:
   a. Interior design (Interior design and external facilities).
   b. Dental centre location (Interior design and external facilities).
   c. High-end equipment (High technology and materials).
   d. Most important is to have skillful dentists (Qualified staff).

Respondent# 7:
   a. Treat patients as close friends (Dentist-patient communication).
   b. Understand what they want and translate them their needs in a scientific way (Dentist-patient communication).

Respondent# 8:
   a. Punctuality (Punctuality).
   b. Dentist-patient communication (Dentist-patient communication).
   c. To use high quality equipment (High technology and materials).
   d. Treatments should be in a high quality (High quality of work).
Question 4

Mention two important reasons why your patient may be dissatisfied and how you’ll improve them?

![Question 4 Bar Chart](image)

**Figure 4**

Respondent# 1:

a. There is some dissatisfaction and a consulting company should be hired to fix this (Hire consultants).

Respondent# 2:

a. Dentist punctuality (Punctuality).

b. To use the apology of delay as a way for dentist-patient communication! (Dentist-patient communication).

Respondent# 3:

a. Reduce appointments cancelation (Appointments).

b. Reduce patient waiting time (Punctuality).

c. Self improvement (Qualified staff).

Respondent# 4:

a. Patient need to call several times to get an appointment (Appointments).

b. To hire call centre specialist (Appointments).

Respondent# 5:
  a. No insurance agreements (Insurance).
  b. No payment facilitation (Payment facilitation).
  c. Bill is given to patient to reclaim it from insurance companies by himself (Insurance).

Respondent# 6:
  a. Patient is expecting high prices (Payment facilitation).
  b. Dentists are not well marketed to be known to patients (Promotions and marketing).

Respondent# 7:
  a. Some patients asking for specific technology which we don’t have it (High technology and materials).
  b. Difficulty to get appointment or to be answered by the call centre (Appointments).
  c. To hire more employees in call centre (Appointments).

Respondent# 8:
  a. Small clinics and poor interior design (Interior design and external facilities).
  b. Patients are not welcomed or treated well in the reception (Professional customer service).

Question 5
In your view, how much you are satisfied with the infection control in this hospital?

![Figure 5](image-url)
A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction

Respondent# 1:
- a. We hired qualified and expensive staffs that are aware in infection control (Qualified staff).
- b. They use all the scientific methods to make sure of preventing any infection (Infection control).

Respondent# 2:
- a. Clinics, instruments and devices are always clean and re-cleaned after finishing current patient and before the next patient enter (Infection control).

Respondent# 3:
- a. All precautions and preventions are taken by dentists and staff to have a proper infection control (Qualified staff, Infection control).

Respondent# 4:
- a. Staffs come earlier than dentists to the clinics to clean and disinfect everything before dentists starting working hours (Qualified staff, Infection control).

Respondent# 5:
- a. Keep cleanliness, sterilization and disinfection in all clinics (Infection control).
- b. Dentists are using preventive tools such as gloves, masks, glasses, napkins...etc (Qualified staff).

Respondent# 6:
- a. There is a sterilization room dedicated for infection control and supplied with latest and expensive technologies that bring the best results (Infection control).

Respondent# 7:
- a. Infection control in our hospital is not bad and there is a space for improvement by staff awareness campaigns (Infection control).
- b. Especially when load of work is high, infection control should not be compromised (Qualified staff).

Respondent# 8:
- a. There is a clear process for infection control, starts from disinfection and ends in distribution beside top management monitoring every week (Qualified staff).

Questionnaires Data

The author spent 14 days to collect questionnaires data from 21 patients and while the plan was to collect questionnaires data from 50 patients in 10 days which reflect a capture rate of almost 1.5 patients per day. The questionnaires were distributed either directly by the researcher or by email to the patient. Many reasons were behind the reduction in the targeted number such as lack of cooperation from some patients, lack of interest, some patient didn’t like to participate after the researcher told them that he doesn’t work in this hospital or dental centre or the patient is not convinced that his/her data will be confidential!
The questionnaires is analysed below based on the total number of answers where rate 1 is least satisfied and rate 5 is most satisfied.

**Question 1**
How do you rate the cleanliness of this hospital/dental centre?

![Figure 7](image)

Hospitals/dental centres cleanliness and sterilization is a very important subject in healthcare because the incidence and risk of contamination and infection is high in these places especially in dentistry where transmitted diseases via blood or saliva like HIV and Hepatitis-B may occur on dental instruments and devices. Therefore the first question was about cleanliness.

More than 75% of the respondents are mostly satisfied (33% are very satisfied and 43% are satisfied) with the hospitals/dental centres they go to. And mostly is because the strict regulations from the Saudi Ministry Of Health and quality accreditation requirements.

**Question 2**
How did you find the knowledge and practical experience with the dentists at this hospital/dental centre?

![Figure 8](image)
The quality of work and knowledge of the dentist is another necessary point where dentists depend on their hands skills like handcrafters and it is very hard to find similar work for different dentists even if they have the same knowledge.

More than half of the respondents (52%) show neutral satisfaction with their dentist knowledge and practical experience and 38% of the respondents are either satisfied or very satisfied. “Opportunity factors, such as clarity of costs, demonstrate a strong impact on the experience of satisfaction, although customers seem to be less aware of them. These factors may represent either an opportunity or a threat. For these factors, dentist practices have to show excellent performance and improve explicit communication, with the goal of increasing patients’ awareness of the value they receive. This area presents the greatest opportunities for competitiveness in health care services. Given factors, such as comfort, reservation times, punctuality, are taken for granted. They are the baseline of excellent service and have a low impact on quality perception. For these items, dentists’ practices must ensure an adequate performance whereas any increase beyond the average seems to have no effect” [11].

**Question 3**

How much the behaviour of the receptionist and nurses of this hospital influences your level of satisfaction?

This question is to know how much is important to the patients, the non-doctoral staff attitude and if it influences their satisfaction. This attitude starts from getting an appointment to the receptionist and dental assistant and includes radiologist and pharmacist.

This question has variable answers with very close results between neutral to very satisfied including satisfied patients. Some respondents answered based on a single case and others generalized their answer to involve all staff. However the dental assistant is the most influencer to the patients due to the close contact to the patient during their dentist visit. “Strategic factors include dentist’s chair side manner; care information, nurses. They have high impact on general patient satisfaction and are considered very important, so they influence the level of customer loyalty. Dentists should pay careful attention to these factors because a bad performance could imply a loss of patients” [11].

Question 4
How did you find the patient service at this hospital/dental centre?

This question focuses on respondent's opinion in the hospital/dental centre patient services and how satisfied they are with? In the chart we can find that a bit more than half of the respondents have a neutral evaluation for their hospitals/dental centre.

Question 5
How was the entertainment facility in the waiting room at this hospital/dental centre?

Usually dental clinics have waiting room because of the nature of time needed by dentist which may lead to the next patient to wait until he can go to the clinic. And form the chart we can conclude that there is uncommon answer for this question; however it also shows that most of the patients with a percentage of 48% are not satisfied with the entertainment methods in the clinics they go to. And that mean there is a necessary to explore more in this area and how much it effects the patient's satisfaction and what types of entertainments

Citation: Obaidah Schakaki and Alison Watson. “A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction”. EC Dental Science 14.3 (2017): 114-149.
A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction

could make them satisfied. "The data on the relationship between ambience and perceived service quality are consistent with the literature. According to Clow., et al. [38] many factors can influence the patient’s perception of dental practice and thus the service perception. According to the survey findings, quality of dental equipment is not very important for the choice of the dentist. Nevertheless, opinions expressed in focus groups show that patients seek tangible aspects in the physical environment so as to get a clear idea of what they can expect in relation to the dentist’s ability and the service performed. Tangible aspects such as office furniture and waiting room (with up-to-date and non-technical magazines) affect the image that patients have of the dentist; patient expectations are closely linked with quality perception" [38,51].

Question 6
How much the easiness to get an appointment at this hospital/dental centre?

![Figure 12](image)

This question reflects the easiness of having an appointment for patients with their dentist which have different causes for analysis. "Given factors, such as comfort, reservation times, punctuality, are taken for granted. They are the baseline of excellent service and have a low impact on quality perception. For these items, dentists’ practices must ensure an adequate performance whereas any increase beyond the average seems to have no effect" [11].

Question 7
How much the quickness in response and no delay in service delivery at this hospital affect the level of your satisfaction?

Citation: Obaidah Schakaki and Alison Watson. "A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction". 
EC Dental Science 14.3 (2017): 114-149.
57% of the respondents see their hospitals/dental centres are quick enough in their response in service delivery.

Question 8
How much the communication of dentists with you influences the level of your satisfaction?
Communication is very important to create trust and understanding between patient and dentist. 67% of patients think communication makes them understand their case and feel more comfortable with their dentist. While dentists believe that communication makes them more trustworthy and it also enhances professional relationship building between them and their patients. On the other hand, communication may reduce patient anxiety and stress. However, 14% of patients believe dentist dexterity is more important than his/her communication skill.

**Question 9**
How much does the parking facility at this hospital/dental centre influence the level of your satisfaction?

**Question 10**
Do you have any complaints against your hospital/dental centre?

Since Saudi Arabia has a major deficiency in public transportation and people rely a lot on their own cars for transportation, the author thinks this question may reflect how the hospital/dental centre is taking care of their facilities such as parking to satisfy their customers. “Secondary factors, such as the respect of privacy, the kind of payment, the reservation services, have a low impact on general patient satisfaction. Because patients do not care a great deal about these aspects, dentists should pay adequate but not excessive attention to them” [11].

**Citation:** Obaidah Schakaki and Alison Watson. “A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction”. *EC Dental Science* 14.3 (2017): 114-149.
A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction

43% of the respondents make complaints against their hospital/dental centre. Topics where mentioned in their comments are mostly covered in the questionnaire (e.g. Cleanliness, waiting time due to dentist may come late to the clinic or a patient is taking more time than what it was scheduled for him/her, difficulties in getting appointment or next appointment may be after several days and dentist communication style who may be unfriendly). Other topics which the author didn't mention in his questionnaire are working hours because dentists usually don't work like medical doctors and most of their clinics don't open 24/7 like emergency department, the other one is high prices and this is because dental fee is usually expensive with insufficient support from insurance companies to patients.

Data Analysis

Total Quality Management is performed probably in dental centres and it is more common to find it in practice in hospitals which has dental clinics inside it and it is implemented in the dental clinics because hospitals in Saudi Arabia are keen to follow quality standards and accreditations. Therefore dental centres need some awareness and encouragement to develop their quality based on science and knowledge. On the other hand to have a dental centre license it should be owned or partially owned by a Saudi Dentist who usually rent his name to investors instead of practicing and this is also causing the dental business to be extremely money driven business focusing on profits only and attracting patients by fancy decoration and providing latest technologies. Another issue is lack punctuality which is caused by local cultural behaviour from both sides’ dentists and patient. However, Ministry of Health regulations and policies are very strict in regards of infection control and mostly all clinics abide these rules and use autoclaves, disinfectants and prevention tools to avoid infection of transmitted diseases.

Cleanliness is one of the top aspects that each hospital should have. Infection rate is higher in hospitals and dental centres due to the nature of the location and therefore disinfection, sterilization and all prevention methods should be taken in hospitals/dental centres “This is well in tune with the opinion made by [52] that cleanliness is one of the chief aspects of TQM in health care industry” [17]. Disinfectants kill around 99% of bacteria/germs and this is why hospitals/dental centres should be cleaned many times per day also people

Citation: Obaidah Schakaki and Alison Watson. “A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction”. EC Dental Science 14.3 (2017): 114-149.
A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction

wants to be treated in a clean and safe places where their health and immune system get improved and not to be in risk or hazard. More than half of the respondents (52%) show neutral satisfaction with their dentist knowledge and practical experience which could indicate a necessity of reduction in miscommunication of the treatment plan or to make more understandable explanation about patient case. The author thinks the reason behind this is dentist-patient communication which need more improvement and to be taken more serious. On the other hand dentist work is like sculptor work which needs high skills but at the end people opinion on his work is subjective. The Saudi Commission for Health Specialties had force all medical and dental field workers to develop their selves by attending congresses and accredited workshops to gain hours points so their license is extendable and in this way their knowledge and practice is improved.

Staff attitude starts from getting an appointment to the receptionist and dental assistant and includes radiologist and pharmacist. Patient impression about the hospital/dental centre could be from a single case or due to recurrence incidences. Dental assistant is the most influencer to the patients due to the close contact to patient during the visit. The allied healthcare workers can affect in a high level the satisfaction rate of the customer and can damage or compensate the effort of the dentist him/herself. Therefore the reception area and the call centre should be well trained and perform warm welcoming and caring to the patient because they will give the most important impression which is the first impression. Here the research could find that 29% are extremely satisfied, 33% are satisfied and 28% are neutral while we find 5% are unsatisfied and the same percentage are extremely dissatisfaction. These results are from the answers of 21 patients. Such trainings about how to deal with customers could be practical to educate the staff of how to please patients by effective communication, interaction and relationship management. "A vast range of underlying causes can trigger ‘difficult’ behaviour from dental patients. In most cases the patients we experience as being ‘difficult’ are socially well adapted people who have not had their expectations met and are ‘having their say’ in the hope of getting things put right. By taking an assertive and respectful approach, receptionists can often negotiate a mutually satisfactory outcome. However, there is another group of difficult patients from whom practices must protect their staff. These are people with sociological, psychological or dependency problems, whose behaviour compromises the safety of others” [53]. On the other hand half of the respondents (52%) have a neutral evaluation on the satisfaction of patient services, 24% are satisfied, 14% are extremely satisfied and 10% are dissatisfied while null had answered extremely unsatisfied. Since dental clinics has long waiting times due to unplanned and unpredictable occurrence, it is important to have some entertainments in the waiting area to reduce boring and anxiety of patients and distract his thoughts and fears into something make him feel more comfort and relaxed. In the research it is found that 33% are satisfied with their dentists waiting area entertainment facilities, 19% are neutral and 48% are not satisfied with the entertainment methods in the clinics they go to.

Easiness in having an appointment with dentists is a factor that helps to maintain patients. Patients are 14% extremely satisfied, 38% are satisfied, 29% are neutral, 5% are unsatisfied and 14% are extremely dissatisfied. For successful dentists it is a challenge to give close appointment for next visit when they do have a lot of patients that are looking to be treated by him/her. In addition to this the nature of dental treatments need several visits to the clinic to complete one set of treatment. Also dentists usually give a time period of 20 - 40 minutes to patient per visit to increase the turnover of patients and reduce the time of tense, stress and pain that patient has during his/her clinic time beside many treatments require dental lab interference or medications to take effects such in root canal treatment and in Prosthodontics. Quickness in response and no delay in service delivery at the hospital/dental centre have different satisfaction rates. 57% of the respondents see their hospitals/dental centres are quick enough in their response in service delivery and 10% are extremely satisfied which gives a total of 67% are satisfied. 5% are neutral, 19% are unsatisfied and 9% are extremely dissatisfied with a total of dissatisfaction rate of 38%. These numbers may indicate the high percentage in satisfaction due to the nature of the dental field is less complicated than the medical field e.g. no need for dental critical care like what hospitals have of cardiac care unit or intensive care unit. Also in dental care it is very rare to have admission and if though, dentist will refer the patient to a hospital to be admitted. On the other hand there are unsatisfied patients and they thinking that the dental centre they go to is not quick enough in its response. Some patients may have acute dental pain which is very painful and they want to be treated as in hospital emergency while the dentist could be busy in the clinic with another patient and the patient with pain need to wait until the dentist finish and dismiss his/her patient. Communication is very important to create trust and understanding between patient and dentist. 38% of patients are extremely satisfied and 29% are

Citation: Obaidah Schakaki and Alison Watson. “A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction”. EC Dental Science 14.3 (2017): 114-149.
satisfied to bring a total 67% of patients thinks communication make them understand their case and feel more comfortable to their dentist. While dentists believe that communication make them more trustable and it also enhance professional relationship building between them and their patients. On the other hand communication may reduce patient anxiety and stress and it is by itself an excellent marketing tool for the dentist him/herself. Sometimes and due to communication only patient will feel more secure and confident with his dentist and will feel comfortable to ask his/her dentist some consultations and advices. However 9% are unsatisfied and 5% are extremely dissatisfied and bring a total of 14% of patient’s believes dentist dexterity is more important than his/her communication skill. Therefore communication always needs a continuous improvement by the dentist and all his/her staff towards patients because it will have a high impact on patient satisfaction. “When you smile to your brother’s face, it is charity” [54]. Patients are 35% satisfied with their dental centre parking facilities, 15% neutral and 50% are not satisfied and this problem is common all over the country due to Saudi Arabia has a major deficiency in public transportation and people relay a lot on their own cars for transportation. However some hospital/dental centres had rent or built slots or areas for their customers to park in.

Chapter V
Discussion and Conclusions

This research has a noble goal as mentioned before, by giving patient the best possible service and make him/her satisfied as much as possible during their dental treatment. This could happen when the management, dentists and assistants understand the best TQM methods they should apply to make their patients satisfied.

This chapter will present conclusion, summary of findings, theoretical and practical implications and reflections.

The key question is as follows.

Q: How effective is the practice of TQM in keeping the dental patient satisfied?

Conclusion

The echo of the word “Quality” reflects good impression about product, factory, city or country. Quality is playing an important role in pricing sensitivity and cost reduction methodologies. Total Quality Management is a concept of quality that cares about customer satisfaction by producing value for money and products. This research could avoid reinventing the wheel by help management to make more accurate decisions and to easy implement. The Government of Saudi Arabia doesn’t intervene too much in the dental treatment despite its high influence on the health of nation. The Ministry Of Health expenditure per capita is 375$. The Rates per 10,000 of the population for hospital beds is 20.7 and for dentists are 3.5. The culture aspects and health consciousness in Saudi Arabia vary geographically. And the research and development activity is limited and the country is not considered as an industrial country. This research is presented in five chapters, where each of the chapters is build-up with a number of sub-chapters.

In Germany, benchmark used to determine the number of physicians and beds and what are the maximum and the minimum per 1000 population, also they used it to enhance cost efficiency, quality and efficiency, and includes comparisons of disease management programs. Quality is an essential component in healthcare provider’s organisations and behavior. Since the dental care is considered as a part from the healthcare and share a lot of similarities and common science, they share also many challenges and obstacles. High quality dental instruments, materials and machines are expensive and these affect the setup of many commercial dental clinics when they compromise this type of quality to increase profit and be competitive. Another challenge is the awareness of Total Quality Management importance in dental field. Quality in dental practice is not expensive but demanding! However, Total Quality Management is more applicable on hospital administration process due to administrative are more flexible to process changes than doctors because of personalities and the type of work. Since Total Quality Management science shined in early 90’s, the World Health Organization believes in it and encourage its implementation. Customer satisfaction is a main pillar where dental centers profits come from like managing time punctually will increase pa-
A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction

Patient satisfaction, also minimizing risk and errors as much as possible is mostly a goal in all healthcare sector providers, because it affects human life. And most of patients go to clinics based on a “word of mouth” from someone who has a successful experiment with the dentist.

This research relays on a proper scientific research method and follow similar methodologies that were applied on healthcare Total Quality Management researches. Interviews set through official meeting requests with full explanation of the purpose of the meeting and who could be exposed to this meeting such as tutor and/or the University of Leicester and fruitful interviews were done with decision makers and employees. The questionnaires collected via emails, asking friends or known volunteers and the questionnaires were targeting patients and collecting the data and info from them directly followed by analysis to reach a beneficial results and conclusion. The questionnaire circulated directly to the participants or by email which reduced the time to spend for explanation but replies take more time to be reached and many times with no response. The research applied ‘non-probability sampling’ and used ‘convenience sampling type’. This research relays on a proper scientific research method and follow similar methodologies that were applied on healthcare Total Quality Management researches. The research method involves phases such as a phase for collecting data and a phase for analyzing the data. The data was analysed through analytical induction and logical analysis methods. The research title is “the effectiveness of Total Quality Management in dental patient satisfaction” and it was chosen to discover more the relation between Total Quality Management and dental patients. The researcher applies to ethical approval to the University of Leicester before starting the research and then he followed the requirements to keep this research under research methods ethics.

In dentistry it is usually more often to hear comments from unsatisfied patients who have unsuccessful experience with their dentist than satisfied patients. The plan was to do five interviews while the researcher succeeded to reach eight interviews to compensate the reduction in the targeted number of questionnaires. The author spent 14 days to collect questionnaires data from 21 patients and while the plan was to collect questionnaires data from 50 patients in 10 days which reflect a capture rate of almost 1.5 patients per day. Few topics patients raise which the author didn’t mention in his questionnaire are working hours because dentists usually don’t work like medical doctors and most of their clinics don’t open 24/7 like emergency department, the other one is high prices and this is because dental fee is usually expensive with insufficient support from insurance companies to patients. Dental centres need some awareness and encouragement to develop their quality based on science and knowledge. Cleanliness is one of the top aspects that each hospital should have. Infection rate is higher in hospitals and dental centres due to the nature of the location and therefore disinfection, sterilization and all prevention methods should be taken in hospitals/ dental centres. Dentists believe that communication makes them more trustable and it also enhance professional relationship building between them and their patients. On the other hand communication may reduce patient anxiety and stress and it is by itself an excellent marketing tool for the dentist him/herself. Sometimes and due to communication only patient will feel more secure and confident with his dentist and will feel comfortable to ask his/her dentist some consultations and advices.

Summary of Findings

The following subsidiary questions were answered through the collected primary and secondary data from the interviews.

Which kinds of TQM methods are the most common to be implemented at the dental clinics?

Are there TQM methods that have conflict with the satisfaction of the dental patients?

Communication is one of the most important findings in dental practice where the relationship between dentist and patient affect the satisfaction rate of the patient and the patient may neglect a lot of things just because he is happy with his/her dentist “Findings – The most important quality factors for patient satisfaction are the doctor-patient relationship and the clarity of information about treatment and cost. Key communication levers are first, the implicit communication that arises from successful treatment and overall service quality; second, the explicit communication that arises from interpersonal relations with the dentist and the staff, and the referrals of previous patients” [11]. The reception area is the first point of contact for patients and it is the area where it gives the first impression for the

Citation: Obaidah Schakaki and Alison Watson. “A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction”. EC Dental Science 14.3 (2017): 114-149.
patient toward the hospital or the dental centre and if the receptionist where nice and professional, the patient will start to have a positive impact on the hospital/dental centre. On the other hand the dental patient is usually stressed especially if he/she has a toothache and he is afraid from the pain of the treatment. Having this case the receptionist could absorb a lot of this negative energy and transfer it to a positive feeling. "Excellent reception courtesy, we aim to provide very high quality courtesy on reception, to do this under sometimes difficult circumstances, we need to do the following:

- Smile at patients and our colleagues.
- Be relaxed and take a deep breath when it is busy.
- Try to understand that most frustrated patients are perhaps unwell or worried.
- Remember all our patients are our “customers” - try to make them all feel special.
- When speaking on the telephone, smile and try not to sound abrupt or hurried (even though we are chasing our tails!) – never slam the phone down!" [10].

Total Quality Management initiatives are linked with the satisfaction rate of the patient. KPI’s could be implemented to measure the performance and satisfaction level. However, satisfying all patients is impossible but what can be done is to focus more on areas that are priorities for patients such as communication and cleanliness than other areas like waiting room entertainments.

Theoretical and Practical Implications

In this research 68 article and book were used to get this research done. However, it was difficult to find researches that directly discuss the effectiveness of Total Quality Management in dental patient satisfaction. High quality has direct impact on customer satisfaction in all industries and reflects succession to repeat the same experience with the product or service. "there exists a close relation between customer satisfaction and quality management, which is directly proportional in nature. In the presence of high quality satisfaction goes up and happens vice versa” [17]. Therefore applying quality management in dental clinics will make the business more successful and introduce new patients to the current numbers. Although implementing quality never ends as new technologies or demand may raise to keep patients satisfied and therefore applying continuous improvement methodologies and root causes analysis will always lead to better results and this proof that quality is not only for other industries and manufacturing but it can fit and used in healthcare providers too! Since Total Quality Management science shined in early 90’s, the World Health Organization believes in it and encourage its implementation and in Saudi healthcare market you can see the trend of standards accreditation as a trend that most of healthcare providers are keen to follow and be accredited with well-known international accreditation organisation.

Quality has a positive direct relation with satisfaction level. This research will help management to implement many shown results into their clinics and it will help them to increase the satisfaction level. However satisfaction rate doesn’t increase suddenly but efforts and much work and checking need to be considered with time span to reach required levels. On the other hand destroying the quality of a place could happen suddenly with one major incidence. This incidence can demolish long time of quality building and word of mouth is the strongest way of delivering the experience in the hospital/dental center. Another important factor in dental patient satisfaction is dental appointments because usually the dental time slots are not accurate and depends on the dental case which the dentist is treating and in some treatments the patient need to visit the dentist few times just for one case such as in root canal treatment and prosthesis. Thus, good time management increase patient satisfaction, and in some hospitals and large dental centres they do have call centre to manage dentist slots and patient appointments. In addition to this some other recommendations will enhance patient satisfaction such as cleanliness and advanced sterilization, train staff on communication skills, place easy appointment booking method (toll free number, call centre, online...etc) and effective processes to increase quickness.
Limitations

“The conclusions of this study are limited to the extent that we have examined only one industry (dentistry), in one state (Oregon). Although this research could be classified as exploratory, it does provide a description of the uses of TQM practices in this specialized health care setting, and by documenting the relationship between TQM practices and positive business outcomes, it provides the foundation for further research. Moreover, the measures of TQ used in this study are self-reports obtained from paper-and-pencil, attitude based measures. An on-site visit to each organization to” [13].

Fruitful interviews were done with decision makers and employees (Owners, Managers, Dentists and staff) and take their opinion on Total Quality Management measures in their organization and how it affect their patients which will be mentioned in details later. The plan was to do 5 interviews while the researcher succeeded to do 8 interviews. The plan was to target 5 patients each day to duration of 10 days to reach 50 patients. The actual was only 21 patients who contribute in the questionnaire in duration of 14 days. Many reasons were behind the reduction in the targeted number such as lack of cooperation from some patients, lack of interest, some patient didn’t like to participate after the researcher told them that he doesn’t work in this hospital or dental centre or the patient is not convinced that his/her data will be confidential!

In spite of TQM is a hot topic in discussions, but very few studies had been done on the relation between dental patient satisfaction and Total Quality Management. Also this research will be applied on hospitals and dental center which have organization structure, quality protocols, covered by insurance companies and with high patients flow because of having several specialised dental clinics and dental chairs in the same place; therefore applying this study on a single dental office/clinic is not under the scope of this study and it won’t be clear if it is applicable or not “private health care providers, like the dentists in this study, should take a close look at TQM if they have not done so already” [13].

Some other limitations are like minor experience in doing such research; patients who are under acute toothache are not covered in this study, many patients are not interest to answer the questionnaire, some patients say compliments instead of saying the truth because they are not convinced that the dentist will not know the answers, and having approvals as an external researcher to do a questionnaire inside hospitals wasn’t easy.

Directions for Future Research

Finding articles and books that are illustrating the relationship between dental practice and Total Quality Management was difficult due to limited numbers of studies on this subject. However the researcher finds more articles that have relationship between general healthcare practice and Total Quality Management.

The future research can be done on one dental center/hospital/dental clinic, also to make an in-house research instead of being an external researcher, to adopt observation and live real cases instead of relying on patient’s observations only where the researcher had difficulties to collect data and targeted number of patients. Or it may differentiate the application of Total Quality Management between dental centers and hospitals that has dental clinics as one of its departments.

Another point that could be included in future researches is the area of interest in dental Total Quality Management per gender, age, Acute/Chronic patients, treatment type...etc.

The researcher believes there are some important questions that should be in such the research and to priorities them on other current questions like measurements of the quality of work between dentists and how to measure it? Or how Total Quality Management in dental practice is affecting profitability? What are the differences in applying Total Quality Management between dental practice and healthcare practice?
Reflections

This research has several limitations such as access to secondary data which is very sensitive because patient data are confidential in most of the hospitals, and by being an external researcher, it could lead to face some difficulties in collecting data and this why the research is going to approach one hospital and four dental center to increase the number of participants from management side and bring different applied models.

In addition, many patients are not aware of the treatment plan timing and methodologies while it is normal in dentistry to treat patient in three phases as an example. Also, asking patients who are suffering from acute toothache won’t be proper to approach them from humanity perspective.

Due to the subjective topic, variations in opinions are expected to be high and thus patient questionnaires design should be clever in reducing these variations to reach optimum results. Beside some patients could not understand the real meaning of quality or they may understand the questions in a different way. “The research attempts to overcome this by designing highly objective questions and repeating same pattern of questions in various areas of the questionnaire” [55]. Other variations could come from the dentists, nurses/assistants or management by not being transparent enough in the interviews to someone who is odd to them. This could be overcome by assuring confidentiality and that the data and records will only be shared with the researcher and University of Leicester. "Most people accede to the request for the interview to be tape-recorded, though it is not uncommon for a small number to refuse. When faced with refusal, you should still go ahead with the interview, as it is highly likely that useful information will still forthcoming" [42].

This study brought benefits and knowledge to the author especially that he has a bachelor in dental surgery and the research is discussing Total Quality Management in dental practice and for sure this research will add value to his knowledge and will link the science and philosophy of dentistry with the science and philosophy of business administration and quality.

The much it was hard to do interviews the much it was hard to convince patients to participate. And one of the limitations was to translate the interviews from Arabic to English as all who have been interviewed are Arabs and despite their good English but it was more logical to have the conversation in the mother tongue language.

Also because work and family commitments the author took much longer time to finish his research than the planned timeline, but it motivates the author to continue his future studies and professional certifications to serve healthcare business to the fullest.

Finally, quality management is considered a main pillar in Islam and Prophet Muhammad peace be upon him was insisting about its importance as religious teachings. But unfortunately nowadays most of the Arab countries are missing it in their industries and their honor and proud stories is about their history where they implement it in many sciences and in different regions such as Spain, Levant and Turkey and Iraq...etc. “God loves when one of you do his work perfect and mastery” [54,56-61].

Bibliography

5. Schakaki OB. "Continuous Improvement Abilities and Associated Behaviours (Case Study)". Riyadh, Saudi Arabia: University of Leicester (2012).

Citation: Obaidah Schakaki and Alison Watson. “A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction”. EC Dental Science 14.3 (2017): 114-149.
A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction

7. KSA S GM. "Health Indicators for the Year of 1432 H" (2013).

Citation: Obaidah Schakaki and Alison Watson. “A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction”. EC Dental Science 14.3 (2017): 114-149.
A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction


30. Slorance J. “Productivity in Community Nursing Services: The Effectiveness of Commissioning for Quality and Innovation (CQUIN)”. University of Leicester (2012).


Citation: Obaidah Schakaki and Alison Watson. “A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction”. EC Dental Science 14.3 (2017): 114-149.
A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction


Volume 14 Issue 3 September 2017
© All rights reserved by Obaidah Schakaki and Alison Watson.

Citation: Obaidah Schakaki and Alison Watson. “A Study on the Effectiveness of Total Quality Management in Dental Patient Satisfaction”. EC Dental Science 14.3 (2017): 114-149.