

Assessing Service Quality and Patient Satisfaction at Venice Dental Center, Benghazi: A Demographic Analysis

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Abstract

This study aims to evaluate the service quality of Venice Dental Center, a local dental care facility in Benghazi, Libya, by focusing on patient satisfaction across five dimensions: Tangibles, Responsiveness, Reliability, Empathy, and Assurance. The research also seeks to identify the impact of demographic factors on patient satisfaction. A total of 90 patients participated in the study, selected via social media through Google Forms between February 1 and March 3, 2024. Data analysis was conducted using Microsoft Excel 2016, and Minitab 17, employing appropriate descriptive and inferential statistical techniques. The reliability and validity of the instrument, measured through Cronbach's alpha, confirmed its appropriateness for assessing the five dimensions of service quality. The findings indicate that patient satisfaction is generally favorable across all dimensions, with average satisfaction scores exceeding three out of five. Additionally, no statistically significant differences were found in patient satisfaction based on gender, age, education level, number of visits, or presence of insurance. These results suggest that while the Venice Dental Center performs adequately in meeting patient expectations, further efforts are needed to enhance specific service quality dimensions to ensure comprehensive patient satisfaction.

Keywords: Service Quality, Patient Satisfaction, Dental Care, SERVQUAL, Demographic Factors.

تقييم جودة الخدمة ورضا المرضى في مركز فينيسيا لطب الأسنان، بنغازي: تحليل ديموغرافي

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الملخص

تهدف هذه الدراسة إلى تقييم جودة الخدمة في مركز فينيسيا لطب الأسنان، وهو مركز رعاية صحية محلي في بنغازي، ليبيا، مع التركيز على رضا المرضى عبر خمسة أبعاد: الملموسات، الاستجابة، الموثوقية، التعاطف، والضمان. كما تسعى الدراسة إلى تحديد تأثير العوامل الديموغرافية على رضا المرضى. شارك في الدراسة ما مجموعه 90 مريضاً تم اختيارهم عبر وسائل التواصل الاجتماعي باستخدام نماذج Google خلال الفترة من 1 فبراير إلى 3 مارس 2024. تم تحليل البيانات باستخدام برامج Microsoft Excel 2016، و Minitab 17، باستخدام تقنيات إحصائية وصفية واستنتاجية مناسبة. أكدت الموثوقية والصلاحية للأداة، التي تم قياسها باستخدام معامل ألفا كرونباخ، ملاءمتها لتقييم أبعاد جودة الخدمة الخمسة. تشير النتائج إلى أن رضا المرضى يعتبر إيجابياً بشكل عام عبر جميع الأبعاد، حيث تجاوزت درجات الرضا المتوسط ثلاث درجات من خمسة. بالإضافة إلى ذلك، لم يتم العثور على فروق ذات دلالة إحصائية في رضا المرضى بناءً على الجنس أو العمر أو المستوى التعليمي أو عدد الزيارات أو وجود التأمين الصحي. تشير هذه النتائج إلى أن مركز فينيسيا لطب الأسنان يقدم أداءً مرضياً في تلبية توقعات المرضى، ولكن هناك حاجة إلى بذل جهود إضافية لتحسين أبعاد جودة الخدمة المحددة لضمان رضا شامل للمرضى. **الكلمات المفتاحية:** جودة الخدمة، رضا المرضى، رعاية الأسنان، SERVQUAL، العوامل الديموغرافية.

Introduction

In an environment of population increase across the globe alongside increased endeavour to improve various sectors of the economy for competitiveness, patient satisfaction and service delivery have emerged as very sensitive issues in most research studies and practice among healthcare organisations across the world. Current literature supports patient satisfaction as one of the most important factors for determining the success of the delivery systems of health care, especially in issues to do with patient loyalty and better health in patients [1]. Advanced countries have firmed up their position in not only improving the health care delivery to their people, but also to market healthcare as a product to medical tourists to gain more from their economy [2]. On the other hand, the developing countries are in a fix as they need to offer quality and reasonably priced healthcare services on the one hand while dealing with systematic problems that hinder the same on the other hand. Healthcare for example remains non-strategic in Libya with

patient satisfaction and service quality being the subject of more academic studies than administrative and clinical practice[3].

The expectations of customers has a strong relationship with health care service quality similar to those of other service industry. It is indispensable in the formation of patients' attitudes and in the development of cooperation with medical organizations. But in many developing countries, one gets the impression that health care providers do not pay attention to the formal expectations and perceptions of their clients but instead concentrate on system efficiency rather than client-centeredness. This can have worrisome implications hence the finding by several scholars that it is way cheaper to retain existing patient than to acquire new ones [4]. Evaluating patients' satisfaction concerning constant improvement of healthcare services rather threatens the stability of the healthcare system: it puts at risk the quality of care and financial viability of separate clinics, especially private ones, which can lose patients to competitors or even go bankrupt. State funded public hospitals may also be affected as such hospitals may be perceived as the places where only patients who cannot afford to pay for the treatment are treated [4].

The difficulty of determining the levels of patient satisfaction only adds to the problem of delivering sufficient quantity and quality of dental care services which remains a concern for healthcare researchers, policy makers and practitioners. In hospital practice and more generally healthcare delivery, patient satisfaction and service quality are by their nature relative and complex constructs, that are most frequently assessed using indices which are partially lagged and highly stretchy. These indices have to capture all kinds of reigning factors, such as psychological, cultural or even economical. In recent literature, socio-demographic characteristics have, therefore, been reported to play a very crucial role in the analysis and improvement of patient satisfaction with dental care services. It is imperative to understand all these dimensions to come up with the appropriate approaches that can adequately meet all the concern and needs of the patients for the enhancement of total client care in dental facilities [5].

The following are the various problems affecting the Libyan healthcare system and which have compromised the quality of services. This is an implication that the current healthcare sectors still face various challenges that include; shortage of human resource, poor facilities and poor quality healthcare services even after the government has made frantic efforts to liberalize the delivery of healthcare services. These problems are compounded by poor supervision, lack of responsibility, and increasing cases of unethical conduct in this industry that in general has led to a deterioration of the quality of healthcare services in both the government and private sector. These system ized problems are not only damaging patient satisfaction but are also making efforts to tackle less than optimal services in the country much more challenging. [3].

Considering these difficulties, this research aims to assess the quality of services of a local clinic of dental practitioners in Benghazi, Libya for dental care services with a view of identifying the degree of satisfaction of the patients in five dimensions, and the effect of demographic variables on satisfaction. Through highlighting these aspects, such research aspires to deliver practical information that would help to transform the existing approach of policymaking and the organization of dental services in Libya.

Literature Review

In this section will be review literature on service quality and patient satisfaction in relation to health; more so dental services. It goes further to describe the elements and challenges of service quality measurement as well as focusing on the health care delivery service importance of patient satisfaction. Various forces that influence customers' satisfaction such as Demographic forces, psychological forces and cultural forces are discussed in this section using examples of patient satisfaction. It also takes into account the relationship that exists between the various service quality dimensions and the levels of satisfaction among patients to argue that enhanced on the service quality dimensions lead to enhancement in patient experiences. The review also presents the process of the model's formation and changes, such as SERVQUAL, used in evaluating service quality, paying attention to its modifications, concerns, and weaknesses in the health care field. Moreover, it discusses the concept of service quality in the context of healthcare, arguing that the concept is multifaceted since it involves clinical performance, risks, patient. None the focus inter and intra personal communication, patient-centeredness, integration of technology and work system to improve healthcare delivery and patients' satisfaction.

ServiceQuality

A key subject of concern in the literature has been quality. To identify quality in healthcare there is usually a discrepancy of the definition since there are different factors involved. As a concept, perceived healthcare service can be operationalized as patients' general evaluation or perceived notion of the quality of a healthcare service provider. This indeed is an important perception of service quality because it can determine whether a patient will continue to use a certain healthcare service or abandon it. It is fact that aspect or attributes of a product or a service have an impact on customers' perception or expectation. Patients are the primary consumers of healthcare services and as such their expectation level and their assessment of how well the service provider acknowledges their needs are primary factors that define the service quality. Research evidence also shows that some bring into picture factors like physical facilities and responses from the staff whereby they pass their judgment on the quality of the service which is being delivered. It is against this background that organizations understanding that beating

competitors decisively by offering high quality services that will initially satisfy customers is crucial. Quality services and customer satisfaction are now universally considered critical marketing objectives because when customers speak well of a company to other possibly prospective customers they create a market image that influences such customers[6].

Patient Satisfaction

Patient satisfaction is a concept of interest in academic literature. Patient satisfaction may be considered both as one of the attributes to the healthcare service quality and as the measure of successful healthcare operations. The measures taken on customers include expectation, perceived performance and customers' loyalty. Different views on satisfaction have been considered in the course of the research, the most important of which is the consumer perspective that indicates that satisfaction is a postconsumption phenomenon. Therefore patient satisfaction can be conceived as an outcome of service quality that is a dependent variable of the perceived performance of the healthcare service and the patient's pre-set benchmark [7][8].

Factors that Affect Customer Satisfaction

The definition of satisfaction is more problematic and is dependent at the cross-note on the industry at large, age, sex, default whether individual or institutional. They are of different premising to services than to products. Studies have been done on the following customer attributes which include the appearance of the food and the taste, the sociocultural attributes influencing the taste of foods and characteristics of customized computer products. Customer satisfaction has five determinants they are human needs, service and product quality, user-friendliness, comfort assurance. Satisfaction can be categorized into three factors: It distinguished three categories of dimensions namely, basic dimensions (these are dimensions that when not met will lead to dissatisfaction), performance dimensions (these are dimensions that when met leads to satisfaction or dissatisfaction), excitement dimensions (these are dimensions that when met enhances satisfaction but if not met does not also lead to dissatisfaction)[9][10].

The relationship between service quality and customer satisfaction

There is no exact agreement in the literature on that is service quality may be considered a broader concept than customer satisfaction. Always customers' perceived service quality results in customer satisfaction that is very vital for survival of the business and customer repeat patronage. Reliability, tangibles, empathy and assurance have been identified by researchers as parameters through which institutional quality as well as customers' satisfaction can be assessed. Also, service quality and customer satisfaction have considerable impact on customer loyalty and re-patronage ardor. Furthermore, while customer satisfaction embraces extent and frequency of interactions with a service, perceived service quality may depend on perceived value of a service, as well as outside experiences. [11]

The development and evolution of the SERVQUAL model

The SERVQUAL model consisted of the acknowledgment of total number of 97 characteristics that are likely to affect service quality. Such attributes were at first categorized into ten dimensions that were later purified through two cycles of dimensions purification. The first stage identified ten dimensions: Hypothesized service quality dimensions include tangibility, reliability, responsiveness, information sharing, reliability, security, expertise, courtesy, empathy, and availability. In the second stage, the dimensions were condensed into five: This model comprise of five elements which are as follows; Tangibility, Reliability, Responsiveness, Assurance and empathy. These five dimensions thus formed the framework of the SERVQUAL instrument; this scale was further examined for intersubjective reliability across a variety of the service marketing sectors, and the instrument had high reliability coefficients and validity. Other models such as models of perceived service quality are based on the SERVQUAL model that was created to measure the gap between customers 'expectations and perceived service quality. Ideally, the model should be applied several times a year for measuring the quality of service that is delivered and an appropriate tool for enhancing service delivery. The SERVQUAL model is also deemed useful for categorising customers in terms of their perceived service quality, providing the means for marketing-strategic segmentation [11].

Service quality in healthcare

Service quality in the healthcare sector is important because it determines the sort of results that the patient gets and how satisfied he/she would be. Health care is generally a necessity product and this makes their services to be mandatory and special more so in the current society. Such services are required to take care of the physical, psychological and the social aspects of the patient. [12]That is why healthcare competition, decreasing reimbursement rates, and motivation to cut costs boosted the significance of the service quality factor. Thus, a healthcare organization that does not meet some minimum standard of quality may be unused, or may be viewed as a relatively undesirable option[13]. Service quality in healthcare is typically assessed through two dimensions: Accordingly, there are two perspectives, which are technical quality and functional quality. Technical quality relates to the precision in diagnosis and the way that treatment is administered, normally this is hard to be accessed by the patient. Functional quality relates to the context within which healthcare services are provided service delivery setting, staff demeanour, language and interpersonal treatment. Since most patients cannot touch the doctors and nurses who treat them, fixtures and appearance of the staff, become the reference they use to gauge expectations[13] .

A number of papers have established how the understanding of service quality pertains to healthcare and most of these have focused on the developing countries. As an example, a research conducted in Bangladesh revealed those aspects that influenced the level of satisfaction among patients are, responsiveness, assurance, communication skills, discipline, and bribe money had a significant effect. Concurrent studies in the rural region of India also stressed on the fact that the factors of treatment delivery and availability also play a large role in influencing patient inclination towards revisiting the health care centers. In addition, the works done in Bangladesh and South Africa stressed the role of the provider behaviors and service responsiveness for influencing patients' evaluations of quality[12].

In Sudan, SERVQUAL was applied in the context of the government hospitals where it gave some understanding on the patients' and reviewers' perception on the service quality and the impact of the demographic factors like the gender, age, education level, the income level and the residence. [14] A similar study was conducted by applying the SERVQUAL model on teaching hospitals related to Tehran University of Medical Sciences in Iran. The results indicated that the overall service quality was poor, with significant perception gaps between patient expectations and actual service received. Notably, these perception gaps varied depending on the number of visits [15].

Method

The SERVQUAL scale, originally developed as a generic instrument for assessing service quality, primarily addresses the functional dimensions of service delivery. Despite its versatility, the scale necessitates adaptation to align with the specific requirements of distinct sectors. For this study, the SERVQUAL instrument was modified based on the frameworks established by past studies[16][17], ensuring its relevance to the dental care sector. The modified SERVQUAL questionnaire was divided into two main sections.

The first section gathered demographic data, including variables such as age, gender, educational attainment, frequency of visits, and insurance coverage. The second section consisted of twenty-five items designed to evaluate five key dimensions of service quality: tangibility (5 items), reliability (5 items), responsiveness (5 items), assurance (6 items), and empathy (4 items). Each dimension was assessed through patients' perceptions, utilizing a five-point Likert scale ranging from "strongly disagree" to "strongly agree." This scaling approach provided granular insights into the patients' experiences and satisfaction with the services received.

The sample for this study was drawn from a single local dental care facility, the Venice Dental Center, located in Benghazi, Libya. Data collection was conducted over a period from February 1 to March 3, 2024. A total of 90 patients were recruited via social media, specifically through a Google Form survey. The sample included both male and female

participants, ranging in age from 18 to over 60 years. The demographic characteristics of the participants, including age, education level, frequency of visits, and health insurance status, are detailed in Table 1.

Table 1: Demographic Characteristics of Survey Participant

Category	Subcategory	Frequency	Percentage
Gender	female	73	81.11%
	male	17	18.89%
Age group	18-25 years	46	51.5%
	26-35 years	34	37.8%
	36-49 years	8	8.9%
	50-59 years	2	2.2%
	Above 60 years	0	0%
Education level	Bachelor's degree	71	78.9%
	Master degree	6	6.7%
	high school education	6	6.7%
	diploma	4	4.4%
	Basic education	2	2.2%
	Vocational education	1	1.1%
Type of patients	New Patient	59	65.6%
	one times	13	14.4%
	2-3times	8	8.9%
	4.5times	1	1.1%
	6-7times	3	3.3%
	8-10 times	6	6.7%
	more than 10 times	0	0%
Health insurance	Yes	13	14.44%
	No	77	85.6%

The data collection process posed significant challenges due to the low response rate from patients contacted through social media platforms. Despite these difficulties, the data were successfully entered and subsequently analyzed using Microsoft Excel 2016, Minitab 17.

One method to evaluate the strength and reliability of a questionnaire is by calculating Cronbach's alpha. Cronbach's alpha is a widely used statistic that measures the internal consistency of a set of scale or test items, which reflects the extent to which the items collectively measure a single underlying construct. In essence, it assesses the reliability of a measurement by determining the degree of consistency among the items.

Cronbach's alpha is calculated by correlating the score for each individual item with the total score for each respondent and then comparing this to the overall variance of all individual item scores. The resulting α coefficient ranges from 0 to 1, with higher values indicating greater reliability. Specifically, if the scale items are completely independent

of each other (i.e., uncorrelated and with no shared variance), α will be 0. Conversely, if all items exhibit high covariances, α will approach 1 as the number of items increases. In practice, a higher α coefficient suggests that the items share a common variance and are likely measuring the same underlying concept. A Cronbach's alpha value of 0.60 or higher is generally considered acceptable in many studies. In this study, the reliability of the scale was assessed using Cronbach's alpha, as shown in Table 2.

All the values obtained exceeded 0.60 and were close to 1, indicating a high level of reliability for the questionnaire.

Table 2: Reliability dimensions Cronbach's Alpha

Dimensions	Statement	Mean	Alpha
	Tangibles	5	3.464
Responsiveness	5	3.409	0.962
Efficiency	5	3.418	0.962
Empathy	4	3.317	0.932
Assurance	6	3.641	0.941
Total Statements	25	3.450	0.981

Notes: Mean scores based on a five-point scale, where 1= Strongly Disagree and 5= Strongly

Results

Data analysis encompassed both descriptive and inferential statistical techniques. Descriptive statistics, including means and standard deviations, were computed to summarize patients' perceptions across the five service quality dimensions. Additionally, Analysis of Variance (ANOVA) was utilized to determine whether the identified service quality exhibited statistically significant differences across various demographic subgroups.

Patients satisfaction Comparison within Dimension:

The overall mean score for patient satisfaction was 3.44 out of 5. Among the various dimensions of service quality, the Assurance dimension recorded the highest mean score, with a value of 3.64, followed by the Tangibles dimension, which had a mean score of 3.46. The Empathy dimension received the lowest mean score, at 3.1. These findings are presented in Table 3.

Table 3. Comparison between five dimensions

Dimension	Mean	St.Dev
Tangibles	3.464	1.290
Responsiveness	3.408	1.266
Reliability	3.418	1.303
Empathy	3.317	1.283
Assurance	3.641	1.358
Overall Average	3.450	0.0352

Table 4 presents the mean distributions of the various items within each service quality dimension. Among the five items in the Tangibles dimension, the item "using the latest techniques and equipment" achieved the highest mean score of 3.544. Within the Responsiveness dimension, "awareness of patients' needs" was rated highest, with a mean score of 3.46. Regarding the Reliability dimension, the item "providing high-quality and long-lasting treatment" consistently ranked the highest, with a mean score of 3.57. In the Empathy dimension, "responding to patients' inquiries and complaints" received the highest mean score, at 3.38. Lastly, within the Assurance dimension, the item "clinic's good reputation" had the highest average score among all items, with a mean of 3.7

Table 4. scores of perceived service quality for each equations

Dimensions	Item	Question	Mean	St.Dev
Tangibles	1	The interior design of the clinic departments makes it easy for patients to obtain the required service	3.5	1.43
	2	waiting halls, rest rooms, corridors and elevators suitable for the required services	3.32	1.35
	3	The clinic is equipped with the latest medical devices, techniques and equipment	3.54	1.38
	4	Clinic staff are neat and good looking	3.42	1.33
	5	Clinic rooms are clean, comfortable and attractive	3.53	1.39
Responsive ness	1	Clinic workers have characteristics of humanity, tact and kindness	3.44	1.31
	2	Clinic workers constantly follow up on sick cases	3.35	1.33
	3	Clinic staff are ready to protect patients' rights	3.45	1.30
	4	Clinic staff are aware of patients' needs	3.46	1.34
	5	There is not a long time between therapeutic sessions and examinations	3.32	1.37

Reliability	1	Clinic staff are committed to providing services on time	3.37	1.39
	2	Clinic staff are passionate about solving patients' problems and answering their questions	3.33	1.32
	3	The clinic's services are correct the first time and do not need to be repeated	3.42	1.41
	4	The clinic's medical files and records are accurate and error-free	3.37	1.43
	5	treatment provided is of high quality and long-lasting effectiveness	3.57	1.42
Empathy	1	I can put my complete trust in all the clinic staff	3.25	1.32
	2	The clinic's medical team gives individual attention to each patient	3.3	1.42
	3	Clinic staff respond immediately to patients' inquiries and complaints	3.38	1.42
	4	Clinic staff help and engage patients emotionally	3.32	1.40
Assurance	1	I feel safe when dealing with clinic staff	3.53	1.42
	2	The medical staff has sufficient knowledge to answer patients' questions	3.66	1.42
	3	Clinic staff are always ready to cooperate with me	3.6	1.43
	4	the medical team is friendly and cheerful	3.65	1.35
	5	The dentist is familiar with the latest treatment methods, as well as modern technologies	3.68	1.46
	6	This dental clinic has a good reputation among people that they provide for each other	3.7	1.41

Relationship between the overall score for patient satisfaction and demographic factors:

The service quality for various demographic groups, including gender, educational level, age, type of patient visit, and presence of insurance, was analyzed using Minitab 17. The analyses revealed no statistically significant differences in overall service quality across these groups, as all comparisons yielded p-values greater than 0.05 (Table 5).

Table5. Statistical Analysis of Factors Affecting Patient Satisfaction

Factor	Test statistic	P-value
Gender	T-value: 0.71	0.481
educational level	F-Value: 0.52	0.763
age groups	F-Value: 1.87	0.142
number of visits	F-Value : 1.88	0.107
presence of insurance	F-Value :2.08	0.152

Discussion

This particular research aimed at addressing customer perspective on the service quality of a local dental care center in Benghazi-Libya through the measurement of a gap between the expectations and perceived services. It was ascertained that there is a relationship between empathy, system responsiveness, and the physical environment of clinic and patients' satisfaction. These findings confirm the findings of previous studies who also noted that empathy and responsiveness were the two factors that influenced service quality in health care organisations[11][18].

In line with the finding in another previous studies, the dimension for which the respondents had the lowest score was Empathy, which is an area that must be given attention by the management. Such studies observed that patients have a great appreciation of attentive and empathetic interpersonal care, therefore clinics should work towards improving the interpersonal touch they offer their patients. Also, the system factors highlighted in this studies as being essential and knowledge of the role played by wait and cycle times to informad hoc conclusion are consistent with prior research that has shown that many healthcare organizations need to minimize wait times and improve cycle times to improve patient experience[19] [20].

Whereas, comparing with some of the prior studies where reliability was identified as the most significant factor of concern, this study found that the dimension which requires improvement most is the empathy. The above differences show that expectations are bound to patients' environment and therefore a call for targeted improvements in specific environments is considered plausible[21].

Although the SERVQUAL scale includes 22 apparent items spread out in 5 categories of the scale, namely Tangibles, Responsiveness, Reliability, Empathy, and Assurance, it is still possible that this scale may fail to capture or consider other dimensions of services that have a strong bearing on the satisfaction of the patients in the dental care setting. Access, information and communication, patient transit with continuity, quality, and value, are and will continue to be core aspects of the patient experience. Accessibility for instance, focuses on how easily the patients can access care which in the current world is a make or break depending on the number of hospitals or clinics available. Interpersonal communication between health care professionals and the patients is also crucial as it determines understanding and compliance to the treatment plans prescribed as well as the trust that the patients have on the health care practitioners. Another concept that contribute to the patient satisfaction and loyalty is continuity of care, which is the means of delivering care in a sequential and connected manner. Clinical metrics such as the successful implementation of an intervention relate to perceptual measures of services and may significantly impact how patients subjectively perceive a given health service or organisation. Lastly, the perceived value of services is the

favorability comparison between the quality of services received and cost of care more so in the private facilities, where majority of patient self-finance.

These dimensions were not incorporated into this study primarily because of the establishment of the positively framed SERVQUAL framework that has received much attention and is commonly applied for the assessment of the healthcare service quality based on the findings of prior studies [20] [22]. Another reason for the selection was its research reliability and the fact that this model can offer a rather systematic approach to the task at hand. Though SERVQUAL has been effective in indicating the fundamental aspects that requires some form of modification, it lacks the entire nomological network of factors, which influence the patients' satisfaction in the dental care setting as discussed in the prior studies [23][24]. Scholars have also acknowledged in previous researches that the SERVQUAL model is somewhat restricted in the context of healthcare facility. For example, as highlighted by [25][26]

Critics for instance note that SERVQUAL fails to incorporate the specificity required to accommodate the dynamism of the health sector delivery as well as the personal touch that accompanies rendering the healthcare services, especially dental care that is highly reliant on the doctor patient bedside manners and clinical results. For example, stress how it is possible to increase the operationalisation of assessment of quality within health-care services by focusing on the broader aspects of service that patients found to be of value [27].

Future researchers should therefore incorporate these other additional dimensions which are accessibility, communication, continuity, outcomes as well as values into measuring service quality in a bid to gain broader insight on the patient satisfaction aspects. Adding more items to the scale other than SERVQUAL would also be consistent with other advancing healthcare quality models and more comprehensively examine patients' experience for further enhancement of the service.

Recommendations for improvement of the clinic have been made, which are;

- Enhance Empathy in Patient Care: Research into the importance of empathy in health care contexts has been the focus of many investigations. For example, in the two studies [20] and [21], empathy was noted to be the least tallying factor with regard to healthcare service provision while strongly influencing customer satisfaction. Companion enhanced patient empathy has been recommended in several studies by, regarding, the clinics that introduced programs of training for staff, centring on patient communication and found that improvements were achieved in the patient's satisfaction.
- Improve System Availability and Responsiveness: Backed by earlier research, this established that inhibitions in the provision and expeditious delivery of health care services, especially those that contain long waiting list periods have been linked to low

patient satisfaction. For instance, in pervious studies [28] & [29] it was also highlighted that operational factors such as system responsiveness and efficient service processes are important factors from patients' perspective. Therefore, in order to enhance patient service provision, increase service delivery and decrease the time of service, especially the scheduling of appointments, there has been a call to enhance the management information systems in several studies including [27].

- Upgrade the Physical Environment: It has been found that the strategic physical surroundings of healthcare facilities create the type of perceived service quality. In study [24] it has been mentioned that they opined that cleanliness, modernity, and good looks of the clinic invigorates the confidence of patients regarding the reliability, as well as the professionalism of the clinic. This accords with what [21] pointed out on the fact that physical environment influences the satisfaction of patients. Similar improvements were also suggested in other researches of [25], wherein it was also shown that the beautification of clinic space had the positive impact on patient's perception of the quality of care.
- Ongoing Staff Development: Another interesting area that the prior studies confirm is that of regular staff training. According to [26] and [18], contended that updated training practice refreshes the staff; this enables them to offer caring and patient-centered solutions. This has also called for training programs such as communication training, emotional intelligence, and technical skills since improving communication, training, and values significantly improves service delivery as stated by [20].
- Minimize Wait and Cycle Times: Earlier research has found that long waiting times are antithetical to patient satisfaction. [27, 28] have discovered that clinical inefficiencies such as patient wait times negatively impact perceived service quality, yet efficient patient flows enhance the perceived quality. Reducing pressures caused by excessive number of patients can help to improve the level of satisfaction of the patients, as it was shown in the studies involving the issue of the system response.
- Focus on Accessibility: This paper explored how access is emerging into a fundamental determinant of healthcare quality. [23] and [25] both emphasized that it is necessary to make health care buildings sufficiently accessible for any patient despite his physical conditions. According to the research, patients have a better experience when clear signs and gateways are installed while offering consultation services online if the patients have mobility difficulties or the facilities are located in areas where patients cannot access easily due to lack of transport means.
- Regular Patient Feedback and Continuous Improvement: Several studies were identified in this area, including, [22], and [20] which all endorse the application of patient feedback as a means of enhancing the services' quality. These studies also pointed out that the ability of healthcare providers to proactively aCCrue feedback and

use them for purposes of making changes that would address the needs of patients showed that constant collection of feedback is effective. Feedback systems also assist with keeping the focus on the patient in service delivery since this model provides the best outcomes and patients satisfaction.

the Libyan government has to put in place a supervisory healthcare department to monitor service quality of the both private and public dental clinics. Such a system would also make it possible to have a check on clinics and their quality of service delivery and also guarantee the patients of good service delivery as per the set standards.

The research limitations should be further addressed in future research through the following:

- **Incorporating Additional Dimensions of Service Quality:** For future research, the authors suggest extending the set of SERVQUAL attributes by adding such aspects as availability, information provision, concern for maintaining contact, and service results. These aspects are essential in the dimension of patient satisfaction but are not fully revealed in the usual modes of serving quality analysis.
- **Longitudinal Studies:** Longitudinal research that analyzes patient satisfaction in the course of time would be informative to check the effect of the enhancements in service quality on patients. This approach could help discover the perennial challenges of service gaps and enable identification of interventions in quality enhancement.
- **Broader Demographic Focus:** Extending the demographic variability of patients that are studied in the future would provide a comprehensive insight into the effects of demographical variables such as cultural background, health literacy, geographic location, chronic illness or disability, language proficiency, marital status, and employment status on patient expectations and satisfaction levels. This would lead to better enhancement of the health care services since progression depends on the observed discrepancies.
- **Comparative Studies across Regions:** To further highlight the differences in service quality in different settings of health care organization, comparative cross-sectional studies involving more than one clinic in different areas should be conducted. Such studies may contribute to the discovery of the positive benchmarks and of the role of the local environment in the formation of perceptions of services' qualities.
- **Qualitative Approaches:** Incorporating qualitative research methods, such as in-depth patient interviews and focus groups, would offer more nuanced insights into patient experiences and expectations. These methods could capture subjective aspects of service quality that quantitative tools like SERVQUAL may miss.
- **Evaluating Technological Integration:** Future research should focus on the effects of innovations on the dynamics of digital services in the healthcare sector, including

telemedicine and a patient's ability to communicate with a provider. Gaining insight on how technology impacts on patient care will be essential in enhancing service delivery now that the society is moving towards a technological era.

In conclusion, therefore, this study demonstrates that focused efforts towards increasing patients' empathy, organization's responsiveness and the capabilities of the staff can lead to enhanced patient satisfaction. These strategies should be consistent with the models of service quality which have been developed earlier and the findings of prior studies will be helpful for the healthcare providers to understand how it can be practiced effectively in order to fulfil the expected service quality by its customers.

In conclusion,, this study points out the need to increase patients' perceived empathy, system responsiveness,, and physical surroundings in the context of dental care services; findings are coherent with prior research on healthcare service quality. The method based on the SERVQUAL model was helpful to identify key factors affecting satisfaction; at the same time, the study showed that this framework failed to encompass all the critical aspects influencing this concept. It is recommended that the current and subsequent studies should address other dimensions including accesibility, communication and continuity in the overall assessment of healthcare services. Greater demographic diversification and employing more qualitative collecting methods might provide further understanding of the patients' situation. The practical application of these technologies and communications patient input capabilities are essential for continued enhancement. Recommendations for the clinic have been made hence calling for improvements in the level of empathy; availability of the system, physical environment and reduction of the waiting time as their effects on patient satisfaction have been earlier determined by researchers. Staff development also plays a role in sustaining the changes while governmental supervision is also essential in this era. When these areas have been addressed, the hitech providers will better be situated in meeting the expectations of patients in order to offer improved care.

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