Service Quality Evaluation: Patients from A South African University Clinic

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Abstract—The evaluation of service quality in several service industries remains an important matter to researchers and the management. Providing satisfactory services through maintaining high quality is critical for the success of the service industry. It is more challenging for customers to assess service quality than the quality of tangible products because there is a lack of perceptible evidence related to the service. Consequently, service industries need consistent, methodical and technical tools to appraise their performance, as service quality is a vital measure of organizational performance. SERVQUAL is one of the most used instruments to measure satisfaction of customers in a service industry. The purpose of this study is to evaluate the gap between patients' expectations and perceptions of the quality of service that is offered at a university clinic. The paper enhances an innovative viewpoint towards understanding how the concept of service quality is implemented in outpatient clinics on campus.

Index Terms—Clinics, service quality, Patient expectation, Patient satisfaction, SERVQUAL, South Africa

I. INTRODUCTION

Past research has proved that, in both service and manufacturing sectors the delivery of high quality service results in quantifiable advantages in profit, market share and cost savings [1]. Nevertheless, hospitals, and clinics that do not understand the necessity of offering high quality service and customer satisfaction might be risking a measurable loss of clients [2]. In the healthcare industry, patients' insights of service quality significantly impact the choice of healthcare provider [3]. Against this background, customer satisfaction has been considered an essential determinant towards keeping long-term patient loyalty and acquiring competitive advantage [2]. Furthermore, customers are becoming more acquainted with their right to quality care; and the awareness of service quality in the health care sector has increased [2].

The university clinic is a research and educational facility. Their main objective is to provide the university community with optimum preventive and curative healthcare while making use of the appropriate referral systems. The campus clinic located in the university premises offers care, support services and treatment for all staff and students of the University. The clinic also offers HIV/AIDS counselling and testing (HCT) and proper care interventions for those who are found positive. The clinic is an on-going treatment center and runs an accredited antiretroviral (ARV) treatment program. In cases where patients require further treatment, the clinic sends the concerned patients to a dedicated hospital where they are admitted for further treatment. Male circumcision is also provided at the clinic. This is so crucial given the many instances of casualties associated with male circumcision in the native cultural South African initiation schools [4]. Treatment for opportunistic infections is also offered at the clinic; they also provide assessments and referrals for those with mental health issues. The clinic has different departments such as; Health Promotion, Primary Health Care, Travel Health for Students, Screening and monitoring of chronic diseases, Reproductive Health (Family Planning) for the university community as well as wellbeing and psychological support.

This research is a snapshot study to explore the concern of patient satisfaction at the clinic. Customer satisfaction in this case, is defined as the level of compatibility between patient desires for perfect care and their impression of actual care received at the clinic [5]. Service quality is critical for measurement of quality of care in a hospital or any other industry. It shows the difference between the services rendered and the patient's perception of the service. Service expectations are prejudiced by previous experience, outsider's influences, personal needs and word of mouth. The real perception of service is impacted by different dimensions of service quality: reliability, tangibility, assurance, responsiveness, and, empathy. This paper intends to use SERVQUAL to assess the clinic service quality. Basically, it is an application paper since SERVQUAL has been widely applied in many industries. But, given the case, the paper still has practical contributions.

Even though patients may be dissatisfied with the services they receive from the clinic, they are usually uninformed about the tools made available through which they can communicate their dissatisfaction [6]. The evaluation of customer satisfaction is essential for the purpose of continuous improvement and is part the administrative function of a clinic [6].

The current study presents the evaluation outcome of service quality offered at the University clinic through patients' perceptions and expectations of service quality of the clinic.

The purpose of this study was to evaluate the gap between patients' expectation and perception on the quality of service that is offered at the clinic. University staff and students on campus who have visited the clinic were given questionnaires to obtain feedback on their experience in the clinic and also give feedback on how service quality should be rendered.

The study encompasses the analysis of the following:

- The physical look, the equipment, the employees and internal interchanges in the clinic (tangibility),
- The ability of the clinic to give and encourage service with assurance and to a normal standard to patients (reliability).
- The readiness of the staff to assist and the speediness with which services are rendered to clients. (responsiveness),
- The degree to which the information and friendliness of personnel pass on confidence and self-assurance in their patients (assurance).
- The degree to which the employees give personal attention to their patients (empathy).

Service quality in corporate firms has started concentrating on how customers perceived service quality for the reason that it helps the organization to develop strategies that enhance the satisfaction of customers [7]. There have not been many studies on service quality within South African public-sector hospitals and clinics. This study brings a technique to evaluate service levels within clinics by getting the customers opinion on service quality. The outcome of this study is beneficial to clinic administration in particular and the public health care quality management in general. It should inform program and policy towards quality improvement in the healthcare sector.

The study evaluates how the clinic is meeting the patients' expectations on the service quality dimensions. It demonstrates the perception that patients have from the clinic and determines the relative importance of the five dimensions of service quality to the patients.

The study was conducted at one of the university facilities, which may not reflect the exact nature of the quality of service provided in many hospitals in South Africa.

II. LITERATURE REVIEW

A. Service Quality

The past 25 years, research on service quality has developed widely and substantively. The service quality model picked up a considerable attention after the uncertain discoveries [2].

The measurement of quality has been studied by several authors in the past two decades [8]. The management of service quality is a critical problem mainly because of the evolution of the service industry in a contemporary dynamic environment [9]. The quality department within an organization requires a good understanding of what quality stands for from the management perceptive [10].

From the service perspective, quality has provoked considerable attention and argument in literature. It has been difficult to both describe and measure without having a general compromise evolving from either [8]. There are several definitions when it comes to service quality, but one that is mostly recognized is: service quality is the level at which a service meets the customer's requirements or needs [8]. In a case where customer expectations are more than the organization level of performance, it means that perceived quality is lower than customer's satisfaction, hence this results in customer dissatisfaction [11].

The application of service quality in several service industries remains an important matter to researchers and the management. It is more challenging for customers to assess service quality than the quality of tangible products because there is a lack of perceptible evidence related to the service. Consequently, service industries need consistent, methodical and technical tools to evaluate their performance, as service quality is a vital measure of organization performance [12].

When evaluating service quality, diverse components must be taken into consideration. Service quality encompasses three levels. Communicative quality, corporal quality and commercial quality [12]. There is also a claim that service quality constitutes methodological quality of the output and the presentation [12].

Service quality is separated in two classes: technical quality and functional quality [8]. The qualification between these two angles is widely acknowledged, although differing wording is incidentally utilized [8].

Technical quality refers to the premise of procedural precision and systems. In hospitals perception, it is characterized by the premise of the technical precision of the medicinal findings and systems or the consistence of expert determinations. Technical quality also refers to the aptitude of personnel as they perform their schedules. These incorporate the hospital and competencies of the specialists, the medical attendants, management of medications and the laboratory professionals' ability in managing blood and other specimens [3].

Functional quality discusses the way in which service is conveyed to the client. In a hospital setting, patients depend more often on the efficient aspect (offices, sanitation, nature of clinic's maintenance, staff's behavior) as opposed to technical while assessing the quality of service. Research has demonstrated that is not a helpful measure for evaluating how patients assess the nature of hospital experience [3]. Despite the fact that technical quality has high significance to patients, most patients do not have the ability to assess the quality of the demonstrative and remedial intercession process successfully because of lack of insights in the medical profession.

At the point when a patient gets restorative treatment, functional quality delivered is what impacts his or her impression of service quality. This is as a result of the patient's examination of his or her view of the medicinal

service experience compared to previous desires and expectation [3].

Generally, services in hospitals are immaterial or intangible in nature like the skill of the specialists, the health's facility condition, mindful staff, cleanliness, yet at some point it is a blend of tangible and intangibles (eyeglasses, prosthetic gadgets, or recommended drugs, laboratory reports). Patients see service as far as their entire experience; it incorporates the fruitful diagnosis, facility condition, cleanliness in rooms and wards, extraordinary considerations given by doctors, medical attendants, support staff, and exceptional follow-up. The perception of the above discourse is that clinics may characterize service as far as necessities, needs of its patients. Also, services can be classified into to four categories: immaterialness, indivisibility, perishability and heterogeneity [13].

B. Measurement of Service Quality

Parasuraman at first built up the SERVQUAL scale [14]. They initially distinguished ten service quality variables nonspecific to the service organization, tangibility, reliability, responsiveness, fitness, politeness, validity, security, access, correspondence and an ability to comprehend the client. The fundamental goal was to create general criteria for measuring service quality in different service industries in various areas. At a later stage, Parasuraman *et al* [15] developed an instrument which was applied crosswise over different service conditions, for example, education, banks, protection, tourism, dentistry, social insurance, Mastercard service and auto upkeep [16].

Acharyulu analyzed the handiness of SERVQUAL for measuring the patients' view of quality healthcare in some chosen ranges of Bangalore (in Indian) hospitals, Chennai and Hyderabad [17]. The vital statistic attributes like age, level of education, salary was mulled over for correlation. The study suggests that the critical gaps were related to responsiveness, reliability, and empathy implying that the healthcare focus is still just the cure focus' and not the mind focus'. It was recommended that Indian healthcare facilities need to focus more on responsiveness and reliability, which can be accomplished by ideal designation of assets [18].

Yesilada, and Direktör [19] used SERVQUAL to test the nature of service quality provided in government and private health facilities in Northern Cyprus. The factor investigation uncovered that three factor arrangements did not encourage the five-factor model of SERVQUAL. The three components were tangibility, reliability, and responsiveness. In all three factors, the private hospitals have fewer gaps than government health centers. Similar perceptions were reported by Mostafa (2005) in his investigation [18].

Ranjbar in 2012 carried out a descriptive study utilizing essential information, gathered on 22-item SERVQUAL instrument to investigate the gap between the quality of service and patient fulfilment in Shahid Sadoghi Hospital, Yazd, Iran [18]. The examination uncovered that there was a critical contrast between the perception and expectation of patients in SERVQUAL measurements. Further, they reasoned that patients' desires surpass their perception. Suggesting that, change is required over SERVQUAL measurements. [18]

An experimental investigation by [20] compares patient fulfilment with the quality of service in Saudi Arabian health centers by utilizing the SERVQUAL scale. Five facilities from every segment were chosen for the investigation. The outcomes demonstrated that the statistic and financial variables were impacting patients' fulfilment. It was reasoned that the SERVQUAL instrument is reliable and, appropriate to quantify the quality of service.

Parasuraman introduced five measurements of service quality: Tangibles, Responsiveness, Reliability, Empathy and Assurance [15]. The SERVQUAL: scale is truly outstanding and the most generally utilized instruments for assessing client desires and their view of the service quality [21]. These measurements include:

Tangible: Hospitals have to make sure that the equipment used will meet customers' requirements and that they are modern; if the personnel meet the hygiene requirements and are pleasing and if the hospital is attractive to its physical amenities.

Reliable: For an organization to be reliable, it has to continuously meet customer requirements. Reliability is also about the hospital showing concern in resolving the customer problem in the case such occurs. The organization must be able to render a good service and satisfy its customers the first time. When a procedure/ treatment is scheduled, the clinic must be able to deliver as required.

Responsiveness: Employees must be able to tell the consumers at what time he/she will be served or assisted. The customer must get a rapid service and the hospital should react as soon as possible to customer requests.

Assurance: Workers are consistently well mannered, employees are well trained to assist customers in every situation, and clients feel free while communicating with employees. Assurance is about employee behavior that will have an impact on the confidence of customers.

Empathy: Every patient deserves personal care; customers must receive consideration and kindness from employees; employees attend to customer needs; the clinic is aware of its customers' interests.

III. MATERIALS AND METHODS

The current research is explanatory and uses survey methods. The researchers tried to clarify the impact of the autonomous factors on the needy variable with a quantitative approach. This method allows the study to measure variables that result from the SERVQUAL technique and define some differences amidst how people assess their insights and service quality. This also provided the researchers with a guide for measuring these dimensions as well as the level to which a relationship exists amongst variables. The data for the study was collected in October 2017.

A. Conceptual Framework

Parasuraman [14] 'service quality model' was utilized as a theoretical model for measuring the quality of service

conveyance in healthcare services. The quality of service model shows that customers' quality recognitions are impacted by a progression of four particular gaps happening in associations.
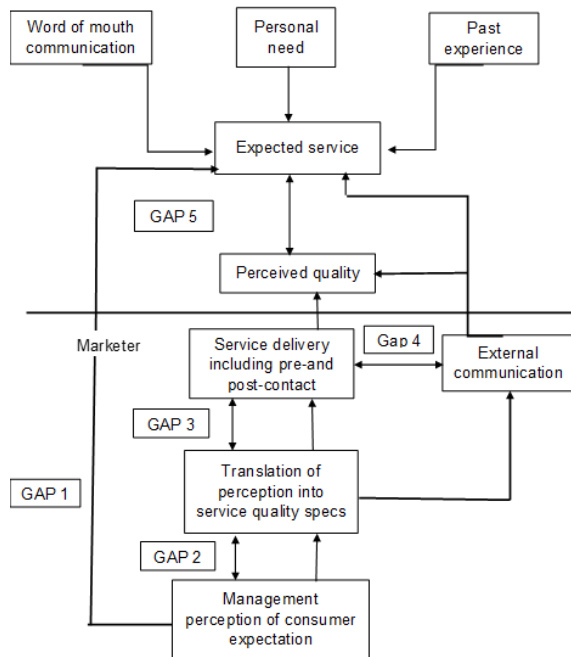

Figure 1. Conceptual Model of service quality [14]

These gaps on the service organization's side, which can obstruct conveyance of services are:

Gap 1: the gap between patient expectations and management perceptions of patient expectations.

Gap 2: the gap between management perceptions of patient expectations and service quality specifications

Gap 3 the gap between service quality specifications and service actually delivered.

Gap 4: the gap between service delivery and what is communicated about the service to patients.

Perceived service quality (Gap 5) is defined in the model (Fig. 1) as the difference between consumer expectations and perceptions, which in turn depends on the size and direction of the four gaps associated with the delivery of service quality on the service provider's side.

In the Service Quality Gaps Model, a hidden supposition is that service quality is fundamentally controlled by measuring the difference between patients' desires of a service and their view of the service as really experienced.

Source: [3] [14].

B. Sample

The researchers focused the study at the university clinic, because of certain constraints encountered in accessing the wider population.

The questionnaire was given to university staff and students on campus who have visited the clinic, as patients. The researcher targeted a sample of 110 respondents but could only get 74 questionnaires back of which 71 were fully completed.

C. Research Instrument

These measurements are adapted from the SERVQUAL instruments - a poll with an arrangement of 22 items spreading over the five dimensions of service quality. It has two arrangements of which, the first measures client desires and second an impression of the genuine service conveyed by the service provider. This instrument measures, the quality as contrast amongst observations and desires. It was initially made in 1985 and refined in 1991.

D. Research Design

The research design chosen for this study was the cross-sectional design which involves the gathering of data on issues of interest at one point in time only. This design collected empirical data on different attributes simultaneously. It was required for the data to be quantitative in order to establish differences amongst cases. The design permits the evaluation between attribute as the data were gathered instantaneously and the investigator was capable of working on any variables [22]. The reason why this design was chosen is because, much research on related studies works with this particular design. It enabled the researchers to find and classify all attributes which simplify the design of the questionnaires and enable us to get all the information needed from the patients.

E. Data collection

To collect data in this study, the instrument that was used SERVQUAL questionnaire comprises of 22 items which are grouped into five categories, tangibility, responsiveness, empathy, assurance and reliability [10]. The response items were measured on a five-point Likert scale (1= strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). The response items assess the five variables of SERVQUAL. The researcher used the SERVQUAL research instrument to measure Gap 5 to assess patients' perceptions of the clinic and clinical services.

A non-probability convenience sampling technique was to collect the data. Patients were chosen for interviews on the basis of accessibility to the researchers. the research approached accessible respondents after explaining the purpose and nature of the study, and seeking their consent, respondents, were given a copy of the paper-based questionnaire to complete. A random number of about 120 patients were approached, but 74 questionnaires were filled. The completed questionnaires were coded and the data was captured using an MS Excel datasheet. Data analysis for descriptive statistics, and reliability analyses were conducted using the Statistical Package for Social Sciences, (SPSS) version 24. Statistical analysis:

1) Descriptive of the sample

From 110 questionnaires distributed, 74 were completed and analyzed (response rate 67.3 percent). 37,8 % of the respondents were male, 58,1 females and 4.1 % did not indicate their sex. [23].

TABLE I. GENDER DISTRIBUTION

		Frequency	Percent
Valid	Male	28	37,8
	Female	43	58,1
	Total	71	95,9
Missing	System	3	4,1
Total		74	100,0

TABLE II. RELIABILITY ANALYSIS

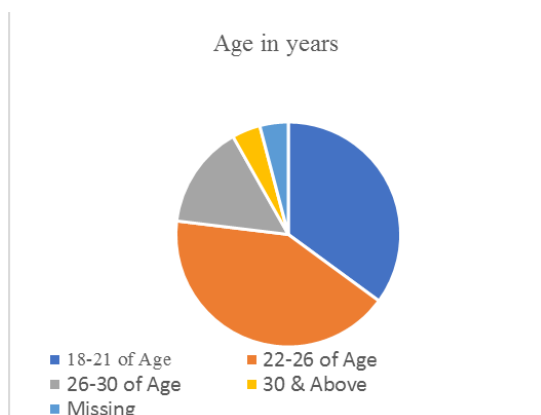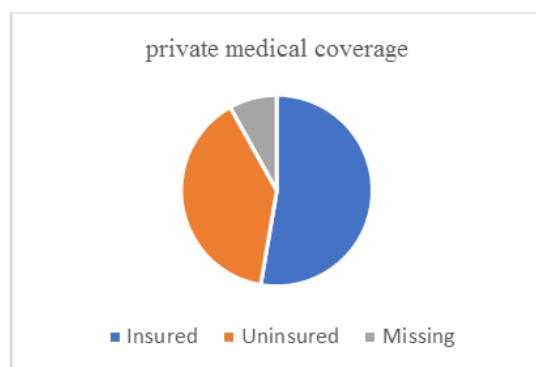| Dimensions	No of items	Cronbach alpha	
		Expected	Perceived
Tangibility	4	0.916	0.850
Reliability	5	0.920	0.847
Responsiveness	4	0.907	0.852
Assurance	4	0.882	0.842
Empathy	5	0.923	0.855
	22	0.971	0.955

Figure 2. Age distribution

Figure 3. Private medical cover distribution

Reliability was tested using the Cronbach alpha coefficient. Frequency analysis was used to test whether any significant difference exists in the perceptions of patients' service quality at the clinic and their expectation. The gap between perception and expectation of service quality from their score is demonstrated.

2) Reliability

The internal consistency was used to evaluate reliability of the instrument utilized in this investigation. The internal consistency of an arrangement of measurement items alludes to how much things in the set are homogeneous.

Using the reliability SPSS program, an internal consistency analysis was performed separately for the items of each of the five dimensions of SERVQUAL.

The second table demonstrate the reliability co-efficient related to the five dimensions of service quality. The reliability coefficient ranged from 0.882 to 0.923 for expectation scores and from 0.842 to 0.955 for perception scores. All the dimensions are above the recommended reliability value of 0.7 [24].

IV. LIMITATION AND FURTHER STUDIES

Because of the sample size the measurement of service quality in different departments at the clinic could not be well evaluated, the data could not be analyzed using the factor analysis method because the data were insufficient to be grouped into five different factors. SERVQUAL does not consider the cyber service. Currently, most of clinics also use internet to interact with patients. Thus, in the future, maybe e-SERVQUAL can also be considered.

A review of the databases - EBSCOhost and South Africa ePubilications databases, utilizing "hospital" and "patient satisfaction" as keywords, showed that very few patient satisfaction surveys at hospitals, using the 22 SERVQUAL items grouped in the five dimensions, had been conducted in the country.

Future studies should extend the research on service quality to public hospitals in the country. It is recommended that further research include rural communities in African communities where people are uneducated and not privileged to know what their rights are when assessing the service quality at the clinics or hospitals. This will assist the management of the clinics and hospitals to come to terms with the quality requirements.

V. RESULTS, INTERPRETATIONS, CONCLUSIONS, AND RECOMMENDATION

This part incorporates the investigation of the information emanating from the organized poll which is presented in a tabular form. The explanatory outcomes form the premise of discoveries which are outlined.

The conclusions drawn were presented, demonstrating how the exploration targets have been met. The tables below show the socio-statistic attributes of the respondents. The accumulated data has a solid connection with the socio-statistic profile decided before the investigation started.

The SERVQUAL method was used by the researcher to evaluate the scores of expectation and perception of each variable across the five dimensions and to determine the gap between the scores. GAP 5 was defined as the gap between the perceived and the expected scores mentioned above by the authors.

The records for the table below were collected utilizing the data from statistics obtain from the analyst. Gap 5 service quality was obtained by subtraction the figures from perception to expectation, that indicated that the service quality at university clinics did not meet or exceed customer expectations on any item or dimension.

TABLE III. GAP 5 SCORE

	Expected		Perceived		
	Mean	Std. Dev	Mean	St. Dev	GAP 5
Tangible	**4.0625**		**3.47**		
TG1	3.94	1.040	3.30	0.811	-0.64
TG2	4.03	1.028	3.51	0.884	-0.52
TG3	4.14	1.032	3.59	0.796	-0.55
TG4	4.14	0.990	3.48	0.899	-0.66
Reliability	**3.932**		**3.284**		
RL1	3.82	1.060	3.27	0.940	-0.55
RL2	4.06	1.054	3.32	0.891	-0.74
RL3	3.93	0.915	3.23	0.882	-0.7
RL4	4.03	1.014	3.35	0.912	-0.68
RL5	3.82	1.060	3.25	0.840	-0.57
Responsiveness	**3.9525**		**3.3675**		
RS1	3.84	0.943	3.48	0.818	-0.36
RS2	4.11	0.843	3.27	0.870	-0.84
RS3	4.11	0.994	3.42	0.832	-0.69
RS4	3.75	1.164	3.30	1.050	-0.45
Assurance	**3.98**		**3.4**		
ASS1	4.00	1.035	3.19	1.036	-0.81
ASS2	4.00	0.904	3.45	0.851	-0.55
ASS3	3.89	1.015	3.33	0.898	-0.56
ASS4	4.03	0.964	3.63	0.874	-0.34
Empathy	**4.044**		**3.462**		
EM1	4.06	0.969	3.50	0.979	-0.56
EM2	4.10	0.943	3.36	1.166	-0.74
EM3	4.06	0.924	3.39	0.897	-0.67
EM4	4.01	1.007	3.56	0.886	-0.45
EM5	3.99	0.902	3.50	0.979	-0.49

The standard deviation of 0.8 for perception implies that there is variation in how the respondents perceived the quality of service. However, there is more variation in what the respondents expected.

Results show that all items in the SERVQUAL model have negative variance for perception compared to expectation (Gap 5), especially for RL2, RS2, ASS1 and EM2. The least gaps are found within the tangibility factor. This implies that more should be done to improve on the quality of service in order to bridge the gaps. This improvement will increase the customer loyalty to the clinic.

To deal with the gaps mentioned, the clinic should consider certain administrative changes to address the findings of this research. They should take advantage of available opportunities to improve service quality and encourage the patients and staff, to take part in research to distinguish different patterns that can close the gaps above.

The results indicated that intangibility such as services can be measured utilizing a quantitative method. The study met its objectives and it is well indicated with proof that a small body of knowledge has been assembled on service quality in the health service. However, there is a need for more studies using the SERVQUAL method or any other method that can be done in hospitals, clinics, or health centers to discover in more detail opportunities for improvement.

The project shows that the service quality approach will help the clinic administration and wellbeing offices in getting organization to be more focused on customers. It is subsequently prescribed, according to these findings, that management explore the chance of getting a service quality pioneer for each clinic.

For further studies, it is recommended that service quality studies be extended to public clinics especially those in the rural communities where the prevalence of quality audit is negligible. This will help to improve the quality of care and minimize migration to urban areas in search of better care.

REFERENCES

[1] R. Rohini and B Mahadevappa, "Service quality in Bangalore hospital s-an empirical study," *Journal of Services Research*, vol. 6, no. 1, pp. 59, 2006.
[2] M. Amin and S. Z. Nasharuddin, "Hospital service quality and its effects on patient satisfaction and behavioural intention," *Hospital al Governance: An International Journal*, vol. 18, no. 3, pp. 238-254, 2013.
[3] W. E. W. Rashid and H. K. Jusoff, "Service quality in health care setting," *International Journal of Health Care Quality Assurance*, vol. 22, no. 5, pp. 471-482, 2009.
[4] T. R. Mavundla, F. G. Netswera, F. Toth, B. Bottoman, and S. Tenge, "How boys become dogs: Stigmatization and marginalization of uninitiated Xhosa males in East London, South Africa," *Qualitative Health Research*, vol. 20, no. 7, pp. 931-941, 2010.
[5] R. Al-Abri and A. Al-Balushi, "Patient satisfaction survey as a tool towards quality improvement," *Oman Medical Journal*, vol. 29, no. 1, p. 3. 2014
[6] F. J. Whitford, Health Service Delivery in the Western Cape: A Measurement of Perceptions, Doctoral dissertation, Stellenbosch: Stellenbosch University, 2016.
[7] R. Savaranan and K. Rao, "Measurement of service quality from the customer's perspective–an empirical study," *Total Quality Management and Business Excellence*, pp. 4335-449, 2007.
[8] M. Wiśniewski, "Measuring service quality in the public sector: the potential of SERVQUAL," *Total Quality Management*, vol. 7, no. 4, pp. 357-366, 2010.
[9] P. Gajewska and K. Piskrzyńska, "Measuring quality of maternity services using the servqual method," *Regional Formation and Development Studies*, vol. 20, no. 3, pp. 50-59, 2016.
[10] W. Urban, "Definitions of quality of service-differences in their cause," in *Problems of Quality*, p. 4, 2007.
[11] A. Shahin, Servqual and Model of Service Quality Gaps, 2006.
[12] S. Markovic, J. Raspor, and J. Dorcic, "What are the key dimensions of restaurant service quality? An empirical study in the city restaurant settings," 2011.
[13] M. Siddiqua, M. Choudhury, and A. Haque, "Service quality: An empirical study of private hospital s in Dhaka city," ASA University Review, vol. 8, no. 1, 2014.
[14] A. Parasuraman, V. A. Zeithaml, and L. L. Berry, "A conceptual model of service quality and its implications for future research," *The Journal of Marketing*, pp. 41-50, 1985.
[15] H. Arasli, E. H. Ekiz, and S. T. Katircioglu, "Gearing service quality into public and private hospitals in small islands: Empirical evidence from Cyprus," *International Journal of Health Care Quality Assurance*, vol. 21, no. 1, pp. 8-23, 2008
[16] A. Parasuraman, V. A. Zeithaml, and L. L. Berry, "Servqual: A multiple-item scale for measuring consumer perc," *Journal of retailing*, vol. 64, no. 1, p. 12, 1988.
[17] G. V. R. K. Acharyulu and B. Rajashekhar, "Service quality measurement in Indian healthcare industry," *Journal of International Business and Economics*, vol. 7, no. 2, pp. 353-360 2007.

[18] R. N. P. Kalepu, "Service quality in healthcare sector: an exploratory study on hospitals," *IUP Journal of Marketing Management*, vol. 13, no. 1, p. 7, 2014.

[19] F. Yesilada and E. Direktör, "Health care service quality: A comparison of public and private hospitals," *African Journal of Business Management*, vol. 4, no. 6, p. 962, 2010.

[20] H. M. Al-Borie and A. M. Sheikh, "Damanhouri, Patients' satisfaction of service quality in Saudi hospitals: A SERVQUAL analysis," *International Journal of Health Care Quality Assurance*, vol. 26, no. 1, pp. 20-30, 2013.

[21] K. Yousapronpaiboon and W. C. Johnson, "Measuring hospital out-patient service quality in Thailand," *Leadership in Health Services*, vol. 26, no. 4, pp. 338-355, 2013.

[22] D. C. Nde and P. Lukong, Using SERVQUAL Model to assess service quality and customer satisfaction: An empirical study of grocery stores in Umea," *Företagsekonomi*, 2010.

[23] IBM Corp. Released. IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM Corp, 2016.

[24] K. Maree, First Steps in Research. (Revised edition.). Pretoria South Africa: Van Schaik. 2014.

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