

# Measuring Patients' Perception on the Quality of Care in the Democratic Republic of Congo Using a Modified, Service Quality Scale (SERVQUAL)

Nyandwe J<sup>1\*</sup>, Mapatano MA<sup>1</sup>, Lussamba PS<sup>1</sup>, Kandala NB<sup>2-4</sup> and Kayembe PK<sup>1</sup>

<sup>1</sup>Department of Epidemiology & Biostatistics, University of Kinshasa, Democratic Republic of the Congo

<sup>2</sup>Department of Mathematics, Physics and Electrical Engineering, Faculty of Engineering and Environment, Northumbria University, Newcastle upon Tyne, NE1 8ST, UK

<sup>3</sup>Division of Epidemiology and Biostatistics, University of the Witwatersrand, South Africa

<sup>4</sup>Faculty of Health and Sport Sciences, University of Agder, Norway

\*Corresponding Author: Jean Nyandwe, Department of Epidemiology & Biostatistics, School of Public Health, School of Medicine, University of Kinshasa, Democratic Republic of the Congo, Tel: +243 810759142/+243995387587; E-mail: [jnyandwe@gmail.com](mailto:jnyandwe@gmail.com)

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## Abstract

**Introduction:** Patient's perspective on the quality of care is becoming increasingly important in questioning the quality of care and discussing reforms needed to improve it. Indeed, assessing healthcare quality and understanding how patients perceive quality of care are crucial in such a rapidly changing and increasingly competitive market. Therefore, meeting patient needs and creating healthcare standards are imperative.

The aim of this study was to use SERVQUAL translated cross-culturally, and adapted and modified for the Democratic Republic of Congo (DRC) in order to demonstrate whether the patients' perception of the quality of care is dependent on the socio-economic category of the patient. We also want to know the reliability of this instrument.

**Methodology:** Six hundred and ten patients participated in the study. Statistical analysis used SPSS 22.0 (IBM Corp-U.S.A.), with  $p < 0.05$  being taken as statistical significant. Descriptive and analytical methods applied Pearson correlation index for normal distributions, and ANOVA test comparison of group means were analyzed by the Chi-square test where required.

**Results:** The reliability of the scale was excellent at 0.851. We have found a direct relationship between the perceptions by patients of quality of care and their socioeconomic status.

**Conclusion:** SERVQUAL will allow patients to express their opinion regarding the quality of care provided for them. It will also be an opportunity for decision-makers to improve the quality of care, based on patients' desiderata.

**Keywords:** Quality of care; Patient's perception; Scale; SERVQUAL

## Introduction

Providing quality equitable care to the public in a context of limited resources remains a major challenge. The Democratic Republic of Congo (DRC) has about 80 million people and access to quality healthcare is very limited, and the cost of an episode of illness can be exorbitant. As a consequence, many hospitals are forced to reduce services, which impacts on the quality of care, and this is not well documented [1]. Quality of care is directly linked with patient's expectations as it is the internal standard of patients to rank the quality of service that is delivered [2]. Therefore attempts to measure and evaluate the quality of care in health care settings are opportune. In fact, to encourage policymakers to establish an effective program for improving the quality of health services, we need to understand the effect of the quality of each component on demand for healthcare. However, in order to understand the specific role of each component, an instrument is needed to gauge patients' perceptions of it, and these are central in assessment of service quality in the health sector [3]. Our main aim has been to design such an instrument that is available to the community; its development can be very expensive and time

consuming undertaking. In the absence of a new measuring tool, one can adapt existing ones, modifying them to be adjusted for different cultural settings.

The Service Quality (SERVQUAL) scale is a tool developed based on a marketing perspective with the support of the Marketing Science Institute [4]. Its purpose is to provide a means of measuring the quality that would be found across a broad range of services, with minor modifications in the scale. The developers of the scale argued that, while each service sector was unique and irreplaceable, in some aspects there were 5 dimensions of quality of service that are applicable to any organization offering services. These dimensions are: (1) tangibility, (2) reliability, (3) reactivity, (4) assurance and (5) empathy [5]. SERVQUAL was progressively introduced into the hospital environment, was used in India to compare the performance of public with private hospitals [6]. This modified SERVQUAL in India was translated and cross-culturally adapted to measure patients' perceptions of quality of care during an exit interview at 3 Kinshasa hospitals in DRC.

The perception of quality of care has never been assessed in the Democratic Republic of Congo. The present study was conducted to document if a tool aimed at measuring clients' perception could help to

get reliable data that could possibly be used to improve health care delivery.

## Material and Methods

### Study design and setting

A cross-sectional study was carried out in April 2015 in 3 hospitals in Kinshasa, namely Ngaliema Clinic, the Provincial Referral Hospital (former Mama Yemo Hospital), and the General Referral Hospital King Baudouin the 1<sup>st</sup>. We selected these 3 hospitals since they are attended by people of distinct socioeconomic status. Patients exiting consultation during the study period were eligible.

### Sampling

Exit interviews were conducted as patients left the facilities evaluated. A sample of patients over 18 years of age were recruited after their consultation with a doctor or a nurse, with the sample size estimated at 610 using the Yamane formula. The aim was to recruit the same number of patients ( $\pm 200$ ) at each participating hospital. Interviews were conducted as patients left the facilities, and were run by a trained interviewer. Were included patients of both genders aged at least 18 years, residing in Kinshasa existing the consultation, who could answer questions in French or Lingala and who provided a verbal informed consent to participate in the study.

### Survey instrument

The data collection instrument had 2 parts: the first part collected the socio-demographic characteristics of the respondents and had twelve questions. The second part of the questionnaire consisted of the SERVQUAL scale, modified in India, and comprising 41 items grouped into 5 dimensions. The dimensions were related to the physical aspects (16 items), reliability (8 items), encounters (9 items), process (5 items), and policy (3 items). The physical aspects were subdivided into 2 sub-dimensions: tangibility (14 items) and design (2 items). The encounters dimension was subdivided into 2 sub-dimensions: responsiveness (2 items) and empathy (7 items). A 5-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (5), had been used to measure patients' perceptions of quality of care.

### Statistical data analysis

The patients' perception of the quality of care was measured using their average scores. Patients were asked to rate the importance of quality of care in terms of the 5 dimensions of the adapted SERVQUAL for the DRC. The difference between the mean scores was tested by the analysis of variances (ANOVA), and the Tukey test was used to determine which dimension (s) differed from the others in terms of perceived quality of care. The ANOVA test was used to compare the mean score of patients' perceptions in different sub-scales. The Chi-square test was used for categorical variables as appropriate. A p value of  $<0.05$  was considered as significant. Reliability of measurement scales was estimated by analyses of internal consistency and Cronbach's alpha coefficient. Statistical analyses used SPSS 22 version for Windows.

### Research ethics

The study was approved by the institutional review board (IRB) at the Kinshasa University School of Public Health. Confidentiality was

assured as patients' names were deleted after the interviews, and questionnaires were kept in locked drawers with only the investigators having access to them.

### Research hypothesis

There is no difference in the perceptions of quality of care for patients with different socio-economic status.

## Results

The reliability of the instrument was assessed using the Cronbach coefficient, which proved highly acceptable. Its value was 0.851 for the total score and ranging from 0.824 to 0.837 for the subscales (Table 1).

Table 2 shows the sample's socio-demographic characteristics. Male patients represented 40.7% of the sample. The mean age of the respondents was 37.03 years (SD=13.71 years). Illiterates represented 7.5% of the respondents. Table 3 presents the mean scores for patients' perceptions in the 5 dimensions of the Indian scale and in the 2 dimensions of the Congolese scale. The ANOVA test gave a significant difference between the mean scores across different dimensions ( $p<0.001$ ). It was found that the highest and lowest perception score were related to the fact that the hospital has their patient's best interests at heart (3.87) and to the fact that the bathrooms and toilets were adequate, comfortable and clean (3.00), respectively. The mean scores were not the same in Indian and Congolese patients' quality of care perceptions ( $p<0.001$ ) and in all scale dimensions (Table 3). The findings regarding the important 2 dimensions from the patients' perceptions of quality of care are shown in Table 3. Patients' perceptions were the most important factor in providing information about the empathy. On the other hand, perceptions differed according to hospitals ( $p<0.001$ ; Table 4). On the other side, the study showed that the patients' sample did not come from a homogeneous population with respect to their income ( $p=0.087$ ). This study highlights a direct relationship between the quality of care as perceived by patients and their attendance at a facility, which is more important than the relationship between the quality of care as perceived by patients and the other objectives measured on the SERVQUAL scale [7]. It also shows that, for the Congolese patient, financial aspects represent the main driver in monitoring the perception of the quality of care ( $p<0.001$ ; Table 5).

## Discussion

The SERVQUAL-India instrument has been translated into French and a version then cross-culturally adapted for use in DRC, with certain caveats and changes. Internal consistency was analysed; Cronbach alpha was used to compute the reliability of the scale, which proved very reliable. This high internal consistency suggests that the items function together to give a consistent measure of the patients' perception of quality of care. The order of Cronbach  $\alpha$  statistics is as follows from the highest to the lowest: the physical aspects of the facility (0.837) and the medical staff's empathy for patients (0.824). Table 2 indicates that the overall reliability is high (0.851). In support of our results, overall  $\alpha$  Cronbach coefficient of the original SERVQUAL was 0.920, which is not statistically different from the overall  $\alpha$  coefficient of the present study ( $p=0.180$ ). The accepted limit for alpha is generally 0.7 and above. Results of Cronbach alpha at less than or equal to 0.60 are considered unsatisfactory [8]. However, as stated in some studies, values of  $<0.60$  may be used [9]. For this study,

the perception of the quality of care scale was used, which is multidimensional.

N°	Dimension	$\alpha$ coefficient
1	Physical aspect	0.837
2	Empathy	0.824
	<b>Overall scale</b>	0.851

**Table 1:** Global scale and the subscale  $\alpha$  coefficient value of the SERVQUAL-DRC.

Socio-demographic characteristics	n	Percentage (%)
<b>Gender</b>		
Male	248	40.7
Female	362	59.3
<b>Age (year)</b>		
<25	120	19.7
25-34	186	30.5
35-44	124	20.3
45-54	96	15.7
55-64	67	11
>64	17	2.8
<b>Level of education</b>		
Illiterate	46	7.5
Primary school	42	6.9
Secondary school	292	47.9
Academic degree	230	37.7
<b>Marital status</b>		
Single	205	33.6
Married	343	56.2
Others	62	10.2
<b>Religion</b>		
No religion	13	2.1
Catholic	165	27
Protestant	122	20
Kimbanguist	41	6.7
Muslims	10	1.6
Independent churches	208	34.1
Other religions	51	8.4
<b>Hospital frequented</b>		

Provincial Referral Hospital	220	36.1
Ngaliema Clinic	200	32.8
General Referral Hospital King Baudouin the 1st	190	31.1
<b>Monthly Income</b>		
<b>Ngaliema Clinic</b>		
Greater than or equal to average monthly income	135*	83.9
Below average monthly income	26*	16.1
<b>Provincial Referral Hospital</b>		
Greater than or equal to average monthly income	100*	58.8
Below average monthly income	70*	41.2
<b>General Referral Hospital King Baudouin the 1<sup>st</sup></b>		
Greater than or equal to average monthly income	61*	44.9
Below average monthly income	75*	55.1
<b>Total</b>	610	100

**Table 2:** Socio-demographic characteristics of the sample study, Kinshasa, DRC 2015.

India			DRC			p-value
Dimension	Means scores		Dimension	Means scores		
	Perception	SD		Perception	SD	
Physical aspects	3.3	0.53	Physical aspects	3.42	0.21	0
Reliability	3.77	0.54				
Encounters	3.71	0.7	Empathy	3.82	0.04	0
Process	3.36	0.61				
Policy	3.23	0.64	Overall	3.55	1.11	0
Overall	3.48	0.43				

**Table 3:** Comparison of mean scores of patients' perceptions of the quality of care into India hospitals and into DRC hospitals.

Hospital	Hospital policy means scores	
	Perception	SD
Ngaliema Clinic	3.96	0.89
Provincial Referral Hospital	3.23	1.16
General Referral Hospital King Baudouin the 1 <sup>st</sup>	3.51	1.1
<b>Overall</b>	3.55	1.11

**Table 4:** Mean scores of patients' perceptions of the quality of care according to the policy of the hospital in Kinshasa, 2015.

Hospital	Monthly income		Total
	Low (%)	High (%)	

Ngaliema Clinic	16.1	83.9	100
Provincial Referral Hospital	41.2	58.8	100
General Referral Hospital King Baudouin the 1 <sup>st</sup>	55.1	44.9	100
<b>Total</b>	<b>36.6</b>	<b>63.4</b>	<b>100</b>

**Table 5:** Attendance at a health facility as a function of the patient's income, Kinshasa 2015.

On this basis, the Cronbach alpha values for each dimension were computed; and were quite excellent. The mean scores for all dimensions (Table 3) were as follows: physical aspects (3.42) and empathy (3.82). Their standard deviations are, respectively, 1.17 and 0.99, all being considered good. Moreover, the mean scores of perceptions of quality of care for Indian and Congolese patients differ (Table 3), demonstrating that both populations do not have the same perceptions of quality of care. In fact, many other studies have reported a significant difference between patients' perceptions toward service quality from different countries [10]. Our study highlights the major role of the socio-economic status of the patient. Indeed, all the mean scores of the perception of the quality of care by the patients proved not to be the same on all the types in the 3 hospitals that were sampled. The mean score of perception of the quality of care is a function of the type of hospital used by the patient. The mean scores for the perception of the quality of care proved very high in the hospital frequented by rich patients (3.96), followed by the hospital frequented by poor patients (3.51), the lowest being in the hospital frequented by both rich and poor patients (3.23). This difference is significant ( $p < 0.0001$ ). Our main finding has been that the patients' perception of quality of care depends on their socio-economic status, because different facilities are frequented by different types of patients, which means that their level of perception of quality of care may not necessarily be the same as shown in (Tables 1 and 5).

Thus, the adapted questionnaire we used is suitable for Congolese patients to measure their perception of the quality of care. Regarding the study conducted in the United States [11], the SERVQUAL questionnaire is the most frequently used tool for evaluating the quality of service. Parasuraman et al. introduced the gap score as a means to measure service quality and they identified quality as a determinant of service quality [12]. However in the present study we have just assess the perception and not the expectation of patients to measure the quality of care. Parasuraman, Zeithaml and Berry in 1985 said that "Consequently, identifying techniques that enhance service quality perceptions in one industry may enable researchers to develop generalizations applicable to other industries as well" [13].

It was an opportunity for us to use the SERVQUAL adapted in India to evaluate the perception and expectation of patients to measure the degree of patients' satisfaction with the quality of service [14]. SERVQUAL's five dimensions are not universals; the number of dimensions comprising SERVQUAL is contextualized [15]. So in our context SERVQUAL-DRC got 2 dimensions: physical aspects and empathy (Table 2 and 3).

To our knowledge, this study is the first to analyze patients' perception of quality of care in the context of socio-economic factors. The results are interesting and they represent a challenge both for the providers of healthcare and the executives of health politics regarding optimization of resource allocation, so that the patients are aware both

of the services received and of the results reflecting the quality of healthcare.

### Limitations

This study had several limitations. First, it was conducted in 3 hospitals in Kinshasa, but must now be piloted in other hospitals, such as private hospitals and company hospitals to allow the greater generalization of its results. Another limitation was that the majority of the patients involved lived in urban areas. Finally, another limitation is that convergent and discriminant validity couldn't be taken into account. We were busy demonstrating whether the perception of quality of care is or not depending upon patient's socio-economic status. Thus, based on the limitations of the study, our findings must be taken with caution, and generalization of the results restricted to the actual population of Kinshasa.

### Conclusion

An attempt has been made to measure patients' perception of quality of care, using the SERVQUAL modified and cross-adapted in DRC. The findings indicate that the reliability of the scale was satisfactory regarding the perception of quality of care among patients, and the policy of the hospital required a poor patients' perception of the quality of care. However, further findings showed that the patients' perception of quality of care was dependent on their socio-economic category. Patients with a good perception of quality of care belonged to the high socio-economic status category, and patients with a poor or bad perception of quality of care to low socio-economic status.

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### References

1. Kangoy K, Ngoyi J, Mudimbiyi O (2016) Household waste management in the health district of Builaska in Mbuji-Mayi, Democratic Republic of Congo. Pan Afr Med J 24: 252.
2. Patil VM, Chakraborty S, Jithin TK, Dessai S, Babu TPS, et al. (2016) Development and validation of a questionnaire to measure preferences and expectations of patients undergoing palliative chemotherapy: EXPECT questionnaire. Indian J Cancer 53: 339-344.
3. Flood D, Mathieu I, Chary A, Garcia P, Rohloff P (2017) Perceptions and utilization of generic medicines in Guatemala: A mixed-methods study with physicians and pharmacy staff. BMC Health Serv Res 17: 27.

4. Moudi Z, Tavousi M (2016) Evaluation of mackey childbirth satisfaction rating scale in iran: What are the psychometric properties? Nurs Midwifery Stud 5: e29952.
5. Oliae Z, Jabbari A, Ehsanpour S (2016) An investigation on the quality of midwifery services from the viewpoint of the clients in Isfahan through SERVQUAL model. Iran J Nurs Midwifery Res 21: 291-296.
6. Mohebifar R, Hasani H, Barikani A, Rafiei S (2016) Evaluating service quality from patients' perceptions: Application of importance-performance analysis method. Osong Public Health Res Perspect 7: 233-238.
7. Khanli MR, Daneshmandi H, Choobineh A (2014) The students' viewpoint on the quality gap in educational services. J Adv Med Educ Prof 2: 114-119.
8. Liu Y, Jin Q, Bao Y, Li S, Wang J, et al. (2017) Investigation of the vitamin D nutritional status in women with gestational diabetes mellitus in Beijing. Lipids Health Dis 16: 22.
9. Tong M, Sentell T (2017) Insights in public health: Challenges investigating health outcomes in Chinese Americans using population-based survey data. Hawaii J Med Public Health 76: 27-32.
10. Al Fraihi KJ, Latif SA (2016) Evaluation of outpatient service quality in eastern Saudi Arabia. Patient's expectations and perceptions. Saudi Med J 37: 420-428.
11. Abobului M, Berghea F, Vlad V, Balanescu A, Opris D, et al. (2015) Socio-economical factors that influence the perception of quality of life in patients with osteoporosis. J Med Life 8: 109-114.
12. Daniel CN, Berinyuy LP (2010) Using the SERVQUAL model to assess service quality and customer satisfaction. An empirical study of grocery stores in Umea. Umeå University, Sweden.
13. Babakus E, Mangold WG (1992) Adapting the SERVQUAL scale to Hospital Services: An empirical investigation. Health Serv Res 26: 767-786.
14. Brahmhatt M, Baser N, Nisarg J (2011) Adapting the SERVQUAL scale to hospital services: An empirical investigation of patients' perceptions of service quality. Int J Multidiscip Res 1: 27-42.
15. Butt MM, Run EC (2010) Private healthcare quality: Applying a SERVQUAL model. Int J Health Care Qual Assur 23: 658-673.