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Original Research Article

Factors influencing satisfaction of the quality of antenatal care services in health facilities in Lusaka district: a cross-sectional study

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ABSTRACT

Background: Patient satisfaction in antenatal care (ANC) service delivery comes from good patient outcomes and the good quality of care that a patient receives. The objective of this study was to determine factors influencing the quality of ANC services in health facilities in Lusaka District in Zambia.
Methods: A quantitative approach with a cross-sectional study design was used. The sample size was drawn from 20 public and private. From these institutions, a random sample of 385 participants (expectant mothers) was selected. Furthermore, 40 care-givers were selected as key informants. The questionnaires and interviews were employed to collect data. The data was analysed by performing factor analysis, correlation analysis and multiple regression analysis using statistical package for social sciences (SPSS) 16.0.
Results: There was a strong positive correlation between the variables: quality of ANC service and patient satisfaction, the relationship was not very strong as most of the dimensions of ANC were influencing satisfaction slightly above 60%. The empathy dimension was regarded to be the major predictor as it was rated highly in influencing for satisfaction with a Cronbach's alpha score of above 0.8. However, the cost of service showed a strong negative correlation in relation to satisfaction.
Conclusions: The study concludes that ANC services provision has an influence on the expectant mothers' satisfaction. Different dimensions of antenatal care services influence satisfaction differently and a combination of several dimensions posts increased satisfaction.

Keywords: Antenatal care, Expectant mothers, Quality of ANC, Service satisfaction, SERVQUAL model

INTRODUCTION

Since the 1990s, remarkable strides have been made globally in lessening maternal related deaths, however, a significant number of pregnant mothers and their new-borns have continued to die from avoidable pregnancy and/or birth related complications with the situation being worse in the sub-Saharan Africa. The quality of ANC and patient satisfaction, greatly affects the image of the hospital from the customer's point of view as opposed to the quantity in terms of visits.[1,2] Therefore, the objective this study was to analyse factors influencing the quality of ANC services in selected public and private health facilities in Lusaka district in Zambia.

Patient satisfaction in ANC service delivery comes from good patient outcomes and the good quality of care that a patient receives. Zambia recorded 184 deaths per 100,000 live births and 252 maternal related deaths.[3] Maternal mortality rates have been increasing in Zambia and Lusaka province accounts for 70% of the national maternal deaths. Poor antenatal care services have been attributed to poor postnatal outcomes and contribute to poor patient satisfaction.[4] Despite having a high percentage in ANC attendance by pregnant women in

Zambia, the successful provision of ANC services of high quality continues to remain a challenge as the standards in terms of service quality are low.

The general research question was: what factors influence satisfaction of the quality of antenatal care services in selected health facilities in Lusaka district? This was supplemented by the following specific research questions: (a) How does the quality of ANC affect satisfaction of expectant mothers accessing the service? (b) What are the effects of the cost of ANC services in health centres on the satisfaction of expectant mothers? (c) What are the effects of appropriateness of skills by providers of ANC on satisfaction of expectant mothers?

Literature review

A study report on the assessment of the antenatal care services in Nigeria indicates that not more than five percent of expectant mothers using the services in the country were accorded the desired quality of antenatal care service while, ten percent of them received minimal accepted standards of quality service.[5] This was confirmed in a survey to determine what the major factor affecting utilisation of antenatal care services by expectant mothers.[6] Results of the survey indicated that due to poor service mainly related to recipients being sent back without accessing required service, staff not being sufficient, the culture of no medicines but prescriptions for drugs to purchase only, stock-out of record cards or books, payments for diagnostic tests when the services were supposed to be free, led to the poor perception of ANC.

A comparative study of service performance was conducted a to analyse the private and public health care facilities in Saudi Arabia.[7] The study evaluated the performance in terms of delivery of the services in public as well as private health care facilities using the SERVPERF model. The study found that there were several differences in quality in public and private health care facilities. Private health care was regarded to be better than public health care facilities on all service dimensions that were considered and these included; reliable, empathy, responsiveness, assurance, tangibility, communication, competence, credibility and cost of service. However, the results of a study conducted on maternal satisfaction with Antenatal Care among pregnant women in Ethiopia showed that overall, 74% of mothers were satisfied with antenatal care services rendered in public health institutions.[8] In a study to assess the ANC quality in both private as well as public health facilities in Tanzania showed that both private and public healthcare facilities provided, to some extent, good services in both the structural and interpersonal aspects of healthcare.[9] To the contrary, both healthcare facilities provided a service that was of low standard in the technical aspect of healthcare. In their study that used the Zambia health facility census and datasets from the 2005 and 2007 Zambia demographic and health surveys in the assessments of the quality of antenatal care services in Zambia, found that a paltry 45 out of the 1,391 (3%) facilities met the standard criteria to optimise ANC services.[10]

Theoretical and conceptual frameworks

The quality of service gaps model presented in Figure 1, which highlights the key demands for a service of high quality.[11]

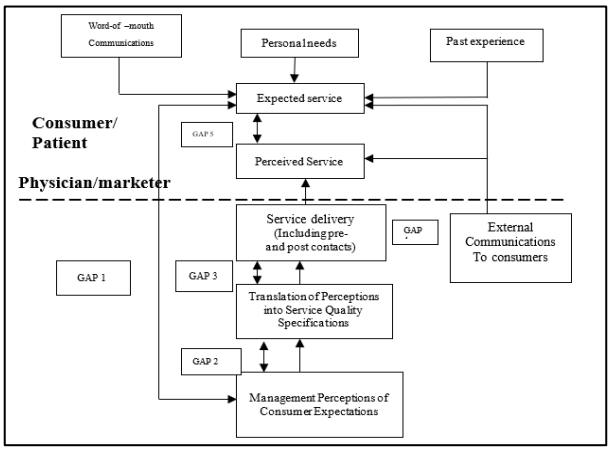

Figure 1: Service quality gap model.[11]

The model's emphasis is on technique and process used by firms to achieve service or product quality besides retaining emphasis on consumers' preferences.

Conceptual framework

The conceptual framework used as the basis for the research describes the interrelationship between the research constructs.[12] The model, as depicted in Figure 1, adopted the modified SERVQUAL model with seven dimensions namely: tangibles, reliability, responsiveness, assurance, empathy, competence and cost of service and as part of the independent variable and clients' satisfaction (pregnant women's satisfaction) that can be measured in terms of acceptance and happiness as part of the dependent variable.

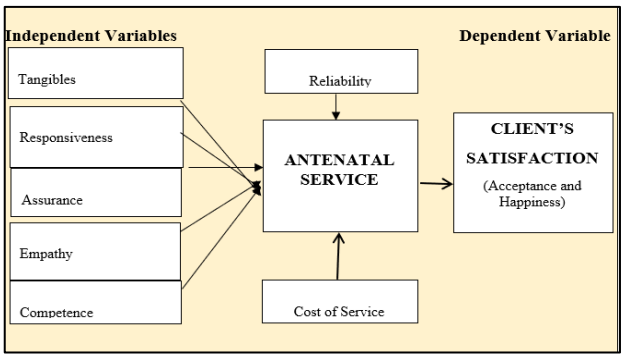

Figure 2: Conceptual framework.

Source: Adapted with modification.[13]

METHODS

Study approach

The study adopted a quantitative approach to determine factors influencing satisfaction of the quality of antenatal care services in selected health facilities in Lusaka district.

Research design

Cross-sectional survey design was used in this study. A cross-sectional research design was suitable in that it facilitated for a critical analysis of the relationship of several variables that were up for evaluation.

Study area

The study was conducted in Lusaka district of Zambia as shown in Figure 3 from January 2022 to end of February 2022.

Figure 3: Lusaka District.

Source: Google maps (2021)

Target population

Using the 2019 estimates, Lusaka city has a population of over 3.3 million people.[14] The child bearing age population of women for the district stands at 861,210 and 111,391 get pregnant yearly.[15] Therefore, the target population was 111,391.

Sampling and sample size

A sample of 385 expectant mothers randomly selected but 20 health facilities were purposively selected i.e. 10 private and 10 public healthcare facilities from which, two care-givers regarded as key informant was selected. The sample size was calculated using the Cochran's formula (1), as it was regarded appropriate for larger populations in excess of 10, 000 units.[16]

$$n=\frac{Z^2p(1-p)}{e^2} \quad \text{.....(1)}$$

Where n: Desired sample size; p: population proportion (0.5); Z: Z-score (1.96 for 95% confidence level); e: desired margin of error (0.05)

$$n = \frac{3.8416 \text{ X } 0.25}{0.0025}$$

n = 385

Data collection techniques

Self-administered questionnaires were used to collect data directly from expectant mothers accessing ANC at the healthcare facilities.

Variables and measurement

The patient satisfaction questionnaire (PSQ-18), which captured self-reported patients' assessments of multiple touch-points used to measure the extent of the effect of the independent variables on the dependent variable.[17] Respondents rated their level of agreement to the service activity they were subjected to on a scale of 0 to 5. The Likert scale indicating the extent of effect described as strongly agree=1, agree=2, neutral=3, disagree=4 and strongly disagree =5 was adopted.

Quality ANC

The quality of ANC is the provision of related services that comprise complete patient assessment regarding the services being offered to patients.[18] The quality of ANC was measured by all the dimensions of service quality as independent variables.[19] The concept of quality of service is quite complicated especially that the definition and measurement of the concept differ from providers and patients.[20]

Tangibility

Tangibility is the appearance of physical facilities, equipment, personnel and communication materials that pertains to ANC services provision.

Reliability

Reliability is the ability to perform the promised ANC services both dependably and accurately. Reliable service performance is the patient's expectation and means that the service is accomplished on time, in the same manner and without errors every time.

Responsiveness

Responsiveness is the willingness by the health caregivers to help pregnant mothers by providing them with services promptly or at the right time.

Assurance

Assurance refers to the knowledge and courtesy of ANC providers as well as their ability to convey trust and confidence.

Empathy

Empathy refers to the ability to understand and share the feelings of another or the provision of caring, individualised attention to patients accessing ANC services.

Competence

Effective ANC services provision depends on competent health care providers in a functioning health system. On this score having trained caregivers such as midwives and medical doctors as providers of antenatal services is a driver of increased satisfaction.

Cost of service

Cost of service with regards to ANC delivery is the monetary cost attached to comprehensive ANC that includes complete physical assessment, examinations, laboratory tests, and drugs for disease prevention or treatment.

Satisfaction

Satisfaction is the extent to which the ANC services provided to pregnant mothers meets or surpasses their expectations. It is influenced by the perceived quality of the service attributes and for this study the tangibility, reliability, responsiveness, assurance, empathy, competences and cost incurred when accessing the service by way of treatment uptake, adherence, retention and cost of service, and important health outcomes such as queues, health worker-patient contact time, staff attitudes and facility cleanliness were the indicators of patient satisfaction.

Data analysis

Exploratory and confirmatory factor analyses, regression analysis and correlation analysis were carried out using SPSS 16.0 software package to determine the structure of the relationship between the variables.

Ethical considerations

The study sought and got approval from the University of Lusaka Research Ethics Committee (number IORG0010092-0312/12). Voluntary participation, informed consent confidentiality were ensured in the study. Furthermore, participants in the study were made aware of all risks and those who could not read had the consent statements read to them. Participants were told about their right to withdraw or refuse to be part of the study and not to give responses to sensitive queries. COVID-19 prevention guidelines at each healthcare facility were followed in the process of collecting data

RESULTS

Social-demographics of participants

Following the results of the study as presented in Table 1, it was revealed that most of the participants were aged between 20-34 years who accounted for 59.90% followed by those aged between 35-49 years, which stood at 25.00%. The two age groups together accounted for 84.90%, which is regarded as the suitable reproductive age group and good candidates to get feedback from on ANC services. Further, 275 (71.40%) of the beneficiaries of ANC were married making it a larger proportion of participants having their partners motivating them on the importance of ANC.

Table 1: Social-demographics.

Variables	Frequency	Percentage
Age category (years)		
Below 20	37	9. 60
20-34	230	59. 90
35-49	97	25. 00
Above 49	21	5. 50
Marital status		
Single	41	10.70
Married	275	71. 40
Divorced	37	9. 60
Widowed	32	8. 30
Education level		
Primary	65	16. 90
Secondary	121	31. 40
College	113	29. 40
University	86	22. 30
Employment status		
Yes	163	42. 30
No	222	57. 70

Source: field data (2021).

From 385 participants, 222 (57.70%) participants attested in the affirmative that they were not in formal employment. Unemployment was found to be an impediment to satisfaction when it came to cost, for clients who needed ANC services that were not available in public healthcare facilities where services are free and could only access services at private healthcare facilities. Despite these factors, unemployment by recipients of ANC care services did not have much influence on patient satisfaction.

Exploratory factor analysis

The exploratory factor analysis (EFA) that employs the principal-axis factor extraction was conducted to determine the structure of the relationships with the results shown in Table 2.

Table 2: Exploratory factor analysis.

Explanatory variables	Factor loading	Kaiser-Meyer-Olkin (KMO) statistic	Cronbach's alpha
Tangible factors			
Appearances of the facilities are visually appealing.	0.629	0.637	0.637
Equipment at the facility is modern looking.	0.617		
Necessities for the service are usually adequate.	0.655		
Reliability factors			
The service at the facility is offered at the time it is assured to be done	0.672	0.658	0.658
When faced with a challenge, workers at the facility demonstrate willingness to solve it	0.668		
Hospital gets things right the first time	0.678		
Responsiveness factors			
Personnel at facility would always tell you exactly what time the service would be offered	0.679	0.687	0.687
Personnel at facility offers services promptly	0.679		
The willingness by Personnel to always to offer you help if you have a problem with services is high	0.719		
Assurance factors			
Behaviour of staff at facility instils confidence in you	0.699		0.704
One feels safe dealings with the facility when accessing the service	0.713		
Staff at facility are consistently courteous with you	0.711		
Empathy factors			
The facility gives you personal attention in the process of seeking the service	0.814	0.800	0.836
Operating hours at the facility were convenient to all accessing the service	0.811		
Staff at the facility understands your specific needs	0.802		
Competences factors			
Personnel at facility are skilful at their work.	0.751	0.700	0.750
Personnel at facility are knowledgeable with their work.	0.743		
Personnel at facility appear to be qualified for the job	0.757		
Cost of service factors			
Services provided at the facility is worth paying for	0.639	0.600	0.612
You have been paying for the Services provided	0.682		
The cost of service at the facility is affordable	0.604		
Satisfaction factors			
Satisfied with the services provided at the facility	0.657	0.600	0.659
Will continue using the services provided at facility?	0.688		

Source: field data (2021).

Table 3: Correlations results.

Variables	T	R	Rs	A	E	C	Cs	Y
T	1							
R	0.788	1						
Rs	0.782	0.679	1					
A	0.782	0.691	0.791	1				
E	0.772	0.789	0.802	0.827	1			
C	0.671	0.752	0.755	0.767	0.801	1		
Cs	0.651	0.671	0.682	0.659	0.637	0.711	1	
Y	0.646	0.719	0.778	0.721	0.814	0.683	-0.661	1

T: Tangible; R: Reliability; Rs: Responsiveness; A: Assurance; E: Empathy; C: Competence; Cs: Cost; Y: Satisfaction.

Correlations analysis

The correlations analysis was used to find the interrelationship of ANC and satisfaction as sets of variables. Table 3 shows the interrelationship between different sets of variables. As shown in Table 3 all the factors of the independent variable (quality ANC) with the exception of cost of service have a positive correlation to satisfaction.

Multiple regression analysis of seven dimensions of ANC on satisfaction

Table 4 represents results obtained from the regression analysis of quality ANC services dimensions (tangibility, reliability, responsiveness, assurance, empathy, competence and cost of service dimensions) on satisfaction. The model used was:

$$Y= \beta_0 + \beta_1 T + \beta_2 R + \beta_3 Rs + \beta_4 A + \beta_5 E + \beta_6 C + \beta_7 Cs + \varepsilon, \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

where Y is satisfaction. Substituting the standardised coefficients in the model it results into:

$$Y= 0.878 + 1.154T + 2.678R + 2.667Rs + 5.694A + 7.282E + 4.604C + 1.012Cs \ldots (3)$$

Table 4: Results from the regression models.

Effect of service dimensions of ANC on customer satisfaction of pregnant women				
Factor/ covariates	**Exp(β)**	**SE**	**Sig.**	**CI for exp(β)**
Tangible	1.154	0.654	0.022**	(0.388-3.576)
Reliability	2.678	0.478	0.024**	(0.883-4.481)
Responsiveness	2.667	0.467	0.023**	(0.441-4.464)
Assurance	5.694	2.514	0.001***	(2.396-6.533)
Empathy	7.282	0.948	0.003**	(3.410-8.310)
Competence	4.604	2.464	0.014***	(1.608-5.160)
Cost of service	1.012	0.045	0.041**	(0.317-3.248)
Constant	0.878	0.384	0.042	(0.375-2.065)

P value; p<0.01, p<0.05, p<0.1, SE= standard error and CI=confidence interval.

The results of tangibility show that pregnant women that were at the factor of 1.154 had higher chances of being satisfied with the service they received than those reported to have very little chances of being satisfied.

Under reliability dimension, the dimension was found to be statistically significant on influencing satisfaction in health facilities. This finding shows that the chance of service satisfaction among the recipients of the service from healthcare facilities had increased with the factor of 2.678. Results, further, show that the dimension of Responsiveness was found to be statistically significant as it revealed that the satisfaction for the service was increasing by a factor of 2.667 for those who responded in the affirmative unlike those who reported to have been unsatisfied with the service they were subjected to.

Empathy was another dimension analysed under regression analysis. Results indicate that empathy dimension has a strong influence of ANC service for satisfaction of expectant mothers in health facilities. This dimension was significantly related to service as the results suggest that if respondents from health facilities had all the three attributes of empathy, their service satisfaction were increased by a factor of 7.282 as opposed to those who indicated not to have been satisfied by the services they received.

Another factor considered in the study to determine its influence on customer satisfaction was assurance. Results based on regression reveal that it was significant by a factor of 5.694. Further, competence dimension outcomes show that, most of the respondents utilizing the services in health facilities agreed that the care-givers who attended to them demonstrated good levels of skills and knowledge regarding the service of ANC.

The results of the study reveal that the dimension of price or monetary cost of service has a lower influence on ANC service satisfaction of expectant mothers. This is because the choice of choosing where to seek a service among respondents is dependent on the capacity to pay for the service. The service satisfaction increased by the factor of 1.012 with the addition of the dimension components under this dimension.

DISCUSSION

Socio-demographic characteristics

The socio-demographics; age, marital status, education attainment and employment status were found to have some influence on women to access the ANC service. For example, women of high-income bracket owing to their steady flow of income received the services from private health facilities due to that, they could easily afford to pay for the service. Affordability of the services is regarded as the major reason for ANC health facility choice. Studies in Nigeria have shown that employment increases the family income appropriated to health care thereby increasing access of ANC and satisfaction.[21] The majority of expectant mothers (n=230, 59. 90%) seeking the service were of the age group 20-34 years. The average or mean from grouped data age stood at 30.72 years, which is way above the 26 years which is the acceptable reproductive age for women in Zambia.[22]

Furthermore, most of the beneficiaries of ANC were married implying that the larger proportion of participants have their partners encouraging and motivating them to seek for the service as it is regarded as beneficial to the couple. In addition, the levels of education by participants were right for comprehension and understanding importance of the service which in some way enhances

commitment during the antenatal period. This is consistent with the study carried out in Kenya, Malawi, and Nigeria which revealed that expectant women's level of education has an effect on the quality of antenatal care accessed and satisfaction thereof.[23] This is because educated women have good knowledge base of what they want in that regard, and are more conversant with procedures expected as they visit clinics for ANC, hence more inclined to demand for such procedures as opposed to those with low education levels.

Similarly, the survey, carried out in South Asia indicated that education brings up new values and attitudes which upsurges the chances of a woman desiring skilled care for increased satisfaction.[24,25]

Influence of ANC service dimensions on expectant women's satisfaction

This dimension was significantly related to service as the results suggest that if respondents from healthcare facilities had all the three attributes of empathy that were considered, their service satisfaction also increased. The findings are similar to those that reported high levels of satisfaction of between 33% and 82.6%.[24] This similarity is mainly due to environmental set-ups emanating from high levels of investment in the service among service providers and work conditions. Another form of empathy found that staff attitude was significantly associated with late ANC service booking.[26]

The dimension of responsiveness was statistically significant to positively contribute towards satisfaction by the recipients of ANC service in healthcare facilities. The results are indicative of the dimension's strong influence on satisfaction for the service in health facilities.

Under reliability dimension, the results of this dimension were statistically significant to influence satisfaction of pregnant women in health facilities. This indicated that satisfaction among the recipients of ANC service in health facilities was increasing to some extent when a unit of the dimension is added.

On tangibility, outcome show that pregnant mothers are more likely to be satisfied if the services are offered in an environmentally friendly place with good quality equipment and paraphernalia. In this vein, this dimension of ANC service though positively related was scored poorly. The rating was lower on public hospitals as opposed to private hospitals.

The outcomes on reliability, responsiveness, assurance and tangibility align with 6 findings that criticisms advanced for poor service were mainly related to recipients' failure to access the services as they were time and again sent home without receiving the required services attributed to purchasing drugs, costly cards, costly diagnostic tests and other tangibles when the services were supposed to be free.[6] The findings also are in agreement.[10]

Competences for antenatal care services

The results on the competence dimension shows that, the service providers were qualified for the job of providing ANC services, in that most of the respondents who participated in the survey affirmed that the caregivers who attended to them demonstrated high levels of skills and knowledge regarding the services of ANC. This result is consistent with Boller et al.[9] This dimension is critical to satisfaction as it is linked to other dimensions.

Cost of ANC services

The outcomes revealed that the dimension of price or cost of service has a strong negative influence on the satisfaction of the quality of ANC services of expectant mothers in health facilities. In addition, these findings are in agreement with those from the survey in Russia and Turkey, where it was revealed that expectant mothers with higher disposable income posted high satisfaction levels in contrast with those of low income levels when it comes to accessing antenatal care.[27] This study has some limitations. The study concentrated on only 20 randomly selected health facilities that provide ANC services, focussing on the ANC services and their effects on satisfaction of pregnant women accessing it. The satisfaction assessment on the quality of ANC services was biased towards the patients' side and little attention to the facilities staff. Furthermore, COVID-19 restrictions affected the timely collection of data as access to healthcare facilities was limited to prevent the spread of the disease.

CONCLUSION

The study concludes that ANC services provision has an influence on the expectant mothers' satisfaction. Different dimensions of antenatal care services influence satisfaction differently and a combination of several dimensions posts increased satisfaction but the cost of ANC services, negatively influenced the satisfaction.

Recommendations

The Ministry of Health should develop tools to monitor and evaluate ANC services provided from the recipients' perspective in both private and public health facilities; and build capacity of facility staff providing ANC services.

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