

## A Cross-Sectional Assessment of the Factors Influencing the Quality of ANC Services in Health Facilities

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Conflict of interest: Nil

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### Abstract

**Aim:** The objective of this study was to determine factors influencing the quality of ANC services in health facilities in Gaya district of Bihar.

**Methods:** The study adopted a quantitative approach to determine factors influencing satisfaction of the quality of antenatal care services in selected health facilities in Gaya district. 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. A sample of 500 expectant mothers randomly selected for the study.

**Results:** It was revealed that most of the participants were aged between 20-34 years who accounted for 60% followed by those aged between 35-49 years, which stood at 25%. The two age groups together accounted for 85%, which is regarded as the suitable reproductive age group and good candidates to get feedback from on ANC services. Further, 350 (70%) of the beneficiaries of ANC were married making it a larger proportion of participants having their partners motivating them on the importance of ANC. 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. 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.

**Conclusion:** The study concluded 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.

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### Introduction

In the past two decades, concerted global efforts have led to increased coverage of maternal health services, even in poor resource settings. [1,2] Yet, improvements in health outcomes did not always follow. [2] Every year, thousands of women die

from pregnancy-related complications worldwide. [3,4] Fortunately, most maternal deaths are avoidable as health solutions to the causes of complications are well known. [3,5]

The solution includes a strong health system that provides maternal services based on a continuum of care perspective. [3] As part of the continuum, the essence of antenatal care (ANC) serves as a platform for important healthcare activities, [3,6] including health promotion and disease prevention, screening, diagnosis and management of pregnancy-related complications. [7,8] As such, ANC creates a unique opportunity for early detection and management of hypertension, gestational diabetes, anaemia, malaria, HIV and other health conditions which otherwise would jeopardise the health of mothers and the growing fetus. [9,10] Evidence demonstrated that in the presence of adequately resourced healthcare services and community mobilisation, there is an opportunity to improve health service utilisation and maternal health outcomes. [2,11]

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. [12] This was confirmed in a survey to determine what the major factor affecting utilisation of antenatal care services by expectant mothers. [13] 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 to analyse the private and public health care facilities in Saudi Arabia. [14] 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. 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. [15] 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. [16]

The objective of this study was to determine factors influencing the quality of ANC services in health facilities in Gaya district of Bihar.

### **Materials and Methods**

The study adopted a quantitative approach to determine factors influencing satisfaction of the quality of antenatal care services in selected health facilities in Gaya district. 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. A sample of 500 expectant mothers randomly selected for the study.

### **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. 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. [3] The quality of ANC was measured by all the dimensions of service quality as independent variables. [17] The concept of quality of service is quite complicated especially that the definition and measurement of the concept differ from providers and patients. [18]

### 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

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

**Table 1: Social-demographics**

Variables	N	%
<b>Age category (years)</b>		
Below 20	50	10
20-34	300	60
35-49	125	25
Above 49	25	5
<b>Marital status</b>		
Single	60	12
Married	350	70
Divorced	50	10
Widowed	40	8
<b>Education level</b>		
Primary	80	16
Secondary	150	30
College	150	30
University	120	24
<b>Employment status</b>		
Yes	225	45
No	275	55

It was revealed that most of the participants were aged between 20-34 years who accounted for 60% followed by those aged between 35-49 years, which stood at 25%. The two age groups together accounted for 85%, which is regarded as the suitable reproductive age group and

good candidates to get feedback from on ANC services. Further, 350 (70%) 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 2: Exploratory factor analysis**

<b>Explanatory variables</b>	<b>Factor loading</b>	<b>Kaiser-Meyer-Olkin (KMO) statistic</b>	<b>Cronbach's alpha</b>
<b>Tangible factors</b>			
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		
<b>Reliability factors</b>			
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		
<b>Responsiveness factors</b>			
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		
<b>Assurance factors</b>			
Behaviour of staff at facility instils confidence in you	0.699	0.700	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		
<b>Empathy factors</b>			
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		
<b>Competences factors</b>			
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		
<b>Cost of service factors</b>			

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		
<b>Satisfaction factors</b>			
Satisfied with the services provided at the facility	0.657	0.600	0.659
Will continue using the services provided at facility?	0.688		

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.

**Table 3: Results from the regression models**

Factor/ covariates	Exp( $\beta$ )	SE	Sig.	CI for exp( $\beta$ )
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)

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

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. [19,20]

The socio-demographics; age, marital status, education attainment and employment status were found to have some influence on women to access the ANC 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. 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. 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. [22,23]

Influence of ANC service dimensions on expectant women's satisfaction 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%. [22] 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. [24,25]

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. [13]

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. [16] This dimension is critical to satisfaction as it is linked to other dimensions. 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.<sup>24</sup> The satisfaction assessment on the quality of ANC services was biased towards the patients' side and little attention to the facilities staff.

### 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.

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