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Original Research Article

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

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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 Darbhanga district.

Methods: This was a cross-sectional study conducted in Department of Community Medicine, JNKTMCH, Madhepura, Bihar, India. A multi-stage cluster random sampling was used for sampling procedure. All households of the villages with mothers having the youngest child of 3 years and below were visited. All respondents who did not consent or unwilling to participate; aged below 18 years; incapable of answering the questionnaires were excluded from the study. A total of 1200 households were selected initially, however, a total of 1000 women gave their consent for participation.

Results: The mean (SD) age was 28.3 (6.1) years ranging from 18 to 49 years. 55% of females were in the age group 20-29 followed by 55% in the age group 30-39. 70% females were married and 32% females had secondary level of education. The majority of them were housewives (76 %) and the rest were engaged in service or other jobs. The majority of the respondents made more than nine antenatal visit during their last pregnancy (73%) followed by 5–8 times (20%) and only 7 % had 1–4 times antenatal visits. 60% of them booked antenatal visit before the third month followed by 32% who booked between 3 and 5 months of gestation. Half of them were attended by a nurse (50%). However, 39% were attended by both doctor and nurse. On an average 18 min were required to attend the clinic. About 58% were attended to within 15 min. It was reported that 19% did not have any out of pocket expenses. However, about half (48%) had spent 11–50 ringgit per visit.

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.

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

Introduction

Antenatal care (ANC) is a care that could be provided to pregnant women by health professionals to uphold and maintain optimal health of women through pregnancy, labor, and puerperium period. [1] ANC helps to provide basic preventive and therapeutic care, raise awareness on maternal danger signs, orient to birth preparedness, and improve health-seeking behavior of women. [2-4]

Quality of health service is crucial at any time while the quality of ANC is important to increase utilization of other maternal health services. [5-8] Good quality ANC service could increase client satisfaction. [9,10] Similarly, it has a role to achieve health service goal that aimed at dropping maternal death [11] as evidences show that maternal death is high in countries where ANC coverage is low and where it has poor quality. [10,12-15] Delivery of good quality ANC service necessitates the presence of structures such as infrastructures, adequately trained health professionals, infection control facilities, diagnostic equipment, supplies and essential drugs, and appropriate utilization of guidelines. [5-7]

Research shows that physical infrastructures such as generator, waiting area, private examination room, couch in the ANC room, clean toilet, and water are either not available or nonfunctional. Furthermore, shortage and low qualification of health care providers, scarcity of equipment such as fetoscope, stethoscope, blood pressure apparatus, weight scale, ANC guideline, and thermometer are also not sufficiently available. [16,17] In general, scarcity of

the infrastructures leads ANC seeking women to be referred to private clinic.16 Additionally, gaps in structural readiness of health facilities, inadequacy of key essential supplies, unguaranteed properly equipped and staffed facilities leads to low quality of ANC services. [18,19]

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. 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. [20,21]

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

Materials and Methods

This was a cross-sectional study conducted in Department of community Medicine, JNKTMCH, Madhepura, Bihar, India from December 2021 to November 2022. A multi-stage cluster random sampling was used for sampling procedure. All households of the villages with mothers having the youngest child of 3 years and below were visited. All respondents who did not consent or unwilling to participate; aged below 18 years; incapable of answering the questionnaires were excluded from the study. A total of 1200 households were selected initially, however, a total of 1000 women gave their consent for participation.

Data collection was done using an interviewer-administered questionnaire. The questionnaire consisted of four main parts, which were (1) socio-demographic characteristics and the variables were maternal age, ethnicity, level of education, occupation, household income and family size. (2) Antenatal care history, and the variables were number of antenatal visits, gestational age at booking, antenatal attendant, time required to reach the clinic and out of pocket expenses, (3) delivery care history and (4) postnatal care history. For each maternity care services, patient satisfaction questions were asked regarding the services received. The level of satisfaction with antenatal care was determined by seven domains of satisfaction. Each domain has Likert's scale questions. After summation of all domains score, it was checked for normality. The satisfaction score was divided into quartiles. The lowest quartile as poor and middle two quartiles as average and the last quartile categorized as highly satisfied with antenatal care. In the current analysis, only antenatal care history was considered. Before field operation, a pre-test of the questionnaire was done in a non-sample area with the translated National language questionnaire.

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.

Voluntary participation, informed consent confidentiality was 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: Socio-demographic characteristics of the respondents

Characteristics	Frequency %	95 % CI	
		Lower bound	Upper bound
Age in years			
>20	60 (6)	4.9	7.6
20-29	550 (55)	51.1	56.9
30-39	350 (35)	32.6	38.1
40-49	40 (4)	3.3	5.5
Mean (SD) years	28.3 (6.1)	28.0	28.7
Marital status			
Single	100 (10)	9.5	13.8
Married	700 (70)	67.0	72.0
Divorced	110 (11)	8.8	16.8
Widowed	90 (9)	7.9	12.8
Level of education			
Primary	160 (16)	1.3	2.8
Secondary	320 (32)	27.1	34.1
College	280 (28)	19.6	33.2

University	240 (24)	22.3	26.6
Occupation			
Housewife	760 (76)	74.4	79.2
Government	110 (11)	8.9	12.5
Private	90 (9)	7.3	10.4
Self employed	40 (4)	3.5	7.5

The mean (SD) age was 28.3 (6.1) years ranging from 18 to 49 years. 55% of females were in the age group 20-29 followed by 55% in the age group 30-39. 70% females were married and 32% females had secondary level of education. The majority of them were housewives (76 %) and the rest were engaged in service or other jobs.

Table 2: Percentage distribution of respondents by the number of antenatal visits, gestational age at booking, place of booking and out of pocket expenses

Characteristics	Frequency %	95 % CI	
		Lower bound	Upper bound
No. of antenatal visits			
1–4	70 (7)	5.7	8.4
5–8	200 (20)	18.4	23.0
≥9	730 (73)	69.8	74.8
Mean (SD)	9.7 (3.6)	9.51	9.90
Gestational age at booking (months)			
>3	600 (60)	58.3	63.8
3–5	320 (32)	29.8	35.0
≥6	80 (8)	5.3	8.2
Antenatal attendant			
Doctor	110 (11)	9.2	12.6
Nurse	500 (50)	48.2	53.8
Both	390 (39)	35.5	40.7
Time required to nearest MCH Clinic (min)			
<15	580 (58)	54.8	60.3
15–29	350 (35)	31.9	37.1
≥30	70 (7)	6.2	9.4
Mean (SD) min	18.05 min		
Expenses per antenatal visit (MYR)			
None	190 (19)	16.7	21.1
1-10	200 (20)	19.6	24.3
11-50	480 (48)	46.0	51.6
≥51	130 (13)	8.9	12.4

The majority of the respondents made more than nine antenatal visit during their last pregnancy (73%) followed by 5–8 times (20%) and only 7 % had 1–4 times antenatal visits. 60% of them booked antenatal visit before the third month followed by 32% who booked between 3 and 5 months of gestation. Half of them were attended by a nurse (50%). However, 39% were attended by both doctor and nurse. On an average 18 min were required to attend the clinic. About 58% were attended to within 15 min. It was reported that 19% did not have any out of pocket expenses. However, about half (48%) had spent 11–50 ringgit per visit.

Table 3: Table 3 Factors affecting satisfaction on antenatal care: multinomial logistic regression analysis

Characteristics	Average satisfaction				Highly satisfied			
	β	Adj. OR	95 % CI		β	Adj. OR	95 % CI	
			Lower	Upper			Lower	Upper
Level of education								
Primary	−0.484	0.616	0.327	1.161	−0.984	0.374	0.182	0.769
Secondary	−0.788	0.455	0.158	1.31	−1.029	0.357	0.106	1.204
College	−0.334	0.716	0.441	1.164	−0.701	0.496	0.291	0.845
University (RC)		1				1		

Occupation								
Housewife	0.088	1.091	0.476	2.503	0.085	1.089	0.428	2.772
Government	−0.127	0.881	0.338	2.293	−0.251	0.778	0.265	2.282
Private	−0.845	0.43	0.17	1.087	−0.539	0.583	0.205	1.658
Self-employed (RC)		1				1		

A multinomial logistic regression was done to examine the factors affecting the level of satisfaction with antenatal care in which the satisfaction score was divided into three groups based on quartile score (poor, average and highly satisfied). It was found that 24.6 % were poorly satisfied and considered as reference category and 51 % had the average satisfaction and another 24.6 % were highly satisfied with antenatal care. Initially, all the explanatory variables were analyzed with the level of satisfaction using Chi square test of independence. The variables that were statistically significant in Chi square test. Similarly, respondents with secondary level of education 29.9 % were less likely to be highly satisfied, whereas, respondents having primary level of education, 1.6 % were less likely to be highly satisfied.

Discussion

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. [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]

The maternal age in this study was highest in the age range of 20–29 years old, with the mean age of 28.3 years, showing a younger age group. A similar result was found in a study in Kuala Lumpur with a median of 29 years. [24] The characteristics of antenatal care received during last pregnancy revealed that the majority of them visited, at least, the state-recommended total of eight visits per pregnancy, which was similar to a high number of antenatal visits in developed countries such as in the United Kingdom and Sweden. [25,26] Two-thirds of the women visited the MCH clinic before 3 months of gestational age, which was also similar to Vietnam27 and United Kingdom. [25]

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.

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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