Quality of Antenatal Care Service at Debre Berhan Referral Hospital

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ABSTRACT

Introduction: Antenatal Care (ANC) has been proven to be effective in order to decrease maternal mortality. It helps to improve pregnancy outcome through quality of ANC services.

Aim: The general objective of this study was to assess the quality of ANC in Debre Berhan Referral Hospital, Debre Berhan, Ethiopia.

Materials and Methods: Descriptive cross-sectional study design was conducted from January 2015 to June 2015 to assess the quality of ANC by using Donabedian's framework for measurement of healthcare quality. A systematic sampling technique was used to select the study participants. EPI-Infoversion 3.1 and SPSS version 20.0 were used for data entry and analysis respectively. In addition, binary linear regression analysis was done to see the association between variables. Multivariable linear regression analysis was done to see the confounding effect at 95% confidence interval and p-value of <0.05 considered as statistically significant.

Results: A total of 356 ANC attendant women were interviewed which is 97.0% response rate. About 19.8% was below 24 years and the mean ages of respondents were 29.07 years. Mean satisfaction score was 2.5±0.84 in 4 likert scales which is equivalent to 63.9%. About 98.3% of mothers were satisfied with the overall care given. Only 78.7% of the study participants were satisfied with the waiting time. High percentages (96.3%) of women were satisfied with the attitude of Healthcare Provider (HCP). About (94.9%) were satisfied with the advice given by the HCP. Regarding the availability of resources 68% of patients agreed on increasing number of HCP, 51.4% and 67.4% agreed on improving laboratory service and shortening waiting time respectively. Waiting time, cleanliness of waiting area, HCPs' respect, advice given, availability of medications and overall care given, were independent predictors.

Conclusion: Quality of ANC with respect to process and structural component is high but with respect to outcome is sub-optimal. Waiting time, cleanliness of waiting area, advice given, privacy of examination room, time given by HCPs, HCPs' respect towards the patients and availability of medications were the independent predictor of patient satisfaction.

INTRODUCTION

Antenatal care has been proven to be effective in improving pregnancy outcome through early detection and management of pregnancy complications and delivering quality services [1]. High quality ANC is a fundamental right for women to safeguard their reproductive right and their health. High quality ANC provides an opportunity to deliver different services which are important in improving maternal as well as the newborn survival. International evidence shows the quality of ANC can directly reduce maternal and neonatal death [2]. The growing interest in the quality of reproductive health services over the last decade has emanated from a concern with the high levels of maternal mortality and morbidity in developing countries [3]. Thirty four percent of Ethiopian women receive ANC from a skilled provider, most commonly from a nurse or trained midwife (28%). Only 11% of women had an ANC visit before their fourth month of pregnancy as recommended, and 19% received four or more ANC visits. About 17% of women took iron supplements during pregnancy; 6% took intestinal parasite drugs. One in five women was informed of signs of pregnancy complications during an ANC visit. Less than half (48%) of women's most recent births were protected against neonatal tetanus [4].

Despite the high ANC attendance in most developing countries, a major problem hindering quality of ANC is inadequate resources [5]. In a qualitative study done in Zimbabwe, health workers during in-depth interviews expressed concern over shortage of antenatal resources such as drugs, staff, electricity, telephone and debilitated condition of the facility [6]. Another study to assess quality of ANC in Tanzania revealed that the quality of ANC was affected by lack of skills by staff, shortage of drugs and inadequate stationary [7]. Supply shortages (lack of drugs, equipment, gloves and reagents for urine testing and VDRL), were infrastructure problems, and inadequate human resources to provide antenatal services, have been cited as the major shortfalls in providing quality ANC in developing countries [8,9]. A study revealed only 27% of mothers received information about pregnancy complications. Health assistants provide ANC in 58.1% of the health facilities and midwives were available in only 5.4% of all assessed facilities. Quality largely depends on patients' interaction with provider, such as short waiting time treatment with privacy, short process to access care and getting appropriate service [10]. WHO report in 2011 shows that about 419 (92.7%) of respondents were satisfied with the skills of their ANC providers [11]. Poor quality of reproductive health services coupled with existing poor service utilisation is a serious health threat to the health of a mother, her family and community. So, improving not only the coverage but also the quality of ANC, will definitely contribute in reducing Maternal Mortality Rate (MMR), Neonatal Mortality Rate (NMR) and Infant Mortality Rate (IMR). Although researchers frequently try to assess and highlight the importance and the quality of ANC services; the quality of ANC remains insufficient and the availability of information is not satisfactory [11]. This research assessed the level of quality of ANC and associated factors that affect the quality of ANC.

MATERIALS AND METHODS

Study Design, Study Area and Study Period

Facility based cross-sectional study was employed to assess the quality of ANC service and associated factors at Debre Berhan Referral Hospital from January 2015 to June 2015.

Population

Source population: All women of reproductive age (15-45 years) who were users of ANC service in Debre Berhan Referral Hospital during the study period.

Study population: All women of reproductive age (15-45 years) who were users of ANC service in Debre Berhan Referral Hospital and those who were included as the sample during the study period.

Sample size: The sample size for this study was determined using single population proportion formula considering the assumptions:

z=95% confidence interval

p=prevalence of ANC in pregnant women 50%

d= acceptable error (5%)

N=total number of pregnant women who were followed up in Debre Berhan Referral Hospital at MCH unit (7981)

n=384 but our study population is less than 10,000 we made adjustments

n=n/(1+n/N)

n=367

Sampling procedure: First, the average number of patients (four ANC visits) during the data collection period were estimated by reviewing the annual document of MCH unit patient flow. Then, the calculated sample size (367) were proportionally allocated to each visit of ANC. And then, systematic sampling technique was applied to draw the required number of study subjects.

Data collection tools and procedure: For data collection pre-tested structured questionnaire were used. These questionnaires were developed after reviewing different literatures. Then the internal consistency/reliability of each parts of the questionnaire were checked which implies Cronbach's alpha value were between 0.54 and 0.78.

Five data collectors and two supervisors were involved to collect data.

Ethical considerations: Ethical Review Committee of Debre Berhan University) approved the ethical issues before the start of the study. Written consent was obtained from Debre Berhan Referral Hospital. All the study participants were informed about the purpose of the study and finally verbal consent was obtained.

STATISTICAL ANALYSIS

Data were entered with EPI-data version 3.1 and analysed using SPSS version 20.0. Descriptive statistics were used for determining frequency, percentages, mean, median and standard deviation for variables to be studied. The correlation coefficients and simple linear regression analysis were also done to see the strength of association between dependent and independent continuous variables using their β coefficients and t-value at p-value <0.05 level of significance after assumptions of linear regression were assessed.

RESULTS

Sociodemographic characteristics of the patients: Out of 367 patients, only 356 ANC attendant women were interviewed remaining 11 patients were treated as non-respondents. From the study participants, the majority 67.4% was between 25 to 34 years, and the mean age of respondents is 29.07 years. About 14.6% of the study participants were illiterate 56.7% attend secondary and higher education. From the study participants 3.9% earn less than 500 Birr and 69.1% earn greater than 1000 Birr monthly [Table/Fig-1].

Variables		Number	Percentage
Address	Debre Berhan town	247	69.40%
	Others	109	30.60%
Age (years)	15-24	60	16.80%
	25-34	240	67.40%
	>35	56	15.70%
Age at marriage (years)	15-24	188	52.80%
	25-34	168	47.20%
Occupation	House wife	139	39.00%
	Student	11	3.10%
	Daily laborers	35	9.80%
	Employed	86	24.20%
	Merchant	57	16%
	Commercial sex worker	8	2.20%
	Other+	20	5.60%
Educational status	Illiterate	52	14.60%
	Read and write	45	12.60%
	Primary education	57	16.00%
	Secondary education and above	202	56.70%
Marital status	Single	21	5.90%
	Married	299	84.00%
	Divorced	16	4.50%
	Widowed	12	3.40%
	Separated	8	2.20%
Income*	<500 ETB	14	3.90%
	501-1000 ETB	96	27.00%
	>1001 ETB	246	69.10%

[Table/Fig-1]: Sociodemographic characteristics of patients.
*1USD =22.6ETB; +jobless, drivers, hair dressers

Staffing and resources availability for ANC: During the study there were 2 doctors, 17 midwifes, 13 nurses, 20 different technical health professionals in MCH unit and Gynaecology and Obstetrics ward. Almost all basic medical examination materials like: weighing scale, registration books, examination coach, stethoscope, measuring tape, clinical management scale, transportation (ambulance) and electric power or generator was available.

To improve quality of ANC service: About 68% of patients agreed that increasing number of HCP, 51.4% of the respondents suggested that improving laboratory service, about 67.4% of study participants suggested that shortening of waiting time would help to improve quality of ANC service [Table/Fig-2].

Variables	Yes	Percentage
Increase number of HCPs	242	68%
Improve drug supply	171	48%
Improve laboratory service	183	51.40%
Improve cleanliness of waiting area	70	19.70%
Shorten waiting time	240	67.40%
Add extra room	162	45.50%
Others‡	14	3.90%

[Table/Fig-2]: Patient's response concerning structural component to improve quality of ANC.
‡Improve privacy, confidentiality, respectfulness, extra bed, room ventilation and illumination

Results on the care given: About 99.2% of the study participants agreed that "HCP performs general examination as we need". From study participants 94% of them said that HCP explains about the examination to be performed before hand, and 96.6% of study

participants said that HCP explains results of examination. From 356 ANC attendants, weight was measured in 99.4% patients, height was measured in 21.3% blood pressure in 99.7% was measured. About 95.8% of the patients believed that the HCP treats them respectfully and 22.8% of them choose who will give the care. Long waiting time was one of the patients' compliant. From all study participants, only 15.7% of participants get healthcare services within one hour. However, the rest 84.8% of participants were able to get health services after waiting more than 1 hour [Table/Fig-3].

Variables	Yes	Percentage
HCP performs general examination	353	99.20%
HCP explains about examination	338	94.90%
HCP explains about results of examination	344	96.60%
Weight measured	354	99.40%
Height measured	76	21.30%
Blood pressure measured	355	99.70%
Urine sample given	347	97.50%
Blood sample given	347	97.50%
HCP treats respectfully	341	95.80%
Very long waiting time	339	95.20%
Choose who will give care	81	22.80%
Waiting time		
<1 hour	56 (15.7%)	
>1 hour	300 (84.3%)	

[Table/Fig-3]: Patients' response on the care given at ANC unit.
HCP: Healthcare provider

Satisfactions of patients: The study shows that more than half of women attending antenatal clinics were satisfied with the quality of services received in spite of some inconsistencies between the received care and their expectations of the facilities. At least two-thirds of women received as much information as they desired in important aspects of antenatal health information needs [Table/Fig-4].

Variables	Strongly satisfied (%)	Partially satisfied (%)	Partially dissatisfied (%)	Strongly dissatisfied (%)
Satisfaction on follow-up given	225 (63.2%)	123 (34.6%)	7 (2%)	1 (0.3%)
Satisfaction on cleanliness of waiting area	243 (68.3%)	108 (30.3%)	4 (1.1%)	1 (0.3%)
Satisfaction on the waiting time	149 (41.9%)	131 (36.8%)	56 (15.7%)	20 (5.6%)
Satisfaction on advice given	220 (61.8%)	118 (33.1%)	12 (3.4%)	6 (1.7%)
Satisfaction on privacy of examination room	207 (58.1%)	123 (34.6%)	18 (5.1%)	8 (2.2)
Satisfaction with time given by HCP for examination	235 (66%)	110 (30.9%)	8 (2.2%)	3 (0.8%)
Satisfaction on attitude of HCP	240 (67.4%)	103 (28.9%)	11 (3.1%)	2 (0.6%)
Satisfaction on availability of medication	167 (46.9%)	162 (45.5%)	14 (3.9%)	13 (3.7%)
Satisfaction on overall care given	198 (55.6%)	152 (42.7%)	4 (1.1%)	2 (0.6%)

[Table/Fig-4]: Patients satisfactions with healthcare services.

Associated factors with patients' satisfaction: Age at marriage, educational status, monthly income and occupation are some of associated factors which affects patients satisfaction on ANC service delivered in Debre Berhan Referral Hospital with p-values of (0.002,0.031,<0.001,0.009) respectively [Table/Fig-5].

Variables	Unstandardised Coefficients		Standardised Coefficients	t	p-value
	B*	Std. Error	Beta		
(Constant)	8.736	1.887		4.630	<0.001
Age of patients	0.054	0.052	0.061	1.036	0.301
Age at marriage	0.257	0.082	0.187	3.122	0.002
Marital status	-0.108	0.237	-0.024	-0.456	0.649
Educational status	0.336	0.155	0.114	2.164	0.031
Occupation of patients	-0.309	0.117	-0.147	-2.634	0.009
Monthly income of the patients	-0.966	0.254	-0.220	-3.803	<0.001

[Table/Fig-5]: Associations of sociodemographic characteristics with the patient satisfactions.
*B is the coefficient of the independent variable in the function Y=Bx +c where y is the dependent variable and x is independent variable

In multiple linear regression analysis waiting time, cleanliness of waiting area, HCP's respect for the patients', advice given, availability of medications and overall care given were the independent predictors of patients satisfaction with significant p-values [Table/Fig-6].

Variables	Unstandardised Coefficients		Standardised Coefficients	t	p-value
	B	Std. Error	Beta		
Constant	-1.131E-14	.000		.000	1.000
Follow-up given	1.000	.000	.134	4.739E7	<0.001*
Satisfaction on cleanliness of waiting area	1.000	.000	.127	5.135E7	<0.001*
Satisfaction on waiting time	1.000	.000	.218	9.288E7	<0.001*
Satisfaction on advice given	1.000	.000	.160	6.200E7	<0.001*
Satisfaction on privacy of examination room	1.000	.000	.173	6.353E7	<0.001*
Satisfaction on time given by HCPs	1.000	.000	.142	4.379E7	<0.001*
Satisfaction on respect of HCPs towards you	1.000	.000	.142	4.270E7	<0.001*
Satisfaction on availability of medications	1.000	.000	.180	6.342E7	<0.001*
Satisfaction on over all care given	1.000	.000	.137	4.234E7	<0.001*
Age of patients	1.902E-17	.000	.000	.000	1.000
Age at marriage	1.088E-16	.000	.000	.000	1.000
Marital status	-5.987E-16	.000	.000	.000	1.000
Educational status	-1.545E-16	.000	.000	.000	1.000
Occupation of patients	1.153E-15	.000	.000	.000	1.000
Monthly income of the patients	7.022E-16	.000	.000	.000	1.000

a. Dependent Variable: Patient's satisfaction

[Table/Fig-6]: Independent predictors of patients satisfaction with ANC services at Debre Berhan Referral Hospital from January to June, 2015.
*significant at p<0.05 level; CI-95%.

DISCUSSION

In the present study to measure patients' satisfaction: composite variables were used. With this measurement mean satisfaction score of patients with ANC service provided by Debre Berhan Referral Hospital was 2.5±0.84 in 4 likert scales which is equivalent to 63.9%. This level of satisfaction is lower as compared to other similar studies. For example a study conducted in Bahir-Dar

Northwest Ethiopia, shows that 93.7% of the mothers were satisfied with ANC service. This difference might be due to the difference in study participants. In the present study, the participants were from rural and urban areas, but all of the study participants who participated in Bahir-Dar Northwest Ethiopia study were from urban areas only. Because of this, the short distance to get the service as well as having better information about the service would result for higher satisfaction for the study participants of Bahir-Dar Northwest Ethiopia [13].

In this study 98.3% of the respondents were satisfied with the overall service they received within the hospital compound. Almost all 98.6% of participants were satisfied with the cleanliness of waiting area. This finding is similar to study done in Bahir-Dar Northwest Ethiopia 95.1% participants were satisfied with cleanliness of waiting area [13]. In addition to the present study's results, there was similar study conducted in Muhimbili National Hospital in Tanzania, most patients were satisfied with the healthcare services they received (93.6% were satisfied with cleanliness of the compound, 62% patients were satisfied with pharmacy service, 95.9% were satisfied with the doctors respect and 43.5% of respondents were satisfied by the fees they incur [12]. This high satisfaction maybe due to patients getting the service better than their previous expectation, which implies the quality of services, is improved. Or it may possibly be because of social desirability bias since the respondents were interviewed within the hospital compound and immediately after the service.

Regarding to the queue process the mean waiting time to get ANC services were two hours. About 67.7% of participants wait 1-2 hours to get service. And only 15.7% of participants get the service within an hour. This finding is not in agreement with the findings of study conducted in Bahir-Dar Northwest Ethiopia. It was observed that 5.5% of service users were not satisfied with the length of time, the average waiting time was over two hours. This shows lower patients' satisfaction as compared to study conducted in Haryana Hospital (India) where 70% of the patients get services within one hour [14]. This difference might be due to the better health facilities in India, availability of adequate human and other resources.

In the present study, 96.3% of participants were satisfied with attitude of HCPs which is consistent with other studies that showed similar results [15,16].

Higher proportion of women (92.4%) were satisfied with availability of medications and resources available at pharmacy unit which is higher than studies conducted in Tigray Zonal hospitals, Jimma Specialised Hospital, Trindad and Tobago. For example a study conducted in 2006 in Tigray region revealed that 274 (64.9%) of participants were dissatisfied with availability of drugs and supplies in the hospitals pharmacies. Only 32% of patients got all the prescribed drugs within the hospital. More over only 43.4% of the respondents reported laboratory services, x-ray/ultrasound examinations were ordered and available to them [17-20].

This may be due to increase in budget allocation to procure resources and to improve availability of additional services which did not exist before.

Those who were more educated and visited the hospital previously were less satisfied with ANC services as compared to their counterparts, which may be due to their higher expectation towards access to quality care than their counterparts.

Regarding how to improve quality of ANC service 68% of them agreed on increasing number of HCP. About 51.4% and 67.4% agreed on improving laboratory service and shortening waiting time respectively.The result of the study was also in agreement with the other studies conducted in Tigray Zonal hospitals, Jimma Specialised Hospital, Trindad and Tobago, Addis Ababa, and at selected health facilities in six regions of Ethiopia [16-20].

LIMITATION

Social desirability bias might be there since the interview carried with in the hospital compound.

CONCLUSION

The qualities of ANC service in Debre Berhan Refferal Hospital with respect to patients' satisfaction were sub optimal.

The quality of ANC service in Debre Berhan Refferal Hospital with respect to structural component and service process were good.

In this study, waiting time, cleanliness of waiting area, HCPs' respect towards the clients, advice given, availability of medications are independent predictors of patients' satisfaction with ANC services. To improve quality of ANC services the health planers, implementers and service providers should focus on structural components (inputs), service processes, and immediate results (patients satisfaction) as well. Since the term quality is subjective, health planners, service providers and researchers have to identify the current needs of the patient and should give services as patient's expectations.

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