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Original Research Article

Quality of antenatal care services in selected health facilities of Kaski district, Nepal

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ABSTRACT

Background: Antenatal care service is an evidence based interventions given to the pregnant women. Objective of the study was to assess quality of antenatal care services in selected health facilities of Kaski district, Nepal.
Methods: A cross sectional study was conducted in selected health institutions in Kaski district of Nepal during June to November 2017. Two hundred seven participants were selected from health facilities of Kaski district. Structured questionnaires were employed as tool for data collection.
Results: This study showed that 50.7 percent respondents waited less than 35 minutes for receiving service. More than half of the total respondents (63.3%) reported that the consultation time provided for them was less than 20 minutes. All respondents reported that weight and blood pressure measurement was undertaken while none of them reported that height was measured. It was found that maximum number of participants (99.0%) were received iron/folate tablets and tetanus vaccination. Similarly, 97.6% of participants reported that they were counselled on nutrition and 96.6% of reported they get counselling on danger signs. In overall, 48.3% of the respondents were satisfied with the services they received and 43% of the respondents received good quality ANC service from different health institutions.
Conclusions: In overall satisfaction of antenatal care services was found to be low and more than half of respondent does not received good quality ANC services.

Keywords: Antenatal care services, Quality, Health facility, Service provider

INTRODUCTION

Antenatal care is an evidence based interventions including recording medical history, assessment of individual needs, advice and guidance on pregnancy and delivery, screening tests, education on self-care and identification of conditions detrimental to health during pregnancy, first-line management and referral if necessary.[1,2] It is an effective route for early detection of potential problems and early treatment of pregnant women which helps to reduce infant and maternal morbidity and mortality.[3] The quality of ANC can be measured through the number and frequency of ANC visits, content of services received, the kinds of information given to women during their visits, client satisfaction level, and the qualifications of the provider.[4-7] Worldwide, complications during pregnancy, childbirth and the postnatal period are the leading causes of death and disability among women of reproductive age.[8] Although, antenatal care is an essential part of primary healthcare and its provision has expanded worldwide, only one third of all pregnant women in developing countries receive at least four antenatal care visits. Out of total maternal deaths worldwide, nearly 99% of death occurs in low income countries especially in Sub-Saharan Africa and South Asia.[8,9] In Nepal, the 2016 NDHS result

shows that 84% of pregnant women attended at least one antenatal and 69% of women had four or more ANC visit.[9]

Objective

The objective of the study was to assess the quality of antenatal care services in selected health facilities of Kaski district, Nepal.

METHODS

***Study design**:* Cross sectional study

Study setting

The study was conducted in selected health facilities of Kaski district, located in Gandaki zone of Western development region of Nepal.

***Study period**:* June-November 2017

Study population

The study participants were pregnant women attending ANC visits and health care providers in health facilities of Kaski district.

***Sample size**:* Total sample size was 207 pregnant women and 12 health care providers.

Sampling technique

Proportionate random sampling.

Data collection

Face to face interview with the respondents were done to import the data on quality of ANC services. For this, structured questionnaire was prepared. In addition to that through observation, data on input related characteristics was obtained by using observation check list.

Inclusion criteria

All pregnant women who have had at least 1 ANC visit within study site. All service provider providing ANC services at the study site during period of data collection.

Exclusion criteria

Those who refuse to participate. Those pregnant women who were seriously ill.

Measured variables

Dependent variables: Quality of antenatal care services

Independent variables: Clients attribute (age, religion, ethnicity, residence, educational status, number of pregnancy, occupation), Input related variables (ANC waiting area and sitting arrangements, electricity supply, source of clean drinking water and rest rooms with running water, protected rooms for examination, availability of basic medical equipment's, healthcare provider competency), process related variables(Number of ANC visit, initiation of ANC visits, waiting time, Duration of consultation time, laboratory tests and examination performed, explanation of examination, Providing adequate and accurate information, preferring sex of provider), outcome related variables (client satisfaction).

- Antenatal service package: Service received by pregnant women related to pregnancy care (i.e. general examination, laboratory investigation, treatment provided, counseling, fetal wellbeing done and explanation of result).
- Waiting time: Time period from the client arrival and reception of the services which was assessed on the basis of opinion of clients.
- Consultation time: Time period from starting of consultation to its end this was measured based on the view of clients.
- Client's satisfaction: It was measured by using questions related to satisfaction towards packages of service during antenatal visits.
- Quality of ANC services**:** It was assessed based on ANC service provision.

Data analysis

Data was coded and entered in Epi data version 3.1 and analyzed using SPSS 22 version. Data were summarized in terms of frequencies (proportion, percentage, mean or median). Among the variables which were normally distributed, mean (standard deviation) was applied otherwise; median (inter-quartile) was used. Chi square test was used to establish relationship between independent and dependent variables.

RESULTS

Client's attributes

Table 1 revealed the characteristics of the respondents. It includes age, residence, religion, ethnicity, educational background, Occupation, Number of pregnancy.

Table 1 shows the characteristics of the study population. It was found that more than half (65.2%) of total respondents were below the age of 24 with median 24 (3).

This study found nearly equal distribution of respondents from rural (50.2%) and urban area (49.8%). In this study, (57.5%) respondents were from non-privileged groups

and rest was from privileged groups among ethnic groups.

Table 1: Client's attributes.

Characteristics	Frequency (n=207)	Percentage (%)
Age		
Below 24 years	135	65.2
Above 25 years	72	35.8
Residence		
Urban	103	49.8
Rural	104	50.2
Religion		
Hindu	170	82.1
Buddhist	14	6.8
Christian	16	7.7
Muslim	7	3.4
Ethnicity		
Privileged	88	42.5
Non privileged	119	57.5
Education status		
Literate	207	100
Education background		
Less than 11 years	104	50.2
11-15 years	68	32.9
More than 15 years	35	16.9
Occupation		
Housewife	159	76.8
Government employee	12	5.8
Private employee	16	7.7
Business	20	9.7
Number of pregnancy		
Single parity	116	56.0
Multiple parity	91	44.0

Most of the respondents (82.1%) respondents were Hindu, while 7.7 percent were Christian, 6.8 percent were Buddhist and only 3.4 percent were Christian. It was found that 100 percent respondents were literate. This study found that, (47.8%) respondents completed (6-10) years of schooling while least (2.4%) respondents were found to have their schooling less than 5 years.

Majority of respondents (76.8%) were found to be housewives, 5.8 percent were government employee, 7.7 percent were private employee and 9.7 percent were found to be engaged in business. More than half of total respondents (56%) were with single parity and rest of them were with multiple parity.

Input related variables

From the observation of health institution, showed that basic medical equipment's (weighing machine, measuring tape, blood pressure apparatus, stethoscope etc.) were available at the time of data collection in all health institutions. Similarly, all the facilities have protected rooms i.e. (private room, curtains) to carry out ANC services. It was found that most of them do not have clean restrooms with running water as well as clean drinking water and most of them lack waiting area with proper sitting arrangements. Electricity was available in all health centers.

For health care provider related data, 12 service providers who were available at the time of data collection were interviewed. It was found that in all health institutions mostly female were engaged in providing ANC related services. It was reported that all the service provider have acquired training related to that service and regular supervision has being carried out. Most of them (75.0%) reported that they were supervised by head of the institution and fewer reported that they were supervised by the personnel outside from institution.

Process related variables

Table 2 showed that the nearly three quarter of respondents (71.2%) had less than three ANC and only (28.5%) had more than three ANC visits. It also showed that the majority of respondents initiated ANC visits within 1st trimester (73.4%) and (26.6%) after 1st trimester.

It was found that, (50.7%) respondents waited less than 35 minutes for receiving service while (49.3%) reported that they waited for more than 35 minutes to receive services. Similarly, 63.3 percent respondents reported that the consultation time provided for them was less than 20 minutes and remaining (36.7%) reported that the consultation time was more than 20 minutes.

It was reported that, weight and blood pressure of all (100%) respondents were measured while measurement of height was not taken among 100 percent clients. Greater number of respondents (96.1%) reported that their hands were not examined for edema. Only (3.9%) of respondents reported that their hands were examined for edema.

Majority of respondents (92.8%) reported that the blood test was performed. Similarly, (93.2%) respondents reported that urine test was performed, (76.8%) respondents reported that hemoglobin test was performed, (75.4%) respondents reported that diabetes test was performed and (69.1%) respondents reported that STD/HIV test was performed.

It was found that maximum respondents (99.0%) received iron/folate tablets and tetanus vaccination. Most of the respondents (88.4%) reported that fetal wellbeing was done and (95.2%) reported that they were informed about the result of tests performed and get explanation of results.

Table 2: Process related variables.

Characteristics	Frequency (n=207)	Percentage (%)
ANC visits		
≤3 visits	148	71.2
>3 visits	59	28.5
ANC initiation		
Within 1st trimester	152	73.4
After 1st trimester	55	26.6
Waiting time		
≤35 minutes	105	50.7
>35 minutes	102	49.3
Consultation time		
≤20 minutes	131	63.3
>20 minutes	76	36.7
Measure height		
No	207	207
Measure weight		
Yes	207	100
Measure BP		
Yes	207	100
Examine hands for edema		
Yes	8	3.9
No	199	96.1
Blood test performed		
Yes	192	92.8
No	15	7.2
Urine test performed		
Yes	193	93.2
No	14	6.8
STD/HIV AIDS test performed		
Yes	143	69.1
No	64	30.9
Diabetes test performed		
Yes	156	75.4
No	51	24.6
Hemoglobin test performed		
Yes	159	76.8
No	48	23.2
Iron/folate tablet received		
Yes	205	99.0
No	2	1.0
TT vaccination received		
Yes	205	99.0
No	2	1.0
Fetal wellbeing performed		
Yes	183	88.4
No	24	11.6
Explanation of results		
Yes	197	95.2
No	10	4.8
Health counselling		
Yes	203	98.1
No	4	1.9

Continued.

Characteristics	Frequency (n=207)	Percentage (%)
Nutrition counselling		
Yes	202	97.6
No	5	2.4
Hygiene counselling		
Yes	203	98.1
No	4	1.9
Danger signs and complications counselling		
Yes	200	96.6
No	7	3.4
Rest counselling		
Yes	205	99.0
No	2	1.0
Family planning counselling		
Yes	117	56.5
No	90	43.5
Labor and delivery counselling		
Yes	175	84.5
No	32	15.5
Newborn counselling		
Yes	102	49.3
No	105	50.7
Sex preference		
Female provider	148	71.5
No preference	59	28.5

It was found that greater number of respondents (99.0%) were counseled on rest and on health and hygiene (98.1%). Similarly, (97.6%) reported that they were counseled on nutrition, (96.6%) reported they get counselling on danger signs, (56.5%) were found to be counseled on family planning and (84.5%) were counseled on labor and delivery and complications readiness. Only (49.3%) were counseled on newborn care.

The study showed that nearly three quarter (71.5%) preferred female provider while no one preferred male provider in service provision.

Outcome related variables

Client satisfaction was rated by 12 items each having five point Likert scale i.e. strongly disagree (1), disagree (2), neutral (3), agree (4) and strongly agree (5) having internal reliability 0.925. To see total score of each respondent, the total points obtained from the 12 items by each respondent were computed. A respondent had minimum 34 and maximum 60 points on ANC satisfaction.

The median score for client satisfaction on ANC service received was 41 (5). In overall, (48.3%) of the respondents were satisfied or scored more than median satisfaction and (51.7%) of the respondents were dissatisfied or scored equal to or less than median satisfaction score.

Table 3: Outcome related variables.

Characteristics	Frequency (n=207)	Percentage (%)
Client satisfaction level		
Dissatisfied	107	51.7
Satisfied	100	48.3

Quality of ANC

To determine the quality of ANC service provision, indices for general examination, laboratory investigation, treatment given, counselling, fetal wellbeing done, and explanation of result were computed. The variables earlier described were scored, such that a variable was given a score of one if undertaken and zero if not undertaken and the scores were summed.

Table 4: Quality of ANC

Characteristics	Frequency (n=207)	Percentage (%)
Quality of ANC services		
Poor quality	118	57.0
Good quality	89	43.0

The median score for quality of ANC service provision was 17 (3). In overall, (43%) of the respondents received good quality ANC service or scored more than median quality and (57%) of the respondents received poor quality ANC service or scored equal to or less than median quality score.

Factors associated with quality of ANC

The statistical analysis is performed to identify the association of quality with different variables. Table 5 showed that client attributes i.e. age, residence, ethnicity, occupation, parity were not statistically significant to quality. Religion of the respondents was significantly associated with quality of ANC (χ^2=17.067, df=3, p=0.005 p<0.05).

Association of quality with process related variables

Table 6 showed the association of quality with process related variables. None of variables out of four showed association with process related variables.

Table 5: Association of quality with client's attributes.

Variables	Quality		Total	χ^2	P value
	Poor quality (%)	Good quality (%)			
Age					
Below 24 years	76 (56.3)	59 (43.7)	135	0.79	0.778
Above 24 years	42 (58.3)	30 (41.7)	72		
Residence					
Urban	59 (57.3)	44 (42.7)	103	0.06	0.936
Rural	59 (56.7)	77 (43.3)	104		
Religion					
Hindu	96 (56.5)	74 (43.5)	170	12.865#	0.005*
Buddhist	7 (50.0)	7 (50.0)	14		
Christian	14 (87.5)	2 (12.5)	16		
Muslim	1 (14.3)	6 (85.7)	7		
Ethnicity					
Privileged	46 (52.3)	42 (47.7)	88	1.399	0.237
Non privileged	72 (60.5)	47 (39.5	119		
Occupation					
Housewife	90 (56.6)	69 (43.4)	159	0.249	0.969
Government employee	7 (58.3)	5 (41.7)	12		
Private employee	10 (62.5)	6 (37.5)	16		
Business	11 (55.0)	9 (45.0)	20		
Number of pregnancy					
Single parity	71 (61.2)	45 (38.8)	116	1.901	0.168
Multiple parity	47 (51.6)	44 (48.4)	91		

(Note "#" denotes likelihood ratio value and "*" denotes the exact p value less than 0.05).

Table 6: Association of quality with process related variables.

Variables	Quality		Total	χ^2	P value
	Poor quality (%)	Good quality (%)			
ANC visits					
≤3 visits	83 (56.1)	65 (43.9)	148	0.181	0.671
>3 visits	35 (59.3)	24 (40.7)	59		
ANC initiation					
Within 1st trimester	82 (53.9)	70 (46.1)	152	2.182	0.140
After 1st trimester	36 (65.5)	19 (34.5)	55		
Waiting time					
≤35 minutes	55 (52.4)	50 (47.6)	105	1.859	0.173
>35 minutes	63 (61.8)	39 (38.2)	102		
Consultation time					
≤20 minutes	70 (53.4)	61 (46.6)	131	1.855	0.173
>20 minutes	48 (63.2)	28 (36.8)	76		

Table 7: Association of quality with outcome related variables.

Variables	Quality		Total	χ^2	P value
	Poor (%)	Good (%)			
Client satisfaction				0.317	0.573
Dissatisfied	63 (58.9)	49 (41.1)	107		
Satisfied	55 (55.0)	45 (45.0)	100		

Association of quality with outcome related variables

Table 7 showed that client satisfaction was not statistically significant to quality of ANC services.

DISCUSSION

Client's attributes

More than three quarter (76.8%) of respondents were housewives. One study revealed that more than three quarters i.e. 84.7% of the pregnant women attending antenatal checkup were housewives.[3]

In this study, most respondent (82%) were following Hindu religion. The study conducted in Sunsari district also revealed that within religion, more than three-quarters of the women (77%) were Hindu.[10]

Input related variables

The study found that basic medical equipment's (weighing machine, measuring tape, blood pressure apparatus, stethoscope etc.) were available at the time of data collection in all health institutions for ANC service provision. This finding is in line with the study conducted in Southern Ethiopia and in Bahr dar.[11,12]

Process related variables

This study showed that the nearly three quarters (73.4%) initiated ANC visits within 1st trimester. The study conducted in Ethiopia found that 37.9 percent women started their ANC visit within their first trimester. This might be due to difference of study area for the study.[12]

The study revealed that all women were examined for their weight and blood pressure. This finding was consistent with the study conducted in tertiary care health facility in Pakistan.[8]

This study found that in case of laboratory investigation blood test and urine test were undertaken in almost all health centers. Another study conducted in Nepal also found that blood and urine sample were taken in any of their antenatal care contacts.[13]

Findings from this study showed that fewer (1.0%) respondents were not given supplementation and tetanus vaccination. This finding is similar with the study conducted in tertiary care health facility in Pakistan.[11]

In this study, greater number of respondents (99%) reported that they received iron/folate supplements and tetanus vaccination. Another study conducted in Nepal by using demographic and health survey data revealed that health education, iron supplementation, blood pressure measurement and tetanus toxoid were the more commonly received components of ANC.[14]

The study showed that most of respondents (71.5%) preferred female provider in service provision. The finding is in line with the study conducted in Ethiopia.[15]

Outcome related variables

Outcome variable i.e. client satisfaction was also explored in this study. In this study, the overall satisfaction of antenatal care services was found to be low (48.3%). Similarly, the study conducted in rural Ethiopia also concluded that the overall satisfaction of antenatal care services was found to be low.[16]

Quality of ANC

According to this study, it was found that 43% of the respondents received good quality ANC service. Our findings is higher than the study conducted in Zambia which revealed that 29% of mothers have received good quality ANC.[17] The difference might be due to subjective nature of the subject matter because measure of quality level needs standardized scales and tools for accurate measurement.

Factors associated with quality of ANC

This study showed that there is association between religion and quality ANC, and depicted no any association with other attributes of client such as age, residence, educational status, ethnicity occupation and parity, process related variables as well as with client satisfaction. Findings from another study conducted in Nepal using demographic and health survey data revealed that women's parity is highly associated with receipt of good quality ANC services.[14] This difference might be due to difference of source of study population for the study.

CONCLUSION

All respondents reported that weight and blood pressure measurement was undertaken while none of them reported that height was measured. Greater number of respondents reported that their hands were not examined

for edema and many of them reported that blood test and urine test was performed. The study showed that none of them preferred male provider and least have no sex preference in ANC service provision. In overall satisfaction of antenatal care services was found to be low and more than half of respondent does not received good quality ANC services.

Recommendations

These are the following recommendations which may be effective for proper intervention in the future.

1. Researches regarding quality of ANC services should be strengthened in Nepal to investigate the implementation barrier that may affect the capacity of health care system to deliver high quality ANC as well as other factors that may influence women's decision to seek out and receive quality ANC.
2. Regular monitoring of ANC service provision should be carried out by health institutions.
3. Sanitary facilities in all health centers should be improved.

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