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Satisfaction of Pregnant Women in Antenatal Care Service Attending in Province Hospital Surkhet, Karnali province, Nepal

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Abstract

Introduction: Antenatal care is the comprehensive health checkup and counselling provided to pregnant women from conception until the onset of labor. Regular antenatal care (ANC) is necessary for the early detection and prevention of pregnancy-related complications and

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ensures timely management of maternal health problems. Evaluating the satisfaction of pregnant women with ANC services is essential to distinguish gaps between expected and received care. Hence, this study aims to investigate the status and influencing factors of satisfaction with antenatal care among pregnant women in province hospital Surkhet, Nepal.

Methods: A descriptive cross-sectional study was conducted for the study. A non-probability convenience sampling method was used to select 246 pregnant women who had completed at least three antenatal care visits at ANC clinic of province hospital, Surkhet, Karnali Province, Nepal. A self-made general information questionnaires and antenatal care satisfaction questionnaires were used for data collection from November 2024 to May 2025. ANOVA and Kruskal-Wallis *H* test were used for the single-factor analysis of satisfaction of pregnant women with antenatal care service, and multiple linear regression was used for the multi-factor analysis.

Results: The overall antenatal care satisfaction score among respondents was 80.57±8.32, which indicates a moderate level of satisfaction. Dimensions-wise mean scores were: attitude of health care providers (18.97 ± 2.53), humanistic care (18.21 ± 2.50), health facilities and environment (16.50 ± 2.40), health instruction (15.06 ± 2.26) and professional skills (11.84 ± 1.73). The results of bivariate analysis showed that pregnant women with different education levels and economic status (P<0.05) were statistically significant with antenatal care satisfaction. The results of multiple linear regression analysis showed that economic status, means of transportation, occupation and number of children were the influencing factors of antenatal care satisfaction of pregnant women (P<0.10).

Conclusion: The study found that pregnant women had a moderate level of satisfaction with antenatal care services, suggesting that existing health services do not fully meet their expectations and needs. Enhancing accessibility, affordability, service quality, and client-centered care-particularly for socio-economically disadvantaged group is necessary to improve maternal satisfaction and health related outcomes.

Keywords: Antenatal Care, Maternal Satisfaction, Pregnancy, Karnali Province, Nepal.

1. Introduction

Antenatal care (ANC) is the term used to describe the medical treatments and care that pregnant women receive from the time of conception until the start of labor. In order to keep pregnant women in a safe and healthy state during their pregnancy, routine ANC is beneficial for early detection and treatment to prevent adverse pregnancy outcomes (1). Additionally, regular ANC can lower maternal and perinatal mortality by assisting pregnant mothers and fetuses in identifying problems through continuous care (2). Globally, 87% of pregnant women take at least one antenatal care with a skilled health care provider, only approximately 70% of those receive at least four antenatal care visit. Even fewer women (58 percent and 57 percent, respectively) received at least four antenatal care visits in areas with the greatest rates of maternal death, such as South Asia and Western and Central Africa (3). Approximately over

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700 women die every day from pregnancy-related preventable causes, with low- and lower-middle-income nations accounting for more than 90% of these deaths (4).

Antenatal care quality is monitored by ANC service satisfaction. It is important to assess the maternal satisfaction with ANC service, satisfied women are more likely follow the suggestion given by the health care provider & utilize the services related to antenatal care. WHO emphasized ensuring patient satisfaction as a means of secondary prevention of maternal mortality (5). Satisfaction with the service means the fulfillment of the client's desire, expectation, and preferences by health care provider or health services (6). The maternal satisfaction is defined as the state of their feelings about their happiness of the antenatal services they receive. It is an important aspect of prenatal care because it often determines whether a pregnant woman is willing to comply with recommended treatments, thereby affecting the effectiveness of treatment (7).

Due to differences in culture and healthcare, the degree of satisfaction with ANC services varies greatly among countries. For example, Semey maternity hospital in kazakhstan conducted a prenatal care service satisfaction survey among 496 postpartum women receiving ANC services, and the results showed that 90% of the mothers were satisfied with the prenatal care services (8). 90% of ANC service satisfaction was also shown by exit interview data gathered from ANC users and facility assessment survey data from 534 systematically chosen facilities in four northern Nigerian states (9). But a study conducted in Jimma town, South West Ethiopia revealed that only 60.4% of the respondents were satisfied with the ANC services they received (10). A study conducted in Karachi, Pakistan among 15-35 years mother, who had given birth to their children in the last two years showed 55% of respondents were satisfied and 45% of respondents were not satisfied with provided antenatal care services (11).

Studies showed that the satisfaction of ANC services is affected by various factors. A study done in South Ethiopia revealed that women with high monthly income were more satisfied with prenatal care services as compared to low monthly income women (12). A study done in India found that pregnant women who are far away from health facilities are twice as likely to be unsatisfied than those who are closer to health facilities. This may be because people take a long time to see a doctor in a medical center, and doctors can be very disappointing if they don't have the drugs and supplies, they need (13). A study conducted in Bangladesh identified inadequate provider attention, long waiting time and financial constraints as key barriers accessing ANC visit (14). Study conducted in Kenya to assess antenatal mother satisfaction with communication skill of health care provider found that 57% of health care providers were polite and respectful, while 21% were rude. Understanding medical problem, providing enough time during care and providing enough time to express themselves, education about important topic with polite language were increasing factors for the satisfaction level of pregnant women. The study recommended that hospital should plan to sensitize the health care provider on good behavior and communication (15).

A study conducted in Tertiary hospital of western, Nepal revealed only 45.1% of mothers were satisfied with the perinatal care service. The satisfaction score among the respondents was

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highest in privacy maintained condition and lower in the physical environment. The study analyzed as type of hospital, religion, education, parity, number of living children, type of delivery, gestational age at birth, mother condition after delivery, newborn health condition, hospital stay duration and gender of service provider were determinants of service satisfaction (2). A cross-sectional study was conducted at a tertiary referral and private hospital in Kathmandu and a secondary hospital in Makwanpur, Nepal showed that overall, 303 of 538 women (56%) were satisfied with their antenatal care. The multivariable analysis showed that women who attended the private hospital were more likely to be satisfied than those who attended the referral hospital (odds ratio, 3.63; 95% confidence interval, 1.68–7.82). The satisfaction was lower among women who felt that the antenatal care facilities were inadequate (odds ratio, 0.35; 95% confidence interval, 0.21–0.63) and who desired longer antenatal appointments (odds ratio, 0.5; 95% confidence interval, 0.33–0.75) (16). An institution-based cross-sectional analytical study was carried out on Lumbini province Hospital involving 2,986 pregnant women, selected through multistage cluster sampling showed that only 67% of pregnant women were satisfied with the antenatal services (17). A descriptive cross-sectional study conducted to investigate satisfaction on antenatal care service among 367 postnatal mothers in Chandannath Municipality of Jumla, Nepal revealed that majority of the women were satisfied with the information they received regarding prenatal test and procedures (68.1%), and antenatal counseling on preparation for child birth (61.3%). More than half of the women were satisfied with time given to answer their questions (57.5%). In terms of approachability, fewer than half (45.8%) respondents expressed dissatisfaction because service providers were hurried during antenatal visits. The majority of postpartum mothers (71.4%) expressed satisfaction with the antenatal care they got, while 28.6% expressed dissatisfaction (18).

There are few studies available on satisfaction of pregnant women in antenatal care service and its associated factors in Nepal. Further research is required to determine the factors that influence pregnant women's satisfaction with prenatal care services in order to meet pregnant women’s satisfactions and ultimately decrease maternal and neonatal mortality of Nepal. The aim of this study was to assess the status of satisfaction of pregnant women with antenatal care services and its associated factors in province hospital Surkhet, Nepal.

2. Methods and Materials

Study design and setting

A descriptive cross-sectional study was conducted to investigate the status and influencing factors of satisfaction with antenatal care among pregnant women in province hospital Surkhet, Nepal. The hospital is operating its services with the financial support of the Karnali provincial government and some assistance from the federal government. The bed capacity of the hospital is 300. An average of 40 pregnant women visited the hospital's ANC clinic per day. There were two nursing staff providing ANC services from antenatal clinic. Formal permission from the authority of the hospital was obtained before data collection. Purpose and objectives were

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informed to every respondent. Informed consent, both verbal and written, was acquired from each respondent by a trained enumerator, rather than the research team, to mitigate bias.
Every respondent's privacy, confidentiality, and anonymity were ensured. Data was collected using self-developed, structured, closed-ended questionnaires. Out of the 260 respondents who completed the questionnaires for this study, 246 provided valid responses. There was a 95% response rate. Data for the study was collected from November 2024 to May 2025.

Participants, sampling and sample size

Pregnant women of 7 months or more, who had already visited ANC clinic at least three times to hospital for antenatal care and had good ability to express and understand survey questioners as well as voluntarily willing to participate in the study were eligible to participate in the study. We had selected pregnant women of at least 7 months for the study because they experienced varying degrees of satisfaction at different points of time during ANC visits. We had selected one to two pregnant women daily who attended hospital's ANC clinic from November 2024 to May 2025. Non probability, convenience sampling method was implemented for the selection of study participants. In convenience sampling, the data collector may subconsciously or consciously choose friendly or easily accessibly people, introducing subjective biases into the selection process. So, data was collected from Sunday to Tuesday during the morning shift and from Wednesday to Friday during the evening shift, using clearly defined inclusion criteria to reduce participant selection bias.
In this study, we have used a self-designed structured questionnaire which contains 22 items. The sample size was calculated by 5-10 times of the number of items. This rule for sample size calculation was already used in previous studies (19–21). Considering the 10% missing rate taken into account, the final sample size of 246 fulfilled the study's inclusion requirements.

Ethical Approval

The NHRC granted initial ethical approval for the research (Ref. No.: 1842) on 16 February 2025. Written consent from the Province Hospital Surkhet obtained prior to data collection. Each respondent received an explanation of the study's objectives, voluntary participation, withdrawal rights, and other details. Lastly, each respondent's written and verbal consent was obtained.

Data Analysis

After the data collection, it was examined for accuracy, completeness, and internal consistency to eliminate any missing or inconsistent data. If such data was identified, it was discarded. The computer program SPSS version 20 was used to analyze only the complete, accurate, and consistent set of questionnaire responses. Mean and standard deviation was calculated for continuous variables, while nominal data were presented in frequency and percentage. Variance analysis was used to compare the means of multiple samples, and Kruskal-Wallis *H* test was used for rank data. Multiple linear regression was used to analyze the influencing factors of satisfaction of pregnant women with antenatal care service. A "p" value of less than 0.05 was considered statistically significant.

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Study questionnaires was developed based on systemic literature review and consultation with five experts of Nepal. Out of the five experts, four were from the province hospital Surkhet: Dr. Amit Singh, Head of Gynecology and Obstetrics; Dr. K.N. Paudel, Senior Physician; Prabha Rawal, Nursing Administrator; and Dr. Keshar Dhakal, Hospital Director; and one expert, Biond Achary, was a statistics coordination officer from the statistics office in Surkhet. We performed the 22-item structured interview questionnaire that evaluates pregnant women's satisfaction in five important areas: attitude of healthcare provider, health facilities and environment, professional skills, health instruction and humanistic care. The satisfaction level was rated on a 5 Likert scale ranging from 1 (very dissatisfied) to 5 (very satisfied). A small pilot study was conducted among 25 pregnant women of Nagar Hospital of same district but another hospital of Nepal to conduct the reliability and validity test. The reliability of the questionnaire was examined by internal consistency. For the internal consistency, questionnaire was evaluated by calculating the Cronbach's alpha coefficient. The total Cronbach's alpha coefficient of this questionnaire was 0.809. The Cronbach's alpha coefficient for each dimension were between 0.428 and 0.669.

Quality control of Data

- Questionnaire development phase: In order to reduce the omission of questionnaire content, relevant literatures were searched systematically. The items of this questionnaire were evaluated, screened and modified by the experts to prepare the final questionnaire.
- Data collection phase: The survey was conducted with a unified instruction, so that the research subjects could fully understand the meaning of each item, and they were required to fill in the questionnaire independently and collect the questionnaire on the spot. After collection, check the questionnaire on site, and timely remind them to supplement if there are any missing items.
- Data entry phase: Data entry process adopts the method of double entry to reduce errors. During the entry process, the questionnaires with more than 10% missing items were excluded and the questionnaires with the same option appearing continuously and accounting for more than 80% of the total items was also excluded.

Reliability

The reliability of the instrument maintained by pre testing of the instrument in the 10% of the total respondents. These pretested respondents were not included in actual research. Necessary modification made according to need.

Validity

Validity of instrument was maintained by studying, reviewing related literature, consulting advisor, expert teacher, statistician and colleague. The instrument translated in Nepali so that the respondents could understand it.

3. Results

Socio-demographic characteristics of the respondents

The mean age of all respondents was 24.55 ± 4.38 years which was varied from 16 to 38 years. The majority of respondents surveyed were primigravida (42.68%). Regarding occupation,

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unemployed women (61.79%) were three times higher as compared to employed women (20.33%). Nearly half of the respondents (48.37%) were economically strong enough to afford six monthly expenditures. Furthermore, less than one fourth respondents (22.76%) lack enough income for six months' expenditure while more than one fourth respondents (28.86%) surveyed had sufficient income for more than one year. Most of the respondents arrived hospital on foot (32.52%) for taking antenatal care services. The number of respondents who reached hospital by motorcycle and bus were 26.02% and 21.95% respectively. The distance from home to hospital was found to be more than 30 minutes for three quarter (75.20%) of the respondents. The detailed socio-demographic characteristics of the respondents are presented in table 1.

Table 1: characteristics of the respondents (n=246)

Characteristics	Frequency (n)	Percentage (%)
Age group in years		
≤ 20	27	10.98
21-25	101	41.06
26-30	83	33.74
> 30	18	7.32
Mean age ± SD	24.55 ± 4.38	
Number of Children		
None	105	42.68
1 child	93	37.80
2 or more children	48	19.51
Education		
No formal education	18	7.32
Primary/basic	69	28.05
Secondary	66	26.83
University	93	37.80
Caste		
Brahmin	73	29.67
Chhetri	78	31.71
Janajati	40	16.26
Dalit	34	13.82
Others	21	8.54
Religion		
Hindu	190	77.24
Buddhist	25	10.16
Muslim	8	3.25
Christian	23	9.35
Occupation		
Employed/job	50	20.33
Unemployed	152	61.79

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Business and others	44	17.89
Economic Status		
Enough for less than six months	56	22.76
Enough for more than six months	119	48.37
Enough for more than one year	71	28.86
Means of Transportation		
Bus	54	21.95
Motorcycle	64	26.02
On foot	80	32.52
Others	48	19.51
Distance		
≤30 minute	61	24.80
>30 minutes	185	75.20

Status of satisfaction of pregnant women for antenatal care

Among the five dimensions of satisfaction with antenatal care, the highest mean score was recorded for professional skills (3.95), representing that pregnant women were most satisfied with the professional ability of medical staff. This was followed by satisfaction with the attitude of health care providers (3.79), health instruction (3.76), and humanistic care (3.64). The lowest mean score was observed for health facilities and environment (3.30), indicating that pregnant women were least satisfied with health facilities and its environment. These scores denote the average values of their respective sub-categories. The detailed results are shown in table 2 and table 3.

Table 2: The satisfaction scores of each item (n=246)

Items	Mean ± SD
Attitude of Health Care Providers	
1. Satisfaction level with manner of the health care providers	3.86 ± 0.60
2. Satisfaction with attitude of the health care providers when they listen to you	3.98 ± 0.71
3. Satisfied with the way health care providers explain things to you	3.88 ± 0.81
4. Satisfied with the health care providers when you require urgent assistance	3.54 ± 0.81
5. Satisfied with time the health care providers spent on you	3.70 ± 0.90
Health Facilities and Environment	
6. Satisfied with the facilities in the antenatal care department	3.91 ± 0.69
7. Satisfaction of the general sanitation of the antenatal care department	3.51 ± 0.93
8. Satisfaction of the level of the noise	2.52 ± 0.99
9. Satisfaction with the lightning in the examination room	4.08 ± 0.82
10. Satisfaction with the time normally have to wait before the examination	2.45 ± 1.04

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Professional Skills	
11. Satisfaction with the information about the purpose and precaution of each examination	3.89 ± 0.70
12. Satisfaction with the clinical skill of health care provider	3.97 ± 0.70
13. Satisfaction with the explanation of health and unborn baby	3.96 ± 0.90
Health Instruction	
14. Satisfaction of information regarding diet, rest, Exercise and follow up visit	4.05 ± 0.86
15. Satisfaction with the information Complication during pregnancy	3.93 ± 0.83
16. Satisfaction with the information you perceived from the health care providers	3.72 ± 0.79
17. Satisfaction with the Information about labor	3.34 ± 0.81
Humanistic Care	
18. Satisfaction with verbal consent received before antenatal examination	3.49 ± 1.04
19. Satisfaction with the privacy maintained during the antenatal examination.	3.70 ± 0.90
20. Satisfaction on services provision by health care providers without discrimination.	3.64 ± 1.06
21. Satisfaction level with the degree to which health care provider supported your decision.	3.67 ± 0.79
22. Satisfaction with the care providers' service.	3.68 ± 0.65

Table 3: Average scores of each dimension and overall scores of satisfaction

Dimensions	Mean ± SD	Average Score	Rank
Professional Skills	11.84 ± 1.73	3.95	1
Attitude of Health Care Providers	18.97 ± 2.53	3.79	2
Health Instruction	15.06 ± 2.26	3.76	3
Humanistic Care	18.21 ± 2.50	3.64	4
Health Facilities and Environment	16.50 ± 2.40	3.30	5
Overall satisfaction score	80.57 ± 8.32	3.66	-

Bivariate analysis for satisfaction of pregnant women with ANC

Bivariate analysis was done to filter variables for multivariate analysis in order to determine factors associated with satisfaction. Those independent variables which showed significant association (*P*-value < 0.05, 95% CI) were only considered for multivariate analysis. Regarding bivariate analysis of the independent variables with satisfaction for ANC, education level (*P*-value = 0.049) and economic status (*P*-value = 0.000) were significantly associated. However, there were no statistically significant difference in the total score of satisfaction among age, number of children, caste, religion, occupation, means of transportation and distance. The detailed information is shown in Table 4.

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Table 4: Bivariate analysis for satisfaction of pregnant women with ANC

Characteristics	Score of Satisfaction (Mean ± SD)	Statistical Quantity	*P*-value
Age group in years		1.943[1)]	0.584
≤ 20	80.18 ± 7.33		
21-25	80.91 ± 7.87		
26-30	79.90 ± 9.05		
> 30	82.72 ± 9.66		
Number of Children		1.301[2)]	0.522
None	81.28 ± 7.86		
1 child	80.43 ± 8.03		
2 or more children	79.31 ± 9.75		
Education		2.662[2)]	0.049*
No formal education	79.72 ± 8.64		
Primary/basic	78.88 ± 9.21		
Secondary	80.00 ± 8.20		
University	82.40 ± 7.37		
Caste		0.632[2)]	0.640
Brahmin	80.00 ± 7.99		
Chhetri	80.18 ± 7.81		
Janajaties	80.60 ± 7.97		
Dalit	81.15 ± 9.26		
Others	83.05 ± 10.41		
Religion		0.810[2)]	0.490
Hindu	80.87 ± 8.20		
Buddhist	80.20 ± 7.54		
Muslim	81.75 ± 7.11		
Christian	78.13 ± 10.34		
Occupation		1.444[2)]	0.238
Employed/job	82.02 ± 6.39		
Unemployed	80.52 ± 8.61		
Business and others	79.11 ± 9.09		
Economic Status		10.515[2)]	0.000***
Enough for less than six month	76.48 ± 8.23		
Enough for more than six months	81.13 ± 8.79		
Enough for more than one year	82.87 ± 6.27		
Means of Transportation		2.099[2)]	0.101
Bus	81.61 ± 7.71		
Motorcycle	82.17 ± 7.97		
On foot	79.10 ± 8.37		

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Others	79.73 ± 9.03		
Distance		-1.811[3)]	0.070
≤30 minute	82.13 ± 6.97		
>30 minutes	80.06 ± 8.67		

1: χ^2-value; 2: *F*-value; 3: *Z*-value

Multiple linear regression analysis for satisfaction of pregnant women with ANC

Further, to assess the independent variables, that were associated with satisfaction of pregnant women for ANC, multiple linear regression analysis was performed on those parameters including age group in years, number of children, caste, religion, occupation, means of transportation, distance, education level and economic status. Multicollinearity was checked before running multiple linear regression analysis and there was no problem of collinearity among variables as the lowest tolerance was 1.945 (more than 0.1) and as the highest VIF was 8.101 (less than 10).

Variables with a p-value ≤0.20 in the bivariate analysis were added to the multivariable regression model, whereas variables with a p-value >0.10 were eliminated from the final model in order to reduce the impact of any confounding factors. In the multiple linear regression analysis, the results showed that four factors entered into the regression equation, including economic status, means of transportation, occupation and number of children, indicating that economic status, means of transportation, occupation and number of children were significantly associated with the satisfaction for ANC.

Table 5: Multiple linear regression analysis for satisfaction of pregnant women with ANC

Independent Variables	Regression Coefficient	Standard Error	Standard Regression Coefficient	t-value	*P*-value
Constant	82.280	2.973		27.673	0.000
Economic status	3.093	0.704	0.267	4.392	0.000
Means of transportation	-1.053	0.487	-0.132	-2.161	0.032
Occupation	-1.654	0.822	-0.123	-2.012	0.045
Number of children	-1.236	0.674	-0.112	-1.833	0.068

4. Discussion

The study findings indicated that majority (74.8%) of them were 21-30 years which may be the most fertile age group. A similar finding was reported in the study conducted in Western Nepal and Ethiopia which showed the proportion of the mothers in the age group of 20-29 years was 65.4% and 73% respectively (2, 10). The majority of respondents surveyed were primigravida (42.7%) which is similar to the study done in Chitwan Nepal which showed more than half (54.1%) of the respondents were nulliparous (22). Analysis of the data on accessibility to the healthcare facility indicated that one-third of the participants reached to the health facility without using any means of transportation. Also, one-fourth of the respondents reached to the health facility in less than 30 minutes. A similar finding was reported in India where 27.8% of

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the respondents were found to reach PHCC for antenatal services by walking (23). Although Nepal is divided in hilly, mountainous and plains region, there is one government health facility in every ward of each local level. It makes public to take healthcare services easily. But still more than three quarter of the respondents were found to reach health facility in more than 30 minutes. It shows that it is still necessary to increase accessibility to health facilities in the study area in order to increase ANC services.

Status of satisfaction of pregnant women for antenatal care

The study findings showed that the overall satisfaction of pregnant women for ANC service was 80.57±8.32 points, at a medium level. This finding was consistent with the cross-sectional study done in Nigeria which showed 81.1% of respondents were satisfied with the service provided at the antenatal clinic (24). The individual satisfaction score for the attitude of healthcare professionals was 3.66 on average. It was not sufficient high. This finding was similar to the study conducted in Varanasi district, Uttar Pradesh which revealed 16% and 14% of clients were not satisfied with the behavior of medical officer and the health workers respectively (25). This result signifies the importance of intervention to improve the attitude of health workers to increase ANC user.

The overall satisfaction towards the health facilities and environment had the lowest score of the five dimensions, which means the pregnant women was dissatisfied with the health facilities and environment in the study site. The top three items with the lowest scores were satisfaction of the level of the noise, satisfaction with the time normally have to wait before the examination and satisfaction of the general sanitation of the antenatal care department. Likewise, study done in Ethiopia reported 67.1% were not satisfied with physical environment aspect (10). So, to address this dissatisfaction, government should make policy to fulfill more health care providers in each health facility where client flow is high which will decrease waiting time for ANC. Analyzing sub-categories, one-third of the respondents were dissatisfied with general sanitation of the antenatal care department. In regard to the level of the noise, nearly one-fifth of the respondents were dissatisfied, which is consistent with the study done in Basra Iraq and Ghana depicted satisfaction of level of noise was 22.2% and 26% respectively (26, 27). The result signifies that hospital need take some measures to improve the health facilities and environment to increase the ANC utilization in Nepal especially in study area.

Pregnant women were satisfied with the professional skills at the Province Hospital, as evidenced by the fact that overall satisfaction with the professional abilities received the highest score out of the five dimensions. A systematic review done by Batbaatar et al. on determinants of patients satisfaction also reported that professional skills of service providers played a vital role in enhancing satisfaction of service use (28). There are two probable explanations for why pregnant women in this study expressed satisfaction with the professional capabilities. First, the study site is a training facility. Second, nursing staff that worked in the antenatal care unit also had taken maternal and child health related training.

In this study, the overall score of satisfaction towards health instruction was not very high, especially for the satisfaction of the information received about onset of labor. This result was

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supported by previously done exploratory study in India (29). In contrast, a longitudinal survey showed that women in Australia were more satisfied with antenatal education (30). From further analysis of each item, the study has found that the score of satisfaction of pregnant women for the information perceived from the health care providers was not very high. This result is consistent with cross sectional facility based survey in Ethiopia which revealed that one-third of respondents were dissatisfied with precaution and one-fifth were dissatisfied with explanation about antenatal care (31). However, the study finding was similar to a quantitative descriptive study done at the University Hospital of Ghent (Belgium), where women were less satisfied with information received during the consultation (32). This difference might be due to difference in background of respondents and attitudes of health professionals like listening, responding rightly to service users and humanistic care.

Factors associated with pregnant women's satisfaction with ANC services

The results of the bivariate analysis showed that education and economic were factors associated with pregnant women's satisfaction with ANC services. In terms of education of pregnant women, those with the highest ANC satisfaction scores were pregnant women who get college education. Those with the lowest ANC satisfaction scores were pregnant women who get primary education. Descriptive study done in Gent founded that with increasing levels of education, women's expectations increases (32). But cross sectional study done in Ethiopia and Nigeria showed that there was no association between educational status and client satisfaction (33,34). This difference might be due to the difference of source of study population. Highest ANC satisfaction among college education respondents may be because they can learn more about prenatal care knowledge by themselves via internet and different books.

Regarding the economic level of pregnant women, the mean score of ANC satisfaction of pregnant women who do not have enough money for more than six months was lowest. While this score was highest in those pregnant women who have enough money for more than one year. In contrast, study done in Vietnam reported low economic group had high level of expectation (35). This contradiction in results might be due to different sources of study population as well as due to varied background of the respondents. In our study, attitude of pregnant women with higher economic status were more positive than those from relatively lower economic status. Findings showed that higher the economic status, more the satisfaction level. If economic status is high, they can manage their own necessities such as good food, housing, sanitation and other facilities with different medium in changing time period. Hence, greater economic status translates into greater satisfaction. On the contrary, they desire everything at the government health facility if their financial situation is low. They rely solely on the government and are unaware of their own responsibilities, which leads to a lower level of satisfaction.

Predictors of satisfaction of pregnant women with ANC services

The result of multiple linear regression analysis showed that economic status, means of transportation, occupation and number of children were predictors of pregnant women's

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satisfaction with antenatal care services. The study showed that the economic status of the respondents was the predictors of satisfaction of pregnant women with ANC services. An evidence from national family health survey of India also showed similar type of findings. The survey found wealth index had significant predictors of the timing of the first ANC visits (36). A multilevel analysis of the 2019 Ethiopian Mini Demographic Health Survey also revealed same type of result. The survey showed respondents with poorest wealth status were more likely to delay ANC initiation (37). In our study, nearly half (48.37%) of the respondents had enough food for more than six months. If respondents had enough food only for six months, it may reduce ANC visits due to financial constraints, competing priorities, and poor maternal energy levels. Furthermore, food insecurity may lower perceived benefit of care and increase health risks, which negatively influence timely and regular utilization of antenatal care services.

The study revealed a significant association between means of transportation (Bus, motorcycle, on foot and others) with ANC satisfaction of pregnant women. This result is consistent with the finding from a study done in Basra, Iraq which showed that service utilization and satisfaction level were poor due to unavailability of public transportation (26). The evidence was further supported by the study conducted in Munich (38). In the current study, women who use motorcycles were the most satisfied and those who came to the hospital on foot were the most dissatisfied. Moreover, a pilot study done in South Isereal revealed that the reduction of physical barriers would result in improving overall access and satisfaction, which is similar to the study's findings (39). This difference in using various means of transportation might be due to difference in background, economic status and geographical location. Pregnant women who use motorcycles are most likely to be satisfied because they are the most convenient and therefore can get to the hospital more quickly. While pregnant women who go to the hospital on foot may suffer from physical fatigue due to long walking, so they are more likely to be dissatisfied when receiving services. Nepal is the mountainous country. There is no adequate development regarding road and transportation due to its difficult geographical structure. Hospital is far from public access and no easy, comfortable and affordable means of transportation. So that most of women prefer not to go to hospital and some prefer to go nearby health institution, although had no sufficient facilities regarding maternal and newborn care. Telemedicine might increase ANC service utilization and ultimately service satisfaction. So, we can conclude that the association of means of transportation is significant with satisfaction in the study.

The current study showed that occupation can predict pregnant women's satisfaction with antenatal care services. A study performed in *Junichande* Rural Municipality, Jajarkot among mothers having 2 years children showed contradict result from our study. It presented that occupation of the respondent is not associated with ANC service utilization checkup as per protocol (40). But, a study conducted in Panikhaiti Mini Primary Heath center India depicted similar type of finding with our study (41). The differences is due to employed women can afford transportation cost, private hospitals bills and diagnostic tests costs while daily wage

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workers / agricultural laborers lose income if they attend ANC visits which results fewer visits as well as delayed checkups.

The study ascertained that the number of children is also a predictor of satisfaction of pregnant women with antenatal care services. Compared to pregnant women with no child, those having two or more children were less likely to be satisfied with antenatal care services. Similar findings was found in a systematic review of developing countries (42). Likewise, a study done in Rural Ethiopia reported that the number of deliveries were important predictors of level of satisfaction (43). Moreover, a cross-sectional descriptive study conducted in Anambra State, southeast Nigeria showed that women who had more than two children were less likely to be satisfied (44). Pregnant women without children are mostly first-time mothers who have no experience of pregnancy or childbirth and have not received prenatal care. Therefore, the higher the acceptance of prenatal care services provided by nursing staff, the higher the satisfaction. Women having more than two children are aware of antenatal care services and so, they do have expectations based on their last antenatal care experiences. And therefore, pregnant women with two or more children have higher expectations of prenatal care and are less satisfied because of their experience. Because the lower the expectation, the higher the satisfaction.

5. Conclusion

The results of the study showed that the overall satisfaction of pregnant women for ANC was at moderate. It indicates that through ANC services are being utilized, they do not fully meet the expectations and need of pregnant women. Additionally, the study verified that economic status, means of transportation, occupation, and number of children were significantly associated with the level of satisfaction of pregnant women for ANC. Women with better economic conditions and easier access to transportation reported higher satisfaction, while those facing financial and accessibility challenges experienced lower satisfaction. Similarly, occupational responsibilities and higher parity influenced pregnant women's perceptions and utilization of ANC services. The study also revealed noise level and waiting time had lowest satisfaction for ANC, which may negatively influence client's perception of quality care.

Based on the findings, it is evident that improving maternal satisfaction requires a multidimensional approach that discourses service quality, sanitation of health facility and socio-economic barriers. Therefore, it is recommended that efforts be made to enhance the accessibility of ANC checkup by telemedicine service, affordability, and quality of ANC services, particularly for disadvantaged groups. Additionally, strengthening health education on maternal and child health in mother's group and ensuring client-centered care can contribute to improving overall satisfaction and maternal health outcomes. There should be separate waiting room for ANC clinic, post-operation ward and gynecology ward to reduce noise. Online recording system with token method could minimize waiting time for ANC. The study's main limitation was that it only included pregnant women who were currently receiving ANC services in hospital, so it might not accurately represent the opinions of pregnant women who have never sought for ANC care. An additional limitation of the study was the non-probability

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convenience sampling technique, which introduces subjective biases into the selection process by allowing the data collector to unintentionally or intentionally select pleasant or easily accessible individuals.

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