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Exploring Factors Influencing Antenatal Care Visit Dropout at Government Health Facilities of Dhanusha District, Nepal

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Abstract **Background:** High maternal mortality rate is still a major public health issue in resource poor countries. In Nepal, the regional socio-economic disparity explicitly reflects inequalities in maternal health service utilization and differences in maternal mortality rate. Only about 50% of pregnant women complete four antenatal care visits. Nearly 80% delivery is still conducted at home in absence of trained health worker among Terai/Madheshi dalits communities in Nepal. The present study intended to explore the factors influencing antenatal care visit dropout at government health facilities of Dhanusha district in Nepal. **Methods:** This is a descriptive cross sectional study. A total sample of 206 women who had received at least 1st ANC check up from the government health facility during March 2014 to March 2015 were selected using multistage sampling procedure. Interview method was adopted and semi-structure questionnaire was used to gather the study data. Data analysis was carried out in SPSS 20. Ethical clearance was taken from Nepal Health Research Council Ethical Review Board. **Results:** Out of total 206 respondents 104 (49.52%) of respondents have completed four ANC visits and 106 (50.47%) respondents have not completed four ANC visits. The study confirmed the significant association of antenatal visit dropout with respondents education (OR= 2.22, 95% CI= 1.264-3.917), economic status (OR= 2.37, 95% CI= 1.264-4.462, dissatisfaction with the health service provided at public health facilities (OR=17.48, 95% CI=8.764-34.88), dissatisfaction with the information provided during ANC visit (OR= 0.167, 95% CI=0.092-0.303) and unreceptive attitude of health worker (OR=3.766, 95% CI=2.095-6.769) as major hindering factors among respondents for not attending four ANC visit at government/public health facilities in Dhanusha district of Nepal. **Conclusion:** The study suggests promotion of positive attitude and behavior of health workers towards clients and building trust on government health facilities from health care provider side are equally important to increase antenatal service utilization among rural pregnant women.

Keywords: *Antenatal Care, ANC visit, dropout, factors, pregnant women*

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1. Introduction

Globally, a maternal health issues has been highly prioritized and well recognized in the first decade of twenty first century particularly in the form of Millennium Development Goal 5 and also the continuation of it in Sustainable Development Goals (SDGs) framework [1,2,3,4]. However, achievements in maternal deaths reduction have been not reached satisfactory level yet [5,6]. Still more than 800 women die per day due to pregnancy and childbirth related causes that are highly preventable [7,8]. Out of total maternal deaths worldwide, nearly 99% of death happens in low-income countries especially in Sub-Saharan Africa and South Asia [7,8,9]. Rural and poor communities are even more vulnerable to maternal deaths because they do not have access to adequate quality health services on time [10]. Furthermore, only one third of all pregnant women in developing countries receive at least four antenatal care visits [8]. There is also a huge disparity of maternal health status between urban and rural Settings [4,11,12]. Nepal a resource poor country with high geographic and socio-cultural variation also presents the similar situation [13,14]. There is sufficient numbers of evidences reflecting severe and worsening economic inequalities to and use of basic health services including Ante-Natal Care (ANC), unmeet needs for contraceptives, institutional delivery and care received by trained health workers in Nepal [13,15,16]. The regional socio-economic disparity also explicitly shows inequalities in maternal health service utilization and differences in Maternal Mortality Rate (MMR) among various ethnic groups across the country [17,18,19].

Though Nepal has been honored for remarkable progress in achieving country target of MGDs 5, there are still enormous challenges to reduce alarming MMR

among socio-economically disadvantage ethnic groups and various regions within country [3,18,20,21]. Mothers from disadvantage community like Terai/Madheshi or Terai and hills dalits are most underprivileged ethnic groups in Nepal with very poor maternal health status [11,18]. Also, antenatal care has been also determined as one of the essential element of maternal health services that contribute in reducing MMR [22], but the coverage of ANC check up with four completed visit among Terai/Madheshi women in Nepal is only about 35% and among Terai/Madheshi dalits is even just 23.4 %, which is relatively very low coverage as compared to national figure [11,18]. In addition, considering the institution delivery as financial hardship to poor, government of Nepal initiated *Aama Program* in 2005 *and 4 ANC incentive services* in 2009 *that* includes free institutional delivery *and* cash incentive scheme to cover travel cost in order to promote institutional delivery [23,24]. However the percentage of institution delivery is still just around 35% at national level and situation is even worse among poor and excluded groups [18]. For instance, nearly 80% delivery is conducted at home in absence of trained health worker among Terai/Madheshi dalits communities [18,25,26]. Consequently, in order to address maternal health issues among all segments of population across the country, it is crucial to have segregated evidences to develop appropriate policy interventions to tackle the gaps in maternal health outcomes [10,11]. In this context, the present study intends to explore the factors influencing ANC dropouts at government run public health facilities on Dhanusa district of Nepal. Dhanusha district is also categorized as one of the low HDI district of Nepal with very low education, health and economic status as compared with other hills and mountain districts in Nepal [27].

2. Materials and Methods

This is a descriptive cross sectional study conducted at Dhanusha district of Nepal. A total sample size of 206 women who had received at least 1st ANC check up from the government health facility during March 2014 to March 2015 were selected as study respondent. Sample size was calculated considering the reliability co-efficient for 95% confidence level set at 1.96, proportion of antenatal care services dropout 0.52 according to annual health report [28], design effect =2, error=10%, and non response rate 10%. Study respondents were selected using multi-stage sampling procedure. Dhanusha district was stratified into seven electoral constituencies, one Village Development Committee (VDC) from each electoral constituencies was randomly selected and again three wards from each selected VDC were randomly drawn and finally 10 mothers were randomly chosen from each selected wards using safe motherhood register book. Study data was collected using interview method and semi-structure questionnaire was used to gather the study information. The study questionnaire was translated from English language into local language and pre-tested among 10% of actual sample size in similar setting at adjoining Saharba VDC of Mohottari district. The data entry was done in Epi-data 3 and data analysis was carried out through Statistical Package for Social Science (SPSS) 20. Bivariate analysis was done using Chi-Square test to find the association between the selected variables of the study.

2.1. Ethical Consideration

The formal approval of study was taken from Nepal Health Research Council Ethical Review Board (national ethical clearance board) at national level and study approval from District Public Health Office (DPHO), Dhanusha and District Development Committee (DDC), Dhanusa at local level. Verbal informed consent was taken from each respondent prior to interview. None of the respondent was forced to participate in the study and confidentiality of information gathered was assured.

3. Results

3.1. Socio-demographic Characteristics of Respondents

Table 1. Socio-demographic variables of study respondents

Category	Variable	n (%)
Age Group	16-20	46 (21.90)
	21-24	77(36.67)
	25-28	64(30.48)
	29-32	17(8.10)
	33-36	6(2.86)
	Total	**210**
Religion	Hindu	201(95.71)
	Muslim	9(4.29)
	Total (n)	**210**
Ethnicity	Madheshi/Terai Dalit	62(29.52)
	Disadvantage Janjati	57(27.14)
	Disadvantage Non-Dalit (Terai)	58(27.62)
	Advantage Janjati	5(2.38)
	Religious Minorities	9(4.38)
	Advantage Caste group (Terai)	19(9.05)
	Total	**210**
Economic status	Self sufficient	57(27.1)
	Not self sufficient	153 (72.9)
	Total (n)	**210**
Occupation	House wife	159(75.71)
	Farmer	47(22.38)
	Official employee	1(0.48)
	Others	3
	Total (n)	**210**
Husband occupation	Unemployed	3(1.43)
	Employer	19(9.05)
	Farmer	56(26.67)
	Foreign employee	88(41.90)
	Others	44(20.95)
	Total (n)	**210**
Education status	Literate	83(21.43)
	Illiterate	127
	Total (n)	**210**
	Literate	
	Primary education	34(16.19)
	Secondary education	39(18.57
	Higher education	10(4.76)
	Total (Literate)	**83**

*Ethnic classification based on Nepal Demographic Health Survey 2011 and Nepal population census report 2011 [13,29]. ***Self-sufficient –** family income sufficient for 12 months, **Not self sufficient-** family income not sufficient for 12 months**, *Illiterate –** not able to read and write**, literate-** able to read and write including higher education.

The Table 1 finding presents, out of total 206 respondents, majority were 21-24 years of age with mean age of 23.62 years ± 3.95. Similarly, 29.52%, 27.14%, and 27.62% respondents were Madheshi dalit women, disadvantage Janjati and disadvantage non-dalits respectively. About 78.57% of respondents were illiterate and from poor economic background. Also majority of respondents were housewife (75.71%) and 22.38% were farmer. Likewise, out of total study participants, 104 (49.52%) respondents have completed 4 ANC visits and 106 (50.47%) respondents have not completed 4 ANC visits.

Table 2. Availability of health worker and Comfortability in receiving ANC services at HFs

Variables		n (%)
Availability of health works at HFs during ANC visit	Staff available at the time of respondent ANC visit	151(71.90)
	Absenteeism of Staff at the time of respondent ANC visit	59 (28.10)
	Total	**210**
Comfortability of respondent in receiving ANC services	Comfortable	134 (63.81)
	Uncomfortable	76 (36.19)
	Total	**210**

3.2. Availability of Health Worker and Comfortability in Receiving Care at Government Health Facilities (HFs)

Table 2 shows, out of total about respondents 28.10% of respondents response unavailability of health worker during the time of ANC visit at health facility and 36.19% of respondents felt uncomfortable in receiving ANC care during visit.

3.3. Barriers for not Attending Four Complete ANC Visit

In present study, out of total respondents 106 (50.47%) ANC dropouts respondents, majority 42.45%, 39.62%, 27.36%, and 21.70% responded lack of trust on public health facilities, unsatisfactory ANC counseling, relatively good health services at private clinics and afraid of demanding X-ray and other services charges respectively as major reasons for not attending ANC visit at public health facility (multiple responses). Similarly 97.37% of respondent responded unreceptive attitude of health staffs and 15.79% responded presence of male staff during ANC check up for not attending ANC services at health facility.

Table 3. Chi-square test of association of selected study variables with ANC visit dropouts and 4 ANC visit completed among respondents

Variables		ANC visit Dropout (n)	4 ANC Completed (n)	χ^2	P-value	OR	CI - 95%
Satisfaction with the information provide at HFs	Yes	33	76	36.997	0.000	6.00	3.30-10.19
	No	73	28				
	Total	106	104				
Satisfaction with behavioral aspects of health workers	Yes	47	78	20.483	0.000	3.76	2.09-6.76
	No	59	26				
	Total	106	104				
Satisfaction with the care received	Yes	24	87	78.422	0.000	17.48	8.76-34.88
	No	82	17				
	Total	106	104				
Education status	Illiterate	74	53	7.803	0.005	2.25	1.26-3.917
	Literate	32	51				
	Total	106	104				
Staff availability during ANC visit	Yes	74	77	0.46	0.54	0.81	0.443-1.48
	No	32	27				
	Total	106	104				
Comfortability in receiving care	Yes	56	78	11.17	0.01	0.37	0.208-0.67
	No	50	26				
	Total	106	104				
Heard at ANC incentive scheme	Yes	13	21	2.43	0.136	0.55	0.26-1.172
	No	93	83				
	Total	106	104				
Type of government HFs/Place of ANC check up	PHCC	30	30	0.008	1.00	0.97	0.535-1.77
	HP	76	74				
	Total	106	104				
Economic status	Self sufficient (strong)	20	37	7.411	0.008	2.37	1.26-4.46
	Not self sufficient (poor)	86	67				
	Total	106	104				

3.4. Chi-square Test of Association

Table 3 presents the bivariate analysis of selected variables with ANC visit dropout. The results shows, education status of respondents, economic status of respondent, satisfaction with the information provided at local government health facilitates, satisfaction with behavior aspects of health worker, satisfaction with ANC

care received at government health facilities and discomfort in receiving ANC services were significantly associated (p-value < 0.05) with the ANC visit dropout.

3.5. Binary Logistic Regression Analysis

Table 4 presents the results of binary logistic regression analysis showing odds of association between ANC drop out with some selected study variables. Variables such as economic status of respondents, education status of respondents, satisfaction with the health services provided at public health facilities, satisfaction with the health information provided during ANC visit and behavioral aspects of health workers were significantly associated to ANC dropout among individual visiting public/government health facilities. Respondents who were illiterate were about 2.22 times less likely to complete 4 ANC visit as compared to literate respondents; this result was statistically significant (OR= 2.22, 95% CI= 1.264-3.917). Respondents with poor economic status were also 2.37 times less likely to attend 4 ANC visit (OR= 2.37, 95% CI= 1.264-4.462). Similarly satisfaction with the health service received at health facilities, information provided during ANC visit and behavior of health worker were also statistically significant with ANC dropout among individuals visiting to government/public health facilities.

Table 4. Binary logistic regression analysis showing odds of association between ANC dropouts with some selected study variables

Variables	Odds Ratio	95% Confidence Interval	P-value
Education status	2.22	1.264-3.917	0.006
Economic status	2.37	1.264-4.462	0.007
Satisfaction with the health services received at health facilities	17.48	8.764-34.88	0.00
Satisfaction with the health information received at health facilities	0.167	0.092-0.303	0.000
Satisfaction with the behavioral aspects of health workers	3.766	2.095-6.769	0.000

4. Discussion

In the present study majority women of childbearing age were (16-28) years of age. In Nepal and similar low-income countries in Southeast Asia and Sub-Saharan African countries, childbearing age of women is between (15- 25) [7]. High proportion of women gets pregnant in early age especially in resource poor countries is due to high prevalence of early and child marriage [30]. However, the childbearing age among the women of developed countries ranges between 28-38 years of age [7].

The current study illustrates 71.90% of respondents responded the availability of health staffs during time of ANC visit, however presence of health worker at health facilities was not only enough to encourage pregnant women to complete at least 4 ANC visits during pregnancy. Nearly 50% of those who reported the availability of health workers at health facilities have not completed 4 ANC visit. Like wise similar studies conducted in different region of Nepal revealed quality of ANC services at local health facilities as major factor associated to low utilization of maternal health services [17,31]. Moreover traditional beliefs, customs and social system in Nepalese society are equally responsible for poor utilization of maternal health services in rural areas [32,33]. The mother-in-low usually make decision regarding workload, health care seeking during pregnancy and delivery process in rural part of Nepal [32] where as husbands in Uganda and traditional birth attendants in rural Bangladesh influences seeking and receiving antenatal care [34].

Similarly, 36.19% of respondents reported that they experienced uncomfortable environment during receiving ANC services at local government health facilities. Majority of respondents i.e. 97.37% among dropout group responded unreceptive attitude of health staffs and 15.79% of respondents among dropout group responded presence of male staff during ANC check up for not attending ANC services at government health facility. A systematic review conducted by Mannava et al. (2015) also mirrors negative behaviors of heath workers during delivery of ANC services such as physical abuse towards women, absenteeism or unavailability of providers, corruption, lack of regard for privacy, poor communication, unwillingness to accommodate, traditional practices, and authoritarian or frightening attitudes [35,36]. It also documented that such behavior of health worker are influence by health service provider workload, long working hours, poor relations with co-workers, insufficient salaries, lack of equipment's and supplies, patients' attitudes and behaviors, provider beliefs and prejudices, and feelings of superiority among health professionals [35,37,38]. These negative behaviors of health workers in turn underestimate clients health care seeking and over all clients well being [35,39]. Consistent results in comparable studies from Africa [40,41,42], the present study shows majority 42.45%, 39.62%, 27.36%, and 21.70% responded lack of trust on public health facilities, unsatisfactory ANC counseling, relatively good health services at private clinics and afraid of demanding X-ray and other services charges respectively as major reason for not attending ANC visit at public health facility. Even women are informed about maternal incentive schemes, they may not use maternal health services until they feel confident in overcoming hurdles and if trust on public health facility and satisfaction of care are not assured [14,31,43].

In the current study, Chi-square test of association explicitly shows, antenatal care visit drop out is significantly associated with the education status of respondents ($p>0.05$, OR=2.25, CI= 1.26-3.91), economic status of respondent ($p<0.05$, OR= 2.37, 95% CI: 1.26-4.46), information provided at local government health facilitates during ANC visit ($p<0.05$, OR=6.00, 95% CI: 3.30-10.19), satisfaction with behavior aspects of health worker ($p<0.05$, OR= 3.76, 95% CI: 2.09-6.76), satisfaction with ANC care received at government health facilities ($p<0.05$,OR=17.48, 95% CI: 8.76-34.88) and Comfortability in receiving ANC services at government health facilities ($P<0.05$, OR=0.37, 95% CI: 0.20-0.67). Similar study conducted in eastern Nepal also shows women from wealthy family had higher chance (OR: 2.3, 95% CI: 1.1-5.3) of attending 4 ANC services as

compared to women who belongs to poor and disadvantage ethnic group [15]. Access to financial resources, autonomy of movement and decision making regarding their health would have empower those women to utilize antenatal care services [44,45]. Also women education level was found to have strong association with ANC services utilization [15,46]. Moreover, study carried out in Xien Khouang Province Lao. PDR presented education, income, knowledge, availability of public transport; cost of transport and cost of services were significant predicators of ANC services utilization [38,47]. Likewise, the present study also shows no association of antenatal care visit dropout with the health staff availability at health facilities during ANC visit (p.0.05, OR=0.81, 95% CI: 0.44-1.48), ANC incentive schemes (p>0.05, OR=0.55, 95% CI: 0.26-1.17) and ANC visit at different type of government health facility at community level (p>0.05, OR= 0.97, 95% CI: 0.53-1.77). A similar result has been reflected in the study conducted in the Madhya Pradesh state of India [48]. Furthermore binary logistic regression analysis also shows statistically significant association of ANC dropout with respondents' education status (OR= 2.22, 95% CI= 1.264-3.917), economic status (OR= 2.37, 95% CI= 1.264-4.462) and the satisfaction with behavioral aspects of health workers at public health facility (OR= 3.76, 95% CI=2.095-6.769). These findings are consistent with studies carried out in different part of Nepal, Indonesia, Uganda, India, Nigeria and Zambia [14,40,47,49,50,51].

5. Conclusion

The findings of this study confirmed that women's poor education, week economic status, dissatisfaction with the health service provided at public health facilities, dissatisfaction with the information provided during ANC visit and unreceptive attitude of health worker were major hindering factors among respondents for not attending four ANC visit at government/public health facilities in Dhanusha district of Nepal. Further, the study explicitly indicates even women are informed about maternal incentive schemes and maternal health services they may not use maternal health services until they are empowered to overcome hurdles and if trust on government health facilities are not assured from provider side. Therefore, promotion of positive attitude and behavior of health workers towards clients and building trust on government health facilities from health care provider side are equally important to increase antenatal service utilization among rural pregnant women.

Statement of Competing Interests

The authors have no competing interests to report.

List of Abbreviations

ANC:	Antenatal Care
SDGs:	Sustainable Development Goals
MDGs:	Millennium Development Goals
MMR:	Maternal Mortality Rate
HDI:	Human Development Index
VDC:	Village Development Committee
HFs:	Health Facilities
CI:	Confidence Interval
OR:	Odds Ratio.

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