Research Article

Women's autonomy and antenatal care utilization in Nepal: A study from Nepal demographic and health survey 2016

Abstract

Nepal has made remarkable progress in reduction of maternal mortality but utilization of maternal health services is below the acceptance level. This study seeks to examine the effect of women's autonomy on the utilization ANC services in Nepal. Data is taken from the 2016 Nepal Demographic and Health Survey. A total of 3,998 women age 15-49 who had given birth in the 5 year preceding the survey. Logistic regression analysis is performed to examine the effects of women's autonomy on the use of ANC. The results of Model I revealed that women's decision making autonomy and attitudes towards wife beating are significantly associated with at least four ANC visits. When women's autonomy variables and other socio-demographic variables are taken into consideration, women decision making autonomy and attitudes towards wife beating are not significant association with at least four ANC visits. To improve maternal health care, the interventions are needed to target women of low autonomy, less educated and from low wealth quintile.

Keywords: women's autonomy, antenatal care, decision making, wife beating, nepal

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Introduction

Nepal is a land locked country in Southern Asia. It occupies total land area of 147181 square kilometers with an estimated population of 29 million.[1] Reducing maternal mortality is the first target of Sustainable Development Goal 3.[2] Maternal mortality is high in developing countries.[3] More than 99% of the global maternal deaths occurred in developing countries and 22% in Southern Asia.[4] Antenatal care is one of the pillars of safe motherhood initiatives,[5] which contributes to improving maternal health, reducing risk of maternal and child morbidity and mortality, and encouraging women to deliver in a health facility.[6–9] Reducing levels of maternal mortality depends on use of health care services during pregnancy and childbirth and after delivery. Antenatal care is an opportunity to promote women to deliver with skilled birth attendant and healthy behavior.[10] High maternal mortality is associated with low utilization of maternal health care services during pregnancy, at delivery and in the postnatal period.[11] The World Health Organization recommends a minimum eight contacts for reducing perinatal mortality and improving women's experience of care.[12] However, the Ministry of Health .Nepal recommends that pregnant women have ANC visits at least four time during pregnancy.[13] The percentage of women who made 4+ANC visits in Nepal increased substantially from 14% in 2001 to 69% in 2016.[14]

Women's autonomy is most important factor that contributes to utilization of maternal health services in Nepal,[11,15] Women's autonomy is defined as the capacity and freedom of women to act independently,[16] the ability of women to make and execute independent decisions pertaining to personal matters of importance to their lives and their families,[17] and the capacity of women to make decisions.[18] Women's autonomy is also defined as the ability to influence decisions, control economic resource and move freely.[19,20] Women's autonomy includes both control over resources (physical, human, intellectual, and financial) and ideologies (belief, values,

attitudes, and self-confidence).[21] Previous studies have attempted to explore the role of women's autonomy on reproductive and maternal health services utilization.[22–30] In recent years a number of studies have focused on the factors that influence on the use of antenatal care (ANC) services in Nepal.[6,31–33] However, review and search of the literature show that there are a few studies that has looked at women's autonomy and its influence on the utilization of ANC in Nepal. This study seeks to examine the effect of women's autonomy on the utilization ANC services in Nepal. Women's autonomy has been associated with ANC utilization. This study hypothesized those women with higher autonomy more likely to receive ANC. This study provides the evidence of the relationship between women's autonomy and utilization of ANC that can contribute to the design policies for improving women's autonomy and ANC services in Nepal.

Material and methods

Data sources

This study is based on secondary data extracted from the 2016 Nepal Demographic and Health Survey (NDHS) datasets. NDHS is nationally representative cross sectional household sample survey, which was conducted under the aegis of Ministry of Health and Population, Government of Nepal. Stratified two-stage cluster sampling was used in rural areas and three-stage in urban areas to select household for the survey. In rural areas, wards were selected as primary sampling units (PSUs) in the first stage and households in second stage. In urban areas, wards were selected as PSUs in first stage, one enumeration area (EA) was selected from each PSU in second stage, and households were selected from sample EAs in third stage. The 2016 NDHS sample contained 11473 households, and 12862 women aged 15-49years were interviewed; response rate was 98%.[14] In the 2016 NDHS, face-to-face structured interview were conducted. The survey collected detail information on women's background characteristics, family planning, maternal health including

antenatal care, delivery, and postnatal care. The survey also collected information on women's autonomy.

Variables

Dependent variable: The dependent variable for this study is ANC visits for the last pregnancy in the five years before the survey. It is categorized into the binary outcome 'at least four ANC visits' (4+ANC visit) and 'fewer than four ANC visits' (<4 visits).

Independent variables: In this study women's autonomy is the main explanatory variable. It is measured by two indicators, women's participation in household decision making and attitudes toward wife beating. Women's household decision-making autonomy is measured using the responses to the following questions: who decides the following decisions in household about

1. health care for yourself,
2. major household purchases,
3. visits to family or relatives,
4. children's education, and
5. use of inherited asset (pewa).

Each question has five responses:

1. respondent alone,
2. respondent and husband/partner jointly,
3. husband/partner alone,
4. someone else, and
5. Others.

Women who made more than four decisions are categorized high autonomy, women who participated one or three decisions are categorized moderate autonomy, and women who did not participate in any decisions are categorized as low decision-making autonomy. The second indicator of women autonomy is attitudes towards wife beating. It is measured using the five responses:

1. she goes out without telling him,
2. she neglects the children,
3. she argues with him,
4. she refuse to have sexual intercourse with him, and
5. She burns food.

If women agreed with any of five these reason is classified as having favorable attitudes towards wife beating. If women did not accept all reasons of wife beating is considered as having opposing attitudes towards wife beating.[24]

Other independent variables included in this study are socio-demographic variables such as age group of mother, education, ethnicity, occupation, province, wealth quintile, distance to health facility and permission to go health services. Age group of mother was categorized into four groups-15-19, 20-29, 30-39 and 40-49. Ethnicity was categorized into five groups-Brahman/Chhetri, Dalit, Hill Janajati, Terai Janajati and Muslim. Women's occupation was categorized into three groups- not working, agriculture, and non-agriculture.

Data analysis

Data was analyzed by using STATA version 15.1. Univariate analysis is carried out to analyze selected socio-demographic characteristics of study women age15-49. Chi-square test was used to examine the association between use of ANC care and women's autonomy variables, and selected background variables. Multi-collinearity assessment is performed prior to the multivariate analysis. Multivariate analysis with logistic regression is applied to examine the effects of women's autonomy on the utilization of antenatal care. The results are shown in odds ratios (OR). The critical level was set at 95% confidence interval (CI). Sampling weights were applied in all analyses.

Ethical approval

This study is based on the 2016 Nepal Demographic and Health Survey datasets which was downloaded from https://www.dhsprogram.com/data/available-datasets.cfm with register as DHS data users. The ethical approval for the survey was obtained by ICF Institutional Review Board (IRB) and the Ethnical Review Board of Nepal Health Research Council.

Results

Background characteristics of the study women

Table 1 shows that two third of the women are age 20-29 and about one quarter of women are age30-39. With respect to education, 31% of women had no education, 25% received secondary education, and 24% received SLC and above education. Brahman/Chhetri and Janajatis are dominant caste/ethnicity groups. About 39% of women are not working and 46% are working in agriculture. About one quarter of women are from Province 2. All of the women are more or less evenly distributed across wealth quintile. More than 50% of women reported that distance to health facility is big problem for ANC. The majority (72%) of women reported getting permission to go health services is not big problem for ANC. Forty percent of women participated on all five types of decisions. About 13% are not involved in any household decision-making. The majority (72%) of women did not accept all reasons for wife beating.

Table 1 Socio-demographic characteristics of the study women, NDHS 2016[1]

Characteristics	Number	Percent
Age group		
15-19	334	8.4
20-29	2,651	66.3
30-39	903	22.6
40-49	109	2.7
Education level		
No education	1,257	31.4
Primary	777	19.4
Secondary	1,010	25.3
SLC and above	955	23.9
Ethnicity		
Brahman/Chhetri	1,159	29
Terai caste	724	18.1

Table Continues...

Characteristics	Number	Percent
Dalit	545	13.6
Hill janajati	956	23.9
Terai janajati	348	8.7
Muslim	266	6.7
Occupation		
Not working	1,549	38.7
Non-agriculture	611	15.3
Agriculture	1,838	46
Province		
Province 1	686	17.1
Province 2	963	24.1
Province 3	691	17.3
Province 4	337	8.4
Province 5	720	18
Province 6	255	6.4
Province 7	346	8.7
Wealth quintile		
Lowest	822	20.5
Second	839	21
Middle	863	21.6
Fourth	830	20.8
Highest	643	16.1
Distance to health facility		
Big problem	2,329	58.2
Not a big problem	1,669	41.8
Getting permission to go health services		
Big problem	1,135	28.4
Not a big problem	2,863	71.6
Women decision making autonomy		
Low	506	12.6
Moderate	1,908	47.7
High	1,585	39.6
Attitudes towards wife beating		
Not opposing	1,132	28.3
Opposing	2,866	71.7
Total	3,998	69.4

Descriptive analysis

Table 2 shows that 73% of women age 15-19 made at least four ANC visits for their most recent birth compared with 43% of women age 40-49. A higher percentage of women who received SLC and above education (91%), who belonged Brahman/Chhetri cast (81%), who engaged in non-agricultural occupation (79%), who live in Province 3 (78%) and Province 1 (77%), and who belonged to highest wealth quintile (87%) made at least four ANC visits as compared

to other categories. Similarly, a higher percentage of women who reported distance to health facility (77%) and getting permission to go health services (72%) as 'not a big problem' made at least four ANC visits, compared to those women who reported otherwise. Regarding, women's autonomy, utilization of antenatal care is higher among the women who had higher autonomy in household. A higher percentage of women who made more than four decisions in household (73%) and who opposed attitudes towards wife beating (71%) made at least four ANC visits.

Table 2 Percentage distribution of women who had live birth in the five year preceding the survey by ANC visits for the most recent birth according to selected socio-demographic characteristics, NDHS 2016

Characteristics	<4 ANC visit	4+ANC visit	Total	χ^2 p-value
Age group				
15-19	27.2	72.8	334	<0.001
20-29	29	71	2,651	
30-39	33.6	66.4	903	
40-49	57.3	42.7	109	
Education level				
No education	50.6	49.4	1,257	<0.001
Primary	35.9	64.1	777	
Secondary	21.7	78.3	1,010	
SLC and above	9.5	90.5	955	
Ethnicity				
Brahman/Chhetri	18.9	81.1	1,159	<0.001
Terai caste	41.2	58.8	724	
Dalit	37.8	62.2	545	
Hill janajati	30.4	69.6	956	
Terai janajati	25.5	74.5	348	
Muslim	45.8	54.2	266	
Occupation				
Not working	32.4	67.6	1,549	<0.001
Non-agriculture	21.1	78.9	611	
Agriculture	32.3	67.7	1,838	
Province				
Province 1	23.1	76.9	686	<0.001
Province 2	46.6	53.4	963	
Province 3	21.6	78.4	691	
Province 4	23.3	76.7	337	
Province 5	26.3	73.7	720	
Province 6	47.8	52.2	255	
Province 7	22.7	77.3	346	
Wealth quintile				
Lowest	43.3	56.7	822	<0.001
Second	34.6	65.4	839	
Middle	33.2	66.8	863	

Table Continues...

Characteristics	<4 ANC visit	4+ANC visit	Total	χ^2 p-value
Fourth	25.3	74.7	830	
Highest	12.6	87.4	643	
Distance to health facility				
Big problem	36.1	63.9	2,329	<0.001
Not a big problem	23	77	1,669	
Getting permission to go health services				
Big problem	36	64	1,135	<0.004
Not a big problem	28.5	71.5	2,863	
Women decision making autonomy				
Low	38.2	61.8	506	<0.001
Moderate	31.3	68.7	1,908	
High	27.4	72.6	1,585	
Attitudes towards wife beating				
Not opposing	34.3	65.7	1,132	0.015
Opposing	29.2	70.8	2,866	
Total	30.6	69.4	3,998	

Multivariate analysis

Multivariate logistic regression analysis is carried out to examine the association between women's autonomy and antenatal care use, and the results are presented in Table 3. Model I includes only the women's autonomy variables: women's decision-making autonomy and attitudes towards wife beating. Model II includes additional variables that are likely to influence on antenatal care use, such as age of women, education, ethnicity, occupation, province, wealth quintile, and distance to health facility and getting permission to go health services.

The results of Model I revealed that women's decision making autonomy and attitudes towards wife beating are significantly associated with four ANC visits. The odds of receiving at least four ANC visits for women at moderate and high autonomy are 39% and 66% higher, respectively than the odds for women low autonomy. The odds of making at least four ANC visits is higher for women who did not accept all reasons for wife beating (OR=1.28, p<0.001) compared with women who accept any of the reasons for wife beating.

In Model II, when women's autonomy variables and other socio-demographic variables are taken into consideration, women decision making autonomy and attitudes towards wife beating are not significant association with at least four ANC visits. Model II further shows that women age 40-49 are 57% less likely to use ANC visit compared to women age 15-19. The odds of making at least four ANC visits are significantly higher among women with SLC and above education (OR=5.17,p<0.001), secondary education (OR=2.45,p<0.001), and primary education (OR=1.56, p<0.001) than no education women. Women who engaged in agricultural occupation are 1.29 times (p<0.05) more likely to use ANC than women with no working. The odds of receiving at least four ANC visits for women who live in Province 2 and Province 6 are 57% and 61% lower respectively, than the odds of women who live in Province 1. Wealth quintile seems to be one of the most important influencing factor on ANC use. Women in the highest wealth quintile have 2.77 times higher odds of receiving at least four ANC visits compared with women in the lowest wealth quintile (p<0.001). A statistically significant association does not exist between ethnicity, distance to health facility and getting permission to go health services.

Table 3 Logistic regression analysis of ANC visits for the most recent birth in the five year preceding the survey

	Model I		Model II	
Socio-demographic Variables	**Odds ratio**	**95% CI**	**Odds ratio**	**95% CI**
Women decision-making autonomy				
Low	1		1	
Moderate	1.39*	1.07-1.79	1	0.76-1.33
High	1.66***	1.27-2.17	1.12	0.81-1.53
Attitudes towards wife beating				
Not opposing	1		1	
Opposing	1.28*	1.06-1.55	1.13	0.94-1.37
Age group				
15-19			1	
20-29			0.77	0.55-1.07
30-39			0.74	0.50-1.10
40-49			0.43**	0.25-0.73
Education				
No education			1	
Primary			1.56***	1.21-2.01
Secondary			2.45***	1.88-3.19
SLC and above			5.17***	3.49-7.65

Table Continues...

Socio-demographic Variables	Model I		Model II	
	Odds ratio	95% CI	Odds ratio	95% CI
Women decision-making autonomy				
Ethnicity				
Dalit			1	
Brahman/Chhetri			1.35	1.00-1.84
Terai caste			0.85	0.57-1.27
Hill janajati			0.73	0.52-1.04
Terai janajati			0.98	0.59-1.64
Muslim			0.68	0.46-1.02
Occupation				
Not working			1	
Non-agriculture			1.08	0.82-1.42
Agriculture			1.29*	1.04-1.59
Province				
Province 1			1	
Province 2			0.43***	0.29-0.65
Province 3			0.99	0.63-1.56
Province 4			0.83	0.55-1.25
Province 5			0.81	0.53-1.25
Province 6			0.39***	0.25-0.60
Province 7			1.06	0.69-1.64
Wealth quintile				
Lowest			1	
Second			1.43*	1.06-1.93
Middle			1.99***	1.45-2.73
Fourth			2.31***	1.67-3.20
Highest			2.77***	1.75-4.38
Distance to health facility				
Big problem			1	
Not a big problem			1.21	0.96-1.52
Getting permission to go health service				
Big problem			1	
Not a big problem			0.84	0.66-1.05

Note: *** p<0.001, ** p<0.01, * p<0.05

Discussion

The result of this study revealed that use of antenatal care in Nepal is influenced by women's autonomy and other socio-demographic factors, and diverse relationship between use of ANC care and women's autonomy. The model containing women's autonomy variables only, there are statistically significant association between women's autonomy and use of ANC. After the inclusion of socio-demographic variables in the model women's autonomy variables are not significantly associated with the use of ANC. This finding is not consistent with findings of previous studies that reported strong association between women's autonomy and use of ANC.[22, 25, 27, 29]

This study found that older women are less likely to utilize ANC than younger women. This finding is consistent with previous study.[34–36] A study in Nepal showed that maternal health service utilization is significantly lower for women age 30 years and over than younger women.[27] The reason for less likely to use of ANC by older women is not clear. Some studies reported that women's age is not significant predictor of ANC utilization.[37] Previous study showed that education attainment of women is positively associated with use of ANC.[7,38] This study also found that more educated women are more likely to attend four or more ANC visits compared with less educated women. Possible explanation for this result is that educated women were more likely to be aware of the advantages of maternal health care. Thus

educated women incline to use ANC. The study finding shows that women who reside in Province 1 and in Province 7 more likely to use ANC compared to other Provinces of Nepal. The study further revealed that wealth quintile is significant predictor of ANC use. This finding is consistent with findings from previous studie.[24,30,38–40] The study revealed that women's autonomy variables are important predictor of ANC use in the absence of other controlling variables. After controlling the effects of a number of socio-demographic factors, the women's autonomy variables is not significantly associated with ANC use. It is found that women's age have a negative significant effect on the use of ANC care, whereas education, occupation, and wealth quintile have been positively associated with ANC use. Furthermore, province is found to be an important predictor of utilization of ANC care. The bivariate analysis revealed that ethnicity, distance to health facility, and getting permission to go health services are significantly associated with ANC use whereas the multivariate analysis shown that these three factors are not significant in their association with use of ANC care.

Conclusion

There are positive association between women's autonomy and use of ANC. The effects of women's autonomy on ANC use is affected substantially by women's education, occupation and wealth quintile. Efforts are needed to target women of low autonomy, less educated and from low wealth quintile to improve maternal health care.

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Conflicts of interest

The author declares there are no conflicts of interest.

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