

# Antenatal Care Service Utilization among Ever-married Women of Sumbuk Village in Sikkim

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**ABSTRACT:** Pregnancy in women is accompanied by a number of physical, physiological and psychological changes which is a normal phenomenon. Timely and regular utilization of antenatal care (ANC) service can help in identifying and minimizing risks of mother and infant during pregnancy thereby reducing maternal mortality. The objective of the present study is an attempt to analyse the associations between education, household income and family size on antenatal care utilization. Overall antenatal care utilization rate is relatively high among the women of Sumbuk village, in south district of Sikkim, with (75.2%) against 21% and 58.4% for the overall India and Sikkim respectively. In Sumbuk, antenatal care utilization rate was increasingly high with the increase in educational level of the women. Thus, in order to have a safe motherhood through adequate utilization of antenatal care there is a pressing need to improve female literacy besides alleviating poverty.

## INTRODUCTION

The estimated global maternal deaths in 2017 reports that about 2,95,000 women died during and following pregnancy and childbirth and most could have been prevented (WHO, 2019). Sub-Saharan Africa and Southern Asia accounted for approximately 86% (254,000) and the vast majority of these deaths occurred in low-resource settings. The United Nations International Children's Emergency Fund (UNICEF) estimated that 44,000 women die annually, due to preventable pregnancy-related causes in India (UNICEF, 2019). A number of studies also have identified the lack of antenatal care as a risk factor for maternal morbidity and mortality (Ali *et al.*, 2018). Maternal mortality rate can be reduced, but all the pregnant mothers need to access antenatal care.

Antenatal care (ANC) is defined by the World

Health Organization (2016) as the health care services provided to pregnant women and adolescents girls with the help of skilled health care workers in order to ensure the best health conditions for both mother and baby during pregnancy. The various services under antenatal care visits include clinical check-up of blood test to estimate hemoglobin, measurement of height and weight, examination of abdomen, urine test to estimate sugar and albumin, fetal examination through ultrasound, tetanus toxoid vaccination and supplementation of iron and folic acid tablets (Manuswamy *et al.*, 2014).

The maternal health care services that mother receives during her pregnancy and at the time of delivery are important for the well being of the mother and her child (Pandey and Karki, 2014). The main purpose of having timely and adequate visits to antenatal care centre and utilize the health facilities is to achieve good maternal health and safe childbirth

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outcomes. Pregnancy in women is usually accompanied by a number of physical, physiological and psychological changes which is a normal phenomenon. However these changes can become complicated posing a threat to women's health and consequently the unborn baby. So, the expecting mother needs to visit the centre for early diagnosis, if any complications, and take curative and preventive measures. It is an essential intervention needed to reduce maternal and neo-natal morbidity and mortality.

In India, child health program was launched in 1997 to improve the ante-natal care, institution deliveries with trained health workers and post-natal mother health as well as the child health care services. (Chandraker *et al.*, 2009). Sadly, even where antenatal care facility is available it is poorly utilized due to many factors. Previous studies have revealed that socio-demographic factors such as, maternal education, household income, family size, maternal age and marital status are associated with poor utilization of antenatal care services (Rurangirwa *et al.*, 2017). With this back drop the present study was carried out as an attempt to analyze the effect of socio-demographic factors - education, household income level and family size on the utilization of antenatal care in Sumbuk Village, South Sikkim.

#### METHODOLOGY

Sikkim is the second smallest state of India surrounded by Nepal in the west and Bhutan in the east, China in the north and West Bengal in the south. The erstwhile Himalayan Kingdom that became the 22<sup>nd</sup> state of India on 16 May 1975, is divided into four districts, namely East, West, North and South Districts having a total population of 6,07,688 (Census, 2011). A cross sectional study was conducted in Sumbuk village of South Sikkim. The village, inhabited by Nepalese, Bhutia and Lepcha communities, is located 17 kilometers away from Namchi, the District headquarters. The data for present study was collected from 250 ever-married women aged between 15 to 49 years by personally interviewing the women using structured schedules. The respondents were selected through convenience sampling and all the three different ethnic communities residing in the village were included in the study. Prior to interview, the study purpose and objectives were explained to participants

and their verbal consent was obtained. Ethical clearance was also obtained from the Institution Committee, Sikkim University, before the commencement of the study. Dependent variable was categorized into women who utilized and who didn't utilize the antenatal care. Utilization of antenatal care service is defined as four or more antenatal visits, according to World Health Organization (WHO), at least one tetanus toxoid injection and consumption of iron folic acid (IFA).

Independent variables chosen were education, household income and family size. Educational attainments of the individuals were categorized as: Illiterate those who never had any formal education), primary, (those who studied up to class V), secondary education (those who completed class X) and tertiary education (higher secondary and above). Data on household income was classified into three groups: high income group (above 75<sup>th</sup> percentile > <sup>1</sup> 9000); middle income group (between 50<sup>th</sup>-75<sup>th</sup> percentile <sup>1</sup> 4250-9000) and low income group (below 50<sup>th</sup> percentile <sup>1</sup> <4,250). Data on household income were cross checked taking into considerations some aspects of socio-economic conditions like types of occupation and household ownership of physical assets, including television, computer, phone, watch, automobile, refrigerator, etc. Family size was divided into three categories, viz., small (<4 members in the family), medium (5-6 members in the family) and large (7+ members in the family). All collected data were entered and analyzed using Statistical Package for Social Science (SPSS, version 16.0). Pearson's *chi* square ( $\chi^2$ ) test was also performed to examine the relationship between utilization of antenatal care services and the three socio-demographic variables chosen.

#### RESULTS

The frequency of women from Sumbuk village who availed antenatal care services was 75.2% while 24.8% of women had no antenatal utilization during pregnancy (Table 1). In terms of educational attainment only 8.8% women have tertiary education while 20.4% are illiterate. Maximum number of women (48.4%) had education up to secondary level followed by women with primary education (22.4 %). The number of women belonging to low income group is

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highest with 78.4% followed by middle income group (17.6%) and finally the high income group comprising only 4.0%. Table 1 also shows that majority of the women belonged to small family size (74%) while only 4.4% come from large family and 21.6% belong to medium size family.

TABLE 1  
*Descriptive Statistics: Antenatal care utilization; education, household income and family size*

Variables	N (250)	Percentage
<i>Antenatal care utilization</i>		
Visited	188	75.2
Not visited	62	24.8
<i>Education</i>		
No formal education	51	20.4
Primary education	56	22.4
Secondary education	121	48.4
Tertiary education	22	8.8
<i>Household income</i>		
High income group	10	4.0
Middle income group	44	17.6
Low income group	196	78.4
<i>Family size</i>		
Small	185	74
Medium	54	21.6
Large	11	4.4

Table 2 shows the relationship between antenatal care utilization and the socio-demographic conditions. It is found that women's education plays an important role in antenatal care utilization. The rate of antenatal care utilization increases as we move up the educational level of women. The percentage of women who had antenatal care utilization among the illiterate, primary, secondary and tertiary are 43.1%, 67.9%, 88.4% and 95.5%, respectively. The likelihood to utilize antenatal care increases with the increasing household

income. Thus, all women in high income group had antenatal care visits, while only 38 (86.4%) out of 44 women in middle income group and 140 (71.4%) out of 196 women in low income group utilized antenatal care during pregnancy. The frequency of antenatal care utilization is observed to decrease with the increasing family size. 157 (84.9%) of the 185 women belonging to small size family and 29 (53.7%) out of 54 women in medium size family utilized antenatal care. On the contrary, only 18.2% of women in large family size made use of antenatal care.

TABLE 2  
*Antenatal care utilization in relation to socio-demographic variables*

Socio-demographic variables	Antenatal care utilization			Significance level
	Frequency n=250 (100%)	Utilized N=188 (75.2)	Not utilized N=62 (24.8)	
		<i>Education</i>		
Illiterate	51 (20.4)*	22 (43.1)	29 (56.9)	$\chi^2 = 45.927$ ; $df = 3$ ; $p < 0.05$
Primary education	56 (22.4)	38 (67.9)	18 (32.1)	
Secondary education	121 (48.4)	107 (88.4)	14 (11.6)	
Tertiary education	22 (8.8)	21 (95.5)	1 (4.5)	
		<i>Household income</i>		
High income	10 (4.0)	10 (100)	0 (0)	$\chi^2 = 7.733$ , $df = 2$ ; $p < 0.05$
Middle income	44 (17.6)	38 (86.4)	6 (13.6)	
Low income	196	(8.4)	140 (1.4)	
		<i>Family size</i>		
Small	185 (74.0)	157 (84.9)	28 (15.1)	$\chi^2 = 41.822$ ; $df = 2$ ; $p < 0.05$
Medium	54 (21.6)	29 (53.7)	25 (46.3)	
Large	11 (4.4)	2 (18.2)	9 (81.8)	

\* Values in parenthesis indicate percentages

## DISCUSSION

Our study revealed that overall antenatal care utilization rate is relatively high among the women of

Sumbuk village, in south district of Sikkim, with (75.2%) against 21% and 58.4% for the overall India and Sikkim respectively (Table-3). The NFHS-5 finding on South district (84.5 %) corroborates our finding.

TABLE 3  
ANC visits (IIPS and ICF, 2021) and the present work

India	Sikkim State	Sikkim East District	Sikkim-West District	Sikkim North District	Sikkim South District	Sumbuk village*
21%	58.4%	43.8%	70.4%	59.4%	84.5%	75.2%

\* Present study

#### *Antenatal Care Utilization and Education*

Our study reveals that the level of education has positive influence on utilization of antenatal care services. Higher the education higher was the likelihood of antenatal care utilization. Women with tertiary educational level utilized more antenatal care services as recommended by World Health Organization, as compared with those women who were illiterate or below secondary level of education. The same influence of women education on utilization of Antenatal care services was found by Arop, (2015) and Okedo-Alex *et al.* (2019). This might be attributed to the fact that educated women are well informed about the importance of Antenatal care services. They might have better role in decision making process at home and also communicate more openly with others members of family on various maternal health issues including their pregnancies and complications that may arise during pregnancy” (Osario *et al.*, 2014; Arop, 2015. Okedo-Alex *et al.*, 2016). The findings of the present study corroborates previous reports that “educated women account for higher number of antenatal care visits compared to uneducated women living in a similar setting and economic status, because increased education improves women’s knowledge of high-risk prenatal warning signs and treatment, and ultimately promotes positive attitudes toward health care and utilization of services” (Umar, 2017). In contrast to the present findings a study conducted in Pakistan revealed education did not have any influences on antenatal care services utilization (Tekelab *et al.*, 2019).

#### *Antenatal Care Utilization and Income*

It was observed that there was a significant influence of household income on antenatal care utilization. Women with high income level tend to

utilize more Antenatal care services, as compared to those women with middle and low income. This finding is similar to the study analyzing the 2011 NFHS which found that the women who belonged to the households in the richest wealth quantiles had three times higher the odds of receiving better antenatal care compared to the poorest wealth quantiles (Joshi *et al.*, 2014). This might be attributed to the fact that women who want to utilize better antenatal care services have to pay for transportation, high medical costs while they have to forego the daily income they normally earn through daily wages. Thus, due to financial constraints, such women may not visit antenatal care and limit the number of antenatal care visits. This impact of household income was documented in several previously reported studies like Addai (2000), Celik *et al.* (2000) and Bloom *et al.* (2001).

#### *Antenatal Care Utilization and Family Size*

The present finding showed that there was significant association between family size and utilization of antenatal care services among the women of the study village. Respondents who have small and medium family size were more likely to utilize antenatal care services than those who have large family size. This findings is similar to the findings of Abosse *et al.* (2010), Rurangirwa *et al.* (2017), Tolefac *et al.* (2017), and Akowuah *et al.* (2018). The plausible explanation for that could be due to excessive demand of money, time and other resources for pregnancy check-ups, which the women with large family sizes tend to sacrifice and underutilize the antenatal care services (Abor *et al.*, 2011; Akowuah *et al.*, 2018). Another reason, could be that women who belong to large family expend more time on their numerous responsibilities for cooking, cleaning, collecting water

or fuel, than spending their time on their own health (Abosse *et al.*, 2010). Previous studies by Akowuah *et al.* (2018) also suggest that a large family size have low family income and may lack to access medical facilities including antenatal care services.

#### LIMITATIONS

One of the key limitations of this study is that being intrinsically retrospective. We could not eliminate recall bias totally. However, attempts were made to minimize bias by including the information from each woman's latest antenatal care visit. Other limitation is that the information was self-reported; and as such, response bias including social desirability bias is inevitable. We also could not include other variables that could impact antenatal care utilization. On top of that, we did not analyze the quality of antenatal care from the perspective of types of health facilities where the women received antenatal care. Despite its limitations, this data provides primary data highlighting the practices of antenatal care utilization in the village.

#### CONCLUSION

The frequency of antenatal care utilization is reasonably high among the women of Sumbuk village and could be higher if measures are taken to alleviate poverty and increase the level of education among the populace. Though family size does seem to play a contributing role it is a cultural matter and as such the responsibility of the government is not so significant. Antenatal care was found to be positively associated with all the three variables chosen. However, further studies are needed in Sikkim to assess the association of antenatal care utilization with more independent variables and determinants. All the three parameters considered for the present study showing statistical significance could be due to the fact that individuals who belonged to large family size were also those belonging to low income group who, and since coming from a poor family with large family size, could not afford higher level of education. Thus each parameter could be having a cascading and cumulative effect on other variables and ultimately on the antenatal care utilization. Further study with more samples, more independent variables and determinants coupled with different statistical tools

that could throw better light on the factors that actually influence the use of antenatal care among the population. The positive association between women's education with antenatal care utilization underscores the importance of spreading female literacy. If a girl child is educated, the country gets an educated mother and in turn, a healthy child perpetuating a healthy nation. On the contrary, due to illiteracy of a girl child we get an illiterate mother who may bring forth an unhealthy offspring thereby continuing the vicious circle of unhealthy population. Thus, in order to have a safe motherhood through adequate utilization of antenatal care there is a pressing need to improve female literacy besides alleviating poverty.

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