

# Antenatal Health Care Service Utilization in Slum Areas of Pokhara Sub-Metropolitan City, Nepal

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## ABSTRACT

**Background:** Half a million women die every year due to pregnancy and childbirth in the world. Among these death, 99% occur in the low and middle income countries. Antenatal care (ANC) provides an opportunity to deliver different services which are important in improving maternal survival.

**Methods:** A descriptive cross sectional study was conducted from September 2012 - February 2013 among 400 married women of reproductive age group. A pre-tested structured questionnaire were used and data were analyzed using Statistical Package for Social Science (SPSS) for windows version 18.0. Frequency, crude and adjusted odds ratios and confidence intervals were performed.

**Results:** Nearly 27% had four or more antenatal health care utilization (ANC) visits on appropriate time according to schedule of World Health Organization (WHO). In logistic regression, ANC users were found to be more/less likely to be in age group 20 – 35 years (AOR = 2.825, 95% CI: 1.166-6.843), education of spouse (AOR 0.361, 95% CI : 0.130–1.000), occupation of spouse (AOR = 0.261, 95% CI: 0.093 –0.739), monthly income of family > 20,000Nrs (AOR = 2.190, 95% CI: 1.041–4.606), planned pregnancy (AOR = 2.417, 95% CI: 1.047 –5.609), death of child (AOR = 3.153, 95% CI: 1.112 –8.944).

**Conclusions:** This study demonstrated low antenatal care service utilization. Hence, there is a need to increase the availability and accessibility of antenatal care to all women.

**Keywords:** Antenatal care (ANC); appropriate time of visit; child birth; pregnancy; reproductive age.

## INTRODUCTION

WHO estimates that 99% of 600,000 women deaths as a result of pregnancy and child birth each year occurs in developing countries.<sup>1</sup> Risk of maternal mortality and morbidity can be reduced through regular and proper ANC check-up, delivery under safe and hygienic conditions.<sup>2</sup>

ANC utilization is influenced by various factors like illiteracy, mass media, family income, residence<sup>3,4</sup> second pregnancy, occupation (husband and wife),<sup>5</sup> self decision, spousal communication on family planning<sup>6</sup> leading to non-utilisation/underutilisation of health services. The adequate ANC utilization in Nepal is low

29%,<sup>7</sup> 50%,<sup>8</sup> 46%<sup>9</sup> compared to available recent data i.e. 93.8%,<sup>10</sup> 87%,<sup>11</sup> 78%<sup>12</sup> from Iran, South India and Indonesia respectively (2010-13). The adequate ANC utilization in slum is further low 18%,<sup>13</sup> 29%.<sup>14</sup> Literature searches research conducting ANC utilization in slum of Nepal was not found in Pubmed, Google Scholar and Nepal Journals online.

This study was conducted to assess ANC utilization and identify the factors affecting it among married women of reproductive age in slum areas of Pokhara, Nepal.

## METHODS

This is a community based cross-sectional study

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conducted in slum area of Pokhara Sub-metropolitan city between September 2012 - February 2013. The study included 400 married women of reproductive age (MRWA) between 15 to 45 years. Total population of Pokhara was 2, 64, 991 and total population of slum recorded is 52,998. Married women of reproductive age in slum areas is 11,448. Population proportionate to size was used to calculate number of reproductive age women in each ward. Out of total 18 wards, slum were recorded in 10 wards which was incorporated in the study.

The simple random sample was used to recruit calculated number of women from respective wards. Women refusing to participate in the study were excluded from the study. Semi structured questionnaire was used to interview. Collected data were entered into a master chart prepared in Microsoft Excel 2007 which is checked, verified and converted into SPSS 18.0 version for statistical analysis. Descriptive statistics like mean, percentage, standard deviation etc was used to describe characteristics of collected data. For bivariate, chi-square was applied to find significance difference between ANC and socio-demographic characteristics with 95% confidence interval i.e. p value 0.05. The variable showing p value of less than 0.25 was entered into logistic model for multivariate analysis. Finally, adjusted odds ratio was calculated to identify common associated factor.

Pretest was done in 10% of total sample size and necessary correction of questionnaire was done. Logical sequence of questionnaire was maintained and checked for content validity. The questionnaire was translated into Nepali with consultation from experts. This study was approved by the Institutional Ethical Review Board (IERB) of B P Koirala Institute of Health Sciences, Nepal. Informed verbal consent was taken from respondents.

## RESULTS

Altogether 400 women of reproductive age 15-49 years were interviewed giving a response rate 100%.

**Table 1. Socio-demographic characteristics of respondents. (n = 400)**

Socio-demographic Characteristic	Frequency	Percentage
<b>Age groups (years)</b>		
< 20	60	15.0
20 - 34	268	67.0
≥ 35	72	18.0

<b>Respondent Education</b>		
Illiterate	83	20.8
Primary	105	26.3
Secondary & above	212	53.0

<b>Spouse Education</b>		
Illiterate	44	11.0
Primary	107	26.8
Secondary & above	249	62.3

<b>Occupation of Respondent</b>		
Housewife	346	86.5
Daily wages labor/service holder	40	10
Shopkeepers	14	3.5

<b>Occupation of Spouse</b>		
Employed	381	95.2
Unemployed	19	4.8

<b>Family Income (Nrs)</b>		
< 10,000	160	40.0
10,000 - 20,000	176	44.0
> 20,000	64	16.0

**Table 2. Socio-demographic characteristics of respondents (mothers). (n = 400)**

Characteristics	Frequency	Percentage
<b>Age at 1st Pregnancy (years)</b>		
< 20	250	62.5
≥ 20	150	37.5
<b>Distance of nearest health facility</b>		
≥ 1/2 hour	358	89.5
< 1/2 hour	42	10.5
<b>Decision maker of family (ANC)</b>		
Husband	188	47.0
Respondent (Self)	56	14.0
Mother-in-law	108	27
Others	48	12
<b>Type of pregnancy</b>		
Planned	334	83.5
Unplanned	66	16.5
<b>Antenatal Visit</b>		

Yes	369	92.3	Table 1 shows age of respondents range from 16 - 40 years with mean age 24.7 years (SD, 5.3). Around 67.0 percent of the respondents were between 20 - 34 years of age. Majority of the respondents (85.5%) were Hindus. Less than half of the respondents were from Dalits caste (40.3%) & 18.5 percent from Upper caste groups. More than half (51.8%) of the respondents were having joint/ extended type of family. Most of the respondents (64.0%) were having family size $\leq 5$ .
No	31	7.8	
<b>Total number of ANC visit</b>			Table 2 illustrate that age of mother at first pregnancy ranged from 14 to 38 years with mean age of pregnancy of $18.8 \pm 3.3$ years. Sixty percent of respondents
< 4 Visit	161	40.3	
$\geq 4$ Visit	239	59.8	
<b>Number of visit on appropriate time(WHO)</b>			
< 4 Visit	294	73.5	
$\geq 4$ Visit	106	26.5	

**Table 3. Association between socio-demographic and ANC(n = 400)**

Categories	ANC visits		p value	COR (95% CI)
	Yes, n(%)	No, n(%)		
<b>Age of mother</b>				
<20	10(16.7)	50(83.3)	0.015	Ref.
20 - 34	83(31.0)	185(69.0)		2.243(1.085 -4.639)
$\geq 35$	13(18.1)	59(81.9)		1.1017(0.445 -2.727)
<b>Respondents education</b>				
Formal	95(29.9)	223(70.1)	0.003	2.750(1.394 - 5.422)
Illiterate	11(13.4)	71(86.6)		Ref.
<b>Husband education</b>				
Illiterate	10(22.7)	34(77.3)	0.007	Ref.
Primary	17(15.9)	90(84.1)		0.642(0.267-1.541)
Secondary	79(31.7)	170(68.3)		1.580(0.743 -3.358)
<b>Respondent occupation</b>				
Housewife	90(26.1)	255(73.9)	0.044	0.353(0.136 - 0.917)
Daily wages Services/ Business	7(18.9)	30(81.1)		0.233(0.068 - 0.804)
	9(50.0)	9(50.0)		Ref.
<b>Spouse occupation</b>				
Employed	97(25.5)	284(74.5)	0.035	0.379(0.149 -0.961)
Unemployed	9(47.4)	10(57.6)		Ref
<b>Family income(Nrs)</b>				
< 10, 000	33(20.6)	127(79.4)	0.018	Ref.
10,000 - 20,000	48(27.3)	128(72.7)		1.443(0.870 - 2.395)
>20, 000	25(39.1)	39(60.9)		2.467(1.312 - 4.639)

COR in bold indicates significant

**Table 4. Association between ANC Care History and ANC (n = 400)**

Characteristics	ANC visits		p value	COR (95% CI)
	Yes(%)	No(%)		
Age at First Pregnancy (years)				
< 20	57(22.7)	194(77.3)	0.026	Ref.
≥ 20	49(32.9)	100(67.1)		<b>1.668(1.06- 2.620)</b>
Number of children				
1	56(31.6)	121(68.4)	0.038	Ref
≥2	50(22.4)	173(77.6)		<b>0.624(0.400-0.976)</b>
History of Death of Child				
0	98(25.9)	281(74.1)	0.216	Ref.
≥1	8(38.1)	13(61.9)		<b>1.765(0.710-4.385)</b>
Type of pregnancy				
Planned	97(29.0)	237(71.0)	0.010	<b>2.592(1.235-5.442)</b>
Unplanned	9(13.6)	57(86.4)		Ref.
Source of Information(ANC)				
Family/Friends	25(19.8)	101(80.2)	0.002	Ref.
Health care worker	55(27.8)	143(72.2)		<b>1.554(0.908 -2.658)</b>
Media(radio/T.V)	11(22.4)	38(77.6)		<b>1.169(0.525 -2.606)</b>
Books & newspaper	15(55.6)	12(44.4)		<b>5.050(2.102-12.130)</b>

p value and COR in bold indicates significance

mentioned ≥ 4 visits during their last pregnancy. Among them only 26.5 percent had made ≥ 4 visits during their last pregnancy considering visits on appropriate time according to WHO. Less than half of the respondents (44.3%) had one child & 35.5 percent had two children. Thirteen percent of the respondents had abortion/miscarriage.

Table 3 show that compared to age group less than 20 years, age group 20 - 34 years was more than two times likely to receive antenatal health care services (OR = 2.243, 95% CI: 1.085 - 4.639) and age group more than 35 years was not found to be significant associated with ANC service utilization (OR = 1.1017, 95% CI: 0.445 -2.727).

Age at first pregnancy was also positively associated with ANC service utilization (COR = 1.668, 95% CI: 1.062 - 2.620). Planned pregnancy was two times more likely to receive ANC services.(OR = 2.592, 95% CI: 1.235 - 5.442). (Table 4)

Based on the bivariate analysis and priori information, a multivariate logistic regression model was constructed to examine the relationship between variables and ANC services utilization, while also considering possible

covariate effects.

Table 5 demonstrate that after adjusting other variables, Taking < 20 years category as a reference, age of mother 20-34 years was found to be more than two times significant with ANC utilization. (AOR = 3.100, 95% CI: 1.258 -7.636).

## DISCUSSION

The current study showed that mean age of mother at first pregnancy was 18.76 (SD, 3.343). More than half of the respondents (62.8%) were pregnant at the age less than 20, closer to findings of a Tamang community of Nepal<sup>9</sup> well as Ethiopia(18.4 ± 2.5 years).<sup>15</sup> However, this finding was not consistent with study done in Nigeria.<sup>16</sup> Our finding highlights that still lots of women get married before legal age of marriage (18 years) and give birth before attaining reproductive maturity.

This study showed that only 26.5 percent had completed four or more ANC visits similar to study done in Lucknow, where 28.4% had done four or more antenatal visits,<sup>17</sup> lower than studies from NDHS 2011, Uganda, Ethiopia and North Maharashtra are 50%,<sup>8</sup> 37.5%,<sup>18</sup> 46.5%<sup>19</sup> and 64.76<sup>20</sup> respectively. This might be hypothesized as we

**Table 5. Regression Analysis between ANC Utilization & Independent Variables(n = 400)**

Characteristics	Reg. coef.	p value	AOR	95% CI
<b>Age of mother</b>				
< 20			Ref.	
20 - 34	1.131	0.014	3.100	1.258 - 7.636
≥ 35	0.529	0.390	1.697	0.508 - 5.670
<b>Husband education</b>				
Illiterate			Ref	
Primary	-1.053	0.045	0.349	0.125 - 0.976
Secondary	-0.531	0.283	0.588	0.223 - 1.550
<b>Spouse occupation</b>				
Unemployed			Ref	
Employed	-1.406	0.009	0.245	0.085 - 0.703
<b>Family income(Nrs)</b>				
< 10, 000			Ref	
10,000 - 20,000	0.458	0.118	1.580	0.890 - 2.805
>20, 000	0.784	0.039	2.190	1.041 - 4.606
<b>Type of family</b>				
Joint/Extended			Ref	
Nuclear	0.573	0.029	1.773	1.059 - 2.967
<b>Type of pregnancy</b>				
Unplanned			Ref.	
Planned	0.908	0.036	2.480	1.063 - 5.789
<b>Death of children</b>				
No death			Ref.	
1 or more death	1.212	0.022	3.361	1.190 - 9.499
p value and AOR in bold indicates significance				

had taken visit only on appropriate time according to the schedule given by WHO. A study conducted in Eastern Sudan showed that 90 percent women had at least one visit, 11 percent had greater than four antenatal visits, while 10.0 percent had not attended at all.<sup>21</sup>

In current study, unadjusted analysis identified education of respondents to be significantly associated with ANC utilization (COR= 2.750, 95% CI: 1.394 - 5.422), consistent to findings from Nigeria,<sup>18</sup> Ethiopia<sup>22</sup> and Bangladesh<sup>23</sup> where higher the level of education the higher was the likelihood of receiving ANC during pregnancy. The study revealed that, comparison to occupation like shopkeeper/service, ANC utilization was significantly

lower in housewives with (COR = 0.353, 95% CI: 0.136 - 0.917) and in labor (COR = 0.233, 95% CI: 0.068 - 0.804) not significant in multivariate analysis. This is in line with finding obtained from Tura, et al., (COR=8.33 95% CI: 4.35, 16.67).<sup>15</sup> It might be due to exposure to the outer world which make women more concerned and knowledgeable.

Study showed that women of age 20 - 34yrs were two times more likely to receive antenatal care (AOR =3.100, 95% CI: 1.258 - 7.636) compared to age group <20years, confirmed by Adamu HS.<sup>24</sup> M.D Dairo, et al. also shows women who were 25 years and older were more than 2 times more likely to utilize antenatal than women who

were 25 years or younger [(OR=2.236, 95% CI, 1.106-4.107)].<sup>25</sup> Other studies conducted in Western Uganda<sup>26</sup> 10-19 years were less likely to seek ANC compared to the 20-24 years and Ethiopia<sup>27</sup> shows different results.

Regarding occupation, women with employed husband were less likely associated with ANC utilization compared to having unemployed husband (AOR = 0.262, 95% CI : 0.093 - 0.740) contradictory to other studies.<sup>5, 28</sup> This may be due to unemployed husband have plenty of time to take good care of pregnant mother. The present study revealed that women who had family income of >20, 000Nrs were more likely to utilize ANC (AOR = 2.190 95% CI: 1.041 - 4.606). It is obvious that economic status affects utilization of service as if people have sufficient resources and income they will be more likely to utilize available services, similar to others finding [AOR=1.53, 95% CI: 1.22, 3.52]<sup>15</sup> and Ethiopia,<sup>19</sup> whereas distinguish result obtained in a study conducted in Islamabad where family income was not significantly associated with antenatal care utilization (p=0.52).<sup>29</sup>

The present study highlights that history of death of child was significantly associated with successive ANC utilization, (AOR = 3.361, 95% CI: 1.190 - 9.499) which differ with the study done by Alemayehu T.<sup>19</sup> As pregnant women with outcome as still birth/death of any sibling are more worried and cautious about her health and wellbeing of future new born child so have timely checkup during pregnancy and child birth.

Women with primary educated husband was negatively associated (AOR = 0.349, 95% CI: 0.125 - 0.976) whereas dissimilar findings were obtained in other studies<sup>21, 19, 26</sup> and <sup>30</sup> where, educational attainment of the husband also showed its positive impact on ANC utilization (p < 0.05). Planned pregnancy was found to have positive association compared to unplanned pregnancy (AOR=2.480 95% CI: 1.063 - 5.789) which is in line with a study conducted by Bahilu T (AOR 2.94, 95% CI: 1.66 - 5.20),<sup>31</sup> by Erlindawati (AOR=4.907, 95% CI, 1.612 - 14.941)<sup>32</sup> and Tariku a.<sup>33</sup> This can be hypothesized as planned pregnant mother were more prepared for her motherhood and will also get support from other family members for all types of care needed for pregnancy.

## CONCLUSIONS

Prevalence of teenage pregnancy in our study showed

that women were still having high risk pregnancy. In our context, women were still deprived of taking decision despite it being related to their own health. Our study showed that only 26.5 percent made more or equal to 4 visits during their last pregnancy. Whereas, NDHS 2011 showed that 50 percent were having 4 visits. This might be because operational definition of our study was different and we were focused not only on number of visits but also in the appropriate time as recommended by WHO.

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