

Utilization of Maternal Health Services: An Experience from Squatter Settlement in Nepal

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ABSTRACT

Maternal health care services should be accessible to all women during pregnancy, delivery, and the postpartum period. The majority of maternal deaths can be prevented if women utilize maternal health care services appropriately. This study aimed to assess the utilization of maternal health services and explore the barriers in accessing maternal health care services. This descriptive cross-sectional study was conducted among 48 mothers over the age of 18 with one or more children. The data was obtained by interview and focus group discussion using the structured questionnaires and checklists, which included socio-demographic characteristics, and utilization of antenatal care, delivery practice, and postnatal care services. Among 48 mothers, only 35.41% used complete antenatal care services, 66.66% received TT vaccine during pregnancy, 54.16% delivered their last child at the hospital, and only 27.08% received postnatal services as recommended by the World Health Organization. The antenatal care services and delivery services were utilized suboptimally, and postnatal care visits were significantly lower. Socio-economic factors such as family income and education of women correlated considerably with maternal health care utilization. Women with higher education levels and higher family income were more likely to go for frequent antenatal check-ups, have TT vaccinations, deliver in hospitals, and visit more postnatal check-ups than women with lower education levels and lower family income. The findings indicate that there are unmet needs of maternal health care access to women living in the squatters of Nepal. It is therefore important to implement targeted incentive programs and maternal health awareness campaigns to increase the utilization of maternal health services among women living in squatter settlements in Nepal.

Keywords: Antenatal, Delivery, Postnatal, Maternal health services, Squatter

INTRODUCTION

The maternal mortality rate (MMR) in Nepal has significantly reduced from 539 to 239 maternal deaths per 100,000 live births between 1996 and 2016. (1) Although the report showed substantial progress in improving maternal health care access and utilization, disparities remain according to women's education level, socio-economic status, place of residence, and beliefs and practices. Maternal mortality also exhibits huge discrepancies between affluent and affluent. For example, births assisted by

skilled birth attendants (SBA) are 10.7% for the poorest and 81.5% for the richest quintile in Nepal; and uneducated women have higher under-five mortality, i.e., 73 deaths per 1,000 live births than those who completed the School Leaving Certificate or a higher level of education. i.e., 32 deaths per 1,000 live births. (2)

As a signatory country, Nepal has committed to achieving Sustainable Development Goal (SDG) target 3.1 of reducing the global MMR to less than 70 maternal deaths per 100,000 live births by

2030, and to achieve this ambitious target, Nepal will need to reduce its MMR by at least 7.5% annually addressing severe inequities in maternal health access, utilization, and quality. (3) To address the inequalities in maternal health access, the government of Nepal introduced the Safe Delivery Incentive Programme (SDIP), a program that provides cash incentives (NRS 500 for Kathmandu) to the women who give birth in public health facilities in 2005. (4) This program was revised in 2007 as the Safe Motherhood program which constituted the costs of transportation to health centers for mothers, free institutional delivery, and the incentive to a health worker. (5) In 2009-2010, the government added another incentive of NRS 400 to women who complete four antenatal checkups. (6) Even though the government has made free maternal health services and added initiatives, the under-utilization of maternal health care services continues in slums and squatters in Nepal.

The condition of slum inhabitants in developing countries is worse in comparison to non-slum inhabitants. There are many barriers to slum women maintaining good health in general and maternal health in particular. (7) The squatter women in Nepal bear the burden of a higher incidence of health illness especially among women of reproductive age and related health risk factors than the general population of Nepal. Women in slums experience more episodes of illness than males due to inappropriate utilization of maternal health care services; this could be one important factor for increasing maternal mortality and morbidity. (8)

The utilization of maternal healthcare services is important in reducing maternal mortality and morbidity rate in Nepal. According to the annual report (2070/71) of the Department of Health Services, Nepal (9), three fourth of the mothers who attended ANC had received the four completed ANC visits, the proportion of Institutional delivery was fifty percent; mothers, who received first

postnatal care at the health facility among expected lives were 59 percent. Although there seems to be a slight improvement in the utilization of maternal health services in Nepal, there is a need for education and awareness to promote accessibility and the use of antenatal, delivery, and postnatal services for full coverage. (9)

In slum areas, women find difficulty in accessing or affording health care. They are also unaware of the available health services and their pregnancy-related complications due to which they suffer and even die with common and easily preventable diseases. (10) The socioeconomic status and education status play a vital role in the utilization of maternal health care services. Several studies have shown that women who are from affluent families and are well educated are more likely to use maternal health care services. (11-13) Another study on maternal health care utilization also found that low utilization of maternity services was positively associated with maternal education and disadvantaged populations. (14) Hence, policies and programs improving the socioeconomic status and educating women could be the appropriate way to achieve significant improvement in reducing maternal mortality and morbidity in the slums and squatters of Nepal.

This paper explores the utilization of maternal health services in squatter settlements, specifically those regarding antenatal and postnatal care, delivery practice, breastfeeding, and postnatal counselling. These maternal health services are an important concern for women, which if not addressed, ultimately impacts on overall health, and can lead to adverse reproductive experiences. This study contributes toward enriching our understanding of the existing access to and utilization of maternal health care services of women living in squatters of Kathmandu Valley. Moreover, the study assesses the utilization of maternal health care services and explores the factors influencing

utilization of antenatal care, postnatal care, and delivery practices.

MATERIALS AND METHODS

The study was undertaken in the Manohara squatter settlement. This riverine community located on the bank of the Manohara river is one of the largest settlements in the Kathmandu valley. The settlement is divided into four clusters. According to Lumanti Nepal, an organization working in slums and squatter settlements, the total households of Manohara squatter settlement is 450 comprising 1849 populations. (15) The Manohara settlement is considered 'squatter settlements' because the residents illegally established residences on the land they do not possess. Hence, the communities lack adequate access to basic health, water, sanitation, and education services even though the community resides within the Kathmandu valley.

The overall purpose of the study is to describe and explore the utilization of maternal health services in squatter settlements specifically on pregnancy, delivery, breastfeeding, antenatal and postnatal checkups. This study was a qualitative, quantitative, or mixed-methods approach and based on a descriptive research design. A total of 48 married women over the age of 18 and have one or more children were recruited using a snowball sampling and researchers' contacts. For the women who have more than one child, the information was gathered for the last birth.

The data were collected via semi-structured in-person interviews, focus group discussions and observations in the settlement. The field observations and all interviews were maintained on the note. The interviews and observation lasted approximately an hour.

The collected data was sorted, tabulated, and processed manually using simple statistical procedures. The data recorded during the in-person interviews and observations was first coded,

categorized, processed, and analyzed using Microsoft Word and Excel. The statistical measures used were frequency, chi-square, percentage, mean and median. The tests used for the analysis of data were Pearson's Chi-Square Test at a 5% level of significance. All respondents have provided consent before completing the interviews.

RESULTS

3.1. Sociodemographic Characteristics of the study population

Among 48 participants, 23 women delivered within a year, 18 delivered within 2 to 8 years and 7 were pregnant with their second, third or fourth child during the interview.

Table 1. Sociodemographic characteristics of the study population

Sociodemographic variables	Frequency (N)	Percentage (%)
Age (in years)		
18-28 Years	19	39.58
29-39 Years	15	31.25
40-48 Years	10	20.83
49 above	4	8.33
Median age = 32.33 years		
Level of Education		
Primary level	19	39.58
Secondary level	6	12.5
Higher secondary level and above	5	10.41
No formal education	18	37.5
Occupation		
Casual labour	17	35.41
Business	6	12.5
Formal employment	5	10.41
Housemaid	12	25
Service and business	5	10.41
Student	3	6.25
Family monthly income in Nepalese Rupees (NPR)		
5,000 - 10,000	32	66.66
10,000- 15,000	12	25
15,000-20,000	3	6.25
More than 20,000	1	2.08
Mean monthly income of a family = 9,687.50		
Family size		
5 and fewer members	27	56.25
6 to 8 members	18	37.5
More than 8 members	3	6.25
Number of years living in the squatter		
5 and fewer years	4	8.33
6 to 10 years	4	8.33
11 to 15 years	21	43.75
16 to 20 years	13	27.08
21 and more years	6	12.5
Median no of years living in squatter =14.04 years		
No. of pregnancies		
1-2	9	18.75
3-4	27	56.25
5 and more	12	25

Table 1 depicts that the majority of the respondents were between the ages of 18-28 years (39.58%), followed by 29-39 years (31.25%). The median age of the respondents was 32.33 years.

With regards to education, 39.58% reported having primary level education, whereas a significant number of respondents (37.5%) reported not receiving any formal education and only 10.41% of respondents had received higher secondary level education and above. Casual labour was the main occupation among the majority of the respondents (35.41%) followed by housemaids (25%). More than half of the respondents (66.66%) reported their family monthly income Nepalese rupees 5,000 -

10,000 and 25% of the respondents mentioned their family income between 10,000-15,000. The mean monthly income of the family was NPR 9,687.50.

Out of total respondents, more than half of the respondents had a family size of 5 and fewer members followed by a large family size of 6-8 members (37.5%). Slightly less than half (43.75%) of the respondents have been living in the squatter area at the time of the interview for 11 to 15 years, followed by 16 to 20 years(27.08%). More than half (56.25%)of the respondents reported having pregnancies between 3-4 followed by 5 and more (25%). The median no. of years respondents living in squatter was 14.04 years.

Table 2. Antenatal, delivery and postnatal health practice

Variable	Response	Frequency (N)	%
Antenatal practice			
No. of antenatal visits during the last pregnancy	At least one visit	10	20.83
	Four or more visits	17	35.41
	As suggested by professional health care providers	5	10.41
	No antenatal visit	16	33.33
Tetanus toxoid vaccination during pregnancy	Yes	32	66.66
	No	16	33.33
Albendazole during pregnancy	Yes	32	66.66
	No	16	33.33
Iron supplement during pregnancy	Yes	26	54.16
	No	22	45.83
Delivery practice			
Place of last delivery	At hospital	26	54.16
	At home	22	45.83
If delivered at home, assistance received from:	Relatives/neighbours	13	59.09
	Trained Traditional Birth attendant (Sudeni)	1	4.54
	Untrained Traditional Birth attendant	5	22.72
	Elders	3	13.63
Postnatal practice			
Postnatal check-up	Three visits or as suggested by professional health care providers	13	27.08
	No postnatal check up	35	72.91
Postnatal counselling and information from professional health care providers	Yes	13	27.08
	No	35	72.91
Breastfeeding practice in 24 hours for at least six weeks of delivery (N=23)	0-5	3	13.04
	6-10	9	39.13
	11 and more	11	47.82

Antenatal practice

Table 2 shows that 35.41% of women received four and more checkups during the last pregnancy, and slightly more than a quarter (33.33%) did not receive any antenatal checkups. The World Health Organization (WHO) recommends a minimum of four antenatal care visits initiated during pregnancy periods. (16) When asked a reason for not going to an

antenatal visit, some respondents informed that they did not have any significant health issues during pregnancy and could not afford to leave the work for antenatal checkups. Noteworthy to know that the primary income source for a majority of the respondents was casual work and housemaid work.

The study reveals that more than half (66.66%) of pregnant women were

vaccinated with the tetanus toxoid (TT) vaccine, while a significant number (33.33%) of women were unvaccinated. Similarly, more than half of pregnant women had taken albendazole (66.66%) and iron supplements (54.16%) during pregnancy.

Delivery practice

Our study indicates that more than half (54.16%) of the women delivered their last child at the hospital, whereas almost the other half (45.83%) reported giving birth at home assisted mostly by relatives/ neighbours (59.09%) followed by untrained

traditional birth attendants (22.72%) and elders(13.63%).

Postnatal practice

The current study indicates that almost three out of four women (72.91%) did not receive a single postnatal check-up, and postnatal counselling and information. A slightly more than a quarter (27.08%) of women reported receiving postnatal care at least three times or as suggested by professional health care providers. Also, 11 out of 23 women practiced breastfeeding 11 and more times followed by 6-10 times (9 out of 23 women) in 24 hours for at least six weeks of delivery.

Table 3. Educational status of women related to antenatal and postnatal checkups, TT vaccination and place of delivery

Variable	Educational status					
	Response	Higher secondary	Secondary	Primary	No formal education	Total
No. of antenatal visits during the last pregnancy	At least one visit	0	2	5	3	10
	Four or more visits	2	3	5	7	17
	As suggested by professional health care providers	3	1	1	0	5
	No antenatal check-up	0	0	8	8	16
TT vaccination during pregnancy	Yes	5	6	14	7	32
	No	0	0	5	11	16
Postnatal check-ups	3 or more visits	5	5	2	1	13
	No visits	0	1	17	17	35
Place of delivery	At hospital	5	6	9	6	26
	At home	0	0	10	12	22

Table 4. Relationship of educational status of women with antenatal and postnatal check-ups, TT vaccination and place of delivery

Relationship of educational status and no. of antenatal check-ups							
No. of antenatal check-ups	Level of education					Calculated Chi-square	Result
	Higher secondary	Secondary	Primary	No formal education			
						28.57	Significant at 0.05 level and 9 d.f.
	As suggested by healthcare workers	3	1	1	0		
	4 or more visits	2	3	5	7		
	At least 1 visit	0	2	5	3		
	No visit	0	0	8	8		
Relationship of the level of education and TT vaccination during pregnancy							
TT vaccination during pregnancy	Yes	5	6	14	7	12.16	Significant at 0.05 level and 3 d.f.
	No	0	0	5	11		
Relationship of educational status and place of delivery							
Place of delivery	At hospital	5	4	9	8	8.018	Significant at 0.05 level and 3 d.f.
	At home	0	2	10	10		
Relationship of educational status and postnatal check ups							
Postnatal check-ups	3 or more visits	5	5	2	1	29.93	Significant at 0.05 level and 3 d.f.
	No visits	0	1	17	17		

Using the chi-square test at 5% level of significance, it can be concluded that the relationship between no. of antenatal check-ups depends on educational status ($\chi^2_{0.05,9} = 16.92$) and educated women are more likely

to practice antenatal check-ups more frequently than women with no formal education and less educated women. Similarly, there is a significant ($\chi^2_{0.05,3} = 7.82$) relationship between educational

status with TT vaccination, place of delivery and postnatal check-ups, as women with higher education were more likely to have

TT vaccination, deliver in the hospital, and visits more postnatal check-ups than women with lower education.

Table 5. Monthly family income of respondents related to antenatal and postnatal checkups, TT vaccination and place of delivery

Variable	Family Income in NRS					
	Response	5,000-10,000	10,000-15,000	15,000-20,000	20,000-25,000	Total
No. of antenatal visits during the last pregnancy	At least one visit	4	1	0	0	5
	Four or more visits	12	4	1	0	17
	As suggested by professional health care providers	1	6	2	1	10
	No antenatal check-up	16	0	0	0	16
TT vaccination during pregnancy	Yes	17	11	3	1	32
	No	15	1	0	0	16
Postnatal checkups	3 or more visits	4	5	3	1	13
	No visits	28	7	0	0	35
Place of delivery	At hospital	12	10	3	1	26
	At home	20	2	0	0	22

Table 6. Relationship of monthly family income with antenatal and postnatal checkups, TT vaccination and place of delivery

Relationship of family income with no. of antenatal check-ups							
No. of antenatal check-ups	Family Income					Calculated Chi-square	Result
		5,000-10,000	10,000-15,000	15,000-20,000	20,000-25,000		
						27.88	Significant at 0.05 level and 9 d.f.
	As suggested by healthcare workers	1	6	2	1		
	4 or more visits	12	4	1	0		
	At least 1 visit	4	1	0	0		
	No visit	16	0	0	0		
Relationship of family income with TT vaccination during pregnancy							
TT vaccination during pregnancy	Yes	17	11	3	1	8.5	Significant at 0.05 level and 3 d.f.
	No	15	1	0	0		
Relationship of family income with the place of delivery							
Place of delivery	At hospital	12	10	3	1	11.54	Significant at 0.05 level and 3 d.f.
	At home	20	2	0	0		
Relationship of family income with postnatal check-ups							
Postnatal check-ups	3 or more visits	4	5	3	1	15.5	Significant at 0.05 level and 3 d.f.
	No visits	28	7	0	0		

Table 6 illustrates that at a 5% level of significance and 9 degrees of freedom ($\chi^2_{0.05,9} = 16.92$), there is a significant relationship between monthly family income and no. of antenatal checkups. Women with a higher family income were more likely to go for more antenatal checkups.

Similar results were observed at a 5% level of significance and 3 degrees of freedom ($\chi^2_{0.05,3} = 7.82$), in the cases of TT vaccination during pregnancy, place of delivery and postnatal checkups. This indicates a significant relationship between TT vaccination, place of delivery, and postnatal checkups with monthly family income. Hence, we can conclude that women with higher family income were more likely to have TT vaccination, visit more postnatal check-ups and be delivered in the hospital.

DISCUSSION

The utilization of maternal health care services in the Manohara squatter area was unsatisfactory. There were several issues with the utilization patterns of maternal health services among squatter women. Addressing three delays as presented by Thaddeus and Maine (17): (a) deciding to seek care; (b) reaching care, and (c) receiving adequate care can reduce the complications associated with pregnancy, delivery, and childbirth; thereby reduce maternal mortality and morbidity rates.

Antenatal Practice

Antenatal care is one of the essential components of maternal health. The current study indicates that slightly more than a quarter (33.33%) did not receive any antenatal checkup and only 35.41% received adequate visits i.e., four and more during the

last pregnancy. Whereas the recent figure for Nepal is almost double than our findings i.e., 69.8% of women with last birth accessed visiting for antenatal care check-up four or more times. (18) A study carried out in the slums in northern India has also revealed only 51.4% among 450 women receiving at least 3 antenatal visits. (19) This study further supports the findings of other studies that only 18% of slum women received a full antenatal care package in Mumbai, India. (20) Another study carried out in the marginalized communities, in Gorkha, Nepal identified 24 % of women not attending any antepartum care. (21)

The present study shows that there is a lack of awareness and ignorance among women in accessing maternal health care services. Also, educated women were more likely to go to antenatal checkups and more frequently than less educated women, and women with no formal education (Table 4). The factors such as poor socioeconomic status and minimum level of understanding have an opposite relation to safe motherhood practices, especially among marginalized populations. (22) A study in Ghana revealed the positive relationship between higher socioeconomic status and higher use of antenatal care visits. (23) A systematic review supports our finding that suggests cultural beliefs, maternal education, husband's education, family income are believed to be influencing women in seeking antenatal care in developing countries. (24)

Fifty-four percent in the present study consumed iron tablets, whereas 66% took albendazole and administered TT vaccine during their last pregnancy. Similar results were seen in studies from Gorkha, districts of Nepal, where more than one-third of women had poor consumption of iron tablets, anti-helminths, and administration of TT vaccine during their last pregnancy. (21) WHO recommends two doses of TT vaccine for minimum protection to unimmunized pregnant women or pregnant women without previous TT immunization records. (25)

Delivery practice

The risk of maternal and child mortality is higher when births take place at home. The research findings exhibit almost half of the deliveries happened at home assisted mostly by relatives/neighbours and untrained traditional birth attendants. The national rate of births taking place at home in Nepal is 64.7%. (2) The results of other studies also reveal a high number of slum and squatter women giving birth at home. Gupta et al. found similar results in their study that show about half (51.7%) of the deliveries taking place at home in urban slums of Lucknow, India. (26) The findings of this study are also supported by the findings of Khatun et al., Devasenapathy et al., and Chaudhary et al.(27-29)

The current research indicates a significant relationship between family income and place of delivery, where women with higher income are more likely to give birth at the hospital than at home. A study carried out in Mugu, one of the least developed districts of Nepal has highlighted the delivery cost among other reasons for giving birth at home. (30) Other research also highlights the financial barriers as one of the primary reasons behind deliveries taking place at home in slums and squatters of India and Bangladesh. (28, 31-33) A study conducted in Bangladesh, India, and Nepal from 2005 to 2011 among disadvantaged communities by Das et al.(34) further supports our findings that revealed the proportion of institutional delivery increased with household economic status and mother's level of education.

The hidden costs such as transport expenses, food, drink, clothes, communication expenses, etc. for institutional-based delivery can be one of the factors preventing women from choosing institutional delivery. A study shows that the average total hidden costs i.e., 27,288.5 NRS that is 87.5% of total average hospital-based delivery expenditures. (35) Since the mean monthly income of a family was only NRS 9,687.50 and the total monthly family income of

91.66% of women in the study area was less than 15,000 NRS, the institutional delivery seemed beyond their capacity.

Lack of education can prevent women from making decisions for institutional delivery, hence putting them at a high risk of maternal risk. A study in the slums of Dhaka, Bangladesh on the cause of neonatal and maternal deaths reveals that out of 38 women who died due to maternal causes, 42% did not receive any formal education, and 31% delivered at home. (27) This study also identified a significant number of women (37.5%) not receiving any formal education.

Postnatal care practice:

Despite the availability of health facilities in the capital city of Nepal, only one-fourth of squatter women in the study area received complete postnatal care. Only 27.09% of the respondents had at least three postnatal visits during the postpartum period which is consistent with the finding of the study conducted in the slums of Dhaka; in which 24% of the women had received postnatal care with only 5% receiving four or more postnatal care visits. (29) But the finding is not consistent with the findings of the studies where most of the respondents received postnatal counselling. (36, 37) The lower number of postnatal counselling in this study might be due to the greater number of respondents not using the postnatal checkups.

Although hundred percent of the women in the study breastfed their newborn, only 47.85% of respondents breastfed their newborns more than 11 times within twenty-four hours for at least six weeks. A study conducted on exclusive breastfeeding practices done in Nepal concluded that even though the percentage of exclusively breastfed infants was higher in Nepal, this has not met the WHO recommended target of ninety percent. (38) This pattern supports findings from a similar study in South India where the exclusive breastfeeding rates were below the recommended levels among mothers in urban slums. (39)

CONCLUSION

This study revealed that maternal healthcare services were not adequately utilized by women living in squatter settlements in Nepal. The antenatal care services and delivery services were utilized suboptimally, and postnatal care visits were significantly lower. Home deliveries mostly assisted by relatives, neighbours, and untrained traditional birth attendants are still widely prevalent in squatters. Despite the availability of government and private hospitals nearby in the squatter settlements, maternal health services are not adequately utilized by women. The results of our study indicate that women living in squatter settlements face significant obstacles in utilizing maternal health care mainly because of low family income and low level of education. Women with higher education levels and higher family income are more likely to have frequent antenatal check-ups, receive TT vaccinations, deliver in hospitals, and visit more postnatal check-ups than those with lower education levels and lower family income. Low utilization of antenatal care, postnatal care, and unsafe home delivery make women more susceptible to maternal mortality and morbidity. Hence, the accessibility and affordability of maternal health care services should be increased to women in squatter settlements by introducing targeted incentive programs, income-generating activities, strategic education programs, and various maternal health awareness programs. With these strategies and programs, Nepal can achieve its Sustainable Development Goal of reducing the maternal mortality ratio to 70 per 100,000 live births by 2030.

The findings of this study may be useful for organizations that are planning and improving maternal healthcare services. Qualitative or mixed-method studies could be conducted to gain more insight into the healthcare-seeking behaviours of women living in squatter settlements.

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