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Maternal health services utilization among mothers in a rural municipality

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Abstract

Introduction: Maternal health is essential to ensure the good health of the mother as well as children and by extension, the whole family. Despite the various measures launched by the government to enhance maternal care services, the utilization remains at large.

Method: A community-based face to face interview was conducted using a pre-tested structured survey questionnaire to find out maternal health service utilization among mothers in Mahankal Rural Municipality, Lalitpur, Nepal, during Feb-Jun 2020. A probability simple random sampling was used to select mothers having children aged between 1 to 3 y. A score of ≥mean was considered good utilization and below it a poor utilization. The study was approved by the ethical committee. The SPSS 16 was used for descriptive (frequency, mean) and comparative analysis by chi square between demographics and health service utilization.

Result: There were a total of 178 mothers surveyed, the mean age of 25.9±4.4 y, 77(43.3%) had completed elementary school, and 147(82.6%) were farmers. Good utilization of maternal health service 98(55%) and poor utilization 80(45%). The majority 153(86%) had ≥4 Antenatal checkups, 55(30.9%) had delivered at home despite the government incentive for institutional delivery, 105(59%) had postnatal visits ≥1, and 18(10%) had 3 postnatal visits.

Conclusion: The study revealed that slightly more than half (55%) of mothers surveyed had good utilization of maternal health services.

Keywords: maternal health services, mothers, utilization

Introduction

Maternal health refers to the health of women during pregnancy, childbirth, and the postpartum period.[1] In 2015, maternal mortality was 303,000 during and following pregnancy and childbirth.[2] It remains high in Nepal at 239 deaths per 100,000 live births as per Nepal Demographic Health Survey (NDHS).[3]

Maternal deaths can be prevented with access to antenatal care, skilled childbirth services, and care support after childbirth.[4] Some of the challenges in providing maternal health services in Nepal are lack of awareness about maternal health services, underutilization of services, social disparities, political instability, low socio-economic status, early pregnancy, unsafe abortion, mal-distribution of human resource for health, unavailability, and unaffordability of quality care, superstition, and indigenous practices.[5]

The indicators of the utilization of maternal health services are not satisfactory in Nepal. The NDHS 2016 shows only 69% of women attended four ANC visits, 58% of deliveries were assisted by a skilled birth attendant (SBA), 57% were institutional deliveries and 57% of both mothers and newborns received a postnatal care check-up within two days of deliveries.[3] A recent study conducted in Nuwakot, Nepal, revealed that only 57.4% had completed four antenatal care (ANC) checkups, 70.5% had delivered at health institutions, 51.8% of mothers had postnatal care (PNC) checkups, with only 47.2% having three PNC checkups.[6]

This study aimed to find out maternal health services utilization among mothers in Mahankal Rural Municipality, Lalitpur, Nepal.

Method

A community-based descriptive cross-sectional research design was used to assess the utilization of maternal health services and their associated factors among mothers. The study was conducted in Mahankal Rural Municipality of Lalitpur district, Kathmandu, Nepal, from 15 February to 15 June 2020. The area lies outside of Kathmandu valley, a rural hilly area. Maternal health services are provided mainly by Government health institutions, with health posts in each ward of the municipality. There are four birthing centers there and no hospital facility.

Mothers aged between 15-45 y having at least one child of one to 3 y of age were the population of the study, from all the six wards. The list of mothers was prepared through female community health volunteers from each ward. The total population of mothers was 270. The respondents were selected using the probability simple random sampling technique. From the sampling frame, the proportionate sample was taken from each ward by the lottery method for data collection. The sample size was calculated using $n=N/(1+Ne^2)=270/(1+270*0.05^2)=161$, and 17(10%) was added to obtain a total sample size of 178.

Mothers who were willing to participate were included in the study. Those mothers who felt ill and/or could not verbally respond to the survey were excluded. A structured pretested questionnaire was used for data collection. It included socio-demographic information (age, ethnicity, education, number of children, occupation, type of family, and distance to health facilities), utilization of maternal health services during pregnancy, delivery, and the postpartum period. The level of maternal health services utilization was categorized based on the mean score of questionnaires. A score of ≥ mean was considered good utilization and below it a poor utilization. The content validity of the instrument was established by consulting with subject experts. Pre-testing of the instrument was done among 18 women who met the inclusion criteria, in a similar setting of Bagmati Rural Municipality, Lalitpur, Nepal.

The proposal was approved by Nepal Health Research Council (NHRC). Permission was obtained from the concerned authority of Rural Municipality. Informed written consent (or thumbprint) was taken from each

respondent before data collection. Female community health volunteers and local leaders were used to identify the respondents. Before data collection, mothers were explained about the objectives of the study and the time taken for the data collection. The data was collected by using an interview schedule. Face to face interview was conducted in a separate place to maintain the privacy and confidentiality of the provided information. The duration of the interview was 20-25 minutes.

The collected data were kept securely to maintain privacy and confidentiality. Statistical Package for Social Sciences (SPSS) version 16 was used for descriptive statistics i.e., frequencies, percentage, mean and standard deviation. The chi-square test was used to identify the association between socio-demographic variables and utilization of maternal health services.

Result

Out of 178 mothers surveyed, 158(88.8%) were aged between 20-34 y, the mean age of 25.9±4.4 y; and 134(75.3%) were 20 y or above at first pregnancy, 77(43.3%) had completed elementary school, 147(82.6%) were farmers. Ethnicity wise 109(62.2%) were Brahmin/Chhetri and 4(2.2%) from Dalit caste. There were 123(69.1%) respondents living in a joint family, 97(54.5%) had one child, and 78(43.8%) were living at a distance of 30 min to 1 h to nearest health facilities, Table 1.

Table1. Socio-demographics among mothers for utilization maternal health services (N=178)

Characteristics	N	%
Age (y)		
15 – 19	12	6.7
20 – 34	158	88.8
35 or above	8	4.5
Mean ± SD = 25.9±4.4		
Age at first pregnancy (y)		
<20	44	24.7
>20	134	75.3
Education		
Read and write only	41	23
Elementary	77	43.3
Secondary	52	29.2
Bachelor and higher level	8	4.5
Occupation		
Farmer	147	82.6
Service	20	11.2
Business	6	3.4
House wife	5	2.8
Ethnicity		
Bhrahmin/Chhetri	109	61.2
Janjati	65	36.5
Dalit	4	2.2
Number of children		
One child	97	54.5
Two children	60	33.7
Three or more children	21	11.8
Type of family		
Single family	55	30.9
Joint Family	123	69.1
Distance of health facility		
Less than 30 minutes	47	26.4
30 minutes to 1 h	78	43.8
More than 1 h	53	29.8

All had received ANC services in their last pregnancy from health facilities, 153(86.0%) had four or more visits, and 25(14.0%) had 1-3 visits, Table 2. And, 123(69.1%) had delivered their last child at health facilities whereas 55(30.9%) delivered at home, Table 3. For postpartum visits, 105(59.0%) had attended at least one visit and 73(41.0%) did not Table 4.

Among the total respondents, 98(55%) had good utilization and 80(45%) had poor utilization of maternal health services, mean score of utilization was 11.5±2, Table 1-3.

Their educational status, number of children, distance to health facility was significantly associated with utilization of maternal health services, $p<0.05$. There was no significant association between age at first pregnancy, occupation, ethnicity, and type of family with maternal health services utilization, Table 5.

Table 2. Utilization of maternal health services during pregnancy among mothers (N=178)

Characteristics	N	%
Number of ANC visit in last pregnancy		
1-3 times	25	14.0
≥4 times	153	86.0
Place of ANC visit		
Government	159	89.3
Private	19	10.7
Duration of iron intake		
<100 d	26	14.6
≥100 d	152	85.4
TD immunization		
One dose	47	26.4
Two doses	131	73.6
Intake of deworming drug		
Yes	157	88.2
No	21	11.8

Note: * denote multiple responses

Table 3. Utilization of maternal health services among mothers during delivery (N=178)

Characteristics	N	%
Places of delivery during last childbirth		
Health institution	123	69.1
Home	55	30.9
Mode of delivery		
Normal delivery	151	84.8
Caesarean delivery	27	15.2
Attendance during delivery		
Health personnel	130	73.0
Unskilled personnel	48	27.0
Things used to cut the cord in-home delivery (55)		
New blade	41	74.5
Knife/Sickle	14	25.5
Reasons for home delivery (55)*		
Not available of transportation	26	47.3
Due to far health facilities	25	45.5
Not developed any complication	22	40.0

Note: * denote multiple responses

Table 4. Utilization of maternal health services among mothers during postpartum (N=178)

Characteristics	N	%
Postpartum Visit		
Yes	105	59.0
No	73	41.0
Timing of postnatal visits* (n=105)		
Within 24 h	105	59.0
3 d of delivery	50	28.0
7 d of delivery	18	10.0
Postpartum vitamin A consumption		
Yes	148	83.1
No	30	16.
Initiation of breastfeeding after childbirth		
Within 1 h	106	59.6
After one h	72	40.4
Feeding of colostrum milk		
Yes	168	94.4
No	10	5.6
Use of modern contraception		
Yes	100	56.2
No	78	43.8
Methods of contraception (100)		
Depo-Provera	86	86.0
IUCD	5	5.0
Subdermal implant	4	4.0
Male sterilization	3	3.0
Female sterilization	2	2.0

Note: * denote multiple responses

Table 5. Association between sociodemographic variables among mothers and utilization of maternal health services (N=178)

Demographic variables	Utilization of Maternal Services		Total	χ^2	p-value
	Poor utilization	Good utilization			
Educational status					
Up to elementary level	63	55	118	10.092	0.001*
Above elementary level	17	43	60		
Age at first pregnancy (y)					
<20	23	21	44	1.269	0.260
≥20	57	77	134		
Occupational status					
Agriculture	66	81	147	0.001	0.979
Non-agriculture	14	17	31		
Ethnicity					
Brahmin/Chhetri	46	63	109	0.854	0.355
Others	34	35	69		
Number of children					
1-2	66	91	157	4.540	0.033*
≥3	14	7	21		
Type of family					
Single	22	33	55	0.786	0.375
Joint	58	65	123		
Distance to a health facility					
Up to 1 h	45	80	125	13.571	0.000*
≥1 h	35	18	53		

Note *= $p \leq 0.05$: Significant at 95% Confidence Interval

Discussion

The present study revealed that out of 178 respondents, 98(55%) had good utilization and 80(45%) had poor utilization of maternal health services. Our study found that the education level of the mother and the number of children was associated with the utilization of services ($p<0.05$). These study findings are supported by the study done in Lucknow, India which found the literacy level and parity of mothers to be associated with the utilization of maternal health services.[7] This Lucknow study observed that the majority 118(66.2%) mothers had up to an elementary level of education, and could read and write. The educational level can directly change the awareness level as well as health-seeking behavior. Educated mother can search information from different sources and can freely discuss within the family regarding her health, health care facilities, and importance of health check-ups. So, family members and the mother can decide on the time for health care. With an increasing number of childbirths, mothers' knowledge and experience of caring and rearing of previous children and to manage subsequent problems. The first pregnancy, childbirth, and postpartum is a new experience and may have concerns and queries, thus utilization of health care service is even more important.

The current study found that 153(86%) of the mothers had gone for their ANC check-up four or more times as recommended by WHO. This finding is consistent with the study done in Mahalaxmi Municipality, Lalitpur, Nepal, reporting 87(89%) of the mothers utilizing ANC check-ups more than four times.[8] Likewise study done in Bungmati, Lalitpur showed 50(91%) mothers had four ANC visits.[9] A study in Ballari District, India, found slightly lower, 83(55%) mothers had four or more ANC visits.[10] The difference could be due to low educational level, and most of the women surveyed were housewives. The Ministry of Health, Nepal, recommends that a pregnant woman should have at least four ANC visits. The NDHS 2016 identified 69% of women had four or more ANC visits.[3] Present study had higher ANC visits than the national average, possibly due to an awareness campaign by female community health volunteers. The present study finding revealed that 159(89%) women attended government health institutions for their antenatal checkups. This finding is consistent with the study done in Lucknow, India where the majority of the women 585(79%) were registered at a Government maternity center.[7]

In our study, all mothers took iron/folate during their last pregnancy and the majority 152(85%) had it for more than 100 d. Studies from Telangana and Assam of India found that 288(77%) and 215(72%) women had taken more than 100 Iron tablets respectively.[11,12] Iron tablet supplementation is a part of antenatal care service. The 60 mg elemental iron daily is recommended by the ministry of health Nepal from the second trimester of pregnancy till 45 d of postpartum. Iron is provided free of cost from all government health facilities, outreach clinics, and female community health volunteers. Therefore, the study findings indicate a higher rate of consumption among pregnant women.

Two doses of tetanus-diphtheria vaccine are provided to all pregnant women in the health facilities to prevent neonatal tetanus. In the present study, it was observed that 131(74%) respondents had taken tetanus-diphtheria vaccine's two recommended doses. Similar two studies done in the eastern part of Nepal found 181(87%) and 78(78%) women had taken two doses of tetanus injection respectively.[13,14] Study conducted in Gorkha, Nepal found lower utilization, 69(66%) took two doses of vaccine[15]. This may be due to more ANC coverage in our study which corresponds with national statistics, NDHS 2016 which revealed that overall, 89% of recent live births were protected against neonatal tetanus.[3] Similarly, the result of our study found that 157(88%) mothers had taken the anthelminthic drug for deworming; this finding is similar to a study done in Sunasari, Nepal where 90(90%) received albendazole tablet.[14] The finding is in contrast with the

study finding done in Gorkha, a hilly district, Nepal where only 45(30%) took deworming tablets during pregnancy.[15]

The study findings revealed that 123(69%) mothers had delivered at health facilities whereas 55(31%) delivered at home. A similar study conducted in Sunsari, Nepal showed that 203(55%) benefited from institutional delivery while 161(44%) women delivered at home and 4(1%) delivered on the way to a health institution.[16] Another similar study showed variation in the institutional and home delivery rate. A study carried out in Mahalaxmi Municipality, Lalitpur, Nepal, revealed that 91(93%) of the respondents reported that their latest birthing experience occurred in a healthcare facility and only 7(7%) reported having their latest birthing experience at home.[7] The variation of result in-home deliveries might be due to geographical difficulties, living far from health facilities, and unavailability of transportation facilities. A study conducted in Nuwakot, Nepal, found 98(71%) mothers delivered at health institutions, and the remaining 41(29%) had delivered their child at home without skilled birth attendants.[6] The NDHS 2016 reported that 57% of women delivered their babies at health facilities. The government of Nepal implemented a maternity incentive scheme to reduce transport costs associated with birth in a health facility. The maternal incentive scheme was expanded to include free delivery services. Despite the government efforts to increase institutional delivery, about 50% of women are not utilizing institutional delivery services.

In our study, more than two-thirds, 130(73%) births were assisted by health personnel, and nearly one-third of 48(27%) by an unskilled person with the help of family members, relatives, female community health volunteers. This varies with a similar study done in Kapilvastu, Nepal in which 75(40%) received assistance from health workers, 65(34%) from healthy volunteers, and 50(26%) from others (family members, neighbors).[17] The difference could be due to the educational status of women and home delivery in that study. Overall, delivery assistance by health workers is increasing.

WHO recommends three postpartum visits (within 24 h of birth, 3rd d, and 7th d of delivery) to support the mother and family, provide information, and detect complications. This study showed 105(59%) women did at least one postpartum visit. Among mothers who did postpartum visits, more than half 105(59%) reported within 24 h, 50(28%) within 3 d, and 18(10%) reported within 7 d of delivery. Mothers who had cesarean delivery were found to have complete postpartum visits than women with normal delivery; this could be because of mothers being admitted to hospital for 4-5 d after cesarean delivery and having to come for follow-up visits for surgery. This finding is slightly different from the previous study done in Chitwan, Nepal in which postpartum visit within 24 h was 122(100%), within 3 d of delivery was 56(46%) and within 7 d of delivery was 35(29%).[18] The difference observed in the result may be due to urban location and health facilities close to their homes.

A single dose of Vitamin A capsule is distributed by the government to all postpartum mothers after birth up to 45 d of delivery through health facilities and female community health volunteers. The study identifies that the majority of 148(83%) of mothers received postpartum vitamin A. The finding is comparable to the study done in Sunsari, Nepal, where 73(73%) postpartum mothers received vitamin A.[14]

Regarding the practice of breastfeeding, our study shows 106(60%) initiated breastfeeding within one h of birth, higher than the study conducted in Kapilvastu, and also the National representative survey was done in 21 districts of Nepal which showed that 86(45%) and 426(42%) breastfed within 1 h of birth, respectively.[17, 19]

Regarding the use of contraception, the present study found that 100(56%) mothers

used a modern method of contraception. The resemblance of finding was observed in the study done in Kathmandu Medical College Teaching Hospital among postpartum women where most of the participants 241(60%) had used modern contraceptives in the past.[20]

Some of the limitations of this study include, utilization of health services were assessed using a questionnaire, lack of real observation, and the respondent may have modified their response with a possibility of recall bias.

Conclusion

The study found that there was a significant association between utilization of maternal health services with the educational status, number of children, and the distance of health facility. During pregnancy, most of the mothers had taken iron tablets, tetanus vaccine, deworming drug and did ANC visits as recommended. The prevalence of home delivery was still high with one-third of deliveries of the last child at home. Most of the home births were assisted by unskilled persons. Nearly half of the mothers surveyed had not utilized postnatal services and only a few completed the recommended three postpartum visits.

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Conflict of Interest

None

Funding

None

Author Contribution

Concept, design, planning - NG, RK, VS; Literature review - NG; Data collection/analysis - NG, RK, VS; Draft manuscript - NG, RK, VS; Revision of draft- NG, RK, VS; Final manuscript- NG, RK, VS; Accountability of the work- NG, RK, VS.

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Supplement

Research Instrument

Direction: Please answer in the given spaces and tick the response in the box (√)

Date of interview:

Code No:

Part I
Socio-demographic information

1. Age of women in years ……..
2. Educational status of woman ……..
3. Educational status of husband ……..
4. Ethnicity ……
5. Religion ……
6. Occupation of woman ……
7. Occupation of husband ……
8. Family type ……..
9. Age at marriage ……
10. Age at first pregnancy ……
11. Number of children ……

12. Type of pregnancy
    a) Planned b) Unplanned

    Head of the family
    a) Husband b) Self c) In laws
13. What is the distance from your home to the health facility? ……
14. In case of required maternal health services, is transportation easily available?
    a) Yes b) No

Part II

Questions related to utilization of maternal health services

1) How many times did you go for your antenatal care visit during your last pregnancy?
    a) No ANC visit b) 1-3 times ANC visit c) 4 or more times ANC visit

2) Which trimester did you initiate ANC visit in your last pregnancy?
    a) First trimester b) Second trimester c) Third trimester

3) Where did you attend for ANC checkup in your last pregnancy?
    a) Government institution b) Private institution

4) Did you take an iron tablet in your last pregnancy?
    a) Yes b) No

5) If yes how long did you take in your last pregnancy and postpartum?
    a) Less than 100 d b) More than 100 d

6) Did you take TD immunization in your last pregnancy?
    a) None b) One time c) Two times

7) Did you take deworming during in your last pregnancy?
    a) Yes b) No

8) If you did not attend antenatal visit in your pregnancy, what are the reasons behind it?
    a) Not known about ANC care
    b) Not developed any complication
    c) Not availability of skilled personnel
    d) Due to far health facilities
    e) Difficulty of transportation
    f) Others……..

9) Where did you deliver your last child?
    a) Home b) Government institution c) Private institution

10) Who assisted you at your last childbirth?
    a) Health worker b) Skilled health worker

11) What was the mode of delivery for your last childbirth?
    a) Vaginal delivery b) Cesarean section c) Others (vacuum, forceps)

12) If you were delivered at home, who assisted you at your last childbirth?
    a) Health personnel b) Others (FCHW, family members, relatives, neighbor)

13) If you delivered your last childbirth at home, what was the thing used to cut umbilical cord at home?
    a) Knife/sickle b) New blade c) Scissors

14) If you were delivered at home, why you did not go health facilities for your last childbirth?
a) Due to far health facilities b) Not available of transportation
c) Not developed any complication d) Not availability of skilled personnel
e) Unwillingness

15) Did you visit for postnatal checkup after your last childbirth?
a) Yes b) No

16) If yes, which time did you visit after in your last childbirth?
a) 24 h b) 3 d c) 7 d d) 45 d

17) Did you consume vitamin A at your last childbirth?
a) Yes b) No

18) When did you initiate breastfeeding for your baby?
a) Within 1 h b) After 1 h

19) Dis you provide colostrum milk to your last baby?
a) Yes b) No

20) Did you provide colostrum milk to your last childbirth?
a) Yes b) No

21) Did you experience any complications during your last pregnancy, labour and postpartum period?
a) Yes b) No

22) Did you use any modern family planning method at 6 w postpartum in your last childbirth?
a) Yes b) No

23) If yes, which method did you use for contraception?
a) Depo-provera b) Jadelle c) IUCD d) Pills e) Male sterilization
f) Female sterilization