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Utilization of Maternal Health Services among Married Women of Reproductive Age (MWARA) at Selected Rural Municipality in Nepal: A Cross-sectional Study

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Abstract

Background: Maternal health refers to the health of women during pregnancy, delivery, and the postpartum period, and the services include promotive, preventive, therapeutic, and rehabilitative health services for mothers and children provided by health facilities. Maternal and child health services are a priority program for community health. The main objective of this study was to assess the utilization of maternal health services among married women of reproductive age (MWARA). **Methods:** A quantitative descriptive cross-sectional study design was adopted to assess the utilization of maternal health services. The 157 MWARA aged between 19 and 45 years were employed for this study from June to July 2024 at Tamankhola Rural Municipality, Baglung District, Gandaki Province, Nepal. The study employed a simple random sampling technique to select the wards, and a purposive sampling technique was used to get respondents. A face-to-face interview with a semi-structured questionnaire among MWARS who had at least one child under two years was applied. The data were gathered, and univariate analysis was done by using IBM SPSS version 27 to disseminate the study's findings.

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Results: Out of 157 respondents, nearly half (42.8%) belonged in nuclear families, while a little bit more than half (58.59%) belonged in joint families. Most respondents (63.69%) married before the age of 20, and similarly (61.15%) had their first pregnancy at this young age. The majority of women (91.72%) had visited a health facility by walking on their feet. The utilization of antenatal care (ANC) services at least four or more times was found to be 97.45%, where a significant number (2.55%) of women didn't utilize recommended ANC services as per protocol. Likewise, 66.88% were counseled on delivery preparation, 76.43% on breastfeeding, and 61.15% on recognizing pregnancy danger signs. Similarly, all the women (100%) received the Tetanus Diphtheria (TD) vaccine, and all mothers gave birth in a healthcare facility and found that all the mothers received recommended postnatal care (PNC), viz. most of them (96.2%) had three PNC visits, while few of them (3.8%) received only two PNC services. **Conclusion and Recommendation:** The study found that most women utilized ANC, delivery and neonatal care, and PNC services, with fully institutional delivery, and there were no home deliveries, which led to low pregnancy complications and mostly normal deliveries. All women received PNC services, and most of the newborns were bathed after an hour of birth. Likewise, a significant number of women received vitamin A and IFA supplements after delivery. The investigators recommended that the policymaker reform the policy that incorporates the provision of maternal health services planning, implementation, and evaluation primarily by the local government with data-driven decision-making practice since maternal health is a concurrent responsibility of three tiers of government.
Keywords: ANC, Gynecology, MCH, MNH, PNC, Safe motherhood

Background

Maternal mortality remains a significant global health challenge, with approximately 295,000 women dying during and following pregnancy and childbirth in 2017. This figure highlights the persistent danger faced by pregnant women worldwide, particularly in low-resource settings. Despite efforts to reduce maternal mortality rates, disparities continue to exist, with Sub-Saharan Africa and Southern Asia accounting for nearly 86% of these deaths (1).

Maternal health is considered as the health during pregnancy, childbirth or delivery, and postpartum. While motherhood is a positive and fulfilling experience, for too many women it is associated with suffering, ill health, and even death. Maternal morbidity and mortality are caused by hemorrhage, infection, high blood pressure, unsafe abortion, and obstructed labor, which are considered to be major direct causes. Maternal and child health care services are defined as the promoting, preventing, therapeutic, or rehabilitative health facilities for mothers and children. Maternal and child health services are regarded as the most important priority program for community health. In many societies, mothers are taken as the moral foundation for the family and children's future, and because of that, there must be a foremost priority on the health of the mother (1).

Nepal has made significant strides in reducing maternal mortality over the past few decades, yet it remains a critical public health issue. The maternal mortality ratio (MMR) in Nepal has

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declined substantially from 553 per 100,000 live births in 2000 to 186 per 100,000 live births in 2017. Despite this progress, the MMR remains higher than the global average, and the country still faces significant challenges in further reducing these indicators. The government targeted to reduce the MMR to 70 per 100,000 live births by 2030, in line with the Sustainable Development Goals (SDGs) (2). Several factors contribute to the persistent maternal mortality in Nepal. One major factor is the lack of access to quality maternal health services, particularly in rural and mountainous regions where healthcare infrastructure is limited. Socio-economic disparities also play a significant role, with poorer women having higher risks due to limited access to healthcare, education, and nutrition. Cultural practices and beliefs can also delay or prevent women from seeking timely medical care during pregnancy and childbirth (3).

One of the primary issues contributing to high maternal mortality rates is the lack of access to quality healthcare services. Many women in low- and middle-income countries (LMICs) do not have access to skilled birth attendants, emergency obstetric care, or adequate prenatal and postnatal care. This lack of access is often exacerbated by socioeconomic factors, including poverty, lack of education, and gender inequality, which hinder women from seeking and receiving appropriate care (4).

Because of the widespread gender discrimination in least-developed countries like Nepal, women's status frequently lies in their ability to reproduce. If they fail to do so for any reason, they will experience social and cultural consequences (5). Geographic barriers, inadequate healthcare facilities, and a shortage of trained healthcare professionals continue to obstruct the progress of the utilization of maternal health services. Likewise, data collection and monitoring systems need to be improved to better understand and address the specific causes of maternal deaths. The strategies focus on enhancing healthcare access and quality, particularly for marginalized populations, and addressing socio-cultural factors that influence maternal health (6). A multi-faceted approach involving government, NGOs, and community engagement is essential to overcome the remaining challenges and ensure that all women have access to maternal healthcare services (1).

The study was conducted to assess the information regarding the utilization of maternal health services, including ANC, safe delivery care, and PNC services. Through the utilization of ANC and PNC, women access preventive and curative interventions. This study helps in acquiring the institutional delivery status, thus reporting the availability of maternal health services. This study will also expose the possible challenges that occur in the Tamankhola Rural Municipality. Thus, the study is aimed at providing required reliable information on the actual situation on utilization of maternal health care services.

Methods and Materials

Study design and setting

A quantitative descriptive cross-sectional study design was adopted to assess the utilization of maternal health services among married women of reproductive age (MWARA) from June to

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July 2024 at Tamankhola Rural Municipality of the Baglung District in Nepal's Gandaki Province.

Participant, sample size, and sampling technique

The MWARA aged between 19–45 years who had at least under two years of children were included in the study. The exclusion criteria were applied to unmarried women. The sample size was calculated by using the formula for a cross-sectional study, and the calculated sample size for the study was 157. A simple random sampling technique was adopted to get a distributed sample from the numerous wards of the rural municipality; out of 6 wards, 3 were selected, and a non-probability purposive sampling technique was adopted to get the respondents.

Data collection procedure and study variables

A semi-structured questionnaire was used as a data collection tool, which included information such as sociodemographic characteristics, utilization of ANC and PNC, and utilization of delivery care services and natal care from private and public health service providers. The face-to-face interview technique was taken by the investigator from June to July 2024 and recorded by using pen and paper for data collection. Later all the information was checked by the investigators for completeness and entered into IBM Statistical Package for Social Sciences (SPSS) version 27 software for further analysis.

Statistical analysis and data management

The filled questionnaire was checked for completeness of the information and was entered into the IBM SPSS version 27 software by the researcher. The univariate analysis was applied, and continuous variables were expressed as absolute frequencies and percentages according to the data distribution.

Ethical Consideration

For the study, an ethical review was completed at the Research Management Cell (RMC) at Valley College of Technical Sciences, Department of Public Health, Affiliated with Pokhara University, Kathmandu, Nepal. The written approval was obtained from the respected rural municipality. A verbal consent was taken from the respondents before the interview.

Results

Socio-demographic Profile of the Respondents

This cross-sectional study has been conducted among 157 MWRA who have at least one child under two years of age. According to the table, significant mothers (10.83%) were below the age of 20 years, near to half of women (47.13%) were between 20 and 25 years of age, a little bit more than two-thirds (36.31%) were between 25-30 years of age, and few (5.73%) were above 30 years of age. Likewise, the ethnicity distribution of the respondents found that more than half (59.24%) were Dalit, while a little bit below half (40.76%) were Janjati. According to the structure of the family study, it was found that nearly half of the participants (41.40%) belong to nuclear families, while a little bit more than half (58.60%) belong to joint families. The study showed that the majority of respondents married below 20 years of age was 63.69%,

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and the majority of first pregnancy age of respondents was 61.15% among those below 20 years of age. However, studies reveal that the marriage age of husbands is significantly higher (84.08%) for those aged above 20 years. Similarly, most of the women have (56.68%) a single child, and nearly half (43.94%) have a secondary level of education. The majority of respondents (47.13%) showed the monthly income of a family of NRs. 20,000 and more. Likewise, most of the women belong to household work and agriculture as their occupations, 43.94% and 42.67%, respectively.

Table 1: Socio-demographic Profile of the Respondents (n=157)

Variables		Frequency (n)	Percentage (%)
Age	a. Below 20 years	17	10.83
	b. 20-25 years	74	47.13
	c. 25-30 years	57	36.31
	d. Above 30 years	9	5.73
Ethnicity	a. Janjati	64	40.76
	b. Dalit	93	59.24
Religion	a. Hindu	141	89.8
	b. Christian	16	11.2
Family type	a. Nuclear family	65	41.40
	b. Joint family	92	58.60
Marriage age	a. Below 20 years	100	63.69
	b. Above 20 years	57	36.30
Husband's age at marriage	a. Below 20 years	25	15.92
	b. Above 20 years	132	84.08
Age at first pregnancy	a. Below 20 years	96	61.15
	b. Above 20 years	61	38.85
Number of children	a. 1	89	56.68
	b. 2	51	32.48
	c. 3	17	10.83
Monthly income of a family	a. Rs.5,000-10,000	3	1.91
	b. Rs.10,000-15,000	46	29.29
	c. 15,000-20,000	34	21.66
	d. Rs.20,000-More	74	47.13
Education level	a. Primary	6	3.82
	b. Lower Secondary	44	28.02
	c. Secondary	69	43.94
	d. Higher Secondary	33	21.01
	e. Above	5	3.18

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Husband's educational level	a. Primary b. Lower Secondary c. Secondary d. Higher Secondary e. Above	2 36 74 40 5	1.27 22.92 47.13 25.47 3.18
Husband's occupation	a. Agriculture b. Govt. services c. Foreign employment d. Labor e. Business	27 8 66 47 9	17.19 5.09 42.03 29.94 5.73
Respondent's occupation	a. Household work b. Agriculture c. Govt. services d. Labor e. business	69 67 14 6 1	43.94 42.67 8.92 3.82 0.64

Utilization Antenatal Care (ANC) Services

According to Table 2, all the women said there were both private and public health facilities providing ANC services in the rural municipality equally. The majority of women (91.72%) went for ANC to a health facility on foot, while a few of them (8.28%) used a motor vehicle. Likewise, the utilization of ANC service was found to be 100%. followed by a significant number (2.55%) not visited as per recommended ANC (at least 4 visits), more than half (63.69%) visited 4 times, and nearly one-third (33.76%) visited more than 4 ANC. Likewise, studies reveal that during their ANC checkup, about two-thirds (66.88%) counsel on preparation of delivery, more than third quarters (76.43%) for breastfeeding, nearly two-thirds (61.15%) for danger signs in pregnancy, and all (100%) for the Tetanus Diphtheria (TD) vaccine. Similarly, the study found that the total coverage of iron-folic acid (IFA) supplements and calcium supplements during pregnancy was 97.45%, deworming tablets 92.36%, and TD vaccination was 98.08%. Moreover, 37 women said that they were reported danger signs during their ANC. Among them, bleeding, headache, hypertension, and edema were reported as danger signs of pregnancy. Likewise, all the women prepared for their delivery with financial management; however, near the third quarter (74.5%) arranged for vehicles for transportation during the labor, and more than half (55.41%) decided on the delivery option themselves, either public or private health institution, and a few of them (13.37%) adhered to their husbands and the rest of them (31.21%) adhered to family decisions.

Table 2: Utilization of Antenatal Care (ANC) Service

Variables		**Frequency (n)**	**Percentage (%)**
Health care center available Yes	a. Private b. Public	157 157	100 100

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Transportation type	a. On foot b. Vehicles	144 13	91.72 8.28
Antenatal care	a. Yes	157	100
ANC Visited Times	a. Three b. Four c. More than four	4 100 53	2.55 63.69 33.76
Place for ANC	a. Govt. health center b. Hospital	150 7	95.54 4.46
Service Provider for ANC	a. AHW/HA b. Doctors c. MCHW/ANM	74 7 76	47.13 4.46 48.41
During ANC, counseled for	a. Preparation of delivery b. Breastfeeding c. Danger signs in pregnancy d. Tetanus Diphtheria (TD)	105 120 96 157	66.88% 76.43% 61.15% 100%
Laboratory examination	a. Blood pressure b. Blood (Hb%, Rh factors, grouping, CBC) c. Urine d. HIV/AIDS	157 128 125 135	100% 81.53 79.62 85.99
Utilization during pregnancy	a. Iron Folic Acid (IFA) b. Tetanus Diphtheria (TD) c. Calcium d. Rested e. Diet supplement f. De-worming tablet	153 154 153 28 20 145	97.45 98.08 97.45 17.83 12.74 92.36
Complication during pregnancy (n=37)	a. Bleeding b. Severe headache c. Hypertension d. Oedema	7 17 10 5	4.46 10.83 6.37 3.18
Preparation for child birth	a. Yes	157	100
	If yes,	157	100

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	a. Money (financial arrangement) b. Means for transportation	117	74.5
Decision for ANC	a. Own decision b. Husband c. Whole family	87 21 49	55.41 13.37 31.21

Utilization of delivery care services and natal care

Table no. 3 presents the utilization of delivery care services and newborn care services among respondents. A significant majority gave birth in health posts/PHCs (90.4%), mostly through normal deliveries (85.7%), with a significant number (9.6%) performing cesarean sections (CS). After birth, most babies were bathed. After 24 hours (81.53%), breastfed within the first hour (60.51%), and received colostrum (100%). The duration of breastfeeding found that the majority of respondents breastfed for 6 months (36.30%), highlighting good early childcare practices among the respondents; however, a significant number (7.01%) breastfed for only less than 3 months.

Table 3: Utilization of delivery care services and natal care

Variables		Frequency (n)	Percentage (%)
Delivery place	a. Health post/PHC b. Hospital	142 15	90.47 9.6
Types of delivery	a. Normal delivery b. Instrumental (vacuum or forceps delivery) c. Cesarean (operation)	134 8 15	85.7 5.1 9.6
Time for the baby to bath	a. Within 1 hr b. 2-24 hrs. c. After 24 hrs	7 22 128	4.45 14.01 81.53
Baby Breastfeeding for First Time	a. Within 1 hour after Delivery b. After more than 1 hr c. Don't know	95 30 32	60.51 19.11 20.38
Feed the first milk (Colostrum) to your baby	a. Yes	157	100
Duration of baby breastfeeding	a. Less than 3 months b. 6 months c. 9 months d. More than 9 months	11 57 32 57	7.01 36.30 20.38 36.30

Utilization of postnatal care (PNC) services

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Table no. 4 presents the utilization of PNC service among respondents. Almost all respondents reported that they have taken PNC service within 42 days of delivery (100%), with the majority visiting government health centers (90.4%), where only a few (9.6%) were taken from the hospitals. PNC services were received by all participants, primarily attending two or more checkups (96.2%). Advice on PNC-covered family planning (96.2%), dietary recommendations (100%), and rest (100%), with a smaller percentage receiving medication advice (18.5%). All the women (100%) received vitamin A capsules and IFA tablets within six weeks of delivery. Decision-making for PNC was largely influenced by the respondents themselves (56.7%) or their families (33.1%), indicating a mix of individual and familial involvement in healthcare decisions.

Table 4: Utilization of postnatal care (PNC) services

Variables		Frequency (n)	Percentage (%)
Care within 42 days of delivery	a. Yes	157	100
	If yes, where did you go for PNC during 42 days of delivery? a. Govt. Health Center b. Hospital	 142 15	 90.4 9.6
PNC services	a. Yes	157	100
PNC checkup visit times	a. Two b. Three	6 151	3.8 96.2
Advice on PNC	a. Family planning b. Diet c. Rest d. Medication	58 157 157 29	36.94 100 100 18.47
Within 6-week vitamin A taken	a. Yes	157	100
IFA tablet taken	a. Yes	157	100
Decision on PNC	a. Own decision b. Husband c. Whole family	89 16 52	56.7 10.2 53.1

Discussion

This study assessed the utilization of ANC, delivery and neonatal care services, and PNC services with the sociodemographic characteristics of the respondents among MWARA at Tamankhola Rural Municipality of the Baglung District in Nepal's Gandaki Province. Out of 157 respondents in the study, the sociodemographic information shows that the majority were between the ages of 20 and 34 (81.9%). The present study showed that the majority of respondents (63.69%) married below 20 years of age, and the almost similar number (61.15%)

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of first pregnancy age of respondents below 20 years of age. A similar study conducted in Morang District, Nepal, found that out of 379 mothers, the majority (82.1%) were between 20 and 30 years of age and belonged to middle socioeconomic status families (7). The findings are similar to the results of this study; this might happen because the active reproductive age of women lies at 20-30 years of age, and the average family incomes are mostly similar all over Nepal for middle socioeconomic status families. According to this study's findings, most respondents belong to a joint family (58.59%), which showed similarity with the study conducted in Pokhara with 51.8% of respondents from joint families (8). Likewise, the study found similar to the study conducted in Pokhara Valley about the number of children. The present study found that about half (56.68%) of women said that they have one child, and a little bit lower than one-third (32.48%) have 2 children. Whereas there was a little bit less than half (44.3%) who had one child and a little bit higher than one-third (35.5 %) of women who had two children (8).

The Utilization Antenatal Care (ANC) Services found that there were both private and public health facilities providing ANC services in the rural municipality equally. The majority of women (91.72%) went for ANC to a health facility on foot, while a few of them (8.28%) used a motor vehicle. Likewise, the utilization of ANC service was found to be 100%. followed by a significant number (2.55%) not visiting as per recommended ANC (at least 4 visits), more than half (63.69%) visited 4 times, and nearly one-third (33.76%) visited more than 4 ANC. A study found similar findings, i.e., an equal number of services taken from public health facilities (53%) and ANC services provided by nursing staff (55%) (9). Likewise, the study found that the total coverage of iron-folic acid (IFA) supplements and calcium supplements during pregnancy was 97.45%, deworming tablets 92.36%, and TD vaccination was 98.08%. Which shows the good indicators of ANC service utilization.

The utilization of delivery care services and newborn care services among respondents. A significant majority gave birth in health posts/PHCs (90.4%), mostly through normal deliveries (85.7%), with a significant number (9.6%) performing caesarean sections (CS). However, a study suggested that there were women from rural areas who were significantly less likely to deliver in a health institution (10). The disparities in the findings that have to be found might be because of the availability of health services and facilities with healthcare resources such as human resources, commodities, etc. in the district. A review study in a similar scope mentioned that the deficiency of resources in the health sector limits the health workers' and policymakers' responsiveness towards the community, which leads to disparities in utilization of maternal healthcare services (11).

The study found that the utilization of PNC service among respondents reported that all the mothers (100%) have taken PNC service within 42 days of delivery, with the majority visiting government health centers (90.4%), where only a few (9.6%) were taken from the hospitals. A similar study conducted in the Pyuthan district found that the utilization of PNC services as per protocol was only 38.43% (12). This contradictory finding sought that the district has different

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setting of PNC service with the resources, though they have in similar ecological region of Nepal.

Conclusion

The study showed that most women got married at the age of 20 or above and gave birth to their first child; however, a significant number of respondents married earlier than 20 years of age. Likewise, the study concluded that there were no illiterate women. The present study showed that all the women have received ANC services; however, utilization of ANC services and visits as per protocol was found to be poor. Likewise, a study found that the majority of women visited governmental health care centers for ANC checkups. Significant numbers of mothers were counselled for the preparation of delivery, breastfeeding, and danger signs of pregnancy and TD vaccine during their ANC checkup. The study also provided about major laboratory examination services achieved by the respondents. During pregnancy, there was universal utilization of the TD vaccine, the supplement of an IFA, calcium, and deworming tablets. There was low complication among respondents during pregnancy, which was good. Most of the respondents were prepared for childbirth. In the study, there was a majority of respondents who had given birth at health institutes such as health posts/PHCs. As per the study, we could also conclude that there was mostly normal delivery among the respondent delivery period. In the study, all the respondents had received PNC services. Most of the baby was given a bath after 1 hr. of delivery.

Recommendations

The maternal services utilization has found disparities among different RM in Nepal according to their planning, implementation, evaluation strategy, readiness for the service, and awareness about service availability. The investigators of this study recommended that the policymaker reform the policy that incorporates the provision of maternal health services planning, implementation, and evaluation primarily by the local government with data-driven decision-making practice since maternal health is a concurrent responsibility of three tiers of government, viz. provincial and federal government. Likewise, service-providing guidelines have to be developed by the respective local government as per their need following evidence generated from the recorded data. Moreover, the availability of consumables and supplies has to be ensured by all the levels of government within a specified time interval. The awareness program with relevant IEC materials is recommended for the three tiers of government to ensure the utilization of maternal health services.

Abbreviation

ANC: Ante-natal Care; CC: Chundevi Chhantyal; IFA: Iron Folic Acid; LMICs: low- and middle-income countries; MG: Mahendra Giri; MCH: Maternal and Child Health; MNH: Maternal and Neonatal Health; MWARA: Married Women of Reproductive Age; PNC: Post-natal Care; RMC: Research Management Cell; RM: Rural Municipality; SG: Suruchi Godar; SSG: Shree Shyam Giri; TD: Tetanus Diphtheria; VKK: Vijay Kumar Kapar; WHO: World Health Organization

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SUPPLEMENTARY INFORMATION

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Authors' contributions

VKK, CC, and SSG conceptualized the study. AS designed the methodology of the study and the background; the literature search of the study was done by VKK, MG, and CG. VKK, CC, and SSG designed the questionnaire. Also, VKK and CC worked out the work plan for the conduction of the study. The ethical letter for the research was collected by VKK, CC, and SG. After the data collection, VKK, MG, and CG worked on the data cleaning and processing. Following this, the data analysis, assessing the variables, and the first draft of the manuscript were written by VKK and CC with inputs and reviews from MG, SSG, and CG cross-verified.

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Availability of data and materials

All data generated or analyzed during the study is attached in the additional supporting files. The datasets used and analyzed for the study is also available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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