International Journal of Community Medicine and Public Health
Shahi S et al. Int J Community Med Public Health. 2024 Jun;11(6):2216-2224
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20241479

Original Research Article

Utilization status of Safe Motherhood Program: a study from Jumla district, Nepal

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Received: 01 April 2024
Accepted: 15 May 2024

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ABSTRACT

Background: Safe Motherhood Program is a national priority programme that aims to reduce maternal and neonatal mortality and morbidity through demand and supply side incentives and free delivery care. The study investigates Safe Motherhood Program's utilization, changes post-implementation, and associated factors in Jumla district to enhance maternal health care access and reduce preventable maternal deaths.
Methods: A community based cross sectional study using quantitative approach was conducted where the women of reproductive age group having at least one child of 3-15 months of age were interviewed using the semi structured interview schedule (n=228). Chi square test was used to show the association with independent and depended variables. All the test was carried out at the statistically significant of p value <0.05.
Results: The study revealed significant associations between utilization of maternal health care services and various factors: respondent's education level (p=0.034, OR=1.834, CI=1.043-3.223), husband's education level (p=0.007, OR=2.300, CI=1.252-4.228), respondent's employment status (p=0.003, OR=7.155, CI=1.650-31.029), husband's employment status (p=0.001, OR=2.778, CI=1.526-5.055), monthly income (OR=5.556, CI=2.005-15.393), and involvement in social groups (p=0.009, OR=2.312, CI=1.217-4.390).
Conclusions: Despite strong awareness of delivery incentives, the program success was restricted by poor knowledge of checkup incentives. The study identified the sociodemographic factors influencing the appropriate use of Jumla's Safe Motherhood Program scheme. Pregnancy was highly registered, however less than two thirds of women had the necessary number of examinations performed. Institutional deliveries increased but there was disparity during the service delivery.

Keywords: Utilization status of Safe Motherhood Program, Delivery pattern, Maternal healthcare, Jumla district

INTRODUCTION

Maternal death is a very common event, for women living in the poorer parts of the world; the risk of dying as a result of pregnancy in high-income countries is at least 100 times lower than that in low-income countries of Africa and Asia. Approximately 360,000 women die each year in pregnancy and childbirth, of which more than 200,000 in sub-Saharan Africa.[1]

In Nepal MMR is estimated to be 229 per 100,000 live births, and the maternal health care utilization is low, as only 58 percent of mothers received ANC at least once for the last live birth from a doctor or nurse/midwife for their most recent birth, only 36 percent of babies are delivered by a doctor or nurse/midwife, and 35 percent are delivered at a health facility indicating that Nepal has a long way to go to meet the Millennium Development Goal target of 60

percent births attended by a skilled provider and 40% target delivered at HFs.[2]

According to the WHO, one in 20 African women die largely of preventable deaths, pregnancy and childbirth, compared to one in 4000 in Europe.[3] Most of these deaths can be prevented through the provision of basic essential maternal health care and availability of trained personnel to attend women during labor and delivery whether the birth takes place at home or in health facility and could provide emergency obstetric care to both mothers and babies in case of complications.[4]

In July 2005 government of Nepal has introduced an innovative financing scheme, known as the Safe Delivery Incentive Programme (SDIP), in response to help households to overcome financial barriers to increase the access of women to safe delivery services and to mobilize SBAs to provide home based delivery services. The SDIP comprises several financial benefits to women and health workers. It consists of conditional cash transfers (CCT) to women who deliver in a health facility; an incentive to health workers for each delivery they attend; and free delivery care for eligible women.[4]

Safe Motherhood Program has four components: The Safe Delivery Incentive Program (SDIP) cash incentive scheme, which was initiated in July 2005; free institutional delivery care, which was launched in mid-January 2009, incentive to health worker for home delivery and incentive to women for institutional delivery and 4 ANC visits. The Safe Motherhood Program is a national priority programme that aims to reduce maternal and neonatal mortality and morbidity through demand and supply side incentives and free delivery care. In 2009, government formulated national free delivery policy and launched Rastriya Safe Motherhood Program (Safer Motherhood Programme) throughout the country.

For complicated deliveries health facilities receive NRs. 3,000; for C-Sections NRs. 7,000 A cash payment of NRs.100 is made to health worker for home deliveries.[4]

Under Safe Motherhood Program, deliveries at recognized public health institutions are free, excluding laboratory tests.[5] Upon discharge, women receive transportation incentives: Rs. 500 (valley/ terai), Rs. 1,500 (mountains). A cash incentive of Nrs.400 is given after four ANC visits. Health facilities receive Rs. 1,000 (under 25 beds) or Rs. 1,500 (25 + beds) for normal deliveries. For various delivery types, costs range from Rs.1000 to Rs.7000, covering expenses and providing incentives to health workers.

The aim of these components is to reduce the cost of delivery care to households and to increase facility deliveries in Nepal, and hence to improve health outcomes for mothers and neonates.[6]

METHODS

Study design and setting

A community based descriptive cross-sectional study was carried out in this study in Jumla district of Nepal during the month of July to December 2015.

Study population and sampling

The study population for this study were the individual mothers who gave birth within the fiscal year 2071/2072. The total number of women who gave birth in the fiscal year 2071/72 in Jumla district was 2970. By using the permitted error of 8% at the confidence level of 92%, (n=228) all mothers were selected for this study.

Sampling technique

Multistage cluster sampling technique was used in this study. Jumla district consists of 30 VDCs. From 30 VDCs, 6 VDCs were randomly selected. Three wards from each VDC were randomly selected. And hence 18 clusters were selected for this study. No. of respondents that should be included in this study was determined proportionately from each ward / cluster. Mothers who gave birth in the fiscal year 2071/2072 were listed based on FCHV data sheet. After that respondent to be interviewed were selected randomly based on lottery method.

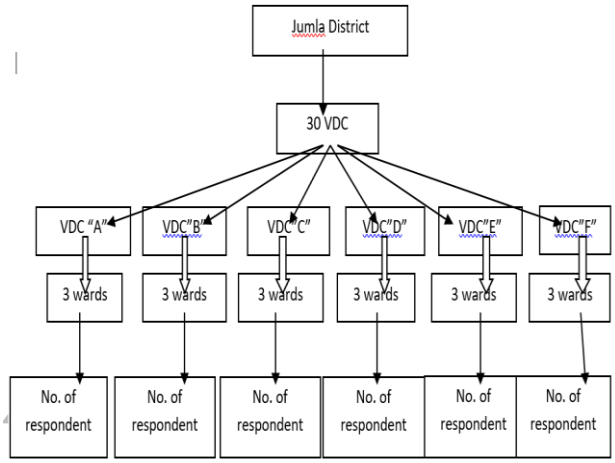

Figure 1: Sampling technique (According to the Political division of Nepal before the promulgation of latest Constitution 2015).

Data collection tools and techniques

In order to collect the right information, appropriate study instruments were developed and used for data collection. The study tools were designed keeping in view the objectives of the study. Altogether two tools were developed, semi structured questionnaire and HMIS Data.

Primary data was collected by interviewing the mothers who gave birth in the fiscal year 2071/2072 for obtaining

quantitative information and secondary data were also reviewed. Secondary data was collected from District Health Office, Jumla in order to match the data obtained from the mothers and health facility. Review of HMIS data for trend analysis of delivery pattern after the implementation of Safe Motherhood Program.

Data management and analysis

Data were entered in Epi data 3.1 and then exported to SPSS 16.0 to analyze the data. Descriptive statistics like frequency and percentage was calculated to find out the utilization of component of Safe Motherhood Program. Chi square test was done to find out the association between independent and dependent variables. Odd ratio was calculated to find out the associated factors.

Interview schedule was translated into Nepali language and then data were checked to correct errors on the same day of data collection. It was ensured that the interview schedule was filled and coded according to the objectives.

To examine the reliability, Cronbach's alpha was calculated. Alpha coefficient of utilization level was 0.86.

RESULTS

Socio-demographic characteristics of participants

About two- third (63.6%) of the respondent were from the age group 20 to 30 years. The mean age of respondent was 17.41 years with standard deviation of ±5.462. About two-third (69%) of the respondents were from joint family. More than half (59.6%) of the respondents belonged to upper caste. Most of the respondents (86.4%) were Hindus. Nearly one- fourth (24.6%) of the respondents were illiterate but few (11%) of husbands were illiterate. Most of the respondents (88%) were house worker. More than two-third (71%) of husband had enrolled in external job/ business of any type. Only few (15.8%) of the respondents belonged to the highest income group. About one-third (33.8%) of the respondent were involved in different social groups like agriculture, income generative skill, health etc.

Table 1: Socio demographic characteristics of the study participants.

Characteristics	N (%)
Age (17.41±5.462) (years)	
<20	71 (31.1)
20-30	145 (63.6)
>30	12 (5.3)
Ethnicity	
Nuclear	70 (31)
Joint	158 (69)
Caste	
Dalit	74 (32.5)
Disadvantaged janajati	18 (7.9)
Upper caste	136 (59.6)
Religion	
Hindus	197 (86.4)
Buddhist	14 (6.1)
Christian	17 (7.5)
Education level of participants	
Illiterate	56 (24.6)
Primary	55 (24.1)
Secondary	88 (38.6)
Higher secondary and above	29 (12.7)
Education level of the husband	
Illiterate	24 (11)
Primary	30 (13.2)
Secondary	83 (36)
Higher secondary and above	91 (40)
Occupation of respondent	
Housework	200 (88)
External work/other business	28 (12)
Occupation of husband	
Housework	66 (29)
External work/ other business	162 (71)

Continued.

Characteristics	N (%)
Monthly income	
Lowest	57 (25)
Middle lowest	44 (19.3)
Middle	44 (19.3)
Middle highest	47 (20.6)
Highest	36 (15.8)
Involvement in social group/activities	
Yes	77 (33.8)
No	151 (66.2)

Table 2: Information regarding physical factors (n=228).

Variables	Frequency	Percentage (%)
Knowledge on availability of delivery services 24x7 days		
Yes	104	45.6
No	124	54.4
Time taken to reach nearest HF		
Less than 30 min	81	35.5
More than 30 min	147	64.5
Availability of transportation		
Yes	94	41.2
No	134	58.8
Availability of ambulance		
Yes	77	33.8
No	151	66.2

Table 3: Information regarding knowledge on Safe Motherhood Program.

Variables	Frequency	Percentage
Knowledge on free institutional delivery (n=228)		
Yes	205	89.9
No	23	10.1
Knowledge on incentives for institutional delivery (n=228)		
Yes	216	94.7
No	12	5.3
Status of knowledge (n=216)		
Correct	208	96.3
Incorrect	8	3.7
Knowledge on incentives for 4 ANC visit (n=228)		
Yes	156	68.4
No	72	31.6
Status of knowledge (n=156)		
Correct	122	78.2
Incorrect	34	21.8

Information regarding physical factors

The study revealed that more than two-fifth (45.6%) of the respondents had knowledge that there is availability of 24 hours/7days delivery services in their nearest health facility. Nearly two-third (64.5%) of the respondent had to walk more than 30 minutes to reach nearest health facility. More than half (58.8%) of the respondents reported that there is no availability of transportation facility to reach nearest health facility. Nearly two-third (66.2%) of the respondents reported that their is no ambulance facility to reach nearest health facility level.

Information regarding knowledge on Safe Motherhood Program

Majority (89.9%) of the respondents had knowledge on free institutional delivery. Nearly all (94.7%) respondents had knowledge on incentives for institutional delivery and among 216 respondents who had knowledge on incentives for institutional delivery, nearly all (96.3%) of the

respondents had correct knowledge regarding the incentives for institutional delivery. About two-third (68.4%) of the respondents had knowledge on incentives for 4 ANC visit while among 156 respondents who had knowledge on incentives for 4 ANC visit, more than three-fourth (78.2%) of the respondents had correct knowledge regarding the incentives for 4 ANC visit.

Utilization of Safe Motherhood Program

Table 4 revealed that most of the respondents (96.1%) had visited HF for ANC checkup. More than two-third (68%) of the respondents had completed 4 times ANC visit while among 219 respondents, who had visited ANC during pregnancy, nearly three-fourth (70.8%) of the respondents had completed 4 ANC visit. About two-fifth (40.8%) of the respondent had completed 4 times ANC checkup according to guideline (4, 6, 8, 9 months) while among 155 respondents who had completed 4 ANC visit, more than half (60%) of the respondents had 4 times ANC checkup according to guideline. More than three-fourth (78.1%) of the respondents had institutional delivery. More than half (58.3%) of the respondents had received transport allowances NRs. 1500 for institutional delivery while among 178 respondents who had institutional delivery, nearly three-fourth (74.7%) of the respondent had received transport allowances NRs. 1500 for institutional delivery. Few (15.8%) of the respondents received extra maternity incentives 400 for 4 ANC visit while among 93 respondents who had completed 4 times ANC checkup according to guideline, more than one-third (38.8%) of the respondents received extra maternity incentives 400 for 4 ANC visit. Only few (19.7%) of the respondent paid money during delivery in health institution. Among 178 respondents who had institutional delivery, one-fourth (25.2%) of the respondents paid money during delivery in health institution.

Table 4: Utilization of Safe Motherhood Program.

Variables	Frequency	Percentage (%)
ANC visit during pregnancy (n=228)	219	96.1
Completed 4 ANC visit (n=228)	155	68
Completed 4 ANC visit (n=219)	155	70.8
4 times ANC checkup according to guideline (n=228)	93	40.8
4 times ANC checkup according to guideline (n=155)	93	60
Institutional delivery (n=228)	178	78.1
Received transport allowance NRs.1500 for institutional delivery (n=228)	133	58.3
Received transport allowance NRs.1500 for institutional delivery (n=178)	133	74.7
Received extra maternity incentive NRs.400 for 4 ANC visit (n=228)	36	15.8
Received extra maternity incentive NRs.400 for 4 ANC visit (n=93)	36	38.8
Paid money during delivery in health institution (except money for medicines and lab test) (n=228)	45	19.7
Paid money during delivery in health institution (except money for medicines and lab test)(n=178)	45	25.2

Table 5: Association of socio demographic variables with utilization of Safe Motherhood Program.

Variables	Proper utilization	Improper utilization	χ^2	P value	OR	95% CI
Age of respondent						
Less than 20 years	51 (71.8)	20 (28.2)	0.702	0.402		
More than 20 years	104 (66.2)	53 (33.8)				
Type of family						
Nuclear	46 (65.7)	24 (34.3)	0.239	0.625		
Joint	109 (69.0)	49 (31.0)				
Caste						
Upper caste	92 (67.6)	44 (32.4)	0.017	0.895		
Others	63 (68.5)	29 (31.5)				
Religion						
Hindu	136 (69)	61 (31)	0.738	0.390		
Others	19 (61.3)	12 (38.7)				

Continued.

Variables	Proper utilization	Improper utilization	χ^2	P value	OR	95% CI
Education level of respondent						
Above primary	87 (74.4)	30 (25.6)	4.489	0.034*	1.834	1.043-3.223
Up to primary	68 (61.3)	43 (38.7)				
Education level of husband						
Above primary	122 (73.1)	45 (26.9)	7.376	0.007*	2.300	1.252-4.228
Up to primary	33 (54.1)	28 (45.9)				
Employment status of respondent						
External job/business	26 (92.9)	2 (7.1)	9.074	0.003*	7.155	1.650-31.029
Housework	129 (64.5)	71 (35.5)				
Employment status of husband						
External job/business	121 (74.7)	41 (25.3)	11.572	0.001*	2.778	1.526-5.055
Housework	34 (51.5)	32 (48.5)				
Monthly income						
Highest	30 (83.3)	6 (16.7)	16.930	0.002*	5.556	2.005-15.393
Middle highest	35 (74.5)	12 (25.5)			2.333	0.791-6.885
Middle	33 (75.0)	11 (25.0)			1.667	0.549-5.061
Middle lowest	30 (68.2)	14 (31.8)			1.714	0.574-5.122
Lowest	27 (47.4)	30 (52.6)			1	
Involvement in social groups						
Yes	61 (79.2)	16 (20.8)	6.746	0.009*	2.312	1.217-4.390
No	94 (62.3)	57 (37.7)				

*statistically significant, **statistically highly significant.

Table 6: Association of physical factors with the utilization of Safe Motherhood Program.

Variables	Proper utilization	Improper utilization	X^2	P value	OR	95% CI
Knowledge on availability of 24 hrs 7 days service						
Yes	82 (78.8)	22 (21.2)	10.369	0.001*	2.604	1.442-4.703
No	73 (58.9)	51 (41.1)				
Time taken to reach nearest HF						
Less than 30 min	65 (80.2)	16 (19.8)	8.682	0.003*	2.573	1.357-4.878
More than 30 min	90 (61.2)	57 (38.8)				
Availability of transportation facility						
Yes	80 (80)	20 (20)	11.819	0.001*	2.827	1.546-5.167
No	75 (58.6)	53 (41.4)				
Availability of ambulatory facility						
Yes	63 (81.8)	14 (18.2)	10.225	0.001*	2.886	1.484-5.612
No	92 (60.9)	59 (39.1)				

*statistically significant, **statistically highly significant.

Table 7: Association of knowledge related factors with the utilization of Safe Motherhood Program.

Variables	Proper utilization	Improper utilization	X^2	P value	OR	95% CI
Knowledge on free Institutional delivery						
Yes	143(69.8)	62(30.2)	2.937	0.087		
No	12(52.2)	11(47.8)				
Knowledge on incentives for institutional delivery						
Yes	155(71.8)	61(28.2)				
No	0(0)	12(100)				
Status of knowledge on incentives for institutional delivery						
Correct	150(72.1)	58(27.9)	0.351	0.553		
Incorrect	5(62.5)	3(37.5)				

Continued.

Variables	Proper utilization	Improper utilization	X^2	P value	OR	95% CI
Knowledge on incentives for ANC visit						
Yes	124(79.5)	32(20.5)	30.040	<0.001**	5.125	2.793-9.405
No	31(43.1)	41(56.9)				
Status of knowledge on incentives for ANC visit						
Correct	100(82)	22(18)	2.112	0.146		
Incorrect	24(70.6)	10(29.4)				

**statistically significant, **statistically highly significant.

Association of socio demographic variables with utilization of Safe Motherhood Program

Education level of the respondent (p=0.034*, CI=1.043-3.223, education level of the husband (p=0.034*, CI=1.043-3.223), employment status of the respondent (p=0.003*1.650-31.029), employment status of husband (p=0.001*, CI=1.526-5.055), monthly income (p=0.002*, CI=2.005-15.393 and involvement in social groups (p=0.009*, CI=1.217-4.390) were found statistically significant.

Association of physical factors with the utilization of Safe Motherhood Program

This study revealed that knowledge on availability of 24 hrs 7 days service (p=0.001*, CI=1.442-4.703), time taken to reach nearest HF (p=0.003*CI= 1.357-4.878), Availability of transportation facility (p=0.001* CI=1.546-5.167) and availability of ambulatory facility (p=0.001*, CI=1.484-5.612) all were found statistically significant with the utilization of Safe Motherhood Program.

Association of knowledge related factors with the utilization of Safe Motherhood Program

The study showed knowledge on incentives for 4 ANC visit (p<0.001, OR 5.125, CI 2.793-9.405) was found statistically significant with the dependent variable; utilization of Safe Motherhood Program.

DISCUSSION

In our study, more pregnant women (96.1%) had at least one antenatal care (ANC) visit. However, only 70% had the recommended 4 ANC visits. This is similar to findings in Dadeldhura, Nepal and suggest that ANC service delivery in these areas may need improvement.[7] Our findings are higher than that was reported by Nigeria where 54% of the total respondents had 4 times ANC visit during their last pregnancy.[8]

Our study showed 78% of women delivered at a health facility, while 22% delivered at home, which is similar to a study in West Bengal, India (74% facility, 26% home).[9] Institutional deliveries reported in this study were lesser than that was observed in Dhanusa and Kathmandu districts of Nepal, where almost 90% had institutional deliveries.[10] The differences in findings might be due to the limited access to hospital services like lack of transportation and ambulatory facilities.

This study found that knowledge about 24/7 services at health facilities, travel time to the nearest facility, transportation options, and ambulance availability were all linked to women using the Sage Motherhood Program. This aligns with a study in Manipur, India where distance to the facility and transportation availability were important factors for institutional delivery.[11]

This study demonstrated that women with education beyond primary school were twice likely to use the Safe Motherhood Program (p=0.034), which was similar with other study in India and Ethiopia.[11,12]

Our results align with other studies showing that education is linked to using maternal health programs. Women in our study with education beyond primary school were twice as likely to use the program (p=0.034). This is similar to findings in Ethiopia where women with primary education were 1.8 times more likely (CI 1.27-2.62) and those with secondary or higher education were 3.9 times more likely (CI 2.38-6.32) to utilize maternity services compared to those with no education.[13] This might be due to education likely empowers women to make decisions about their health.

In our study, women with jobs outside the home were seven times more likely to use the Safe Motherhood Program compared to housewives (p=0.003, OR 7.155, CI 1.650-31.029). This aligns with research in South India where housewives were 40% less likely to utilize similar services.[14] Employment likely provides women with more resources and autonomy to access healthcare programs. Similarly, the respondents who are involved in social groups/activities were more than two times (OR 2.312, CI 1.217-4.390) more likely to properly utilize the maternal health services compared to the mothers who are not involved in social groups.

Our study is consistent with the findings in Ghana showing lower income families were five times less likely to use the Safe Motherhood Program (OR 5.556, CI 2.005-15.393) compared to the wealthiest families.[15]

This suggests financial resources are a major factor in program utilization. Our study suggests that knowledge about incentives for attending all four ANC visits was a

strong predictor of using the Safe Motherhood Program. Women with this knowledge were over five times more likely to utilize the program (p<0.001, OR 5.125, CI 2.793-9.405) compared to those unaware of the incentives. It was found that over 60% of women who completed recommended antenatal care visits did not receive the associated incentive which was consistent with the findings in Syanja, Nepal (65.4%).[16]

A study done in Dadeldhura district of Nepal showed that out of 399 participants who had delivered at health facility, more than 95% got incentives under SDIP.[7] But in this study out of 178 participants who had delivered at health facility, only 74% got incentives for institutional delivery. This might be due to late receipt of budgeted funds by health facility. Most of the mothers did not receive incentives at the time of discharge. Despite free delivery services, 25% of women incurred some costs. This may be due to lack of awareness or healthcare worker oversight.

Limitations

The study, being conducted before 2015, predated the current Nepalese constitution. National healthcare policies and programs related to safe motherhood might have changed since the study. The current utilization of the program might not be reflected in this study. Since 2015, there could have been changes in program implementation, awareness levels, or socio- economic conditions that might affect program utilization. The study's sample size and selection method might not accurately represent the entire population of the country.

Strength

This study can serve as a baseline for future research, enabling comparisons to assess program effectiveness over time and can shed light on unmet needs related to safe motherhood services in Jumla, potentially leading to targeted interventions.

CONCLUSION

Our study identified areas for improvement in ANC service delivery and program awareness. Like other regions, education, employment, and income influenced program utilization. Financial incentives for ANC visits were strongly linked to program use, but many who qualified did not receive them. Despite free delivery services, some women faced unexpected costs. These findings highlight the need for improved service delivery, communication strategies and ensuring promised incentives reach those who qualify.

ACKNOWLEDGEMENTS

The authors would like to acknowledge the support provided by District Health Office, Jumla and all the participants who participated in this study.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Shahi S, Neupane DR, Ranabhat K, Wagle S, Rajbanshi M, Adhikari A, et al. Utilization status of safe motherhood program: a study from Jumla district, Nepal. Int J Community Med Public Health 2024;11:2216-2224.