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Birth preparedness and complications readiness among women in LekhnathMuniciaplity, Nepal

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ABSTRACT

Introduction

Improving knowledge on obstetric danger signs and promoting birth preparedness practices is a major strategy to increase the utilization of quality health services during pregnancy and childbirth. The aim of this study was to assess knowledge and practices of women on birth preparedness and complication readiness and factors associated with it.

Methods

A community-based survey based on proportionate cluster random sampling was conducted among 310 women who gave birth in the last 12 months preceding the study in Lekhnath municipality, Nepal.

Results

Only 34.8%, 59.0% and 39.7% women had knowledge on at least two danger sign during pregnancy, child birth and post-partum respectively. Only one-third (33.2%) women had knowledge on all five components of birth preparedness and complication readiness (BPACR). About same proportion (34.2%) women were prepared for all five components of BPACR. But very few proportion (8.4%) women utilized all five prepaid items of BPACR. The study found significant association of BPACR with women's education (p<0.001, Crude OR 38.65, 95% CI 9.26-160.68), antenatal care service (p-0.003, Crude OR 11.47, 95% CI 1.51-86.73) and awareness on obstetric danger signs during pregnancy (Crude OR 33.25, 95% CI 17.57-68.58), delivery (Crude OR 10.34, 95% CI 5.33.-20.04), and post-partum (Crude OR 15.38, 95% CI 8.61-27.38).

Conclusion

The study concluded low level of knowledge, preparedness and utilization of all essential components of BPACR and positive influence of women's education, antenatal care service and awareness on obstetric danger signs in BPACR.

Keywords: Birth Preparedness and Complication Readiness, Pregnancy, Child Birth, Obstetric Danger Sign

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INTRODUCTION

Every pregnant woman faces the risk of sudden, unpredictable complications that could end in deathor injury to herself or to her infant. Pregnancy related complications cannot be reliably predicted.[1]

About 289,000 women died worldwide in 2013 due to complications during pregnancy and childbirth. Less than 1% of maternal deaths occur in high-income countries. The maternal mortality ratio in developing countries is 230 per 100000 births versus 16 per

100000 in developed countries. Of the 800 women who die every day, 500 in sub-Saharan Africa, 190 in Southern Asia and 6 in high-income countries. Most of these deaths can be prevented through skilled care at childbirth and access to emergency obstetric care.[2]

The latest Maternal Mortality Ratio (MMR) in Nepal was 229 per 100,000 live births, ranging from 153 to 301. Among the identified direct causes; the major causes were hemorrhage (24%) followed by eclampsia (21%), abortion (7%), obstructed labour (6%), puperial sepsis (5%) and other direct cause (6%). Majority of maternal death occurs at health facility (41%) followed by home (41%) and on the way (16%) and other (3%).[3]

Women and newborns need timely access to skilled care during pregnancy, childbirth, and the postpartum/newborn period. Too often, however, their access to care is impeded by delays—delays in deciding to seek care, delays in reaching care, and delays in receiving care.

Birth Preparedness and Complication Readiness (BPACR) is "a strategy which promotes timely use of skilled maternal and neonatal care especially during child birth, based on theory that preparing for child birth and being ready for any complication reduces delays in obtaining this care".[4]

BPACR encourages women, households, and communities to make arrangements such as identifying or establishing available transport, setting aside money to pay for service fees and transport, and identifying a blood donor in order to facilitate swift decision-making and reduce delays in reaching care once a problem arises. In sum, at the demand level, BPACR promotes the use of a skilled provider at birth through increasing demand and improving access.[4]

There are evidences from Nepal, Burkina Faso and India that promoting BPACR improves preventive behaviors, improves knowledge of mothers about danger signs, and leads to improvement in care-seeking during obstetric emergency.[5-7]

The objective of the study was to assess knowledge and practices of women on birth preparedness and complication readiness and factors associated with it.

MATERIALS AND METHODS

A cross-sectional community-based study was conducted in October 2012 and February 2013 among women who gave birth in the last 12 months preceding the study in Lekhnath municipality of western Nepal. The municipality is 200 KM far from Kathmandu, capital city of Nepal and attached with Pokhara Sub-metropolitan, second largest city of Nepal. It has one Primary Health Care Center and three Sub Health Posts.

One stage proportionate cluster random sampling technique was applied in this study. The municipality was divided into 15 clusters for this study according to administrative division (wards). The eligible population was identified from each cluster and a sampling frame which enlists all eligible study subjects was prepared. Then the required number of study subjects from each cluster was determined proportionately. Study subjects to be interviewed were selected using simple random sampling from the pre-determined sampling frame.

The sample size of 310 was estimated on the basis of expected number of deliveries (1123) in the study area for the fiscal year 2011/12, provided by concerned District Public Health Office, Kaski. A woman was considered as prepared for birth and its complication if she reported that she/her family identified place of delivery, saved money, identified means of transportation for childbirth or for obstetric emergency and identified blood donors if necessary.

A pre-tested structured interview schedule was used for data collection. It was taken from the safe mother hood questionnaire developed by maternal and neonatal health program of JHPIEGO the affiliate of Johns Hopkins University [4], and adapted according to local context and the objectives of the study.

Written permission to conduct the study was obtained from Public Health Programme, School of Health and Allied Sciences, Pokhara University; District Public Health Office Kaski and

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LekhnathMunicipality. Informed individual verbal consent was obtained from each study subject before the interview after clearly explaining the purpose of study and privacy and confidentiality was maintained as per ethical guideline for conducting research on human subjects.

The data was cleaned, validated and analyzed using SPPS version16. Quantitative information was summarized using range, mean, standard deviation, frequencies and percentages. The chi-square test was performed for testing association between dependent and independent variables. A univariate analysis was carried out, including the calculation of odds ratios.

RESULTS

Socio-demographic and obstetric characteristics

The age of the women ranged from 18-45 years with the median age 24 years ±3.75SD. About half (50.6%) women were age between 15-24 years. Majority of the women (81.9%) lived in nuclear family. More one-fourth (28.4%) women had only primary level education. About three quarter (75.8%) of the women was housewife. Most of the women had attended minimum recommended four visit of antenatal care (82.9%) and delivered in health institution (91.6%). Very few (8.4%) women experienced obstetric problems during last pregnancy (Table 1).

Table 1Socio Demographic and Obstetric Characteristics (n=310)

Variables	Frequency	Percent
Age in years		
<25	157	50.6
≥25	153	49.3
Family type		
Nuclear	254	81.9
Joint	56	18.0
Education		
≤Primary (low)	88	28.4
≥ Secondary (high)	222	71.6
Occupation		
Housewife	235	75.8
Working woman	75	24.2
Parity		
1	112	36.1
2 or above	198	63.9
ANC attendance		
<4	21	6.8
≥4	288	93.2
Obstetric problems		
Occurred	26	8.4
Not occurred	284	91.6
Place of delivery		
Home	26	8.4
Health institution	284	91.6

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Knowledge on danger signs

Knowledge of on key danger signs during pregnancy, child birth and post-partum is presented in table 2. Maximum 70.3% women had known swollen hand/feet/face as key danger sign during pregnancy, 62.3% women had known retained placenta as a key danger during child birth and 58.7% women had known foul smelling vaginal discharge as a key danger during postpartum respectively (Table 2).

Only 108 (34.8%), 183 (59.0%) and 123 (39.7%) women had knowledge of at least two danger sign during pregnancy, child birth and post-partum respectively.

Table 2Knowledge on Key Danger Signs (n=310)*

Variables	Frequency	Percent
During pregnancy		
Severe vaginal bleeding	133	42.9
Swollen hand/feet/face	218	70.3
Blurred vision	99	31.9
During child birth		
Severe vaginal bleeding	173	55.8
Retained placenta	193	62.3
Prolong labour>12 hours	120	37.8
Convulsion/fits	139	44.8
During postpartum		
Severe vaginal bleeding	168	54.2
High fever	161	51.9
Foul smelling vaginal discharge	182	58.7

**Multiple Responses*

Knowledge, preparation and practice on birth and its complication

Knowledge, preparation and practice on birth and its complication among the women included in the study is presented in table 3. Regarding knowledge on BPACR; maximum 98.0% women had knowledge on arrangement of fund and minimum 52.3% women had knowledge on identifying blood donor. Regarding preparation for birth & its complications among women who had knowledge on particular items; maximum 94.4% women had arranged fund and minimum 57.4% women had identified skill provider. Whereas regarding practice/utilization among women who had prepaid on particular items; maximum 89.5% women had utilized arranged fund and minimum 21.4% women had received blood from identified donor (Table 3).

Table 3Knowledge, Preparation and Practice on Birth and Its Complications *

Variables	n	Frequency	Percent
Knowledge on BP & CR			
Place of delivery	310	274	88.4
Arrangement of fund	310	304	98.0
Arrangement of transportation	310	283	91.3
Identifying skill provider	310	216	69.7
Identifying blood donor	310	162	52.3
Preparation for birth & its complications			

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Identified place of delivery	274	232	84.7
Arranged fund	304	287	94.4
Arranged transportation	283	265	93.6
Identified skill provider	216	124	57.4
Identified blood donor	162	140	86.4
Practice/utilization of prepaid items			
Delivered on identified place/hospital	232	187	80.6
Utilized arranged of fund	287	257	89.5
Utilized arranged transportation	265	190	71.7
Delivered by identified skill provider	124	100	80.6
Received blood from identified donor	140	30	21.4

**Multiple Responses*

Only one-third (103, 33.2%) women had knowledge on all five components of birth preparedness and complication readiness. Similarly only about one-third (106, 34.2%) women were prepared for all five components of birth preparedness and complication readiness. And very few (26, 8.4%) women utilized all five prepaid items of birth preparedness and complication readiness.

DISCUSSION

Knowledge on obstetric danger signs during pregnancy, child birth and post-partum is an essential component of birth preparedness and complication readiness. In this study 34.8%, 59.0% and 39.7% women had knowledge of at least two danger sign during pregnancy, child birth and post-partum respectively. Similar study conducted in Ethiopia found lower knowledge on obstetric danger signs during pregnancy, child birth and post-partum (26.4%, 13.3% and 14.2% respectively).[8]Higher knowledge on obstetric danger signs in the study area indicates the effectiveness of BPACR package implemented in the study area.

Knowledge on essential components of birth preparedness and complication readiness package is prerequisite for its successful implementation. This study found 88.4% had knowledge on place of delivery/complication management; 98.0% on arrangement of fund, 91.3% on arrangement of transportation, 69.7% on identifying skill provider and 52.3% on identifying blood donor. A study in Uganda reported somewhat similar proportion of women had knowledge on these components (place of delivery/complication management-98%, identifying a skilled health professional-88%, arrangement of transportation-97% and saving money-98%.[9]This might be due to the similar study setting in both studies.

Of the five birth preparedness practices, our study found 84.7% identified place of delivery; 94.4% arranged fund, 93.6% arranged transportation, 57.4% identified skill provider and 86.4% identified blood donor. A study conducted in Uganda in 2010/11 found 91% saved money, 71% bought birth materials, 61% identified a health professional for assisting in childbirth and 61% identified means of transport.[9] Similarly another study conducted in Tanzania found 97.2% identified place of delivery; 89.3% arranged fund, 82.3% arranged transportation, 86.2% identified skill provider and 8.7% identified blood donor.[10] But the study conducted in Ethiopia among 743 pregnant women 20.5% of pregnant women identified skilled provider, 8.1% identified health facility for delivery and/or for obstetric emergencies, 7.7% arranged transportation, 34.5% saved money for incurred costs of delivery and emergency if needed and 2.3% identified potential blood donor in case of emergency.[8]

Our study found 34.2% women were prepared for all five components of birth preparedness and complication readiness which is similar studies conducted in Uganda and Ethiopia found 35% and 22% were prepared for birth and its complications.[8,9] It is necessary to take necessary action by health

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system to increase in all five components BPACR package.

In this study women less than 25 years were about three and half times more likely to be prepared than women ≥25 years (p<0.001, Crude OR 3.65, 95% CI 2.21-6.04) which was insignificant in another study conducted in Southern Ethiopia.[11] (Table 4)

Table 3Association of Study Variables with Preparation on Birth and Its Complications

Variables	Preparation		Chi square	P value	Crude OR (95%CI)
	Well	Poor			
Age in years					
<25	74 (48.4)	79 (51.6)	26.96	<0.001	3.65(2.21-6.04)
≥25	32 (20.4)	125 (79.6)			
Family type					
Nuclear	89 (35.0)	165 (65.0)	0.44	0.504	--
Joint	17 (30.4)	39 (69.6)			
Education					
≥Secondary (high)	105 (47.3)	117 (52.7)	56.52	<0.001	38.59(9.26-160.68)
≤Primary (low)	2 (2.3)	86 (97.7)			
Working status					
Housewife	88 (37.4)	147 (62.6)	4.56	0.033	1.89(1.04-3.42)
Working woman	18 (24.0)	57 (76.0)			
Parity					
2 or above	99 (50.0)	99 (50.0)	60.58	<0.001	15.0(6.64-33.86)
1	7 (6.2)	105 (93.8)			
ANC attendance					
≥4	105 (36.5)	183 (63.5)	8.72	0.003	11.47(1.51-86.73)
<4	1 (4.8)	20 (95.2)			
Obstetric problems					
No	103 (36.3)	181(63.7)	5.94	0.032	3.13(1.05-9.33)
Yes	4 (15.4)	22 (84.6)			
Place of delivery					
Health institution	105 (37.0)	179 (63.0)	11.61	0.001	14.66(1.95-109.80)
Home	1 (3.8)	25 (96.2)			
Aware of at least 2 danger sign during pregnancy					
Yes	86 (79.6)	22 (20.4)	149.2	<0.001	33.69(17.57-68.58)
No	21 (10.4)	181(89.6)			
Aware of at least 2 danger sign during delivery					
Yes	95 (51.9)	88 (48.1)	59.81	<0.001	10.34(5.33-20.04)
No	12 (9.4)	115(90.6)			
Aware of at least 2 danger sign during post partum					
Yes	84 (68.3)	39 (31.7)	102.9	<0.001	15.38(8.61-27.38)
No	23 (12.3)	164 (87.7)			

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In our study women with secondary and above level of education were about thirty eight and half times more likely to be prepaid than primary and below level of education (p<0.001, Crude OR 38.65, 95% CI 9.26-160.68). Another studies conducted in Tanzania in 2012 and North Ethiopia also found positive influence of education in birth preparedness.[8,10] Providing opportunities for higher education and including BPACR in school curricula in developing countries would be alternative strategy to decrease maternal and neonatal mortality. Similarly housewives were about two times more likely to be prepaid than working women (p-0.033, Crude OR 1.89, 95% CI 1.04-3.42) in this study. This might be due to the busy schedule of working women in comparison to housewives.

Our study reported women were about fifteen times more likely to be prepaid in later pregnancies than first one (p<0.001, Crude OR 15.0, 95% CI 6.64-33.86). In a study from north Ethiopia reported women with parity range of 2-4 were more likely to prepare for birth and its complication than grand multiparas and primiparous women.[8] Women acquired knowledge on most of the components of birth preparedness in later pregnancies due to her experience in first one.

In our study women who had attended 4 or greater times antenatal care were more well prepared than women who had attended less than 4 times antenatal care (p-0.003, Crude OR 11.47, 95% CI 1.51-86.73). Similar study conducted in Tanzania also found who had attended ≥4 time antenatal care were more well prepared than women who had attended <4 time antenatal care (p<0.05, Crude OR 1.6, 95% CI 1.0-2.4).[12] This signifies that antenatal care services visits could provide opportunities to health workers inform pregnant women about the essential components of BPACR package.

In this study women who had no history of obstetric problems were about three times more likely to be prepared than women who had (p-0.032, Crude OR 3.13, 95% CI 1.05-9.33). Similarly women who had delivered their baby in health institution were about fifteen times more likely to be prepared than women who had delivered their baby in home (p-0.001, Crude OR 14.66, 95% CI 1.95-109.80). Various previous studies already established the positive association institutional delivery with BPACR.[8-10]

Awareness on obstetric danger sign is the essential component of birth preparedness and complication readiness. A study from Uganda found women with knowledge of at least one key danger sign during pregnancy or during postpartum were about two times more likely to be prepared than those without knowledge (OR 1.9, 95% CI: 1.3-2.7 and OR 2.1, 95% CI: 1.3-3.3 respectively).[9] This study found awareness of women at least two danger sign during pregnancy (Crude OR 33.25, 95% CI 17.57-68.58), delivery (Crude OR 10.34, 95% CI 5.33.-20.04), and post-partum (Crude OR 15.38, 95% CI 8.61-27.38), found high statistical association (p<0.001) with birth preparedness and complication readiness. But the study conducted in Nigeria found very low statistical association of birth preparedness and complication readiness with awareness of women at least two danger sign during pregnancy (Crude OR 1.68, 95% CI 1.08-2.61), delivery (Crude OR 2.22, 95% CI 1.32-3.75), and post-partum (Crude OR 2.50, 95% CI 1.62-3.88).[8] Furthermore women who knew three or more obstetric danger signs were three times more likely to be prepared for birth and complications (p<0.05, Crude OR 4.1, 95% CI 1.6-10.5) in Tanzania.[10] Strong association shows the effective of the birth preparedness and complication readiness package lunched in the study area.

Regarding utilization (practice) of prepaid items; our study found 80.6% delivered on identified place/hospital, 89.5% utilized arranged of fund, 71.7% utilized arranged transportation, 80.6% delivered by identified skill provider and only 21.4% received blood from identified donor. Prepaid on birth and its complication is meaningless until and unless it is utilized correctly.

DISCUSSION

The study concluded low level of knowledge, preparedness and utilization of all essential components of BPACR. The study also concluded positive influence of women's education antenatal

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care service and awareness on obstetric danger signs in BPACR.

Empowerment of women by expanding educational opportunities is necessary in enhancing BPACR. It is also necessary to give more emphasis on antenatal service. It is recommended to conduct awareness in all components of BPACR through community as well as health facility based interventions.

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