Original research article

Birth Preparedness and Complication Readiness among Recently Delivered Mothers-A Cross Sectional Survey in an Urban Community in Eastern India

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Abstract

Background: Birth Preparedness and Complication Readiness (BPCR) is the process of planning for normal birth and anticipating the actions needed in case of an emergency. Since child birth is an unpredictable risk producing event, providing timely and optimal medical care during obstetric complication is an option for mitigating the risk.

Objectives: The present study was designed to find out the perceptions and practices regarding BPCR at individual level and the related factors among recently delivered women registered at the Anganwadi Centers in the field practice area of Urban Health Training Centre under VSS Institute of Medical Sciences and Research at Burla in Odisha.

Methods: A community-based cross-sectional study was carried out during January-February-2020 where 111 recently delivered women randomly sampled from the 27 Anganwadi Centers of the township were   interviewed using pretested structured questionnaire. The data were analyzed using SPSS version 20.

Results: 17 out of 41 primigravidas (41.46%) and 64 out of 70 (91.43%) multigravidas were well prepared for any obstetric complications. On Yates Chi-square application the association between gravida status and level of preparedness was found to be statistically significance (P < 0.05).

Conclusion: Special emphasis must be given on counselling the pregnant women on key danger signs they may face during any phase of pregnancy, labour, post-partum period and the importance of birth preparedness during antenatal visits. The focus on primigravidas are more rewarding.

Key words: Birth Preparedness, Complication Readiness, Antenatal visits, Danger signs, Maternal Survey, Maternal Mortality.

Introduction

Pregnancy embarks on a moment of joy and celebration in every woman's life. But it carries the inherent risk of sudden, unpredictable complications that could end in death or injury to herself or to her infant.[1] Infant and maternal mortality rates are quite high in developing countries; however, majority of the morbidities and deaths could be prevented by health promotion-related interventions.[2]

Sustainable Development Goals (SDGs) establish a transformative new agenda for maternal health towards ending preventable maternal mortality; target 3.1 of SDG- 3 is to reduce the global Maternal Mortality Rate (MMR) to less than 70 per 100,000 live births by 2030. [3] According to estimates in India, MMR has reduced from 167 per lakh live births in 2011-13 to 113 per lakh live births in 2016-2018.In Odisha the MMR is still high at 150 per lakh live birth and neonatal mortality stands at 31 per 1000 live birth which is a matter of concern.[4]

Birth Preparedness and Complication Readiness (BPCR) is one of the most conceptually compelling and logical means of addressing the three delays i.e. in seeking care, reaching health facility and in obtaining services (Thaddeus and Maine). BPCR facilitates and empowers women and her family to be well prepared before child birth for a successful delivery which in turn promotes maternal and neonatal survival.[5]
In this background, the present study was designed to find out the perceptions and practices regarding BPCR among recently delivered women in an urban community in western Odisha and to find out the sociodemographic correlates.

Materials and Methods:

It was a community level cross-sectional analytical study conducted during January & February months of 2020. The recently delivered women enrolled in the registry of mothers in the twenty-seven Anganwadi centers of the field practice area of Urban Health and Training Center at Goudapali in Burla township within Sambalpur Municipal Corporation area under the medical college of VSS Institute of Medical Science and Research were the study population. All those who had delivered during the reference period of the preceding year, i.e., from first day of January of 2019 till the last day of December of 2019 were included in the study.

Sample size and sampling technique:

All the 311 recently delivered mothers registered in the twenty-seven Anganwadi Centers constituted the sampling frame. There are no previous surveys conducted in similar field practice area related to BPCR indicators. In the absence of any reliable information in the area, assuming 50% of women exhibiting BPCR, with 95% confidence interval and absolute precision of 10%, including non-response rate of 10%, the sample size was calculated using the formula N=[Z(1-α) 2 pq]/L2 as 111. The requisite samples were selected via simple random sampling using the computer-generated random number method.

Study tools and technique:

Data were collected at the household setting by interviewing the subjects with the help of a pre-tested, pre-designed semi-structured questionnaire. The questionnaire used was developed from John Hopkins Program for International Education in Gynecology and Obstetrics (JHPIEGO) The questionnaire framed in local language included socio-demographic profile, pregnancy and birth history and BPCR indicators.

Birth preparedness indicators in terms of knowledge about key danger signs of pregnancy, labour, post-partum and newborn. Complication readiness indicators included the five components, namely identifying a medical facility, identifying a trained birth attendant, saving money, arranging for transport and identifying a blood donor. Those respondents who satisfied at least three or more of the above mentioned five BPCR practices were considered 'well-prepared' or else classified as 'not-well-prepared'.[5,6]

Data analysis:
The template was generated in MS excel sheet and descriptive analysis and frequency distribution was done using statistical methods.

Results:

Table 1: Demographic profile of responders (n=111)

Variables	Frequency	Percentage
Age (yrs)		
20-24	48	43.2
25-29	54	48.6
30-34	9	8.1
Caste		
General	40	36
SC	34	30.7
ST	8	7.2
OBC	29	26.1
Education		
Illiterate	4	3.6
Primary school	1	0.9
Sec. School	71	63.9
Higher secondary	24	21.6
Graduation	11	9.9
Occupation		
Government service	1	0.9
Teacher	8	7.2
Labourer	9	8.1
Housewife	81	72.9
Shop owner	11	9.9
Farmer	1	0.9
BPL status		
No	43	38.7
Yes	68	61.2
Family type		
Nuclear	62	55.8
Joint	49	44.1

Amongst the 111 mothers surveyed, 54 (48.6%) belonged to age group of 25-29 years and 48 (43.2%) were in the 20-24 years age group. All the subjects were Hindu by region. Caste wise 40 (36%) were from General category and 29(26.1%) from OBC category, Schedule Tribe constituted 8(7.2%).

Majority of them 71 (63.9%) were educated up to secondary school,24 (21.6%) studied up to higher secondary school and 4 (3.6%) were illiterate. Most of the mothers were housewives, i. e. 81 (72.9%); 11 (9.9%) shop owners and 1 (0.9%) was a farmer. Most 68 (61.2%) of the mothers were BPL card holders. 62 (55.8%) had a nuclear family.

Table 2: Socio-economic status of the families (n=111)
**(According to Modified BG Prasad Scale, 2020)**

Variable	Frequency	Percentage
Class 1 (upper class)	3	2.7
Class 2(upper middle)	14	12.6
Class 3(middle class)	61	54.9
Class 4(lower middle)	26	23.4
Class 5(lower class)	7	6.3

In the present study, out of 111 study subjects maximum 61(54.9%) belonged to middle class category, followed by lower middle class being 26 (23.4%) and very few 3 (2.7%) were from upper class.

Table 3: Obstetric profile of responders (n=111)

Variable	Frequency	Percentage
Gravida		
Primigravida	41	36.9
Multigravida	70	63
No of living children		
Single	46	41.4
Multiple	65	58.6

Most of the subjects   70(63%) were multigravida and 65(58.6%) had more than 1 living children.
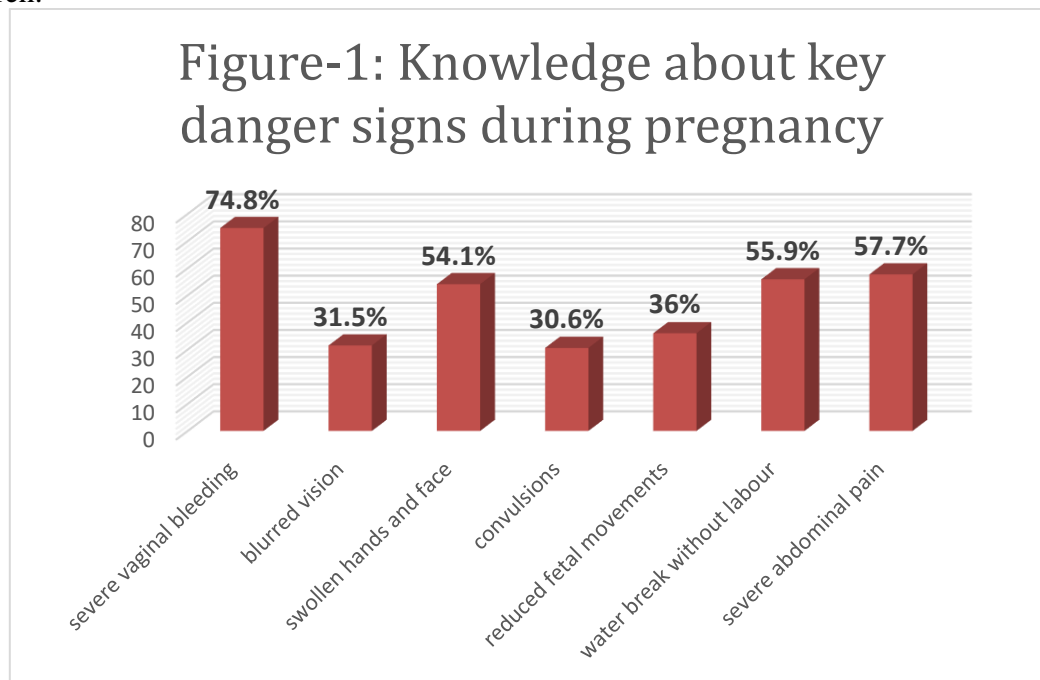
Figure-1: Knowledge about key danger signs during pregnancy

* X-axis represents key danger signs of pregnancy and Y-axis represents percentage of the same.

Fig-1 depicts that 74.8% of the study population had a knowledge about severe vaginal bleeding as a danger sign during pregnancy, 57.7% knew about severe abdominal pain, 55.9% were aware of water breaks without labour and 54.1% knew about swollen hands and face as a danger sign and only 30.6% knew convulsion being a danger sign.

Table 4: Knowledge about key danger signs during labour (n=111) *

| Danger signs during labour	Frequency	Percentage
Severe vaginal bleeding	84	75.7
Convulsions	28	25.2
Prolonged labour beyond 12 hrs	61	54.9
Retained placenta	45	40.5

*Multiple response question

In the present study ,out of 111 study subjects, 84 (75.7%) had a knowledge of severe vaginal bleeding as danger sign during labour, 61 (55%) knew about prolonged labour (labour lasting >12 hrs) and 45 (40.5%) were aware of retained placenta as a danger sign during labour.

Table 5: Knowledge about key danger signs after childbirth (n=111) *

Post-partum danger signs	Frequency	Percentage
Severe vaginal bleeding	75	67.6
High fever	46	41.4
Malodorous vaginal discharge	35	31.5
Pain or swelling in the breast	0	0

*Multiple response question

Table-5 depicts that 75 (67.6%) of the study population were aware of severe vaginal bleeding, 46 (41.4%) knew about high fever and only 35 (31.5%) had knowledge of malodorous vaginal discharge as key danger sign after child birth. None of them responded as pain or swelling in breast as danger sign.

Figure-2: knowledge about key danger signs of newborn
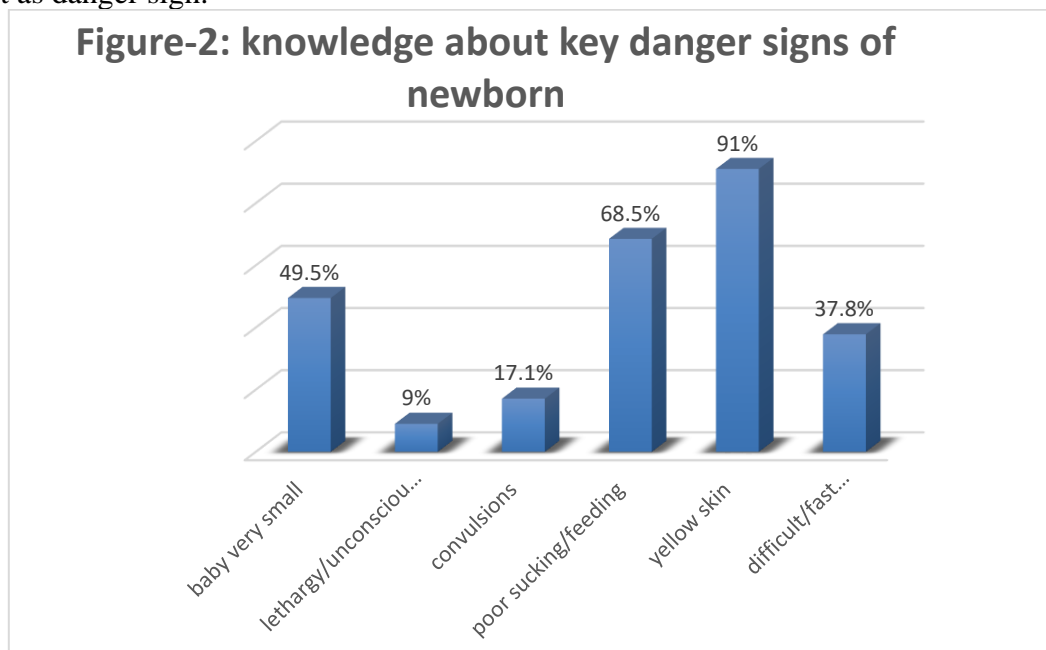
In Figure-2 the X-axis represents key danger signs of pregnancy and Y-axis represents percentage of the same.

Fig-2 displays that 91% of the study population knew about yellowing of skin, 68.5% were aware of poor sucking by the baby and only 9% had a knowledge about lethargy/unconsciousness as a danger sign among the newly born babies.

Table 6: Overall Knowledge of key danger signs (n=111)

Knowledge domain on key danger signs	Frequency	Percentage
Knowledge of at least 3 key danger signs of pregnancy	34	30.6
Knowledge of at least 3 danger signs in labour	12	10.8
Knowledge of at least 3 key post-partum danger signs	16	14.4
Knowledge of at least 3 key danger signs in newborn	2	1.8

As many as 34 (30.6%) were aware of at least 3 key danger signs of pregnancy (severe vaginal bleeding, severe abdominal pain, water break with labour). 12(10.8%) of them had a knowledge of at least 3 key danger signs of labour (severe vaginal bleeding, labour lasting more than 12 hours and retained placenta). Only 16(14.4%) knew about at least 3 key postpartum danger signs (severe vaginal bleeding, high fever, malodourous vaginal discharge). Very few of them i.e. 2 (1.8%) were aware of at least 3 key danger signs in newborn (yellow skin, baby very small, poor suckling).

Table 7: Indicators of recent antenatal care (n=111) *

Variables	Frequency	Percentage
No of ANC visits		
<4 visits	3	2.7
4-10 visits	94	84.6
>10 visits	14	12.6
Source of information about ANC visits*		
ANM	11	9.9
Doctor	47	42.3
ASHA	33	29.7
AWW	11	9.9
Relatives	9	8.1

*Multiple response question

Table-7 shows that all the subjects had registered their previous pregnancy and all went for antenatal checkups. Majority of women 94 (84.6%) had 4-10 Antenatal Care (ANC) visits and only 3 (2.7%) had fewer visits. Most of the women got the information regarding ANC from Doctors 47 (42.3%), followed by ASHA 33 (29.7%) and AWW 11 (9.9%).

Table 8: Indicators of Complication Readiness (n=111) *

Variables	Frequency	Percentage

Identified mode of transport	38	34.2
Identified a trained birth attendant	65	58.5
Saved money	45	40.5
Identified a medical facility	77	69.4
Identified a blood donor	10	9.0

*Multiple choice questions

Table-8 represents that most of the study subjects 77 (69.4%) identified a medical facility for delivery followed by 65 (58.5%) of the subjects identified a trained attendant and 45 (40.5%) saved money for the expenses during delivery. Only very few 10 (9%) identified a blood donor during emergency purpose.

Table 9: Grades of birth preparedness and complication readiness (n=111) *

Variable	Frequency	Percentage
Well-prepared [≥3 Indicators]	87	78.4
Not well -prepared [<3 Indicators]	24	21.6

In the current study Table no 9 depicts 87 (78.4%) women were 'well prepared' and 24 (21.6%) were 'not well prepared' for complications if any.

Table 10: Obstetric and socio-demographic determinants of birth preparedness and complication readiness (n=111)

Variables	Well prepared	Not-well prepared	Total	Statistical significance (chi-square, p value)
Gravida Primi Multi	17 (41.46%) 64 (91.43%)	24 (58.54%) 6 (8.57%)	41 70	Yates X^2=30.2 P value <0.05
ANC visits <4 visits ≥4 visits	0 87 (80.55%)	3 (100%) 21 (19.44%)	3 108	Chi square was not used as one of the cell values is zero
Living children Single Multiple	22 (47.82%) 59 (90.77%)	24 (52.17%) 6 (9.23%)	46 65	Yates X^2= 23.05 P value <0.05
Monthly income • < INR 5000 • > INR 5000	70 (74.5%) 17(100%)	24(25.5%) 0	94 17	Chi square was not used as one of the cell value is zero

Table-10 elaborates that out of 41 primigravida, only 17 (41.46%) were well prepared for complications if any during their pregnancy and out of 70 multigravida,64 (91.43%) was well prepared. On Yates Chi- Square application there was found to be statistical significance between both the parameters (P < 0.05). Regarding ANC visits out of 108 women who had four or more ANC visits, 87 (80.5%) were 'well prepared' for birth preparedness and complication readiness. Statistical significance was also found between 'parity level' and 'well preparedness' (P < 0.05).

Discussion:

Birth preparedness and complication readiness is among the key interventions with the objective to reduce maternal mortality through promoting health care seeking behavior and utilization of appropriate heath facilities and skilled personnel for delivery.[7] Complication readiness component aims at raising awareness and recognition of danger signs and reducing the delay in deciding to seek care.

In our study in spite of presence of medical college in the vicinity of the study population, the awareness quotient about danger signs among the women was unexpectedly low. Only 30.6% were aware of at least 3 key danger signs of pregnancy, 10.8% of them had a knowledge of at least 3 key danger signs of labour and around 14.4% knew about at least 3 key postpartum danger signs. Our findings were closely similar to a study conducted by Mazumdar R [8] were among 240 recently delivered women, 18.8% were aware of at least three key danger signs of pregnancy and only 14.2% respondents knew about danger signs of labor and childbirth. In a study conducted by Sharma N[9] in Haryana, 9.5% women knew more than eight danger signsThe present study depicted that 78.4% of the study subjects were well prepared for complications if any. The findings in the study conducted by Rajesh et al. [10], Agarwal S[11] and Mandal T [12] where only 35.5% , 47.8% and 57% women respectively, were found to be well prepared, which is lower in comparison to our study . Lack of liquid cash in resource constrained setting in emergencies is a major hindrance to access skilled care and so is the availability of vehicle especially in remotest areas. [13,14] In our study 40.5% saved money for the expenses during delivery which was less than study conducted by Rajesh et al [10] were100% women saved money for delivery. In the present study out of 70 multigravida ,64 (91.43%) was well prepared for complications if any. On yates chi- square application there was found to be statistical significance between gravida status and preparedness level. Similar finding were found in study conducted by Rajesh et al.[10] This trend may be due to their experiences they had during their previous pregnancies and a significant better knowledge of danger signs during pregnancy as compared to primigravida women.

Conclusion:

The present study reveals that 78.4% women were well prepared for delivery and complication readiness but still 21.6% had less preparedness to face complications if any. The knowledge about BPCR increases by ANC visits and experience related to previous pregnancy. This was reflected in our study where almost 91.4% multi gravida were well prepared compared to 41.4% of primigravida. Health facilities should strengthen health services in promoting early ANC attendance which presents opportunities to the health care provider to counsel the women about key danger signs they may face during any phase of pregnancy, labour, post-partum period and newborn and empowers women and their family to give social, emotional and psychological support at this critical time. The more the number of women have knowledge about birth preparedness and complication readiness the better will be the reduction in both maternal mortality & neonatal mortality.

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