

Status of Birth Preparedness and Complication Readiness of Pregnant Women and Recently Delivered Women in Rural Varanasi: Assessment of Current Scenario

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Abstract

Background: Birth Preparedness and Complication Readiness is practise of planning for events related to child birth and making necessary arrangements, so that timely and adequate medical care can be provided to the mother. **Objective:** The objective of the study was to assess the Birth Preparedness and Complication Readiness of pregnant and recently delivered women in rural areas of Varanasi. **Materials and Methods:** A total of 633 pregnant and recently delivered women were interviewed using 11 components related to antenatal care and preparations done for child birth. **Results:** Out of all the respondents, less than half (46.4%) among Pregnant women and nearly the same proportion (45.1%) among recently delivered women were found “Well Prepared.” **Conclusion:** The study revealed that there is a need to create awareness among the people about the importance of proper planning and making arrangements in advance to avert the danger to the life of mother and child.

Keywords: Birth preparedness, complication readiness, prepared

INTRODUCTION

Creating a new life is one of the greatest events in the life of women. It should be an occasion to celebrate and not a cause of misery for a women. Child birth is an event where risks and dangers cannot always be predicted, so providing timely and adequate medical care for pregnant women is essential for reducing the risk.

About 800 women die from pregnancy- or child birth-related complications around the world every day. In 2010, 287 000 women died during and following pregnancy and childbirth. Almost all of these deaths occurred in low-resource settings, and most could have been prevented.^[1] In 2016, an estimated 78% of all live births benefitted from skilled care during delivery.^[2]

The Birth Preparedness and Complication Readiness (BPCR) is a strategy to plan for normal birth and being prepared for any emergency that may arise. It includes active preparation and decision-making for the time of delivery so that a pregnant female has access to skilled obstetric health services when labor begins. These include various small steps that together

make a big difference in improving maternal health and reducing maternal death.

This study was conducted with the aim to find the status of BPCR in rural areas of Varanasi. After assessing the scenario, the areas where more attention is required to improve maternal health, can be identified. In future, it can help in framing newer health programs and schemes.

MATERIALS AND METHODS

This community-based study was conducted in rural areas of Chiraiyaon block, district Varanasi, Uttar Pradesh, India. Six villages, catering a population of 27,798 (Census 2011),

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were covered. Sample size was calculated using the formula Z^2PQ/L^2 . Prevalence of 47.5% was found in “Study of Birth Preparedness and Complication Readiness among Pregnant and Recently Delivered Women in Rewa district, by D. Nandan *et al.*, (2008–2009).^[3]

$$Q = 100 - P = 52.5\%$$

$$L = \text{Absolute error} = 5\%$$

$$Z = \text{Critical value at 95\% confidence level of certainty} = 1.96$$

The design effect of 1.5 was taken and assuming nonresponse rate of 10%, the final sample size came to 633.

All the respondents (336 pregnant women of second and third trimester and 297 recently delivered women, who had delivered within last 6 months) were interviewed. The study was conducted during the period July 2018 to June 2019. After signing a written informed consent, a pretested semi-structured interview schedule was administered to all the pregnant women.

The concept of BPCR was originally given by Johns Hopkins Program for International Education in Gynecology and Obstetrics (JHPIEGO).^[4] It is based on 12 indicators to evaluate the preparedness level of individual for delivery and its complications. This study deals with the assessment of status of BPCR of pregnant and recently delivered women. In this study, only 11 components based on indicators mentioned by JHPIEGO were used, as one of the component, “arranging a blood donor,” was not included because none of the respondents mentioned it during the pilot study [Table 1]. The 11 components which were included are as following:

1. Knowledge of at least three or more danger signs of pregnancy
2. Knowledge of at least three or more danger signs of labor and child birth
3. Knowledge of at least three or more danger signs of postpartum period
4. Knowledge of at least three or more danger signs of new born

5. First ANC check up done in first trimester
6. Knowledge about minimum 4 ANC checkup during pregnancy
7. Knowledge about Government Financial Assistance for pregnant women
8. Knowledge about Government ambulance service for pregnant and delivered women
9. Identifying a doctor/health facility for delivery
10. Saving/saved money for expenses during delivery
11. Arranged a transport for reaching the place of delivery.

Those study subjects who answered at least 6 out of 11 components were categorized as “Well Prepared” and others who answered 5 or <5 were considered as “Less Prepared.”

The data collected were coded and entered into Microsoft office excel worksheet. Trial version 23 Statistical Package for Social Sciences manufactured by International Business Machine Corporation (IBM) of New York, United States. was used for statistical analysis. Necessary statistical tests were applied where ever required.

The study was approved by ethical committee of Institute of Medical Sciences, Banaras Hindu University, Varanasi.

RESULTS

In this study, knowledge of respondents was assessed regarding various components of BPCR as stated above. Out of total 633 respondents, among 336 pregnant women, less than half (46.4%) were found “Well Prepared” while a little more than half (53.6%) of them were found “Less Prepared.” Among 297 recently delivered women, 45.1% were “Well Prepared” and more than half (54.9%) were found “Less Prepared” on the basis of 11 components based on indicators mentioned by JHPIEGO.

Antenatal registration and checkup in first trimester affected BPCR status, as women who had their antenatal registration in first trimester (250, 39.5%) [Table 1], more than half (157, 62.8%) of them were found “Well Prepared” [Table 2].

Table 1: Components of birth preparedness and complication readiness and status of respondents

Components of BPCR	Status of respondents		
	Pregnant women, <i>n</i> (%)	Recently delivered women, <i>n</i> (%)	Total, <i>n</i> (%)
Knowledge of ≥3 danger sign of pregnancy	124 (36.9)	99 (33.3)	223 (35.2)
Knowledge of ≥3 danger sign of labour	110 (32.7)	79 (26.6)	189 (29.9)
Knowledge of ≥3 danger sign of postpartum period	25 (7.4)	16 (5.4)	41 (6.5)
Knowledge of ≥3 danger sign of new born	154 (45.8)	130 (43.8)	284 (44.9)
1 st ANC check-up done in 1 st trimester	135 (40.2)	115 (38.7)	250 (39.5)
Knowledge about minimum 4 ANC check up	85 (25.3)	66 (22.2)	151 (23.9)
Knowledge about government financial assistance	313 (93.2)	278 (93.6)	591 (93.4)
Knowledge about government ambulance service	308 (91.7)	276 (92.9)	584 (92.3)
Identified a skilled provider/health facility	320 (95.2)*	295 (99.3)**	615 (97.2)
Saved money	184 (54.8)	180 (60.6)	364 (57.5)
Arranged a transport	62 (18.5)	72 (24.2)	134 (21.2)
BPCR index = \sum 11 indicator (%) / 11			49.2

*320 as 5 had planned to deliver at home and 11 had not planned the place of delivery, total=336, **295 as 2 had delivered at home, total=29. ANC: Antenatal care, BPCR: Birth preparedness and complication readiness

Knowledge about danger signs of pregnancy, labor, postpartum period, and of newborn also affected the Status of Preparedness. Around one-third of the total respondents (223, 35.2%) knew about at least three or more danger signs of pregnancy and were considered to have good knowledge [Table 1]. Of these women, majority (186, 83.4%) were found “Well Prepared.” Nearly one third (189, 29.9%) of the total respondents knew at least 3 or more danger signs of labor and child birth. Out of these women, around three-quarter (152, 80.4%) were found “Well Prepared.” The association between knowledge about danger signs of labour and child birth and status of preparedness was found statistically significant ($P < 0.001$). Majority (591, 93.4%) of total respondents knew about financial assistance provided by government through various schemes. Of these, nearly half of them (290, 49.1%) were found “Well Prepared.” Majority (615, 97.2%) of respondents had identified a doctor/health facility for

delivery and nearly half of them (290, 47.2%) were categorized as “Well Prepared.” A little more than half (364, 57.5%) of all the respondents had saved money for expenses and around two-third (237, 65.1%) of them were classified to be “Well Prepared” [Table 2]. Less than a quarter (134, 21.2%) of the respondents had arranged a transport for reaching the place decided for delivery. Out of them majority (121, 90.3%) were found “Well Prepared” [Table 2]. Percent variation of BPCR was explained by Binary Logistic Regression Model [Table 3].

DISCUSSION

The BPCR includes active preparation and decision making so that a pregnant woman has timely access to skilled obstetric health services when labor begins. In the current study, it was seen that those who had knowledge that at least 4 or more

Table 2: Association between knowledge regarding various components of birth preparedness and complication readiness and status of birth preparedness and complication readiness of pregnant and recently delivered women

BPCR components	BPCR status of respondents			Test of significance
	Less prepared, n (%)	Well prepared, n (%)	Total, n (%)	
Knowledge of danger signs of pregnancy				
Knows <3 danger signs	306 (74.6)	104 (25.4)	410 (100.0)	$P < 0.001$
Knows ≥ 3 danger signs	37 (16.6)	186 (83.4)	223 (100.0)	
Total	343 (54.2)	290 (45.8)	633 (100.0)	
Knowledge of danger signs of labor and child birth				
Knows <3 danger signs	306 (68.9)	138 (31.1)	444 (100.0)	$P < 0.001$
Knows ≥ 3 danger signs	37 (19.6)	152 (80.4)	189 (100.0)	
Knowledge of danger signs of postpartum period				
Knows <3 danger signs	341 (57.6)	251 (42.4)	592 (100.0)	$P < 0.001$
Knows ≥ 3 danger signs	6 (14.6)	35 (85.4)	41 (100.0)	
Knowledge of danger signs of new born				
Knows <3 danger signs	256 (73.4)	93 (26.7)	349 (100.0)	$P < 0.001$
Knows ≥ 3 danger signs	87 (30.6)	197 (69.4)	284 (100.0)	
Knowledge about government financial assistance				
Does not know	36 (85.7)	6 (14.3)	42 (100.0)	$P < 0.001$
Knows	301 (50.9)	290 (49.1)	591 (100.0)	
Knowledge about government ambulance service				
Does not know	42 (85.7)	7 (14.3)	49 (100.0)	$P < 0.001$
Knows	299 (51.2)	285 (48.8)	584 (100.0)	
Number of essential ANC visits as stated by respondents				
<4	301 (62.4)	181 (37.6)	482 (100.0)	$P < 0.001$
≥ 4	42 (27.8)	109 (72.2)	151 (100.0)	
Time of 1st ANC check up				
In 1 st trimester	93 (37.2)	157 (62.8)	250 (100.0)	$P < 0.001$
After 1 st trimester	250 (65.3)	133 (34.7)	383 (100.0)	
Identified a doctor or health facility				
Not identified	12 (66.7)	6 (33.3)	18 (100.0)	
Identified	325 (52.8)	290 (47.2)	615 (100.0)	$P < 0.001$
Saved money				
Not saved	216 (80.3)	53 (19.7)	269 (100.0)	$P < 0.001$
Saved	127 (34.9)	237 (65.1)	364 (100.0)	
Arranged transport				
Not arranged	330 (66.1)	169 (33.9)	499 (100.0)	$P < 0.001$
Arranged	13 (9.7)	121 (90.3)	134 (100.0)	

ANC: Antenatal care, BPCR: Birth preparedness and complication readiness

Table 3: Percent variation of birth preparedness and complication readiness explained by binary logistic regression model

Variables	OR	95% CI (lower-upper)	Cox and Snell $R^2 \times 100$
Knowledge of ≥ 3 danger signs of pregnancy	14.79	9.75-22.45	28.0
Arranged transport	16.57	10.47-26.22	40.6
1 st ANC check-up in 1 st trimester	25.66	14.91-44.15	45.7
Saved money	35.28	18.91-65.68	51.0
Knowledge about minimum ANC visit	41.26	21.56-79.12	53.3
JSY benefit	50.43	24.65-103.17	56.4
Knowledge of ≥ 3 danger signs of postpartum period	48.81	22.87-104.20	58.5
Age group	38.49	17.76-83.38	59.2

OR: Odds ratio, CI: Confidence interval, ANC: Antenatal care, JSY: Janani Suraksha Yojna

antenatal checkups should be attended, among them nearly three-quarter (109, 72%) were “Well Prepared.” This means more the knowledge, better is the practice regarding birth preparedness. Almost similar results were reported by Akshaya and Shivalli (2017)^[5] where 84% women were found “Well Prepared.” In this study, 39.5% respondents had their first ANC checkup in 1st trimester. Similar finding was reported by Acharya *et al.*^[6] in Delhi, as 42.9% respondents in their study had their 1st ANC check up in 1st trimester. About 35.2% women, in this study, knew at least three danger signs of pregnancy. Nearly similar results were reported by Kaur *et al.*, (2015)^[7] in Amritsar, where 25% of study subjects knew more than 3 danger signs of pregnancy.

In the present study, it was observed that women who knew more danger signs of pregnancy, labour, postpartum period and of newborn, larger proportion of them were found “Well Prepared.” Among those pregnant women, who knew lesser number of danger signs, smaller proportion of them were found “Well Prepared.” This shows that those who were aware of risks and dangers, they had better preparations for any emergency that may occur. Comparable results were reported in study done by Akshaya and Shivalli (2017)^[4] in Karnataka, as those who were aware of at least six danger signs, majority (90.9%) of them were found “to be practicing Optimal BPCR.” In other group, who were unaware or knew <6 danger signs, among them only two third of respondents (65.9%) were “practicing optimal BPCR.”

In the present study, a little more than half of the respondents (57.5%) had saved money for expenses of child birth. Similar results were obtained by Mukhopadhyay *et al.*^[8] where almost the same proportion (56.9%) of respondents had saved money. Among those who were aware about financial assistance provided by government, nearly half (290, 49.1%) of them were “well prepared.” The findings were comparable to study done by Akshaya and Shivalli (2013)^[4] who reported from Karnataka, that those women who were aware of “Janani Suraksha Yojna” (JSY), among them majority (81.1%) were found “well prepared,” among those participants, who did not know about JSY, nearly three quarter (77.5%) were found “well prepared.”

There are some limitations in this study as the effect of decision-making power of women was not assessed in this study. Further, it can be planned in form of a study to assess the knowledge, attitude and practice of study participants.

CONCLUSION

The study revealed that, out of total study participants, only a small proportion of them had knowledge about danger signs of pregnancy and child birth and various preparations needed to be made beforehand. Thus, there is a need to create awareness among people, as pregnant women were not aware of many services that are available to them. More emphasis on making awareness among pregnant women and motivating them to utilize the health services will help in reducing maternal mortality.

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Conflicts of interest

There are no conflicts of interest.

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