Original Research Article

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Status of birth preparedness and complication readiness among recently delivered women: a community based study in a slum of Kolkata, West Bengal

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ABSTRACT

Background: Birth preparedness and complication readiness (BPACR) is a strategy that promotes timely use of skilled care and deal with emergencies especially during childbirth, by encouraging pregnant mothers and their families to make effective plan for child birth. The objective of the study was to assess the awareness and practices of BPACR among women who had delivered in last 24 month and identify the predictors of favourable BPACR.

Methods: A cross sectional, community based study was conducted in a slum of Chetla, Kolkata, among 98 women who delivered during the previous 2 years. Data were collected with a structured, interview schedule after obtaining informed consent from them.

Results: Out of 98 women only 43 (43.9%) were well prepared for birth and its complication in their last pregnancy. 32.7% women were knowledgeable about danger sign of pregnancy. 100% of study participants identified the place of delivery and made a birth plan with discuss with family members. Bivariate logistic regression shows education status of study subject OR (CI) 4.34 (1.4712.8), education status of their spouse OR (CI) 2.92 (1.187.24) and per capita income OR (CI) 7.18 (2.6619.34) have significant association with birth preparedness. However in multivariable logistic regression after adjustment with different confounding variable only income remained significant AOR (CI) 5.82 (2.0816.29).

Conclusions: The poor status of BPACR as observed in this study calls for increased emphasis on counselling of pregnant women and their families regarding the different components of birth preparedness.

Keywords: Birth preparedness and complication readiness, Recently delivered women, India, Obstetric danger signs

INTRODUCTION

Pregnancy related complications cannot be predicted completely. Unexpected complications may arise at any stage of her pregnancy that could end in death or injury to herself or to her infant. Although the global maternal mortality ratio is declining it is far away from Sustainable Development Goal of reducing the global maternal

mortality ratio to less than 70 per 100000 live births between 2016 and 2030. In India 15% of life threatening pregnancy related complications and MMR of 174/100,000 live birth. In India 15% of life threatening pregnancy related complications and MMR of 174/100,000 live birth. In India 15% of life threatening pregnancy related complications and MMR of 174/100,000 live birth. In India 15% of life threatening pregnancy related complications and MMR of 174/100,000 live birth. In India 15% of life threatening pregnancy related complications and MMR of 174/100,000 live births between 2016 and 2030. In India 15% of life threatening pregnancy related complications and MMR of 174/100,000 live births between 2016 and 2030. In India 15% of life threatening pregnancy related complications and MMR of 174/100,000 live birth. In India 15% of life threatening pregnancy related complications and MMR of 174/100,000 live birth. In India 15% of life threatening pregnancy related complications and MMR of 174/100,000 live birth. In India 15% of life threatening pregnancy related complications and MMR of 174/100,000 live birth. In India 15% of life threatening pregnancy related complications and MMR of 174/100,000 live birth. In India 15% of life threatening pregnancy related complications and MMR of 174/100,000 live birth. In India 15% of life threatening pregnancy related complications and MMR of 174/100,000 live birth. In India 15% of life threatening pregnancy related complications and MMR of 174/100,000 live birth. In India 15% of life threatening pregnancy related complications and MMR of 174/100,000 live birth. In India 15% of life threatening pregnancy related complications and India 15% of life threatening pregnancy related complications and India 15% of life threatening pregnancy related complications and India 15% of life threatening pregnancy related complications and India 15% of life threatening pregnancy related complications and India 15% of life threatening pregnancy related complications and India 15% of life threa

receiving adequate care at the point of service.⁴ To overcome this problem, BPACR (Birth preparedness and complication readiness) a globally accepted safe motherhood program has started which actually is a comprehensive package aimed to addresses these three delays timely and encourage pregnant women and their families for making early birth plan and for any unpredictable complications.^{4,5}

In many societies in the world different cultural and rituals factors as well as lack of awareness are the principal barriers for birth preparedness. When complications arise, the unprepared family wastes important time in recognizing the problem, getting organized, and reaching the appropriate referral facility. Though strategies have been formulated at programmatic level to resolve the problem of the three delays. India still remains far from achieving an optimum maternal mortality ratio. With this background a study was conducted in a slum of Kolkata to assess the awareness and practices of BPACR among women who had delivered in last 24 months and to identify the factors that might have association with favourable BPACR. The findings of this study will be helpful for health planners and administrators to take appropriate measures for improvement of all activities related to safe and healthy motherhood.

METHODS

A cross sectional, descriptive, community based study was conducted in a slum of Chetla, Kolkata, which is the urban field practice area of All India Institute of Hygiene and Public Health, Kolkata during June –August 2016. The study subjects were recently delivered women who had given birth during a reference period of June 2014May 2016 (last 2 years). Those women who were unwilling to participate or were severely ill, were excluded from the study. Considering estimated prevalence of 57% well birth prepared, found in a community based study and 10% allowable absolute error, minimum sample size calculated was 94. Now considering 10% as non-response rate, the final sample size was calculated to be 104.6

There are three units (A, B and C) under service area of Urban Health Unit and Training Centre Chetla. A sampling frame was prepared with a list of all eligible subjects fulfilling the stated criteria residing in Unit A and B (Unit C was used for pretesting purpose). From this sampling frame the required list of study subjects were included by simple random sampling technique. Selected study subjects were approached at their households.

The schedule included the following

 Questions regarding socio-demographic profile, details about antenatal care services, birth history,

- knowledge of danger signs during pregnancy and new born
- Questions regarding preparedness of last pregnancy or confinement
- Medical records.

This tool was translated into the local language (Bengali) and pretested in 20 households and was finalised after due modification.

Informed consent was obtained from the study subjects after explaining to them the study objectives and procedures and also assuring them their right to refuse to participate in the study at any of time.

Operationally in this study, a woman was considered as well prepared for birth and its complication -having 4 and more components from following six birth preparedness complication readiness items.⁷

- Knowledge of danger signs or early signs of emergency;
- 2) Plan for where to give birth &/or Arrangement with a skilled birth attendant;
- 3) Made some financial savings towards delivery or for obstetric emergency;
- 4) Identifying nearest institution with 24 hour emergency obstetric care services;
- 5) Arranged for transport before delivery;
- 6) Arrangement of blood donor during obstetric emergency.

Data processing and analysis

Data were entered and analyzed in Statistical Package for the Social Sciences (SPSS) version 20. Descriptive statistics along with bivariate and multivariate analysis was performed.

RESULTS

Out of the total 104 selected women, 6 study subjects refused to participate and 98 were successfully interviewed yielding the response rate of 94%.

Mean age of study subject's was 25.67 years and mean age of their husbands was 31.22 yrs. Most of them were Hindus (70.4%) and the rest were Muslims. Out of them 59.2% belonged to SC, ST and OBC category. Joint and nuclear family were more or less of the same ratio. Most of the women were housewife (87.8%). Their spouses were mostly labourer (46.9%) and driver (22.4%) by occupation. Among the study subjects 93% registered their pregnancy within 1^{st} trimester, 83.7% of respondents had attended ≥ 4 antenatal check-up and 100% of respondents had received 2 tetanus toxoid and had undergone Institutional delivery. 12.2% of mothers suffered from pregnancy related complications (Table 1).

Table 1: Background characteristics of study participants [n= 98].

Variables	Nur	Number (%)					
Age of study subject	1 (411	11301 (70)					
<=20	11	(11.2)					
2130	72	(73.5)					
>=31	15	(15.3)					
Mean (±SD) 25.67 (4.48)	13	(13.3)					
Age of spouse							
<=25	11	(11.2)					
2635	70	(71.4)					
>=35	17	(17.4)					
Mean (±SD) 31.22 (5.21)	1,	(17.1)					
Education of subject							
Illiterate	22	(22.4)					
Below primary	3	(3.1)					
Primary	41	(41.8)					
Middle	22	(22.4)					
Secondary	6	(6.1)					
Higher secondary	4	(4.2)					
Median (IQR) Years of schooling 6 (3	•	(4.2)					
Education husband	3)						
Illiterate	33	(33.7)					
Primary	33	(33.7)					
Middle	17	(17.3)					
Secondary	13	(13.3)					
Higher secondary	2	(2.0)					
Median (IQR) years of schooling 5 (0)		(2.0)					
Socio economic class(As per BG	0)						
Prasad 2016)							
Class I	11	(11.3)					
Class II	64	(65.3)					
Class III	21	(21.4)					
Class IV	2	(2.0)					
Mean (SD) of PCI 1534 (632.97)		(2.0)					
Parity							
1	34	(34.7)					
2	45	(45.9)					
3	18	(18.4)					
4	1	(1.0)					
Age of last child (month)		(2.0)					
0-6 months	21	(21.4)					
7-12 months	40	(40.8)					
13-24 months	37	(37.8)					
ANC for last issue	57	(57.0)					
<4	37	(37.8)					
<u>></u> 4	61	(62.2)					
Median (IQR) 5 (46)	O1	(02.2)					
PNC for last issue							
0	22	(22.4)					
1	59	(60.2)					
2	14	(14.3)					
3	3	(3.1)					
Median (IQR) 1 (11)	3	(3.1)					
111001mm (1X11) 1 (11)							

Table 2: Knowledge and practice of BPACR [n=98].

Vnowledge and prestings		No. of					
Knowledge and practices	women (%)						
Knowledge regarding antenatal services *							
Pregnancy registration	82	(83.7)					
TT	75	(76.5)					
Knowledge about minimum ANC visit	65	(66.3)					
Knowledge about minimum IFA tab	53	(54.1)					
Knowledge about JSY money facilities	32	(32.7)					
Knowledge about JSSK transport	10	(10.4)					
facilities	18	(18.4)					
Knowledge of danger signals during pr	egna	ncy*					
Severe bleeding	52	(53.1)					
Pain abdomen	34	(34.7)					
Swelling of face and hands	19	(19.4)					
Reduced foetal movements	41	(41.8)					
Leakage per vagina	9	(9.2)					
Blurring of vision	11	(11.2)					
Excessive vomiting	18	(18.4)					
Palpitations, easy fatigability, and	22						
breathlessness at rest	22	(22.4)					
Anaemia	19	(19.4)					
Don't know	24	(24.5)					
Overall knowledgeable**	32	(32.2)					
Knowledge regarding neonatal danger	signa						
Jaundice	15	(15.7)					
Refusing to breast feed,	35	(35.7)					
Twitching, convulsions and fever	11	(11.2)					
Lethargy/unconsciousness.	19	(19.4)					
Difficult or fast breathing	26	(26.5)					
Don't know	35	(35.7)					
Overall knowledgeable ***	44	(44.9)					
BPACR Practices*		(1117)					
Plan for where to give birth and /or		(4.0.0)					
Arrangement a skilled birth attendant	98	(100)					
Arranged for a birth companion,	90	(91.8)					
Made discussion with family members							
regarding birth plan and got support	98	(100)					
Made some financial savings towards	<i>-</i> 4	(55.1)					
delivery or for obstetric emergency,	54	(55.1)					
Arranged for transport before delivery	33	(33.7)					
Identifying nearest institution with 24		(96.9)					
hour emergency obstetric care services.							
Arrangement of blood donor for	0	(0)					
emergency,	0	(0)					

*Multiple responses; ** Favourable knowledge regarding danger signs of pregnancy if there was 3 or more correct response. 4.5; *** Favourable knowledge regarding danger signs of new-born if there was 2 or more correct response. 4

83.7% women were aware about early registration of pregnancy. More than three fourths of the women were aware about tetanus (TT) immunization but only 18.4% were aware about transportation and 32.7% about government financial assistance scheme. 32.7% women knew about danger signs of pregnancy and 44.9% women

knew about new-born danger sign. In practice 100% of study participants identified the place of delivery and

made a birth plan after discussion with family members (Table 2).

Table 3: Factors associated with favourable BPACR [n=98]

Variables		Mothers	Well prepared [N=43] Number(%)	OR (95% C.I.)	AOR (95% C.I.)
Age of study subject	≤20	11	7 (63.63)	1.16 (0.23-5.80)\$	
	21-30	72	27 (37.5)	0.40 (0.12-1.24)\$	
	≥31	15	9 (60)	1	
Age of spouse	≤25	11	5 (45.45)	0.74 (0.16-3.39)\$	
	26-35	70	29 (41.42)	0.62 (0.21-1.82)\$	
	≥35	17	9 (52.94)	1	
Religion	Hindu	69	31 (44.92)	1.15 (0.48-2.78) ^{\$}	
	Muslim	29	12 (41.37)	1	
Type of	Joint	52	22 (42.30)	0.87 (0.39-1.9)\$	
family	Nuclear	46	21 (45.65)	1	
Education of	Above primary	25	5 (20)	4.34 (1.47-12.8)\$	0.35 (0.10-1.19)\$
subject	Up to primary	73	38 (52.05)	1	
Education of spouse	Above primary	33	9 (27.27)	2.92 (1.18-7.24) ^{\$}	1.32 (0.45-3.99)\$
	Up to primary	65	34 (52.30)	1	
PCI	>1534	58	18 (41.86)	7.18 (2.66-19.34) ^{\$}	5.82 (2.08-16.29) ^{\$}
	≤1534	40	25 (58.14)	1	
Occupation of	House wife	86	37 (43)	$0.75 (0.22 - 2.53)^{\$}$	
wife	working mother	12	6 (50)	1	
ANC(times)	<4	37	18 (48.64)	1.36 (0.60-3.10)\$	
	≥4	61	25 (40.98)	1	
Parity	≤2	79	36 (45.56)	1.43 (0.51-4.02)\$	
	>2	19	7 (36.84)	1	
\mathbb{R}^2					0.27

OR- Odds ratio; CI-Confidence interval; AOR-Adjusted odds ratio; \$- Statistically significant (p<0.05)

Only 43 (43.9%) study subjects were well prepared for birth and its complication in their last pregnancy whereas the remaining 55 (56.1%) study subjects were less prepared for birth and its complication. The women obtained their knowledge from health workers (63%) followed by doctors (17%).

Bivariate logistic regression shows education status of study subject (OR 4.34), education status of their spouse (OR 2.92) and per capita income (OR 7.18) have significant association with birth preparedness. In final multivariable logistic regression after adjustment only per capita income remained significant (AOR 5.82). Our final model is fit for predicting the variation for birth preparedness as Hosmer Lemeshow statistics (p=0.184) was not significant (p>0.05). All the independent variables explained 27.3% variation of birth preparedness using Nagelkerke (Table 3).²

DISCUSSION

In the present study, proportion of women who registered for pregnancy within first trimester, took at least four antenatal check-ups, having institutional delivery were 93%, 62.2%, and 100% respectively. The corresponding figures reported in DLHS4 for Kolkata quite similar [8] but National and state level figures as reported in

National family Health Survey (NFHS4) were low in comparison to this study. 9

This study showed that, 43.9% of the respondents were prepared for birth and its complication in their last pregnancy. The result was more or less consistent with another study conducted in Madhya Pradesh (47.8%) and West Bengal (57%). On the other hand, the finding was not in agreement with the result of the other studies. ^{5,11,12}

About 32.7% women knew about danger signs of pregnancy. Other studies had shown similar results like 27.8% and 28.3% women knew about danger sign of pregnancy. In Darjeeling district, West Bengal, knowledge status was slightly more for danger signs during pregnancy (43.6%). The most common danger signs known were severe bleeding (70.3%) followed by reduced foetal movement, pain abdomen. In Delhi also most common known danger sign was severe bleeding.

Identifying place of delivery and /or skilled birth attendant and making a birth plan were the most mentioned BPACR practices which was quite similar to findings of different study.^{6,13,14} The least mentioned BPACR practices were financial savings towards delivery or for obstetric emergency (55.1%) and arranged for

transport before delivery (33.7%). In Ethiopia, in Nigeria and in Tanzania saving money was a commonly mentioned practice but in Tanzania practice of identifying transport was quite same in our study.^{5,14,15} There was desirable level of practices among study participants in spite of poor knowledge may be due to provision of door to door service and regular sensitization about available services by health workers.

Bivariate logistic regression showed education status of study subject and their spouse had significant association with birth preparedness. In Nigeria maternal educational status was the only predictor of birth preparedness whereas in Delhi women's education and her spouse's education found to be significant. ^{12,13} In this study only income was found significant in both bivariate and multivariable model.

CONCLUSION

The performance regarding BPCAR was not up to standard. Therefore, health personnel at all levels must come forward to impart appropriate high quality IEC services which in the long run will help in improving BPCAR and reducing maternal morbidity or complications.

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REFERENCES

- Trends in maternal mortality: 1990 to 2015: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. Geneva: World Health Organization; 2015 Available at: www.who.int/iris/bitstream/10665/ 112682/2/9789241507226_eng.pdf. Accessed on 4 Aug 2016.
- 2. Maternal and Perinatal Death Inquiry and Response. Available at: http://www.mapedir.org/MDAC Maternal.pdf. Accessed on 4 June 2016.
- World Health Statistics 2016 Annex. Available at: www.who.int/gho/publications Access 10 July 2016.
- 4. Del Barco RC, editor. JHPIEGO Monitoring Birth Preparedness and Complication Readiness. Tools

- and Indicators for Maternal and Newborn Health. USA Baltimore, MD: JHPIEGO; 2004: 144.
- Markos D, Bogale D. Birth preparedness and complication readiness among women of child bearing age group in Goba woreda, Oromia region, Ethiopia, Markos and Bogale BMC Pregnancy and Childbirth. 2014,14:282:29.
- 6. Mandal T, Biswas R, Bhattacharyya S, Das DK. Birth Preparedness and Complication Readiness Among Recently Delivered Women in a Rural Area of Darjeeling, West Bengal, India North Bengal Medical College and Hospital, Department of Community Medicine, Siliguri, West Bengal, India. Am Med Student Res J. 2015;2(1):14-20.
- 7. Hiluf M, Fantahun M. Birth Preparedness and Complication Readiness among women in Adigrat town, north Ethiopia. Ethiop J Health. 2007;22(1):14–20.
- 8. Government of India. Ministry of Health and Family Welfare. District Level Household and Facility Survey under Reproductive and Child Health Project (DLHS 4): West Bengal, Kolkata. International Institute of Population Sciences, Mumbai, India. 2014.
- Government of India. Ministry of Health and Family Welfare. National Family Health Survey 4 (2015 16): State Fact Sheet West Bengal. International Institute for Population Sciences, Mumbai.
- 10. Agarwal S, Sethi V, Srivastava K, Jha PK, Baqui AH. Birth Preparedness and Complication Readiness among Slum Women in Indore City, India. J Health Popul Nutr. 2010;28(4):383–91.
- 11. Gebre M Gebremariam A, Abebe AT. Birth Preparedness and Complication Readiness among Pregnant Women in Duguna Fango District, Wolayta Zone, Ethiopia. PLOS ONE. 2015;10(9):e0137570.
- Ekabua J, Ekabua K, Odusolu P, Agan T, Iklaki C. Awareness of Birth Preparedness and Complication Readiness in Southeastern Nigeria. ISRN Obstetr Gynecol. 2011;2011:560641.
- Acharya A, Kaur R, Prasuna J, Rasheed N. Making Pregnancy Safer—Birth Preparedness and Complication Readiness Study Among Antenatal Women Attendees of A Primary Health Center, Delhi. Indian J Community Med. 2015;40(2):127-34.
- 14. Onayade AA, Akanbi OO, Okunola HA, Oyeniyi CF, Togun OO, Sule SS. Birth preparedness and emergency readiness plans of antenatal clinic attendees in IleIfe, Nigeria. Niger Postgrad Med J. 2010;17(1):309.
- 15. Bintabara D, Mohamed M, Mghamba J, Wasswa P, Mpembeni R. Birth preparedness and complication readiness among recently delivered women in chamwino district, central Tanzania: a cross sectional study. Reproductive Health. 2015;12:44.

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