Research Article

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A study to assess the birth preparedness and complication readiness among antenatal women attending district hospital in Tumkur, Karnataka, India

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ABSTRACT

Background: Globally, more than 40% of pregnant women may experience acute obstetric problems. Most of maternal deaths were due to delay in identifying the complication, deciding to seek care, identifying and reaching a health facility and receiving adequate and appropriate treatment at the health facility. Birth preparedness and complication readiness (BPACR) is an intervention that addresses these delays by encouraging pregnant women, their families, and communities to effectively plan for births and deal with emergencies, if they occur.

Methods: A cross-sectional study was done among 371 antenatal women attending antenatal clinic in a District hospital. After getting consent, all of them were interviewed with a structured questionnaire.

Results: Out of 371 pregnant mothers, only 133 (35.85%) were well prepared for child birth. 28.03% of women didn't know even a single danger sign and 24.26% mentioned at least one danger sign. Only 23% of the pregnant women were sensitized by the health worker regarding the danger signs. Among the socio-demographic characteristics collected in this study, parity, education status of mother and husband and women who had child birth within 2 years was significantly associated with well preparedness status of BPACR.

Conclusions: BPACR - preparedness was observed among 35.85% of pregnant mother. Awareness regarding danger signs during pregnancy, child birth and postpartum period were very poor. Preparedness was observed to improve with mother's and spouse education status, increase in parity and women had child birth within two years were better prepared.

Keywords: Birth preparedness, Complication readiness, BPACR, Antenatal women

INTRODUCTION

Every pregnant woman is at risk of pregnancy complications which are unpredictable and it may endanger her life. Globally, more than 40% of pregnant women may experience acute obstetric problems. Developing countries account for 99% (286 000) of the global maternal deaths of which 16% occur in India. A number of initiatives that commenced in recent years are geared towards achievement of the fifth Millennium Development Goal (MDG 5: Improving maternal health),

most notably the launch of the Global Strategy for Women's and Children's Health in 2010 by the United Nations (UN).³

Majority of the maternal deaths occur during pregnancy, labour and within 24 hours of post-partum period. In India, apart from medical causes, there are numerous socio-cultural factors which delay care seeking and contribute to these deaths. Most often the delay is due to a) Identifying the complication, b) Deciding to seek care c) Identifying and reaching the health facility and d)

Receiving adequate and appropriate treatment at the health facility. Reduction in maternal mortality rate cannot be achieved unless we considered all these factors are considered.

Pregnancy related complications cannot be predicted. Hence, it is essential to employ strategies to overcome the problems when they arise. Birth preparedness and complication readiness (BPACR) is a key strategy in safe motherhood program. The key elements includes recognition of danger signs, antenatal visit in first trimester, plan for skilled birth attendant, a plan for the place of delivery and saving money for transport or other costs. BPACR is a multi-level strategy. It can be explored at six levels - the individual pregnant woman, her family, her community, health facility, health service provider and policy makers. ¹

BPACR improves preventive behaviour and knowledge of mothers about danger signs which lead to improve in care seeking during obstetric emergencies.⁵⁻⁷ It is intended to study BPACR status among the pregnant women attending district hospital in Tumkur city.

Objectives

- To assess the status of BPACR among pregnant women
- 2. To identify the socio-demographic factors affecting BPACR

METHODS

A facility based cross-sectional study was conducted among the pregnant women who attended antenatal clinic between June-September 2015 in the district hospital Tumkur. Karnataka. Tumkur district hospital is the referral center for the entire district under the public health care system. The study was approved by the Institutional Review Board of Sri Siddhartha Academy of Higher Education, Tumkur.

A total of 371 pregnant women were included in this study by systematic random sampling technique. (Calculated according to previous study-BPACR preparedness as 41%)¹² after obtaining a written informed consent from them. Interview was done in local language using a semi-structured questionnaire which includes socio-demographic profile, parity, current trimester, regarding antenatal care, knowledge of danger signs during pregnancy, labour and two days after delivery, identification of place and personnel for delivery, plan of arranging transport and money for delivery.

Socio-economic status was assessed according to Modified Kuppuswamy's classification (as per June 2015 CPI index). BPACR was calculated by a set of seven indicators which has been developed by the John Hopkin Bloomberg School of Public Health. These are

quantifiable and expressed in percentage of women having specific characteristics.

BPACR was calculated from the following indicators:

- 1. Percentage of women who knew at least 8 key danger signs during Pregnancy, Labor & during postpartum period.
- 2. Percentage of women who attended 1st antenatal visit with a skilled person during 1st trimester.
- 3. Percentage of women who plan to give birth with a skilled provider.
- 4. Percentage of women who plan to identify a mode of transport to the place of delivery.
- 5. Percentage of women who plan to save money for child birth.
- Percentage of women who knew about the financial assistance under Janani Suraksha Yojana.
- 7. Percentage of women who knew about the transport assistance under Janani Suraksha Yojana.

The mothers who fulfilled at least four BPACR practices were considered as 'Well prepared' and the rest of them were 'less prepared.⁹

Statistical analysis: Data collected was entered in Microsoft excel spread sheet, subsequently it was analysed using Epi info software - version 7.1.5.2. The association among related independent variables was assessed using Chi-square test and Fischer exact test.

RESULTS

Respondent's general characteristics

A total of 371 pregnant women participated in the study. Majority (75.47%) of them belonged to the age group of 20-30 with mean age of 23.3 years (Standard deviation, SD 3.16). Most of the pregnant women (45.82%) and their husbands (39.62%) completed high school education. Only 5 (1.35%) participants belonged to class II socio-economic status, 194 (52.29%) class III and 170 (45.82) in class IV (Table 1).

About 160 (43%) respondents were primi-gravida, 152 (41%) were para-1 and 60 (17%) were para - 2. Almost half of the women (47.17%) were in third trimester.

Birth preparedness and complication readiness status (BPACR)

Table 2 shows the status of BPACR among antenatal women. Majority of the women (>97%) identified skilled health care provider for their child birth and had first antenatal visit within first trimester. None of the participants was aware of all eight danger signs during pregnancy, labour and within 2 days of delivery. Among them, 104 (28.03%) mothers did not mention even one danger sign. Less than half of the study subjects (31.27%) mentioned at least 2 danger signs. Only 85 (23%) pregnant women were sensitized by the health worker

regarding the danger signs. A total of 91 (25%) participants expected problem related to pregnancy but more than half of the study subjects (55%) did not know where to go immediately if any danger sign occurs. Awareness on government cash incentive and referral transport schemes was found to be 60% and 36.39% among the respondents respectively.

Overall, only 133 (35.85%) pregnant women were well prepared by fulfilling at least four indicators and the rest 238 (64.15%) were less prepared.

Table 1: Socio-demographic characteristics of antenatal women (n= 371).

Variables	Frequency	Percent					
Age (years)							
<20	83	22.37%					
21-30	280	75.47%					
>30	8	2.16%					
Religion							
Hindu	234	63.07%					
Muslim	137	36.93%					
Type of family							
Nuclear family	168	45.28%					
Joint family	193	52.02%					
Three generation family	10	2.70%					
Education of Pregnant women							
Post graduate	1	0.27%					
Graduate	14	3.77%					
Diploma	3	0.81%					
Pre-university	55	14.82%					
High school	170	45.82%					
Middle school	86	23.18%					
Primary school	36	9.70%					
Illiterate	6	1.62%					
Education of husband							
Graduate	20	5.39%					
Diploma	5	1.35%					
Pre-university	23	6.20%					
High school	147	39.62%					
Middle school	114	30.73%					
Primary school	55	14.82%					
Illiterate	7	1.89%					
Socio-economic status (class)							
II	5	1.35%					
Ш	170	45.82%					
IV	194	52.29%					
V	2	0.54%					

Association between some socio-demographic variables and preparedness of BPACR

The results of test of association between sociodemographic variables and BPACR status are shown in Table 3. Education status of the pregnant women (p <0.004) and their husbands (p <0.006) was a strong predictor in preparation for birth and complication. Participants and their husbands who completed more than high school education found better prepared for child birth and complication than others who completed up to high school or below.

Table 2: Indicators of birth preparedness and complication readiness among antenatal women.

Sr. no	Indicators	Percentage	
1.	Percentage of women who knew at least 8 key danger signs during pregnancy, labour & during postpartum period	0%	
2.	Percentage of women who attended 1 st antenatal visit with a skilled perso during st trimester	on 97.3%	
3.	Percentage of women who plan to give birth with a skilled provider	99.54%	
4.	Percentage of women who plan to identify a mode of transport to the place of delivery	28%	
5.	Percentage of women who plan to save money for child birth	11.42%	
6.	Percentage of women who knew about the financial assistance under Janani Suraksha Yojana	60%	
7.	Percentage of women who knew about the transport assistance under Janani Suraksha Yojana	36.39%	

There is significant association between parity and birth preparedness (p<0.01). Women with parity of two were well prepared when compared to primigravid women and women of para-1. It was also observed that women having child birth within two years were better prepared than the women having child birth after two years.

In this study there was no significant association between BPACR and factors such as age, religion, type of family, socio-economic status and trimester.

DISCUSSION

Every day, globally 830 women die from preventable causes related to pregnancy and childbirth.¹⁰ Technical strategies for reduction of maternal mortality include universal access to skilled attendance at birth and timely access to quality services for timely management of life threatening obstetric complications. These timely identification and management of obstetric complications is the key to the survival of mothers.¹¹

BPACR is concerned with planning for safe delivery and taking appropriate actions needed in case of emergency. In our study, overall level of awareness regarding danger signs during pregnancy, labour and postpartum period was very poor.

Table 3: Association of socio-demographic and factors and birth preparedness and complication readiness.

Characteristic	Preparedness		Total (%)	P- Value		
	Well prepared (%)	Less prepared (%)				
Age (years)						
<25	109 (36.33%)	191 (63.67%)	300 (100%)	0.15		
>25	24 (33.80%)	47 (66.20%)	71 (100%)	0.15		
Total	133 (35.85%)	238 (64.15%)	371 (100%)			
Religion						
Hindu	76 (32.48%)	158 (67.52%)	234 (100%)	0.07		
Muslim	57 (41.61%)	80 (58.39%)	137 (100%)	— 0.07		
Total	133 (35.85%)	238 (64.15%)	371 (100%)			
Type of family						
Nuclear family	58 (34.52%)	110 (65.48%)	168 (100%)			
Joint family	65 (33.38%)	128 (66.32%)	193 (100%)	0.62*		
Three generation family	10 (100%)	0 (0%)	10 (100%)			
Total	133 (35.85%)	238 (64.15%)	371 (100%)			
Education status						
Pre-university and above	38 (52.05%)	35 (47.95%)	73 (100%)			
High / Middle school	83 (32.42%)	173 (67.58%)	256 (100%)	$0.004^{@}$		
Primary school and below	12 (28.57%)	30 (71.43%)	42 (100%)			
Total	133 (35.85%)	238 (64.15%)	371 (100%)			
Husband's education status						
Pre-university and above	27 (56.25%)	21 (43.75%)	48 (100%)			
High / Middle school	86 (32.95%)	175 (67.05%)	261 (100%)	$0.006^{@}$		
Primary school and below	20 (32.25%)	42 (67.75%)	62 (100%)			
Total	133 (35.85%)	238 (64.15%)	371 (100%)			
Parity						
Primigravida	49 (32.24%)	103 (67.76%)	152 (100%)			
1	53 (33.33%)	106 (66.67%)	159 (100%)	0.019 [@]		
2	31 (51.67%)	29 (48.33%)	60 (100%)			
Total	133 (35.85%)	238 (64.15%)	371 (100%)			
Trimester						
1	14 (30.43%)	32 (69.57%)	46 (100%)			
2	46 (30.67%)	104 (69.33%)	150 (100%)	0.08		
3	73 (41.71%)	102 (58.29%)	175 (100%)			
Total	133 (35.85%)	238 (64.15%)	371 (100%)			
Socio-Economic Status						
Lower middle class (III) and above	69 (39.42%)	106 (60.58%)	175 (100%)	0.17		
Upper lower class (IV) and below	64 (32.65%)	132 (67.35%)	196 (100%)	0.17		
Total	133 (35.85%)	238 (64.15%)	371 (100%)			
Child birth within 2 years						
Yes	28 (50%)	28 (50%)	56 (100%)	0.016@		
No	105 (33.33%)	210 (66.67%)	315 (100%)	0.010		
Total	133 (35.85%)	238 (64.15%)	371 (100%)			

^{@ -} Statistically significant association; *- Three generation family was merged with joint family for statistical analysis.

Only 90 (24.26%) participants mentioned at least one danger sign, 116 (31.27%) mentioned two and only one mentioned six danger signs. Surprisingly 104 (28.03%) did not mention even one danger sign. A study conducted in New Delhi also found that only 27.8% women knew any one danger sign during pregnancy. Mukhopadhya DK, et al study also observed that proportion of women knowing at least one danger sign ranged from 12.1% to

37.2%.¹³ For all the registered pregnant women, mother and child protection cards were provided, in which six danger signs with photographs were depicted. Despite this, lack of knowledge was mainly due to the poor sensitization of health care personnel regarding danger signs. We found that only 23% of the beneficiaries were instructed regarding danger signs by health care worker.

Several studies proved that first antenatal (ANC) visit within first trimester would make the pregnancy safer. 14,15 In this current study, majority (97.3%) of the respondents had first ANC visit within their first trimester, which is more than the value in District Level Household and Facility Survey (DLHS)- 4 for Tumkur. 16 This survey also showed that 97% of delivery was conducted by skilled healthcare person, this could be because we found that 99% of the mothers planned to give birth with skilled person. Acharya et al study also found majority of the women identified skilled birth attendant for delivery. 12

Lack of money and transportation is a barrier for seeking and reaching health care facility. Saving money and arranging transport ahead of time reduce these barriers. ^{17,18} In this study, we observed only 11.42% planned to save money and 28% planned to identify transport during their delivery. These findings were similar to a study conducted in Delhi, where saving money and identification of transport was 48.9% and 44.1% respectively. ¹² Another study conducted in West Bengal revealed that 40.8% saved money and 27.3% identified transport during delivery. Failure in saving money might be due to the knowledge of financial assistance given by Government through Janani Suraksha Yojana (JSY). This was evidently shown in our study where 60% of the antenatal women knew about financial assistance and only 36.39% knew about transport assistance. Interestingly, DLHS-4 showed only 39.2% utilized JSY benefits.1

Over all, in our study less than half (35.85%) of the pregnant women were well prepared for delivery and obstetric emergency. Similarly a study conducted among 312 recently delivered women in Indore city reported that only 47.8% were well prepared. A study conducted among pregnant and recently delivered mothers in Rewa district also showed 47.5% of overall BPACR. In all the above studies the low level of BPACR was largely attributed to poor knowledge of danger signs, followed by lack of awareness about transport assistance in JSY and poor savings.

Our study showed that mother's education, husband's education, parity and child birth within two years were associated with BPACR. An educated woman is able to make bold decisions about her health when compared to illiterate counterpart. Pregnant mother's and spouse's education pre-university and above were strong predictors of BPACR which is similar to the studies conducted in Delhi, rural Uganda and Kenya. ^{12,20,21}

Women with parity two and who had child birth within two years were likely to be well prepared for birth and its complication than primipara and women who had child birth after two years. This may be due to the confidence gained by the recent experience of child birth. This study has a limitation, it was confined to one health care facility in Tumkur district and hence the results may not be a true reflection of the whole district.

CONCLUSION

Minority (35.85%) of women found well prepared in birth preparedness and complication readiness, however majority were less prepared. The level of awareness regarding danger signs during pregnancy, labour and postpartum period was very poor. Most of the women identified skilled health care provider for their child birth and received first antenatal care within first trimester. Education of women and their spouse beyond high school, parity and women having child birth within two years were found to be strong influencing factors of BPACR. Effective behaviour change communication activities may be initiated to improve the awareness regarding danger signs and identifying mode of transport for delivery. Antenatal clinics should give due emphasis to preparation for birth and related complications. This will be a positive step towards the reduction in maternal mortality.

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