Research Article

A study of birth preparedness of women in Jamnagar district, Gujarat, India

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ABSTRACT

Background: About 800 women die every day from preventable causes related to pregnancy and child birth globally. Birth-preparedness is a strategy developed by the maternal and neonatal health programme of JHPIEGO for addressing the three main delays at various stakeholder levels. Present study is an attempt to assess the level of birth preparedness of pregnant women in rural area of Jamnagar district and various factors associated with it.

Methods: It was a cross-sectional study conducted during October 2011 to March 2012. Total live births in a year 2011 were 39943.90 and Taking 1% of total births $\approx$ 400, Adding 10% of non-response rate, total sample size was 440. Total 450 study subjects were chosen. The study-subjects were divided in 1) current pregnant women and 2) recent delivered women. A pretested semi-structured questionnaire was used to interview women, chosen for the study using multistage random sampling technique and data was analysed by Epi Info.

Results: It was found that only about one third of women i.e. 32.2% were prepared for birth and 67.8% women were not prepared. Out of 450 women, it was found that 86.2% of them planned for the skilled birth attendant, 59.6% women planned for saving money, about one third of women i.e. 37.6% had planned for transportation and only 2.7% women had planned for blood donor in case of emergency. Religion Hindu, literacy of women and their husbands, higher socio-economic status, advice given during pregnancy were some positive factors associated with birth preparedness.

Conclusions: The level of birth preparedness in study subjects was found very low. Sincere efforts are required to identify this gap and reducing the same.

Keywords: Birth preparedness, Pregnant women, Maternal mortality rate

INTRODUCTION

Globally about 800 women die every day from preventable causes related to pregnancy and child birth.¹ From all maternal deaths occurring in developing countries, more than half deaths occur in Sub Saharan Africa and about 1/3 occur in south Asia. Reducing maternal mortality is also identified globally as one of the millennium development goals. Under MDG5, countries committed to reduce maternal mortality by three quarters

from 1990 to 2015.² Since which women will in danger of life threatening complications during whole course of pregnancy and child birth is unpredictable, it is essential to obtain care from a skilled provider (doctor, nurse or midwife) during childbirth is the essential intervention of safe motherhood.³ There are mainly three delays in obtaining care during child birth or in case of an emergency. These delays are in seeking care, reaching at the care centre and obtaining care from there.⁴ The majority of pregnant women and their families do not know how to recognize the danger signs of

complications. When complications occur, the unprepared family will waste a great deal of time in recognizing the problem, getting organized, getting money, finding transport and reaching the appropriate referral facility these delays can cause maternal death.⁵ Therefore the strategy is developed by the maternal and neonatal health programme of JHPIEGO for addressing these delays at various levels from the pregnant woman, her family and community to the health providers and policy makers' level.⁶

This birth preparedness and complication readiness matrix includes knowledge of women regarding danger signs during pregnancy and child birth, planning for a skilled birth attendant and for birth place, arranging for transport in case of an emergency, saving money for the obstetric care and complications and identification of a compatible blood donor in case of an emergency condition.⁷ There is evidence from Nepal, Burkina Faso, Ethiopia, Uganda and India that promoting birth preparedness and complication readiness improves preventive and care seeking behaviour and also knowledge of mother for danger signs and complications that can occur during pregnancy and childbirth, however no study has been done in rural part of Gujarat to explore the level of birth preparedness of women.⁸⁻¹² There are many socio-economical factors also present that avoid women and her family to seek care from health care providers during pregnancy, childbirth and also post partum.

Present study is an attempt to assess the knowledge of rural pregnant women regarding danger signs of pregnancy and level of birth preparedness and various factors associated with it for seeking care.

METHODS

The present study was conducted in rural areas of a Jamnagar district of Gujarat State, India. It was the most western part of India having population of about 21, 59,130. There were 10 talukas in the district which includes 697 villages and 18 cities.¹³ For calculating sample size, total population of district - 21, 59, 130 in 2011 and birth rate of district - 18.5 /1000 population were noted. From the data, total live births in Jamnagar district in the year 2011-12 was considered 39943.90 and Taking 1% of total births as study population, total sample size came out as 400.

Keeping in mind the study sample loss of about 10% of (400), total sample size required was 440 for the study. To make a round figure, 450 study subjects were chosen. The study was carried out during October 2011 to March 2012. The study population was divided in two sections; a) The women who were pregnant and b) the women who had recently delivered their child within last one year at the time of study period. Study subjects were selected by multistage simple random sampling. Out of the total 7 blocks in the district, 3 blocks were randomly selected.

Two Primary Health Centers were selected from each of the block by simple random sampling and applying simple random sampling on each of primary health centre, two sub centers from each of the primary health centre were taken. Each of PHCs and SCs were visited on village health and nutrition day (Mamta Diwas in Gujarat) and all the pregnant women attending Mamta clinic were included for the study. Similarly all the women who delivered in last one year were also included. The study protocol was reviewed and cleared by The Institutional Ethics Committee of the institution. Data collection was done through oral questionnaire method using a pre-tested, semi-structured type of proforma based on the John Hopkins' model proforma of birth preparedness and modified according to local context.

Components taken in this study of birth preparedness were 1) identifying skilled provider, 2) saving money for delivery as well as for complications, 3) arranging for transport and 4) identifying for blood donor. The women who had planned for any three out of above four components were considered as well prepared for birth. An oral consent was taken from all participants of the study after fully explaining the purpose of the study and assuring them of full confidentiality. The data entry was done using Microsoft Office Excel 2007 and data analysis was done using appropriate statistical test in Epi info and in Microsoft Office Excel 2007. Appropriate statistical tests were applied.

RESULTS

Table 1 shows socio-demographic profile of the women regarding the age distribution of women. Out of the total 450 women, majority of women i.e. 64.9%, belonged to the age group of 20-25 years, 27.1% of women belonged to 25-30 years of age group, 4.7% women were below 20 years and 3.3% women were above 30 years of age. Mean age of women was 24.26 ± 3.56 years. Out of 450 study subjects, majority of women i.e. 83.1% were Hindu and 16.9% women were muslim. Out of 450 women, 76.2% women were literate and 23.8% women were illiterate. 48% women had up to primary education, 21.1% women were educated up to secondary, 3.8% women had education up to higher secondary level and 3.3% women received education up to graduate and above.

Majority i.e. 60.9% belonged to joint family that is still common in rural part of India. 27.1% were from nuclear family and 12% belonged to three generation family. Distribution of women according to socio-economic class was explored. It was found that about 90% women were from lower socio-economic class and only about 10% women belonged to higher socio-economic class. Out of the 446 study subjects, majority of the women i.e. 75.6% had early registration of pregnancy i.e. within 1st trimester of pregnancy and 21.7% women got registered during 2nd trimester of pregnancy and 2.7% women were registered as late as 3rd trimester of pregnancy.

Table 1: Socio-demographic profile of women.

Variables	Recent delivered	Current pregnant	Total
Age group (years) (n=450)			
<20	10 (4.4)	11 (4.9)	21 (4.7)
20-25	124 (55.2)	168 (74.7)	292 (64.9)
25-30	81 (36.0)	41 (18.2)	122 (27.1)
>30	10 (4.4)	5 (2.2)	15 (3.3)
Religion (n=450)			
Hindu	193 (85.8)	181 (80.4)	374 (83.1)
Muslim	32 (14.2)	44 (19.6)	76 (16.9)
Literacy status (n=450)			
Illiterate	47 (20.9)	60 (26.7)	107 (23.8)
Primary	109 (48.4)	107 (47.6)	216 (48.0)
Secondary	48 (21.3)	47 (20.9)	95 (21.1)
Higher secondary	11 (4.9)	6 (2.7)	17(3.8)
Graduate and above	10 (4.4)	5 (2.2)	15 (3.3)
Type of family (n=450)			
Nuclear	65 (28.9)	57 (25.3)	122 (27.1)
Joint	138 (61.3)	136 (60.4)	274 (60.9)
Three generation	22 (9.8)	32 (14.2)	54 (12.0)
Socio-economic class (n=450)			
High	13 (5.8)	25 (11.1)	38 (8.4)
Low	212 (94.2)	200 (88.9)	412 (91.56)
Registration of pregnancy (n=446)*			
1 st trimester	165 (74.0)	172 (77.1)	337 (75.6)
2 nd trimester	49 (22.0)	48 (21.5)	97 (21.7)
3 rd trimester	9 (4.0)	3 (1.4)	12 (2.7)
Advices given during ANC period (n=446)*			
Yes	165(74.0)	118 (52.9)	284 (63.5)
No	58 (26.0)	105 (47.1)	162 (36.5)

*4 women didn't take ANC at all

Out of the 446 study subjects, 63.5% women received some advice during their pregnancy regarding birth preparedness while 36.5% women did not receive any kind of advice during their pregnancy from health care personnel.

Table 2 shows the distribution of women according to birth preparedness. Only About 1/3rd of women were well prepared for the birth while about 2/3rd women were not prepared for the birth. If we explore the individual component of birth- preparedness in table 3 , about 86% women had identified skilled birth provider, about 60% women saved money , only 38% women had identified mode of transport in case of emergency and only 3% women had identified a compatible blood donor for an emergency condition.

Table 3 shows the actual planning of the various birth preparedness components by women. It was found out that 86.2% women had identified skilled birth provider, about 60% women had saved money for the emergency conditions, only about 1/3rd of the women had planned for the transportation for the time of delivery and only 3% women knew the source of blood donor for emergency condition.

Table 4 shows various factors affecting the level of birth preparedness. Hindu women were more prepared for birth then Muslim women. Education had positive impact on the level of birth preparedness. As the literacy level of women was increased, their level of birth preparedness also increased. Higher socio economic class was also found the positive factor for birth- preparedness. Total number of visits taken by women during their pregnancy also affects the birth preparedness. It is positively associated with women who had taken adequate ANC visits.

Table 2: Distribution of the women according to birth preparedness.

Birth preparedness	Recently delivered(n=225)		Currently pregnant(n=225)		Total (n=450)	
	no.	%	no.	%	no.	%
Well prepared	88	39.1%	57	25.3%	145	32.2%
Not prepared	137	60.9%	168	74.7%	305	67.8%
Total	225	100%	225	100%	450	100%

Table 3: Distribution of women regarding their planning of various components related to birth.

Planning of components	Recently delivered(n=225)		Currently pregnant(n=225)		Total(n=450)	
	no.	%	no.	%	no.	%
Skilled provider	190	84.4%	198	88%	388	86.2%
Money	151	67.1%	117	52%	268	59.6%
Transport	100	44.4%	69	30.7%	169	37.6%
Blood donor	9	4.0%	4	1.8%	13	2.9%

Table 4: Association of selected factors with planning of birth preparedness in the women.

Factor	Well prepared for birth (percentage)	Not prepared for birth (percentage)	Chi square value	Unadjusted Odds ratio	Adjusted Odds ratio
Religion					
Hindu	34.2%	65.8%	<0.05	1	1
Muslim	22.4%	77.6%		1.81 (1.01- 3.23)	1.46 (0.79-2.68)
Women's education					
Illiterate	15%	85%	<0.05	22.75 (5.77-89.72)	15.37 (3.7 - 62.66)
Primary	28.7%	71.3%		9.93 (2.71-36.42)	7.05 (1.86- 26.67)
Secondary	46.3%	53.7%		4.64 (1.23-17.49)	3.47 (0.89-13.47)
Higher secondary	64.7%	35.3%		2.18 (0.44- 0.91)	1.73 (0.34- 8.90)
Graduate and above	80%	20%		1	1
Socio-economic class					
Higher	52.6%	47.4%	<0.05	1	1
Lower	30.3%	69.7%		2.55 (1.30- 4.99)	1.74 (0.83-3.65)
ANC Visits					
< 3 visit (inadequate)	17.6%	82.4%	<0.05	2.53 (1.31– 4.89)	1.68 (0.84-3.34)
>= 3 visits (adequate)	35.2%	64.8%		1	1

DISCUSSION

India is the second most populated country in the world after China. Every year about 30 million women experience pregnancy and from them 27 million have live births.¹⁴ Each year, 117,000 women die from pregnancy and childbirth complications. That is one woman dying every 7 minutes.¹⁵

Birth preparedness is the process of advance planning and preparation for delivery and anticipating the actions needed in case of an emergency. It helps ensure that women can reach professional health delivery care when labour begins and can also help reduce the delays that occur when women experience obstetric complications.⁷

Thus here various components of birth preparedness were being explored to identify the condition of the women.

In this study, on checking women's overall birth preparedness status, it was found that only about one third of women i.e. 32.2% were prepared for birth and remaining 67.8% women were not prepared for the birth. A study done by Agarwal S et al in Indore had higher percentage of birth preparedness i.e. 47.8% than the present study.¹² While other studies in different countries found similar or lower percentage of observations than the present study. Kabakyenga JK et al in Uganda found in their study that 35.3% women were well prepared for birth.¹¹ While Hailu M et al in southern Ethiopia and Hiluf M et al in northern Ethiopia found that 17% of

women and 22.1% of women were well prepared for birth respectively.¹⁰⁻¹⁶

On being enquired regarding various aspects of Birth Preparedness; out of 450 women studied, it was found that 86.2% of women had identified skilled birth provider, only 59.6% women had planned really for saving money, only about one third of women i.e. 37.6% had planned for transportation and Out of 450 women, only 2.7% women had planned for blood donor during their pregnancy also.

Three critical aspects of birth preparedness among these women were found to be lacking in awareness as well as planning in large percentage of women (i.e. money, transportation and blood donor). Above observation indicate that there is gap in awareness and actual implementation of birth preparedness more so in the matter of money and transport. Other studies carried out on birth preparedness also point towards same lacunae.

A study done by Kabakyenga JK et al in rural Uganda found that 91% women had saved money, 61% women had identified a health professional and 61% women had identified a means of transport.¹⁷ In a study of Agarwal S et al in Indore city, India showed that 76.9% women saved money, 69.6% women had identified a trained birth attendant for delivery and only 29.5% had arranged for transport.¹² Kuswah SS et al in their study noted that 78.7% women had arranged for transport, 71.1% women had identified skilled provider, 44.2% had saved money and 2.7% women had arranged for blood donor.¹⁸ Mutiso

SM et al in Kenya found that 84.3% women arranged for transport during daytime and 84.3% arranged transport during night time, 84.3% arrange for funds for transport and 28.7% identified a blood donor.¹⁹ Current study had higher observations than below studies. A study done by Hiluf M in northern Ethiopia found that 68.9% women had saved money, 34.8% had identified skilled provider, 22.1% had identified emergency funds and 17.6% had arranged for blood donor.¹⁶ McPherson RA et al in their study in Nepal revealed that 45% (baseline) women had made financial preparation and only 9% had prepared for transport.⁸ Hailu M et al. in Ethiopia found that 35.5% women saved money, 20.5% women identified for skilled birth attendant, 7.7% women arranged for transport and 2.3% women identified a blood donor.¹⁰ The observations highlight the urgent need for sensitization of health worker as well as pregnant women for this crucial aspect which will so long way in reduction of MMR and IMR.

According to Table 4, education had positive impact on the level of birth preparedness. As the literacy level of women was increased, their level of birth preparedness also increased. Therefore efforts should be maximised to increase the education level of society and special focus should be given to the females. Higher socio economic class was also found the positive factor for birth-preparedness. Thus education and socio-economic upliftment are necessary tools to improve the birth preparedness of the couples. Total number of visits taken by women during their pregnancy also affects the birth preparedness. It is positively associated with women who had taken adequate ANC visits. This also fulfills government criteria of minimum 3 visits during ANC period. Thus good quality of ANC including proper counselling definitely influences birth preparedness of these women in a positive way.

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