

Birth preparedness and complication readiness in pregnant women attending urban tertiary care hospital

Vasundhara Kamineni¹, Anuradha D. Murki¹, Venkata Lakshmi Kota¹

¹Department of Obstetrics and Gynaecology, KAMS and RC, Hyderabad, Telangana, India

ABSTRACT

Background: Birth preparedness and complication readiness (BP/CR) is a strategy to promote the timely use of skilled maternal and neonatal care and is based on the theory that preparing for childbirth and being ready for complications reduce delay in obtaining care. **Study Objective:** The objective of this study was to evaluate the incidence and predictors of birth preparedness, knowledge on danger signs, and emergency readiness among pregnant women attending outpatient clinic of a tertiary care hospital. **Patients and Methods:** Six hundred pregnant women attending the outpatient department of a tertiary care hospital for the first time in an urban setting were interviewed using a tool adapted from the “Monitoring BP/CR-tools and indicators for maternal and new born health” of the “JHPIEGO.” The outcomes of the study were birth preparedness, knowledge of severe illness, and emergency readiness. **Results:** Six hundred pregnant women were in the study. Mean age of respondents was 25.2 (±4) years. The mean gestation at enrolment was 18.7 ± 8 weeks. Among the women who participated in the survey, 20% were illiterate, 70% were homemakers and nearly 70% had a monthly family income >Rs. 15,197 (*n* = 405). Three hundred and sixteen mothers (52%) were primigravida. As defined in the study, 71.5% were birth prepared. However, 59 women (9.8%) did not identify a place of delivery, 102 (17%) had not started saving money, and 99 mothers (16.5%) were not aware of purchasing materials needed for delivery. The predictors of birth preparedness are multiparity (odds ratio [OR]: 2.2, 95% confidence interval [CI]: 1.4–3.1), registration in the antenatal clinic in the first trimester (OR: 3.7, 95% CI: 2.2–6.1), educational status of women (OR: 1.9, 95% CI: 1.2–3.0), and pregnancy supervision by a doctor (OR: 5, 95% CI: 2.8–6.6). One hundred and sixty-four women (27%) made no arrangements in the event of an emergency, 376 women (63%) were not aware of their blood group, and 89% (*n* = 531) did not identify any blood donor. Only 20% (*n* = 120), 15.8% (*n* = 95), and 12% (*n* = 73) of the respondents had knowledge of at least 3 danger signs of pregnancy, labor, and severe illness in newborn, respectively. **Conclusions:** Nearly three-fourth pregnant women attending a tertiary care hospital in an urban area are birth prepared. However, emergency readiness and awareness of danger signs are very poor. Maternal education and early booking have an independent association with birth preparedness.

Keywords: Birth preparedness, complication readiness, pregnancy

Introduction

Birth preparedness and complication readiness (BP/CR) is a strategy to promote the timely use of skilled maternal and neonatal care, especially during childbirth, based on the theory that preparing for childbirth and being ready for complications reduce delay in obtaining care. Thaddeus and Maine outlined three delays that influence the provision and use of obstetric

services (a) delay in deciding to seek care when complication occurs; (b) delay in reaching facility; and (c) delay in receiving care.^[1] Women with more education and those aware of obstetric complication are more prepared for birth and complications if emerged then illiterate women. BP/CR is one 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. At the basic level, the concept of BP/CR includes identifying a trained birth attendant for delivery, identifying a health facility for emergency, arranging for transport

Address for correspondence: Dr. Anuradha D. Murki, Department of Obstetrics and Gynaecology, KAMS and RC, LB Nagar, Hyderabad, Telangana, India. E-mail: dogiparthi_anu@yahoo.com

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to skilled care site in case of emergency, saving or arranging alternative funds for costs of skilled and emergency care, finding a companion to be with the woman at birth or to accompany her to the emergency care. Other measures include identifying a compatible blood donor in case of hemorrhage, obtaining permission from the head of household to seek skilled care in the event that a birth emergency occurs in his absence, and arranging a source of household support to provide temporary family care during absence.^[2] There is evidence from rural Nepal,^[3] Burkina Faso,^[4] and Ethiopia^[5] that promoting BP/CR improves preventive behaviors, improves knowledge of mothers about danger-signs, and leads to improvement in care seeking during obstetric emergency.^[6] Studies on BP/CR from a rural district of Madhya Pradesh, a primary healthcare in New Delhi, and slums of Indore reveal inadequate birth preparedness and very poor compliance on complication or emergency readiness.^[7-9] Similar studies from other settings are required to promote and enhance the concept of birth preparedness and complication readiness. In this study, we assessed the knowledge and practice regarding BP/CR among the pregnant women attending to the outpatient department of a tertiary care hospital in an urban setting.

Patients and Methods

All pregnant women attending the outpatient clinics for the first time at Kamineni Hospital, Hyderabad, during the study period from October 2012 to September 2014 were eligible for this study. After obtaining an informed consent, each of the mothers was recruited in the study. A semistructured, interviewer-administered questionnaire was used to obtain relevant study data from the recruited women. Trained assistants helped the women on vernacular translation of the keywords' record keeping. The interview schedule was translated from English to Telugu/Hindi to improve the validity and reliability. The interviews were periodically evaluated and relevant modifications were carried out. The interview schedule was predominately adapted from the "Monitoring birth preparedness and complication readiness tools and indicators for maternal and new born health" of the "JHPIEGO."

Data obtained from respondents included sociodemographic data and baseline variables, namely, age in completed years, religion, duration of formal education, occupation, total family income, place of residence, registration to antenatal care (ANC), period of gestation at outpatient clinic visit, knowledge of expected date of delivery and parity. Perception and practices regarding BP/CR of study subjects were assessed with a pilot-tested, semistructured questionnaire. Severe vaginal bleeding, swollen hands/face, and blurred vision were considered as key danger signs of pregnancy. Severe vaginal bleeding, prolonged labor, convulsions, and retained placenta were considered as key danger signs of labor. Key danger signs of neonates were convulsion, difficult/fast breathing, very small baby, lethargy/unconsciousness, and unable to suck/drink during first 7 days of life.

Composite variables derived from the responses to various questions were used to determine adequate knowledge of signs

of severe illness, birth preparedness, and emergency readiness of the respondents. A woman had adequate knowledge of signs of severe illness if she was able to mention three or more of the signs of severe illness enumerated in the questionnaire spontaneously without prompting. A woman was classified as birth prepared if she had identified a place of delivery, had saved money toward delivery, and had commenced purchase of materials needed for delivery. A woman was classified as emergency ready if she was aware of her blood group, had identified a blood donor, and made adequate arrangements for transport in emergencies.

Outcomes

Birth preparedness, knowledge of severe illness, and emergency readiness are the primary outcomes of this study.

Statistics

Data collected were cleaned and edited manually and with the aid of the computer. Determinants of the birth preparedness were evaluated from a univariate analysis and independent association was derived from the logistic regression analysis for birth preparedness.

Results

A total of 600 women were included in the study [Figure 1]. Mean age of respondents was 25.2 (± 4) years. Thirty-four pregnancies were teenage and 17 were elderly pregnancies. The mean gestation at enrolment was 18.7 \pm 8 weeks. Nearly 35% and 50% of the respondents had first attended our outpatient clinic in the first and second trimester, respectively. Among the women who participated in the survey, 20% were illiterate, 44.5% had only primary education, and 35.5% were graduates. Seventy percent of the women were homemakers ($n = 417$) and nearly 70% of women had a monthly family income >Rs. 15,197 ($n = 405$) and were residing in urban area ($n = 416$). Majority of the mothers belonged to Hindu religion ($n = 371$). Three hundred and sixteen mothers were primigravida.

Birth preparedness

The mean gestational age at enrolment in the study was 18.6 \pm 8 weeks. 84% of the respondents were registered in an antenatal clinic before 12 weeks of gestational age and

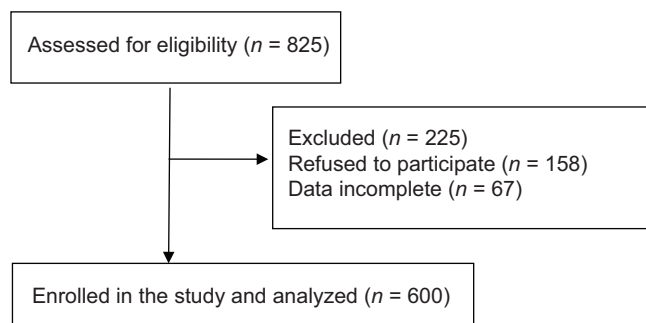


Figure 1: Study flow chart

77% ($n = 462$) were supervised by a qualified doctor before the visit to our hospital. Fifty-nine women did not identify a place of delivery, 102 had not started saving money, and 99 mothers were not aware of purchasing materials needed for delivery. However, as defined in the methods, 429 mothers (71.5%) were birth prepared. In the order of decreasing frequency, the decision on the place of delivery was made by parents ($n = 261$), husband ($n = 212$), in-laws ($n = 94$), and the respondent herself ($n = 33$).

On univariate analysis, the predictors of birth preparedness were primary education or graduation, working women, high monthly family income, early registration in ANC clinic, pregnancy supervision by a doctor, and multiparous status [Table 1]. However, on regression analysis, the predictors of birth preparedness are multiparity (Odds ratio [OR]: 2.2, 95% confidence interval [CI]: 1.4–3.1), registration in the antenatal clinic in the first trimester (OR: 3.7, 95% CI: 2.2–6.1), educational status of women (OR: 1.9, 95% CI: 1.2–3.0), and pregnancy supervision by a doctor (OR: 5, 95% CI: 2.8–6.6).

Emergency readiness

One hundred and sixty-four women (27%) made no arrangements in the event of an emergency, 376 women (63%) were not aware of their blood group, and 89% ($n = 531$) did not identify any blood donor in case of any emergency. Hence, majority of the mothers ($n = 566$, 94.3%) were not ready for any unexpected emergencies during pregnancy.

Knowledge on signs of severe illness

Twenty-nine percent, 42% and 48% of the respondents had no knowledge of the danger signs in pregnancy, signs of severe conditions in labor, and serious health problems that occur to newborns in the first 7 days of life, respectively. Only 20% ($n = 120$), 15.8% ($n = 95$), and 12% ($n = 73$) of the respondents had knowledge of at least 3 dangers signs of pregnancy, labor, and severe illness in newborn, respectively.

Discussion

In this study from an urban tertiary care referral center, birth preparedness is higher than that reported from other settings in India and other developing countries.^[3,7-12] Majority of the

respondents in this study planned for delivery in a health facility, which is higher than that reported from other studies.^[3,5,7-10] This finding is a reflection of the increased awareness for institutional delivery and national programs promoting safe delivery among the urban pregnant women.^[13] Similar to other studies^[9] on this issue, a significant proportion of the respondents was aware of purchasing of materials needed for delivery and were saving money.

In this study, among the three issues evaluated, women were more birth prepared than having knowledge on severe illness or emergency readiness. Majority (>90%) of the women were not emergency ready and many mothers were not aware of the severe illness during pregnancy, child birth, and postnatal period. This finding might be due to the fact that most pregnant women do not want to anticipate undesirable events in pregnancy and delivery; hence, they make no plans for emergencies, hoping, and believing that everything will be normal. The inadequate knowledge on signs of severe illness is worrisome and this brings to the fore the content and quality of health education and counseling services provided by health-care workers during antenatal clinic sessions or may be the women are ignorant of the importance and benefits of the health education sessions and hence do not avail themselves the opportunity of participating in these sessions. Similar to our results, in the study from New Delhi, among the 417 pregnant women attending a primary health-care center, birth preparedness (48.9% saved money) was better than the emergency readiness (44% arranged transport) or awareness about danger signs during pregnancy or labor (28% knew of any danger signs in labor). Similar is the trend in other studies that report birth preparedness and emergency readiness in other parts of India^[8] or from outside our country.^[3-5,9]

Among the predictors for birth preparedness as expected educational status and parity would have a positive role as women with education and those with experience are more likely to be prepared for birth of a new baby. Early registration and supervision by a doctor may lead to exposure of these women to multiple counseling sessions in ANC clinics or better counseling by doctors in comparison to other health workers. However, high family income and working status did not affect the birth preparedness unlike some other studies. Family income and working status did not have an independent effect on the birth preparedness in our study. Most studies report maternal education, early booking, and prior antenatal visits as important predictors of birth preparedness as in our study.^[6,8,10] However, unlike our study and that from Delhi, primiparous women were better birth prepared compared to multiparous women in the study from Madhya Pradesh.

A lesser proportion of the respondents in our study were aware of their blood group and even fewer had made arrangement for blood donors, our findings are comparable to other studies done in India,^[8,9,14] Nepal,^[3] Ethiopia,^[10] and Nigeria.^[12] May be, most women think pregnancy is a normal condition and a critical situation such as blood transfusion is unlikely to occur during

Table 1: Predictors of birth preparedness

Variable	Yes ($n=429$)	No ($n=171$)	P
Primi	213 (49.7)	103 (60.2)	0.02
Homemaker	283 (66)	134 (78)	0.01
Illiterate	63 (15)	56 (33)	<0.001
Income <Rs.15,197	120 (28)	75 (44)	<0.001
Urban residence	298 (70)	118 (69)	0.91
ANC registered <12 weeks	383 (89)	123 (79)	<0.001
Supervised by a doctor	370 (86)	92 (54)	0.001
Self-decision on place of delivery	26 (6)	7 (4)	0.45

ANC: Antenatal care

pregnancy or labor. Although most Indian women are anemic,^[15] many are unaware of their hemoglobin status.

Knowledge of the signs of severe illness during pregnancy and labor enables women to take appropriate action to access emergency care. In this study, the knowledge on signs of severe illness is better than that reported from other studies.^[8,9,14] Differences in the educational status, socioeconomic status, urban setting, and timing of the interview may be reasons for the differences noted on this aspect of the study.

Conclusions

Nearly three-fourth pregnant women attending a tertiary care hospital in an urban area are birth prepared. However, emergency readiness and awareness of danger signs during pregnancy, labor, or neonatal period are very poor. Maternal education and early booking have an independent association with birth preparedness.

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Conflicts of interest

There are no conflicts of interest.

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