A Cross-Sectional Study to Assess Birth Preparedness and Complication Readiness (BPACR) Status in Antenatal Mothers of Selected Primary Health Centre of New Delhi

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Abstract

Introduction: Motherhood is a time of anticipation of joy for a woman, her family and her community. In spite of this fact, it is not as enjoyable as it should be because of numerous reasons. Insufficiency or lack of birth preparedness and complication readiness is the most common reason. Birth preparedness & complication readiness (BPACR) is a strategy that effectively plan birth and deals with emergencies.

Objective: This study aimed to assess the Birth Preparedness and Complication Readiness (BPACR) status in antenatal mothers and its relationship with selected demographic variables and disseminate information booklet regarding BPACR.

Materials and Methods: An exploratory cross-sectional study was carried out in selected PHCs of New Delhi in October-November 2017. A total of 200 women were randomly selected and interviewed using pretested structured interview schedule and the data was analysed using a computer program of SPSS version 25.

Results: 50.4 percent of the respondents were found to have prepared for birth and its complications. In present study BPACR status of 156 antenatal mothers i.e. 78% was adequate and 22% (44) was found to be inadequate. Less than half of the respondents were aware on birth preparedness (44.6%) and complication readiness (43.4%). There is statistically significant relationship of BPACR with age of the mother (p=0.043), education status of the mother (p=0.037) and parity (p=0.027) at 0.05 level of significance.

Conclusion: This study identified that poor knowledge, inadequate birth preparedness, and complication readiness were prevalent among mothers in the study area. Community participation and health care providers in the areas of maternal and child health should operate together to maximize birth preparedness and complication readiness practices.

Keywords: Birth preparedness, Complication readiness, Danger signs, Knowledge, New Delhi

Introduction

Most of maternal deaths occur in the developing world.¹ With 167 maternal deaths per 100,000 live births, it remains a major public-health challenge in India (SRS-2013).² Majority of maternal deaths mainly occur due to medical causes like within 24 hours post-partum or during labour, delivery causing delayed care seeking, numerous interrelated socio-cultural factors also causes delay and contribute to these deaths. Care-seeking is delayed because of the delay in: (a) Identifying the complication, (b) Deciding to seek care, (c) Identifying and reaching a health facility, and (d) Receiving adequate and appropriate treatment at the health facility.

A key strategy that can reduce the number of deaths...
from such causes is making a birth plan that constitutes birth-preparedness and complication-readiness measures for pregnant women, their spouses and their families. Birth-preparedness and complication-readiness is a comprehensive package aimed at promoting timely access to skilled maternal and neonatal services. This stems from the fact that every pregnant woman faces risk of sudden and unpredictable life-threatening complications that could end in death or injury to herself or to her infant.\(^3\)

BPACR package includes: Registration of pregnancy, Knowledge of danger signs, Plan for where to give birth, Plan for a skilled birth attendant, Plan for transportation, a birth companion, and Identification of compatible blood donors in case of emergency. Male partner involvement is critical if improvement in maternal health and reduction of maternal morbidity and mortality is to be realized.

The Maternal and Neonatal Health (MNH) Program of Johns Hopkins Program for International Education in Gynaecology and Obstetrics (JHPIEGO) developed the birth-preparedness and complication readiness (BPACR) matrix to address these three delays at various levels, including the pregnant woman, her family, her community, health providers, health facilities and policy-makers during pregnancy, childbirth, and the postpartum period.\(^3\)

Childbirth is one of the greatest events in every woman’s life. A safe and healthy pregnancy and childbirth can only lead the mother and the child to a happy and joyous life. Women face several constraints in seeking care during pregnancy and child birth. Lack of finances, transportation problems, unwilling husbands and family members whose permission is often required to go to a health centre, are some of the major social barriers for accessing care. Evidences from different studies suggest that BPACR improves preventive behaviours, improves knowledge of mothers about danger-signs, and leads to improvement in care-seeking during obstetric emergency. However, no data is available on BPACR status of antenatal women in New Delhi, India. Hence, this study was done with the objective to assess the status of BPACR among pregnant women attending a primary health centres of New Delhi.

**Objectives**

The objective of the research was to:

- To assess the status of Birth preparedness and Complication Readiness (BPACR) in antenatal mothers.
- To assess relationship of Birth preparedness and Complication Readiness (BPACR) in antenatal mothers with selected demographic variables.
- To prepare and disseminate an information booklet related to Birth Preparedness and Complication Readiness in antenatal mothers.

**Materials and Methods**

In this study, exploratory cross-sectional design was carried out for a period of two months. The setting of the study for research was Rural Health Training Centre, Najafgarh Extension, Najafgarh, Delhi-110043. On the basis of the objectives of the study and the conceptual framework, data collection tool was prepared. The tool for data collection was Structured Interview Schedule to assess Birth Preparedness and Complication Readiness status of antenatal mothers. A sample of 200 antenatal mothers was selected from various age groups who are attending antenatal clinic of a selected primary health centre. Simple Random sampling technique was used. Antenatal mothers were taken from the ANC register of RHTC, Najafgarh randomly until the sample size was achieved. Inclusion criteria was that the participants should be antenatal mothers, and are able to read hindi or english.

**BPACR Index was Calculated from the following Indicators**

- Percentage of the women who knew about > 8 danger signs of pregnancy.
- Percentage of the women who knew about financial assistance provided by government in Janani Suraksh Yojana (JSY).
- Percentage of the women who knew about transportation provided by government in Janani Shishu Suraksh Karyakram (JSSK).
- Percentage of the women who have taken Antenatal care (ANC) in 1st trimester by skilled provider.
- Percentage of the women who identified skilled birth attendant for delivery.
- Percentage of the women who identified mode of transportation.
- Percentage of the women who saved money to pay for expenses.

BPACR index was calculated as - Σ Indicators /7

After obtaining ethical permission from the Institutional Ethical Committee of Jamia Hamdard, New Delhi to conduct the research study, a formal permission for conducting research was obtained from the selected primary health centre of New Delhi. A written informed consent was taken from each study subject. They were assured of anonymity and confidentiality of the information provided during the research study. The consent also gave the right to the subject to withdraw from the study any time. Also coding of the subjects was done which ensured their anonymity.

**Results**

Analysis and interpretation of data were based on structured interview schedule.

BPACR package include indicators of Birth Preaparedness and Complication Readiness stated as below:

- Registration of pregnancy
- Knowledge of danger signs
- Plan for where to give birth
- Plan for a skilled birth attendant
- Plan for transportation, a birth companion

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• Identification of compatible blood donors in case of emergency

Demographic Characteristics of 200 Antenatal Mothers

A total of 200 women participated in our study with no refusals. It was found that the mean age of the respondents was 24.2 years (SD 2.031) with nearly equal numbers in age group 30-34 and 25-29. One third (1/3rd) of the study participants belongs to the age group 30-34 i.e. 32% and 25-29 i.e. 31.5%. 17% (34) of antenatal mothers belongs to the age group <20 and 12% (24) belongs to the age group of 20-24 while merely 7.5% belongs to the age group ≥35. Majority of the antenatal mothers were married i.e. 98% (196). Remaining mothers are unmarried (04 mothers). Almost 1/3rd (34.5%) subjects were graduate while 1/5th (20%) subjects had completed senior secondary education. One-fourth (25.0%) had completed secondary education. 23 antenatal mothers were found to be illiterate (11.5%). Almost half of the antenatal mothers (49.5%) were para 2. More than one third (32.5%) were para 1 and only 20 were nulliparous i.e. 10%. There were evident that antenatal mothers were equally distributed in terms of the type of family they belong to i.e. 47% to nuclear and joint family. Majority (63%) antenatal mothers resides in suburban area and more than 1/4th (21.5%) resides in urban area while merely 14% resides in rural area. Nearly half of the participant’s husband (42.5%) were in private service. More than one-third were self-employed (34%) while 23% were in government service. Most of antenatal mothers had no previous experience of still birth i.e. 97.5% (195) while 2.5% (5) have had a still birth previously. Most of the antenatal mothers 73.5% (147) were housewives, 15% were self-employed, 7.5% were in private service and 4% were labourers. Majority of antenatal mothers were Hindu i.e. 95% (190) and only 5% were Muslims.

Table 1. Frequency percentage distribution of antenatal mothers by their socio-demographic profile

| Demographic variables | Frequency (n=200) | Percentage (%) |
|-----------------------|-------------------|----------------|
| **Age of the mother** |                   |                |
| <20                   | 34                | 17.0           |
| 20-24                 | 24                | 12.0           |
| 25-29                 | 63                | 31.5           |
| 30-34                 | 64                | 32.0           |
| ≥35                   | 15                | 7.5            |
| **Marital status of the mother** |         |                |
| Married               | 196               | 98.0           |
| Unmarried             | 1                 | 0.5            |
| Widowed               | 1                 | 0.5            |
| Separated             | 0                 | 0              |
| Iliterate             | 23                | 11.5           |
| Primary education     | 18                | 9.0            |
| Secondary education   | 50                | 25.0           |
| Senior secondary education | 40     | 20.0           |
| Graduate              | 69                | 34.5           |
| Post-graduate         | 0                 | 0              |

Table 1. Frequency percentage distribution of antenatal mothers by their socio-demographic profile (n=200)
Related to Findings Related to BPACR Score and its Relationships with Various Demographic Variables

Birth Preparedness and Complication Readiness (BPACR) score of 200 antenatal mothers which was computed using frequency percentage distribution. It was found most of the antenatal mothers out of a total score of 7 scored 4 i.e. (42, 21%), (28, 14%) scored 5, 13.5% scored 6, or (23, 11.5%) scored 7, while (37, 18.5%) scored 3, 9% scored 0, 7% scored 2 and 5.5% scored 1.

Table 2. BPACR score of antenatal mothers

| BPACR score | Frequency | Percentage (%) |
|-------------|-----------|----------------|
| 0           | 18        | 9.0            |
| 1           | 11        | 5.5            |
| 2           | 14        | 7.0            |
| 3           | 37        | 18.5           |
| 4           | 42        | 21.0           |
| 5           | 28        | 14.0           |
| 6           | 27        | 13.5           |
| 7           | 23        | 11.5           |
| Total       | 200       | 100.0          |

This section displays the results related to Birth preparedness and Complication Readiness status of antenatal mothers as calculate by various BPACR indicators provide by JHPIEGO. Maternal and Neonatal health (MNH) Program, Birth preparedness and complication readiness. A matrix of shared responsibilities. Maternal and Neonatal Health, 2001.

Relationship between Age of the Participants and their BPACR Status

There was a higher proportion of birth preparedness and complication readiness among those whose age is between 30-34 than those whose age is ≥35. There was a statistically significant association between age of the participants and their BPACR status as $X^2(5)=5.934$, p value- 0.043 which is less than 0.05 level of significance.

Relationship between Education of the Mother and their BPACR Status

There was a higher proportion of birth preparedness and complication readiness among those who were graduate. There was a statistically significant association between education of the mother and their BPACR status as $X^2(5)=1.652$, p value-0.037 which is less than 0.05 level of significance.

Relationship between Parity of the Mother and their BPACR Score

There was a higher proportion of birth preparedness and complication readiness among those who were para 2 than those who were nulliparous. There was a statistically significant association between parity and their BPACR status as $X^2(5)=3.538$, p value-0.027 which is less than 0.05 level of significance with the degree of freedom 3.

The researcher has found that there is statistically significant relationship of BPACR with age of the mother, education status of the mother and parity at 0.05 level provided by government under Janani Shishu Suraksha Karyakram (JSSK), 41 had awareness about financial assistance provided by government in Janani Suraksha Yojana (JSY), 85 saved money to pay for expenses during pregnancy. After all the seven indicators calculated with their respective percentages BPACR was 50.4%.

Findings Related to Relationship of Birth Preparedness and Complication Readiness (BPACR) in Antenatal Mothers with Selected Demographic Variables

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Discussion

As the level of awareness regarding BPACR is low i.e. 50% in 200 antenatal mothers need to be empowered to contribute positively to make pregnancy safer. In present study BPACR status of 156 antenatal mothers i.e. 78% was adequate and 22% (44) was found to be inadequate. Studies conducted in India have highlighted poor levels of preparedness among women. In a study conducted among 312 recently delivered women in 11 slums of Indore, it was reported that less than half of the mothers (47.8%) were well-prepared. A field trial conducted in the neighbouring country of Nepal concluded that birth preparedness programs could positively influence knowledge and intermediate health outcomes, such as household practices and use of some health services. It was recommended that such programs can be implemented by government health services with minimal outside assistance but should be comprehensively integrated into the safe motherhood program rather than implementation of birth preparedness strategy. Studies have shown that birth preparedness has positive influence in reduction of maternal mortality. The main objective of this study was to assess the Birth preparedness and Complication Readiness status among antenatal mothers who are attending ANC clinic of primary health centers of New Delhi. This can be done by raising awareness towards improving education for women.

Conclusion

In this study the proportion of women who were prepared for birth was 156 in a group of 200 women. As the level of awareness regarding BPACR is low i.e. 50%. Individual women, families and communities need to be empowered to contribute positively to make pregnancy safer. This can be done by raising awareness towards improving education for women. Antenatal care provides a golden opportunity to all the pregnant women to provide information, education and communication so that they along with their families

| Demographic variables | BPACR status | Total | Statistical value | P-value |
|-----------------------|--------------|-------|-------------------|---------|
| Education of the mother |              |       |                   |         |
| Illiterate            | 5            | 8     | X²=1.652          | 0.037*  |
| Primary education     | 6            | 22    |                   |         |
| Secondary education   | 10           | 40    |                   |         |
| Senior secondary education | 8    | 32    |                   |         |
| Graduate              | 15           | 54    |                   |         |
| Post-graduate         | 0            | 0     |                   |         |
| Total                 | 44           | 156   | 200               |         |

*significant at 0.05 level of significance as p ≤0.05.

| Demographic variables | BPACR status | Total | Statistical value | P-value |
|-----------------------|--------------|-------|-------------------|---------|
| Parity                |              |       |                   |         |
| Nulliparous           | 13           | 7     | X²=3.538 (5)      | 0.027*  |
| Para 1                | 13           | 52    |                   |         |
| Para 2                | 19           | 80    |                   |         |
| Para > 2              | 5            | 11    |                   |         |
| Total                 | 44           | 156   | 200               |         |

*significant at 0.05 level of significance as p ≤0.05.
can make the correct choices especially in event of any complications arising during delivery, childbirth or post-partum. This opportunity is missed many a times due to a number of reasons which should be addressed at the individual, family, community and the health provider’s level.

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Conflict of Interest: None

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