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EFFECTIVENESS OF A STRUCTURED TEACHING PROGRAMME ON BIRTH PREPAREDNESS AND COMPLICATION READINESS AMONG ANTENATAL MOTHERS ATTENDING A COMMUNITY HEALTH CENTRE IN KANPUR DEHAT, UTTAR PRADESH INDIA

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Abstract

Background: Birth Preparedness and Complication Readiness (BPCR) is an essential approach endorsed by the World Health Organization to encourage prompt access to qualified maternal healthcare services and minimize delays linked to maternal and neonatal morbidity and mortality. Sufficient understanding of BPCR allows expectant mothers and their families to identify obstetric warning signs, get ready for delivery, and obtain prompt medical assistance in emergencies.

Aim: To evaluate the impact of a structured educational program on awareness of Birth Preparedness and Complication Readiness among expectant mothers visiting a Community Health Centre in Kanpur Dehat, Uttar Pradesh.

Methods: A pre-experimental design with a single group was utilized, involving pre-test and post-test assessments. Thirty expectant mothers visiting the Community Health Centre were chosen through simple random sampling. Baseline understanding of BPCR was evaluated through a structured knowledge questionnaire. After the pre-test, a structured educational program was conducted with the use of audiovisual materials. Assessment post-intervention was carried out. Data were examined utilizing descriptive and inferential statistics, which included the paired t-test and chi-square test.

Results: The average pre-test knowledge score was 15.10 ± 2.81, rising to 21.46 ± 4.24 in the post-test. The average difference was 6.36. The obtained paired t-value ($t = 4.56$, $df = 29$) surpassed the critical threshold, suggesting a statistically significant enhancement in knowledge after the intervention ($p < 0.05$). Notable correlations were noted between post-test knowledge scores and the age and educational level of participants, while no significant links were identified with religion, job, source of information, gravida, parity, abortion history, stillbirth history, or timing of tetanus toxoid vaccination.

Conclusion: The organized teaching initiative successfully enhanced knowledge about Birth Preparedness and Complication Readiness in antenatal mothers. Incorporating educational programs into antenatal care services can enhance maternal knowledge and lead to better health results for mothers and newborns.

Keywords

Birth Preparedness and Complication Readiness; Antenatal Mothers; Maternal Health Education; Structured Teaching Programme; Knowledge; Safe Motherhood.

INTRODUCTION

Maternal mortality continues to be a significant public health issue globally, especially in low- and middle-income nations. The World Health Organization (WHO) reported that around 287,000 women lost their lives from complications related to pregnancy and childbirth in 2020, with almost 95% of these fatalities taking

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place in developing nations. The majority of maternal fatalities can be avoided with prompt access to high-quality antenatal, intrapartum, and postnatal healthcare services (1).

Birth Preparedness and Complication Readiness (BPCR) is a widely acknowledged approach created to encourage the prompt use of proficient maternal and neonatal healthcare services. The idea of BPCR relies on the notion that readiness for childbirth and foresight of obstetric emergencies can greatly minimize delays in accessing suitable healthcare during pregnancy and delivery (2). The BPCR strategy promotes that pregnant women and their families choose a qualified birth attendant, pick a suitable healthcare facility, organize transport, set aside funds for emergencies, identify blood donors when needed, and be aware of warning signs linked to pregnancy and delivery.

The significance of BPCR is intricately connected to the Three Delays Model introduced by Thaddeus and Maine, which highlights delays in decision-making, accessing healthcare facilities, and obtaining appropriate healthcare as key factors in maternal mortality (3). Sufficient birth readiness can reduce these delays and enhance maternal and newborn results.

Identifying obstetric warning signs is a crucial part of BPCR. Warning indicators during pregnancy consist of intense vaginal bleeding, intense headaches, blurred eyesight, seizures, fever, swelling in the hands and face, and decreased fetal activity. During labor and delivery, prolonged labor, heavy bleeding, retained placenta, and premature membrane rupture need urgent medical care (4). Women who recognize these warning signs are more inclined to pursue prompt medical care and prevent life-threatening issues.

Multiple research efforts have indicated insufficient understanding of BPCR among expectant mothers. Research by Acharya et al. in Delhi revealed that while numerous women visited antenatal clinics, their knowledge of birth preparedness and emergency planning was still inadequate (5). Likewise, research performed in Ethiopia and Nigeria indicated inadequate preparedness among expectant mothers, emphasizing the necessity for educational initiatives to enhance maternal knowledge and practices (6–8).

Studies have consistently shown that educational programs can greatly enhance maternal knowledge and readiness for giving birth. Interventions focused on education during pregnancy have demonstrated an increase in awareness of danger signs, enhanced the use of skilled birth attendants, and promoted deliveries in health facilities (9). Additionally, a systematic review and meta-analysis found that BPCR interventions can enhance maternal and neonatal health results when properly executed at community and healthcare facility levels (10).

In India, although maternal health indicators have improved, there remain gaps in BPCR awareness, especially among women living in rural areas. A recent systematic review and meta-analysis highlighted significant differences in BPCR practices in various regions of India and stressed the need to enhance antenatal education programs (11). Consequently, enhancing maternal knowledge via organized educational programs continues to be a crucial approach in promoting safe motherhood practices.

This study was conducted to evaluate the impact of a structured teaching program on Birth Preparedness and Complication Readiness among antenatal mothers visiting a Community Health Centre in Kanpur Dehat, Uttar Pradesh.

Conceptual Framework

The current research was influenced by Ludwig von Bertalanffy's General Systems Theory. The theory perceives people and organizations as open systems that constantly engage with their surroundings through a cycle that includes input, throughput, output, and feedback.

This research involved the input component comprising demographic and obstetric characteristics of expectant mothers, as well as their initial understanding of BPCR. Throughput encompassed the organized educational plan provided through visual tools, PowerPoint slides, graphs, flashcards, and brochures. Output indicated the enhancement in knowledge levels after the educational intervention, whereas feedback was collected via post-test assessment and evaluation of program effectiveness.

Utilizing General Systems Theory allowed for a structured evaluation of knowledge gain and behavioral modification resulting from the educational program.

Materials and Methods

Research Design

A quantitative pre-experimental one-group pre-test post-test research design was utilized to assess the impact of a organized teaching program on BPCR for antenatal mothers.

Study Setting

The research took place in a Community Health Centre (CHC) situated in Kanpur Dehat district, Uttar Pradesh, India. The center offers antenatal, intranatal, and postnatal care to women living in nearby rural areas.

Study Population

The population of interest included pregnant women visiting antenatal clinics at the chosen CHC throughout the study duration.

Sample Size and Sampling Technique

A total of 30 expectant mothers were chosen using simple random sampling. The number of participants was established considering the practicality and availability of individuals throughout the data gathering phase.

Inclusion Criteria

Participants were considered eligible if they:
• Were expectant mothers enrolled at the chosen CHC.
• Agreed to take part in the research.
• Was able to comprehend and converse in Hindi.
• Were accessible throughout the data collection period.

Exclusion Criteria

Women who were critically ill or reluctant to take part were not included in the study.

Data Collection Instrument

A structured questionnaire was developed after reviewing relevant literature and existing BPCR assessment tools. The questionnaire consisted of two sections:

Section A: Socio-demographic and obstetric characteristics including age, education, religion, occupation, gravida, parity, abortion history, stillbirth history, source of information, and vaccination status.

Section B: Knowledge assessment questionnaire regarding BPCR, including components of birth preparedness, recognition of danger signs, emergency planning, and utilization of maternal healthcare services.

Intervention

After the pre-test evaluation, a formal teaching program was conducted for the participants. The course addressed essential aspects of BPCR, warning indicators during pregnancy and childbirth, readiness for emergencies, the significance of hospital deliveries, and the use of qualified birth attendants. Instructional techniques comprised lectures, multimedia presentations, diagrams, flashcards, brochures, and engaging discussions.

Data Analysis

Data were entered and analysed using Statistical Package for Social Sciences (SPSS) software. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to summarize participant characteristics and knowledge scores. Inferential statistics including paired t-test and chi-square test were used to determine effectiveness of the intervention and association between knowledge scores and demographic variables. Statistical significance was established at $p < 0.05$.

RESULTS

Socio-demographic Characteristics of Participants

The majority of antenatal mothers (73.33%) belonged to the age group of 20–25 years. Most participants were Hindu (86.67%) and housewives (93.33%). Regarding educational status, 43.33% had completed secondary education, while 36.67% were illiterate. Family members constituted the primary source of information regarding pregnancy and childbirth for 70% of participants. Detailed socio-demographic characteristics are presented in **Table 1**.

Table 1. Distribution of Antenatal Mothers According to Selected Socio-demographic Characteristics (N = 30)

Variable	Category	Frequency (n)	Percentage (%)
Age	20–25 years	22	73.33
	26–30 years	8	26.67
Education	Illiterate	11	36.67

	Secondary Education	13	43.33
	Intermediate	4	13.33
	Graduation	2	6.67
Religion	Hindu	26	86.67
	Muslim	4	13.33
Occupation	Housewife	28	93.33
	Private Sector	1	3.33
	Government Sector	1	3.33
Source of Information	Internet	3	10.00
	Books/Newspapers	1	3.33
	Family Members	21	70.00
	Healthcare Providers	5	16.67

Pre-test and Post-test Knowledge Levels Regarding BPCR

Prior to the intervention, only 1 (3.33%) participant demonstrated adequate knowledge regarding Birth Preparedness and Complication Readiness, whereas 27 (90.00%) had moderately adequate knowledge and 2 (6.67%) had inadequate knowledge. Following implementation of the structured teaching programme, a substantial improvement in knowledge was observed. Adequate knowledge increased to 21 (70.00%), while moderately adequate knowledge decreased to 9 (30.00%). No participant remained in the inadequate knowledge category after the intervention.

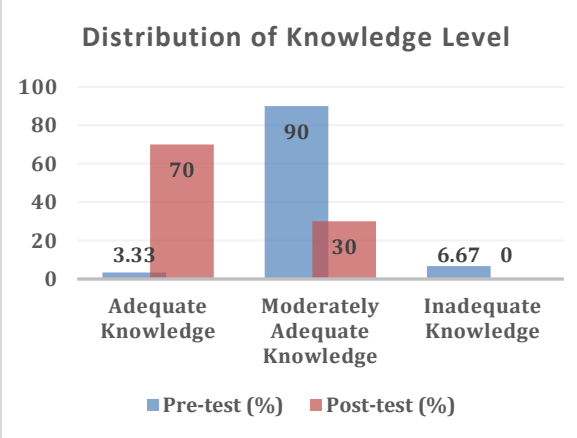

Figure 1. Comparison of Pre-test and Post-test Knowledge Levels Regarding BPCR

Effectiveness of Structured Teaching Programme

The mean pre-test knowledge score was 15.10 ± 2.81, whereas the mean post-test knowledge score increased to 21.46 ± 4.24. The mean difference was 6.36 points, indicating a substantial improvement in participants' knowledge following the intervention.

Table 2. Comparison of Mean Knowledge Scores Before and After Structured Teaching Programme (N = 30)

Test	Mean Score	Mean Percentage	Standard Deviation
Pre-test	15.10	50.33	2.81
Post-test	21.46	71.53	4.24
Mean Difference	6.36	-	-

Paired t-test analysis revealed a statistically significant difference between pre-test and post-test knowledge scores ($t = 4.56$, $df = 29$, $p < 0.05$), confirming the effectiveness of the structured teaching programme.

Table 3. Paired t-test Showing Effectiveness of Structured Teaching Programme (N = 30)

Variable	Mean Difference	t-value	df	p-value
Knowledge Score	6.36	4.56	29	<0.05*

*Statistically significant at $p < 0.05$.

Association Between Knowledge Scores and Selected Demographic Variables

Pre-test knowledge scores showed statistically significant associations with age, religion, and source of information ($p < 0.05$). Following the intervention, post-test knowledge scores demonstrated statistically significant associations with age and educational status ($p < 0.05$). No statistically significant associations were observed between post-test knowledge scores and religion, occupation, source of information, gravida, parity, abortion history, stillbirth history, death history, or TT vaccination status ($p > 0.05$).

Table 4. Association Between Post-test Knowledge Scores and Selected Demographic Variables

Variable	χ^2 Value	p-value	Significance
Age	102.73	<0.05	Significant
Educational Status	23.99	<0.05	Significant

Religion	9.92	>0.05	Not Significant
Occupation	3.23	>0.05	Not Significant
Source of Information	11.68	>0.05	Not Significant
Gravida	3.64	>0.05	Not Significant
Parity	4.63	>0.05	Not Significant
Abortion History	3.75	>0.05	Not Significant
Stillbirth History	0.018	>0.05	Not Significant
Death History	0.018	>0.05	Not Significant
TT Vaccination Status	3.49	>0.05	Not Significant

χ^2 = Chi-square test; $p < 0.05$ considered statistically significant.

DISCUSSION

The current research evaluated the impact of a structured educational program on Birth Preparedness and Complication Readiness for antenatal mothers visiting a Community Health Centre in Kanpur Dehat. The results showed a notable enhancement in understanding after the educational intervention.

Prior to the introduction of the structured teaching program, merely 3.33% of antenatal mothers had sufficient knowledge about BPCR, while the majority exhibited moderately adequate knowledge. After the intervention, 70% of participants reached sufficient knowledge levels, demonstrating significant progress. These results indicate that organized educational programs are effective means for increasing maternal knowledge about birth readiness and emergency planning.

The average post-test knowledge score was notably greater than the average pre-test score, with a computed paired t-value of 4.56. This result shows that the educational intervention effectively enhanced participants' grasp of BPCR concepts, such as identifying danger signs, being prepared for emergencies, and using maternal healthcare services.

The results align with those identified by Acharya et al., who noted considerable enhancements in BPCR awareness among pregnant women after health education sessions in Delhi (5). Ibadin et al. in Nigeria found comparable outcomes, indicating that pregnant women who participated in educational interventions showed improved readiness for childbirth and obstetric emergencies than those who did not partake in these interventions (8).

The current results further align with the observations made by Markos and Bogale, who stated that insufficient awareness of BPCR continues to be a major issue for women of reproductive age in Ethiopia (7). Their research highlighted the significance of community-focused health education initiatives in enhancing maternal readiness and decreasing delays in accessing care.

Research by Bitew et al. in Ethiopia revealed that women with sufficient understanding of danger signs and delivery preparedness were more inclined to seek skilled maternal healthcare services and adequately prepare for childbirth (6). Comparable results were noted by Doctor et al., who found that knowledge of obstetric danger signs notably impacted the use of skilled birth attendants during delivery (12).

The notable link between educational levels and post-test knowledge scores found in this study aligns with earlier studies showing that maternal education enhances health literacy, decision-making ability, and use of healthcare services (6,7). Women with an education typically have a greater ability to comprehend health information, identify complications, and pursue prompt medical care.

Additionally, the efficacy of educational interventions has been shown in various healthcare environments. Pham et al. indicated that organized educational programs markedly enhanced healthcare-related knowledge and practices among healthcare workers, underscoring the greater efficacy of educational strategies in advancing health results (9).

Findings from a systematic review and meta-analysis conducted by Soubeiga et al. indicate that BPCR interventions aid in better maternal and neonatal results by boosting preparedness and promoting the prompt utilization of skilled maternal healthcare services (10). These results endorse the integration of organized BPCR education as a key element of antenatal care services.

The results of this study suggest that organized teaching programs can act as successful interventions to enhance maternal understanding of birth preparedness and readiness for complications. Enhancing BPCR education in antenatal care could lead to better maternal health-seeking behaviors, higher use of skilled

healthcare services, and ultimately lower rates of maternal and neonatal morbidity and mortality.

Limitations

The research was constrained by its limited sample size, single-center structure, lack of a control group, and evaluation focused solely on knowledge results.

Recommendations

Future research should incorporate larger multicentric samples, analyze long-term retention of knowledge, investigate behavioral changes after BPCR education, and explore the effects of educational interventions on maternal and neonatal health results.

Conclusion

The current research found that the organized teaching program effectively enhanced knowledge about Birth Preparedness and Complication Readiness among antenatal mothers visiting a Community Health Centre in Kanpur Dehat, Uttar Pradesh. A statistically significant rise in post-test knowledge scores showed the educational intervention's success in improving awareness of birth readiness, warning signs, and emergency planning for pregnancy and childbirth. The results highlight the necessity of integrating organized health education into regular antenatal care services to enhance maternal awareness and readiness for a safe delivery. Increased awareness of BPCR can enhance the prompt use of skilled maternal healthcare services and lead to improved maternal and neonatal health results. Additional research involving larger sample sizes and more robust methodologies is advised to evaluate the long-term efficacy and the influence of these interventions on maternal health behaviors and results.

Conflict of Interest

The authors declare no conflict of interest.

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