INTERNATIONAL CENTRE FOR COLLABORATIVE RESEARCH
JOURNAL OF NURSING RESEARCH (ICCR-JNR)
ISSN 2456 - 0200 (Online)
An international peer reviewed, indexed, open access, high quality journal published by Omayal Achi College of Nursing, Chennai, India

EFFECTIVENESS OF THE POST-CAESAREAN CARE BUNDLE ON KNOWLEDGE, SKILL AND MATERNAL OUTCOME AMONG MOTHERS

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ARTICLE INFORMATION

Article History:

Received:
April 11th 2023

Revised:
Nov 7th 2024

Accepted:
Mar 20th 2024

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ABSTRACT

Background: Caesarean section is a lifesaving procedure associated with increasing rates of maternal morbidity like sepsis, thromboembolic events, anaesthetic complications, hospital readmission and foetal complications. The post-operative period is a challenging time for mothers, especially due to the considerable lack of awareness among mothers regarding post-Caesarean care. Hence, there is a need to improve the knowledge of elective caesarean mothers to promote their health and quality of life. **Aim and Objective**: To assess the effectiveness of the Post-Caesarean Care Bundle on knowledge, skill and post-test maternal outcome among mothers. **Materials and methods:** A quantitative approach and quasi-experimental pre and post-test with control group research design was chosen. A total of 60 elective caesarean mothers were selected through the non-probability purposive sampling technique and were assessed using the Structured knowledge questionnaire, observational checklist and maternal outcome chart. **Results:** The comparison of pre and post-test knowledge and skill within the experimental and control groups revealed the calculated paired t value of 13.56 and 14.87 respectively, and the comparison of the same and post-test maternal outcome between the experimental and control group, revealed the calculated unpaired post-test t value of 17.04,19.64 and 7.83 respectively, which were found to be statistically very highly significant at p<0.001. **Conclusion:** The Post-Caesarean Care Bundle was effective in enhancing the knowledge, skill and maternal outcome among mothers.

Keywords: Post-Caesarean Care Bundle, knowledge, skill and maternal outcome.

Arunya A, Arockia JS, Amutha T, Kanchana S, Celina D, Effectiveness of the post-caesarean care bundle on knowledge, skill and maternal outcome among mothers, ICCRJNR, Jul – Dec 2023, 8(2): 16-32

I INTRODUCTION

Childbirth is a natural and universal phenomenon. During this period, one feels immense joy coupled with excitement. The feeling of carrying a little soul within one is truly magnificent, as they say. The experience of transformation from woman to motherhood is a privilege reserved exclusively for women. It is the time when every system in the body is affected and experiences major changes in a woman's life. It needs continuous monitoring, early detection of difficulties and prompt treatment. Giving birth to a child can be one of the most joyful experiences in a woman's life, but it is undeniably one of the most painful experiences too.[1]

Childbirth is a perfectly normal physiological process that should be performed in its natural course, and should not be looked at as a disease. Unless required, midwives should avoid intervening in the labour process. Although in the past, births mostly took place at home, towards the end of the 20th century, women began to give birth in hospitals. As an effect of this trend, giving birth began to be classified as a medical problem that needed to be managed through various medical interventions like forceps, vacuum and caesarean section procedures.[2] Although most people believe that vaginal birth is the best way to deliver, sometimes caesarean section is introduced in clinical practice as a lifesaving procedure for both the mother and child, without altering the natural mechanism of the body.

Post caesarean section, the mother requires both postpartum and post-operative care to prevent post-operative complications and to optimise health. To have a healthy life in the postpartum period, more concentrated and focused care should be given to the mothers for the healthy living of both the mother and child.[3]

Statement of the problem

A quasi-experimental study to assess the effectiveness of the Post-Caesarean Care Bundle on knowledge, skill and maternal outcome among mothers at a selected hospital.

Objectives

1. To assess and compare the pre and post-test levels of knowledge and skill among mothers in the experimental and control groups.

2. To assess the post-test level of maternal outcome among mothers in the experimental and control groups.

3. To assess the effectiveness of the Post-Caesarean Care Bundle on the level of knowledge, skill and maternal outcome among mothers.

4. To correlate the mean differed knowledge, skill and post-test maternal outcome scores among mothers in the experimental and control group.

5. To associate the selected background variables with mean knowledge, skill and post-test maternal outcome scores among mothers in the experimental and control groups.

Null hypotheses

NH_1- There is no significant difference between the pre and post-test level of knowledge, skill and post-test maternal outcome among mothers between the experimental and control groups.

NH_2- There is no significant correlation of mean differed knowledge, skill and post-test maternal outcome scores among mothers in the experimental and control groups.

NH_3- There is no significant association of selected background variables with the mean differed knowledge, skill and post-test maternal outcome score in the experimental and control groups.

II MATERIALS AND METHODS

A quantitative approach with a quasi-experimental research design was adopted in this study. The independent variable was the Post-Caesarean Care Bundle and the dependent variables were knowledge, skill and maternal outcome. The study was conducted at the Sir Ivan Stedeford Hospital, Chennai. The sample size consisted of 60 mothers who fulfilled the inclusion and exclusion criteria, with 30 each in the experimental and control groups, selected by using the non-probability purposive sampling technique. The samples were selected based on the following:

Inclusion criteria: Mothers who are

- primi or multigravida and are admitted for their 1st elective caesarean section
- admitted to the prenatal ward at Sir Ivan Stedeford hospital
- able to read, write and understand Tamil or English

Exclusion criteria: Mothers who are

- posted for emergency Caesarean care
- physically/mentally challenged.
- undergone the post-Caesarean care classes

Development and description of the tool

The tool for the data collection had 4 sections:

Section A: Assessment of background variables: It consisted of-

a. Demographic variables- Age, education, occupation, family monthly income, religion, residential area as per family card, type of family and dietary pattern.

b. Obstetrical variables- Gravida, gestational age, indication for elective Lower Segmental Caesarean Section (LSCS), Last Menstrual Period (LMP), Expected Date of Delivery (EDD), Source of information, Antenatal registration and Registration type.

c. Co-morbid related variables- Diabetes mellitus, Hypertension, Asthma, Heart disease and others.

Section B: **A Structured Knowledge Questionnaire** formulated by the investigator was used to assess the knowledge. It consisted of 25 questions with one correct answer each. It was categorised under the following components.

Content	Number of Questions
Post-Caesarean care	2
Early ambulation	4
Anaesthetic complications	2
Warning signs	1
Diet	8
Home care management	8
Total	**25**

Scoring key

Each item was an objective type and closed-ended with a single correct answer. Each correct answer carries a "1" mark and a wrong answer carries a "0" mark. The total score of the tool was 25. The raw score was converted into percentages to interpret the level of knowledge.

Section C: Observational Checklist, formulated by the investigator was used to assess the Skill. It consists of 10 statements and the samples were asked to select a suitable answer from the options given**.**

Interpretation

Score in Percentage	Level of Knowledge
≥ 75	Adequate knowledge
50 – 75	Moderately adequate knowledge
≤ 50	Inadequate knowledge

Interpretation

Score in Percentage	Level of Skill
≥ 75	Adequate skill
50 – 75	Moderately adequate skill
≤ 50	Inadequate skill

Section D: Maternal outcome was observed by the investigator and recorded in the maternal outcome chart

Interpretation

Score in Percentage	Level of maternal outcome
≥ 75	Good outcome
50 – 75	Moderate outcome
≤ 50	Poor outcome

Data collection procedure

The study was conducted for a period of 4 weeks. A total of 60 mothers (30 samples each in the experimental and control group) were selected based on inclusion criteria using a non-probability purposive sampling technique.

After obtaining formal permission and informed written consent, the investigator obtained demographic details from the experimental group samples, following which the pre-test level of knowledge, and skill was assessed using the above-mentioned tools. Following this, the intervention was given for 40-50 minutes. Post-operative exercises such as deep breathing & and circulatory exercises and breast-feeding techniques in different position like side-lying & and cradle position was demonstrated to the mothers in small groups of 3-5 members for about 15-20 minutes. Return demonstration was done by the participants immediately. Reinforcement was given with the same package. The post-test assessment of skill was conducted 2 days after the intervention, and knowledge and maternal outcomes were assessed 7 days after the intervention.

Ethical considerations

The study proposal and plan were granted formal ethical approval by the International Centre of Collaborative Research which is the official ethics review board of Omayal Achi College of Nursing, Chennai, India. Consent was obtained from the Chief Medical Officer of the Sir Ivan Stedeford Hospital, Chennai. Written informed consent was obtained from the participants after a clear explanation of the study purpose, type of data required, nature of commitment, participation, procedure and potential benefits and the right to withdraw from the study at any point in time was explained. Confidentiality and full privacy of personal details revealed by the samples were assured.

III RESULTS

Distribution of background variables of mothers

Demographic variables

The demographic variables of mothers in the experimental group, when analysed, showed that 18(60.00%) mothers were between 26-30 years of age, 9(30%) had completed

secondary school education, 11(36.67%) were skilled and 13(43.33%) had family monthly income between Rs. 10001-15000, 14(46.67%) mothers were from a nuclear family, 13(43.33%) were residing in a rural area, 23(76.67%) were Hindu, 25(83.33%) were non-vegetarian and 13(43.33%) had family and peer group as a source of information.

In the control group, 13(43.33%) were between 26-30 years of age, 9(30.00%) were graduates, 12(40.00%) were semi-skilled, 14(46.67%) had family monthly income above Rs.15000, 18(60%) were from a nuclear family, 14(46.67%) were residing in an urban area, 20(66.67%) were Hindus, 26(86.67) were non-vegetarian and 12(40.00%) had family and peer group as a source of information.

Obstetrical variables

In the experimental group, 21(70.00%) of them were primigravida, 18(60.00%) had registered their pregnancy in the 3rd month, 22(73.33%) had regular follow-up, 26(86.67%) mothers were between 37-40weeks of gestation and 10(33.33%) mothers had pregnancy-induced hypertension as the indication for elective LSCS.

In the control group, 21(70.00%) were primigravida, 12(40%) registered their pregnancy in the 2nd month, 23(76.67%) had regular follow-up, 28(93.33%) of the mother's gestational age was between 37-40 weeks and 12(40.00) of the mothers had pregnancy-induced hypertension as the indication for elective LSCS.

Level of knowledge regarding post-Caesarean care in the experimental and control group

N=60

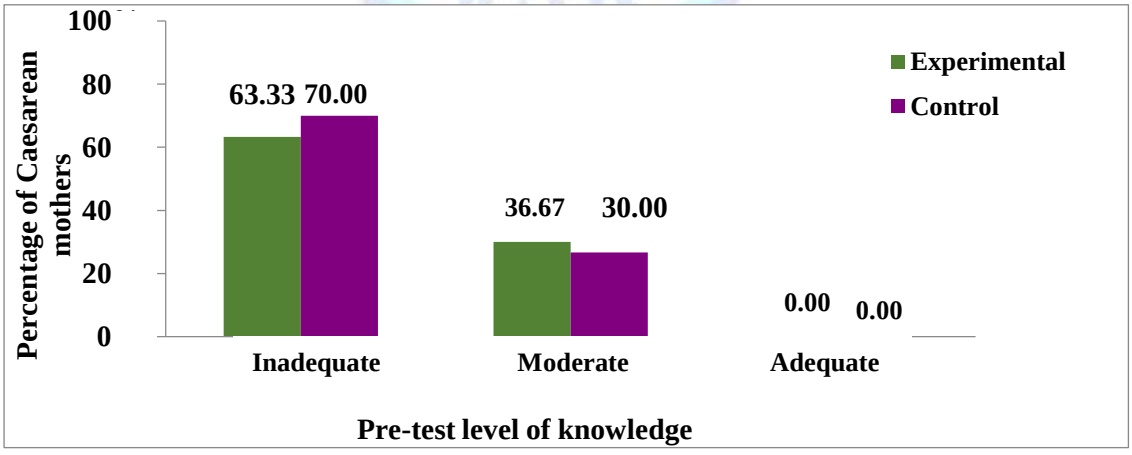

Figure 1: Overall pre-test level of knowledge

Figure 1 reveals that the majority, 19(63.33%) of them, had an inadequate level of knowledge and 11(36.67%) samples had a moderately adequate level of knowledge in the experimental group. In the control group, 21(70.00%) samples had inadequate level of knowledge and 9(30.00%) of them had moderately adequate level of knowledge. **N=60**

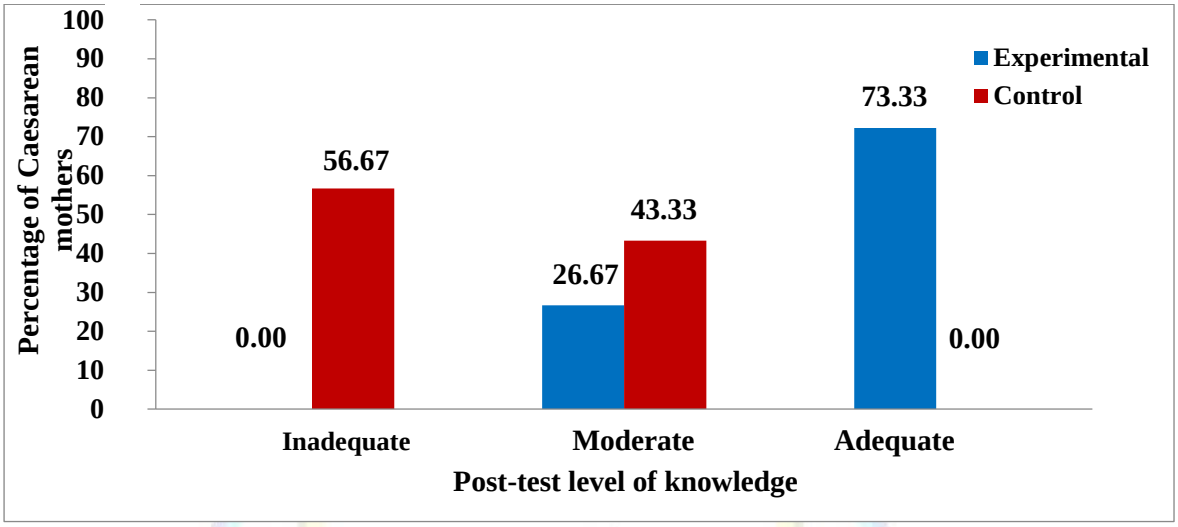

Figure 2: The overall post-test level of knowledge.

Figure 2 reveals the overall post-test level of knowledge regarding post-Caesarean care and it was found that 22(73.33%) of them had an adequate level of knowledge and 8(26.67%) of them had a moderately adequate level of knowledge in the experimental group. In the control group, 17(56.67%) of them had an inadequate level of knowledge and 13(43.33%) of them had a moderately adequate level of knowledge.

Level of skill regarding post-Caesarean care in the experimental and control group

N=60

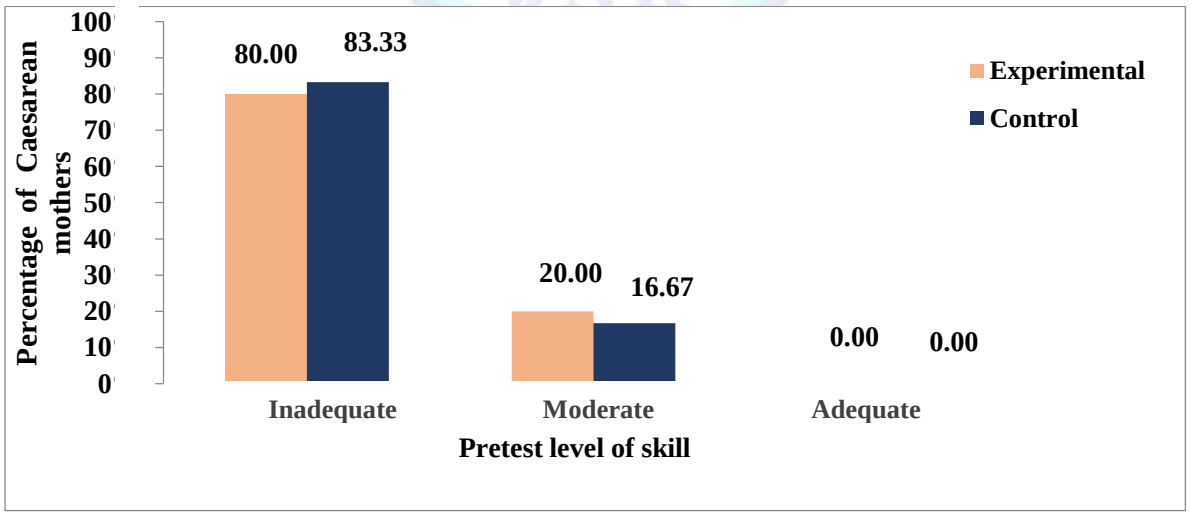

Figure 3: The overall pre-test level of skill

Figure 3 depicts that 24(80%) and 25(83.33%) of the mothers in the experimental and the control group respectively, had inadequate skill in the pre-test.

N=60

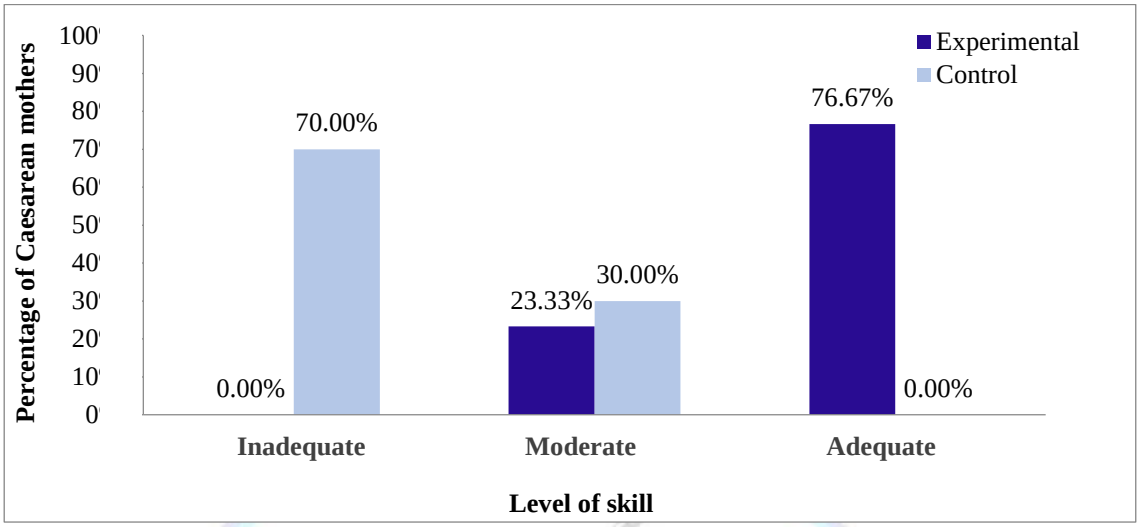

Figure 4: The overall post-test level of skill

Figure 4 depicts that in the post-test, 23(76.67%) samples in the experimental group had an adequate level of skill and 21(70%) in the control group had an inadequate level of skill.

Post-test level of maternal outcome in the experimental and control group

N=60

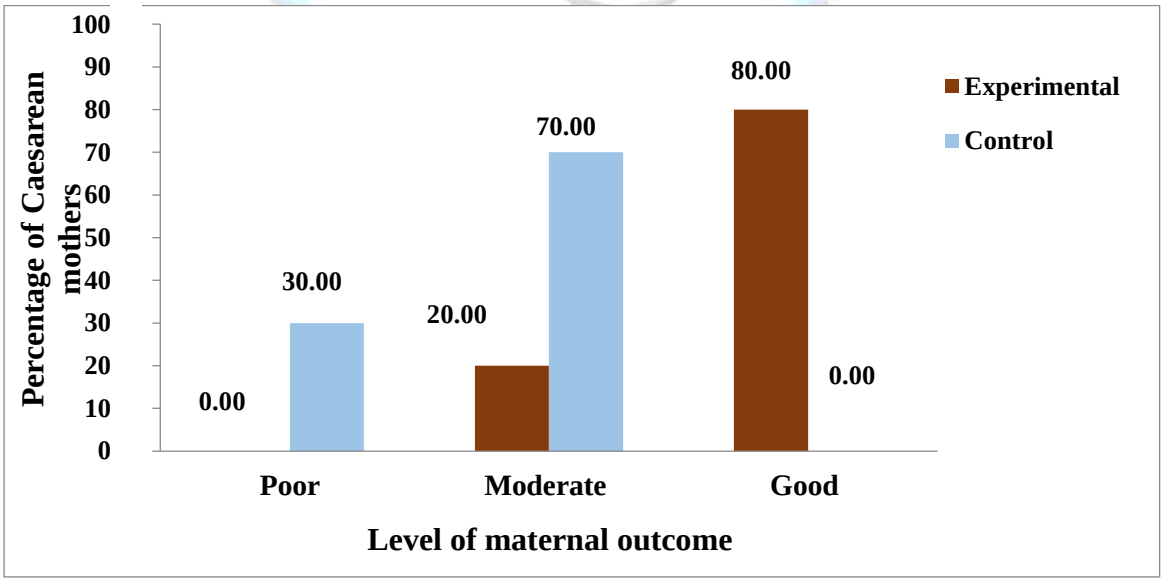

Figure 5: Post-test level of maternal outcome

Figure 5 depicts the post-test level of maternal outcome score regarding post-Caesarean care where the majority of 24(80%) mothers had good outcomes and 6(20%) of them had moderate outcomes in the experimental group. In the control group, 21(70%) of the mothers had moderate outcomes and 9(30.00%) of them had poor outcomes.

Assessment of the effectiveness of the Post-Caesarean Care Bundle on knowledge, skill and maternal outcome

Table 1: Comparison of pre and post-test level of knowledge and skill mean score regarding post-Caesarean care in the experimental and control groups N=60

Variables	Group	Pre-test		Post-test		Mean Difference	Paired 't' value
		Mean	SD	Mean	SD		
Knowledge	**Experimental**	11.77	1.96	19.53	2.39	7.76	**t=13.56 P=0.001*** df =29 (S)**
	Control	11.40	2.50	12.07	2.07	0.67	t=1.81 P=0.07 df = 29 (NS)
Skill	**Experimental**	4.50	0.97	8.30	1.42	3.80	**t=14.87 P=0.001*** df =29 (S)**
	Control	4.37	1.22	4.57	1.07	0.20	t=1.92 P=0.07 df = 29 (NS)

***** p<0.001 - Very highly significant, S – Significant, NS – Not Significant, df=Degrees of Freedom**

The above table 1 signifies the comparison of mean knowledge and skill scores regarding post-Caesarean care. In the experimental group, the pre-test mean knowledge and skill score was 11.77 and 4.50, which increased to 19.53 and 8.30 respectively, in the post-test. The calculated t-value for knowledge and skill was t=13.56 and 14.87 respectively, which revealed that there was a high statistically significant difference at p<0.001 level.

Table 2: Comparison of pre-test and post-test mean knowledge, skill and post-test maternal outcome score regarding post-Caesarean care between the experimental and control groups

N=60

Variables	Group	Experimental (n=30)		Control (n=30)		Mean Difference	Unpaired 't' value
		Mean	SD	Mean	SD		
Knowledge	**Pre-test**	11.77	1.96	11.17	1.58	0.16	t=0.38 P=0.71(NS) df=58
	Post-test	19.53	2.50	12.07	1.87	6.67	**t=17.04 P=0.001***(S) df=58**
Skill	**Pre-test**	23.00	1.96	23.40	2.68	0.40	t=1.00 P=0.34 df=58, (NS)
	Post-test	39.97	2.50	24.50	3.10	15.47	**t=19.64 P=0.001***(S) df=58**
Maternal outcome	**Post-test**	8.63	1.30	6.03	1.27	2.60	**t=7.83 P=0.001*** df=58 (S)**

***** Very highly significant at p< 0.001, S – Significant, NS – Not Significant, df=Degrees of Freedom**

Table 2 depicts that in the pre-test, there was no statistically significant difference in comparison of mean knowledge and skill scores between the experimental and control group. In the post-test, the mean difference score was 6.67, 15.47 and 2.60 with t values of t=17.04, t=19.64 and t=7.83 for knowledge, skill and post-test maternal outcome, respectively. These values showed that there was a very high statistical significance at p=0.001. This shows that the Post-Caesarean Care Bundle had significantly improved the knowledge, skill and post-test maternal outcome of post-Caesarean care among mothers in the experimental group.

Correlation of the mean differed knowledge, skill and post-test maternal outcome scores in the experimental and control groups

Table 3: Correlation between the mean differed knowledge, skill and post-test maternal outcome score regarding post-Caesarean care in the experimental group N=30

Group	Variables	Mean score		'r' value	Interpretation
		Mean	SD		
Experimental group	Knowledge	7.76	0.57	**r=0.48 P=0.01****	Positive moderate correlation
	Skill	3.80	0.26		
	Knowledge	7.76	0.57	**r = 0.42 p = 0.01****	
	Maternal outcome	8.63	0.24		
	Skill	3.80	0.26	**r = 0.33 p = 0.01****	
	Maternal outcome	8.63	0.24		

****p<0.01, S- Significant, NS- Not significant**

Table 3 depicts the correlation of the mean differed knowledge, skill and maternal outcome among mothers in the experimental group, assessed using the Karl Pearson Correlation Coefficient.

Association of selected background variables with the mean differed knowledge, skill and post-test maternal outcome score among mothers in the experimental and control group **N=30**

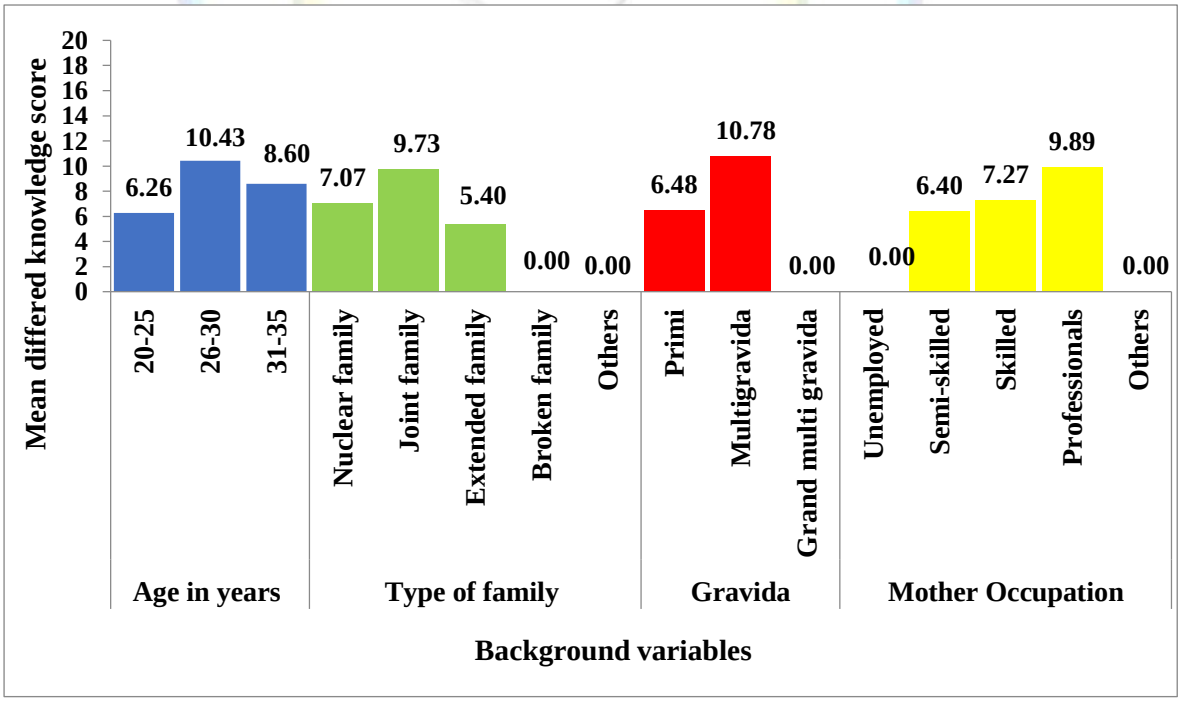

Figure 6: Association of selected background variables with the mean differed knowledge in the experimental group

Figure 6 depicts that there was a significant association of background variables like age, type of family, gravida and occupation of mothers in the experimental group with the mean differed knowledge. The mean differed knowledge score of mothers was highest, 10.43, among those aged between 26-30 years of age, 9.73 among mothers who were from joint families, 10.78 among those who were multi gravida and 9.89 among mothers who were professional workers.

N=30

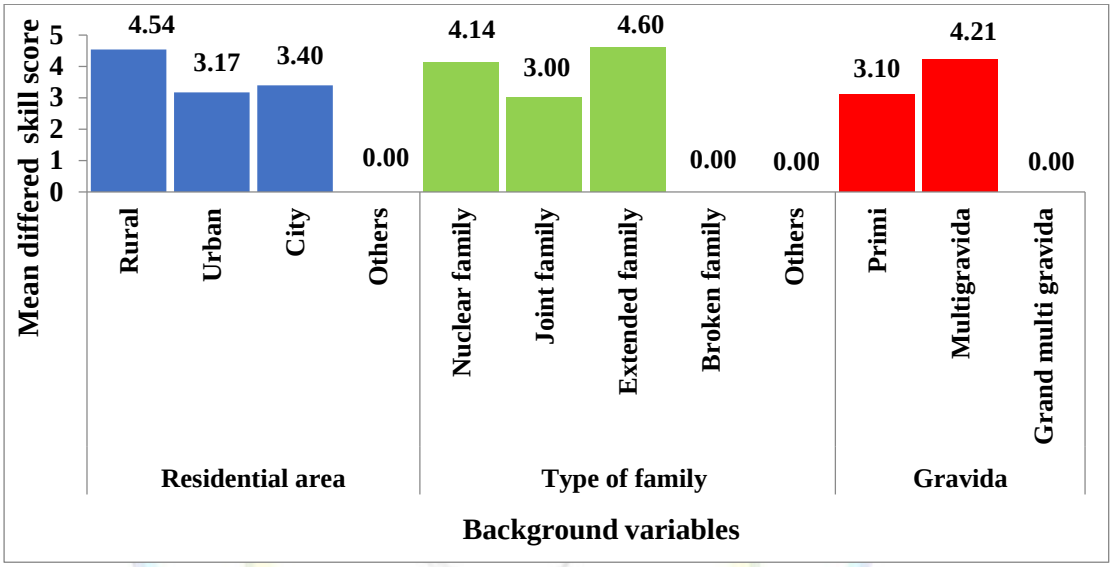

Fig.7: Association of selected background variables with the mean differed skill among mothers in the experimental group

Figure 7 depicts that there was a significant association of background variables namely residential area, type of family and gravida in the experimental group with the mean differed skill. This reveals that the mean differed skill score was highest, 4.54, among mothers residing in rural areas, 4.6 for mothers from extended families and 4.21 among multigravida mothers.

N=60

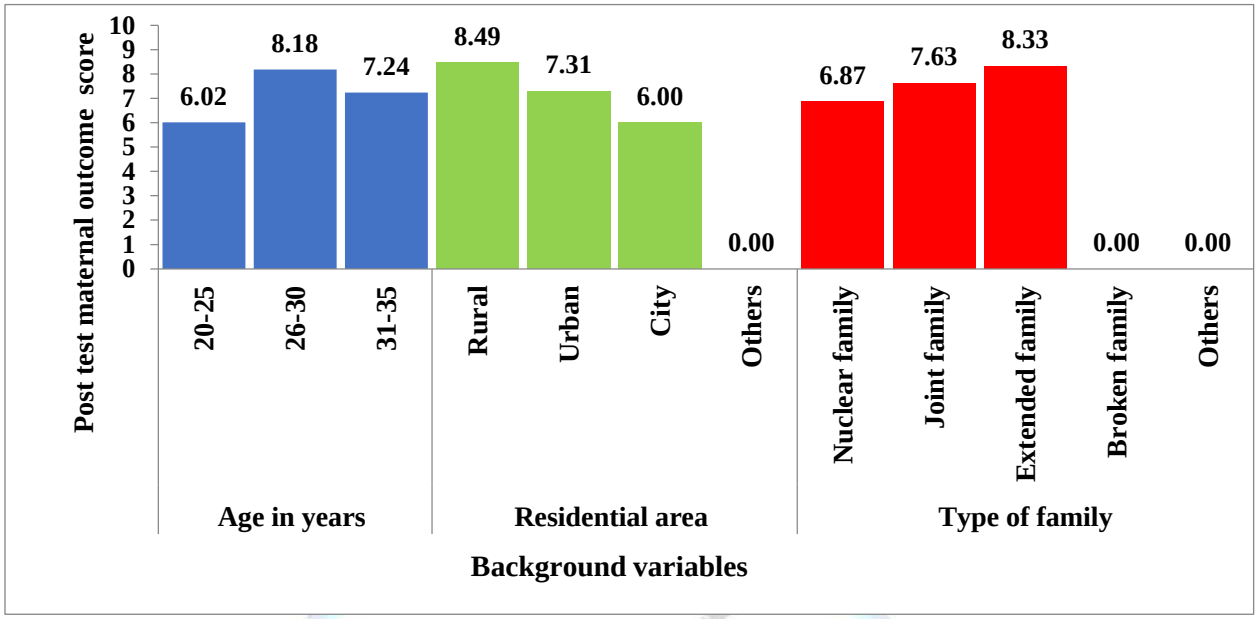

Fig. 8: Association of selected background variables with post-test maternal outcome score among mothers in the experimental group

Figure 8 depicts that there was a significant association of background variables like age, residential area and type of family in the experimental group with the post-test maternal outcome score. This shows that the post-test maternal outcome score was highest, 8.18 among mothers between 26-30 years of age, 8.49 among mothers residing in rural areas and 8.33 among mothers from extended family.

None of the other selected background variables in the experimental group or any of the variables in the control group showed any statistically significant association with the level of knowledge, skill and maternal outcome.

IV DISCUSSION

The comparison of mean differed levels of knowledge, skill and maternal outcome within the experimental and control groups was calculated using the paired ‘t-test. The findings revealed that in the experimental group, the calculated value ‘t’=13.56 for knowledge and 14.87 for skill revealed that there was a highly statistically significant difference at $p<0.001$level for both variables. There was no statistically significant difference between pre and post-test levels of knowledge and skill in the control group.

The comparison of knowledge, skill and maternal outcome between the experimental and control groups was calculated using the student-independent t-test showed that no statistically significant difference was found in the pre-test, whereas in the post-test the calculated 't' value 17.04 for knowledge, 15.47 for skill, and 7.83 for maternal outcome was statistically very highly significant at $p<0.001$ level. This indicates that The Post-Caesarean Care Bundle was highly effective in enhancing the knowledge, skill and maternal outcome among mothers in the experimental group.

The correlation of the mean differed knowledge, skill and post-test maternal outcome among mothers in the experimental group was assessed by using the Karl Pearson Correlation Coefficient. The positive moderate correlation was identified between the mean differed knowledge, skill and posttest maternal outcome score with an 'r' value of 0.48, 0.42 and 0.33 at $p<0.01$ level of significance respectively, which revealed that there was a statistically significant difference. No statistical relationship was identified between the variables in the control group.

Nursing implications

Nurse midwives can decide the suitable and feasible nursing care strategies to impart knowledge and inculcate the appropriate post-operative care for mothers to bring about healthy motherhood and childhood. The Nurse educators can organise seminars, workshops and symposiums on Post-Caesarean Care Bundle among nursing students to enhance their awareness. Nurse administrators can formulate new policies and protocols for Post-Caesarean Care. The Nurse researcher can appraise the effectiveness of Post-Caesarean Care Bundle on a larger population.

Limitations

The researcher found difficulty in getting permission to conduct the study. The investigator faced difficulty in collecting the literature related to post-Caesarean care as the studies conducted in India were limited. The duration of data collection for each mother was about 40-50 minutes but the comfort of the mothers during this period was ensured.

V CONCLUSION

The study findings concluded that there was a significant difference in the level of knowledge, skill and maternal outcome in the experimental group after administration of the Post-Caesarean Care Bundle. Thus, the study findings revealed that this intervention was effective in improving the level of knowledge, enhancing the skill and maternal outcome among mothers. It can also be used by nurses to support mothers to experience a more favourable adaptation and outcome during the post-operative period.

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VII SOURCE OF SUPPORT: None

VIII CONFLICT OF INTEREST: None

IX ACKNOWLEDGEMENT

The investigator is very thankful to the:

- Executive Committee Members of the International Centre for Collaborative Research (ICCR) for their expert guidance and motivation
- Administrative Officer and Chief Medical Officer, Sir Ivan Stedeford Hospital, Chennai District, for granting setting permission
- Samples whose cooperation and participation enabled the successful completion of this study

X CONTRIBUTORS

AA: Conceptualisation of the study, collection, analysis of the data, writing the manuscript, finalised the manuscript and will act as the guarantor of the paper; **AJS:** Conceptualisation of the study, writing the manuscript, finalised the manuscript, edited and critically evaluated the manuscript; **AT, KS, CD:** Edited and critically evaluated the manuscript.