

Effectiveness of Structured Teaching Module (STM) on Home Care Management of Children among Primigravida Mothers in Rural Maharashtra

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Abstract—Background: Neonatal morbidity and mortality remain major public health challenges in India, particularly in rural regions. Mothers, especially primigravida, play a critical role in the home care management of children. However, inadequate knowledge and poor practices often lead to preventable childhood illnesses. Structured Teaching Modules (STM) have been proposed as effective educational interventions to bridge this knowledge gap. **Objective:** To evaluate the effectiveness of a Structured Teaching Module (STM) on home care management of children among primigravida mothers residing in selected rural regions of Maharashtra. **Methods:** A quasi-experimental study was conducted among 130 primigravida mothers, divided into an experimental group (n=65) and a control group (n=65). The experimental group received STM on nutrition, immunization, accident prevention, illness management, discipline, moral and value education, while the control group did not receive any intervention. Data were collected using a validated Structured Interview Schedule (30 items). Pre-test and post-test knowledge scores were compared within and between groups using paired and unpaired t-tests. **Results:** The mean pre-test knowledge score of the experimental group was significantly lower than the post-test score (12.46 ± 3.18 vs 24.86 ± 2.45 ; $p < 0.001$). In contrast, the control group showed no significant difference between pre-test and post-test scores (12.62 ± 3.09 vs 13.05 ± 2.98 ; $p > 0.05$). The mean difference in knowledge gain was significantly higher in the experimental group compared to the control group. Associations between post-test scores and selected demographic variables such as maternal age and education were statistically significant. **Conclusion:** The Structured Teaching Module was highly effective in improving knowledge of primigravida mothers regarding home care management of children. The intervention is recommended as a low-cost, scalable strategy for community health programs to reduce preventable childhood illnesses and neonatal mortality.

Index Terms—Primigravida, Structured Teaching Module, Home care management, Neonatal health, Rural mothers

I. INTRODUCTION

Neonatal morbidity and mortality remain pressing health concerns worldwide, especially in low- and middle-income countries (LMICs). India contributes nearly one-quarter of global neonatal deaths, with an estimated one million babies dying annually before completing their first month of life [1]. The neonatal mortality rate (NMR) in India remains high at 26.6 per 1000 live births despite national programs such as the Integrated Management of Neonatal and Childhood Illness (IMNCI) and the National Rural Health Mission (NRHM) [2].

Primigravida mothers, being inexperienced in childcare practices, often lack adequate knowledge of nutrition, immunization, illness management, accident prevention, and early recognition of neonatal danger signs [3]. This knowledge gap increases vulnerability to preventable childhood illnesses such as diarrhoea, pneumonia, sepsis, and jaundice [4]. Previous studies have demonstrated that maternal education is a key determinant in improving neonatal outcomes and reducing preventable deaths [5,6].

Health education interventions, particularly Structured Teaching Modules (STM), provide systematic, context-appropriate learning materials that can improve maternal knowledge and practices [7]. STM has been used in various health domains, including breastfeeding techniques, accident prevention, and immunization adherence, with significant improvements in mothers' knowledge [8,9].

The present study was undertaken to evaluate the effectiveness of a Structured Teaching Module on

home care management of children among primigravida mothers residing in selected rural regions of Maharashtra, India.

II. OBJECTIVE

The primary objective of this study was:

- To evaluate the effectiveness of a Structured Teaching Module (STM) on home care management of children among primigravida mothers in rural Maharashtra.

III. METHODS

Study Design and Setting: A quasi-experimental non-randomized control group design was adopted. The study was conducted in two rural regions of Maharashtra between March 10 and March 31, 2025.

Population and Sampling: The study population comprised primigravida mothers (n=130) residing in rural communities. Participants were divided into two groups: an experimental group (n=65) and a control group (n=65).

Inclusion criteria:

- Primigravida mothers available during the study period.
- Willingness to participate and provide informed consent.

Exclusion criteria:

- Multigravida mothers.
- Mothers unable to understand the teaching module.

Tool for Data Collection: A Structured Interview Schedule (SIS) was developed, comprising 30 items on key areas: nutrition, illness management, accident prevention, immunization, discipline, and moral education. The tool had established content validity from pediatric nursing experts and a reliability coefficient of 0.89.

Intervention:

The Structured Teaching Module (STM) was delivered to the experimental group immediately after the pre-test. It covered essential aspects of home care management, including newborn nutrition, immunization schedules, safe home practices, and early recognition of illness.

Data Collection Procedure:

- Pre-test: Knowledge of both groups was assessed using SIS.
- Intervention: STM was administered to the experimental group only.
- Post-test: After seven days, knowledge was reassessed in both groups.

Data Analysis: Data were analyzed using descriptive and inferential statistics. Paired t-tests were used to compare pre- and post-test scores within groups, and unpaired t-tests were applied to compare differences between experimental and control groups. Associations with demographic variables were tested using chi-square. A p-value <0.05 was considered statistically significant.

IV. RESULTS

Demographic Profile: Most participants were in the age group 21–25 years (56%), homemakers (62%), and from joint families (58%). Educational levels varied, with 34% having secondary education and 28% higher education.

Knowledge Scores:

- Experimental group: Mean pre-test = 12.46 ± 3.18 ; post-test = 24.86 ± 2.45 ($p < 0.001$).
- Control group: Mean pre-test = 12.62 ± 3.09 ; post-test = 13.05 ± 2.98 ($p > 0.05$).

Graphical Representation:

Evaluation Of Effectiveness Of The Structured Teaching Module(Stm) On Knowledge Regarding Home Care Management Of Children Among Primigravida Mothers From Selected Rural Area

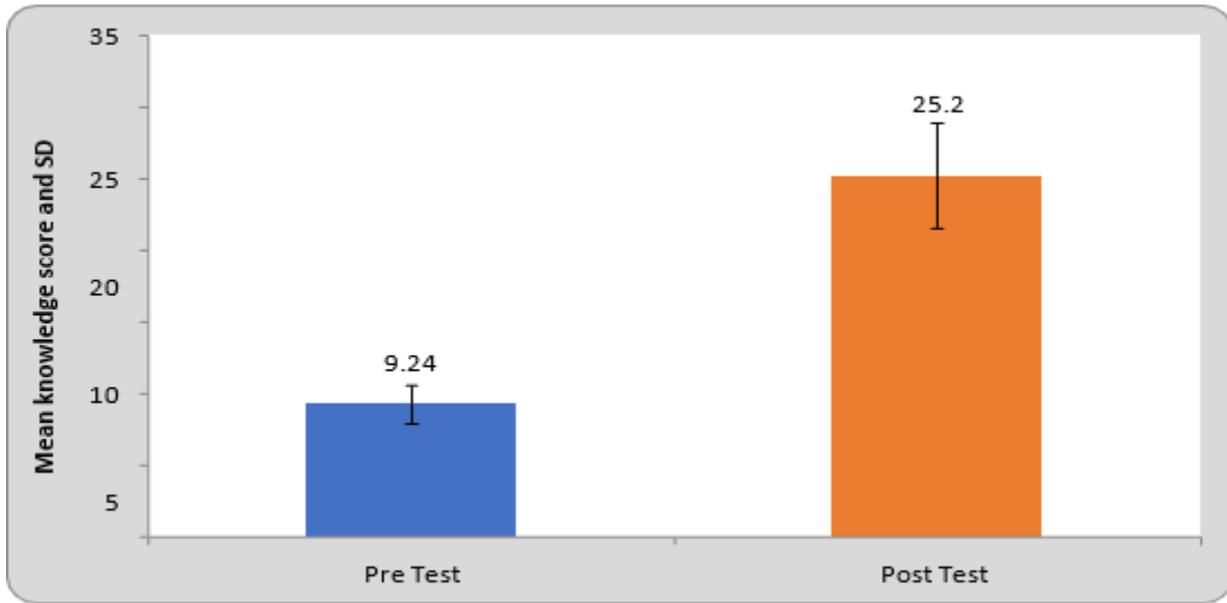
This section deals with the effectiveness of Structured Teaching Module(STM) on knowledge regarding home care management of children among primigravida mothers from selected rural area. The hypothesis is tested statistically with distribution of pretest and posttest mean and standard deviation and mean percentage knowledge score. The levels of knowledge score during the pretest and post test are compared to prove the effectiveness of Structured Teaching Module. Significance of difference at 5% level of significance is tested with student's paired 't' test and tabulated 't' value is compared with calculated 't' value. Also the calculated 'p' values are compared with acceptable 'p' value i.e. 0.05.

Table 4: Significance of difference between knowledge Score in Pre and post test of Primigravida Mothers - Experimental Group n=65

Overall	Mean	SD	Mean Difference	t-value	p-value
Pre Test	9.24	1.34	15.95±3.91	32.85	0.0001
Post Test	25.20	3.67			S,p<0.05

This table shows the comparison of pretest and post test knowledge score of primigravida mothers from selected rural area. Mean, standard deviation and mean difference values are compared and student’s paired ‘t’ test is applied at 5% level of significance. The tabulated value for n=65-1 i.e. 64 degrees of freedom was 2.00. The calculated ‘t’ value i.e. 32.85 are much higher than the tabulated value at 5% level of

significance for overall knowledge score of Primigravida Mothers which is statistically acceptable level of significance. Hence it is statistically interpreted that Structured Teaching Module (STM) on knowledge regarding home care management of children among primigravida mothers from selected rural area was effective. Thus, the H₁ is accepted.



Graph 9: Significance of difference between knowledge Score in Pre and post test of Primigravida Mothers - Experimental Group

Table 5 : Significance of difference between knowledge Score in Pre and post test of Primigravida Mothers –Control Groups n=65

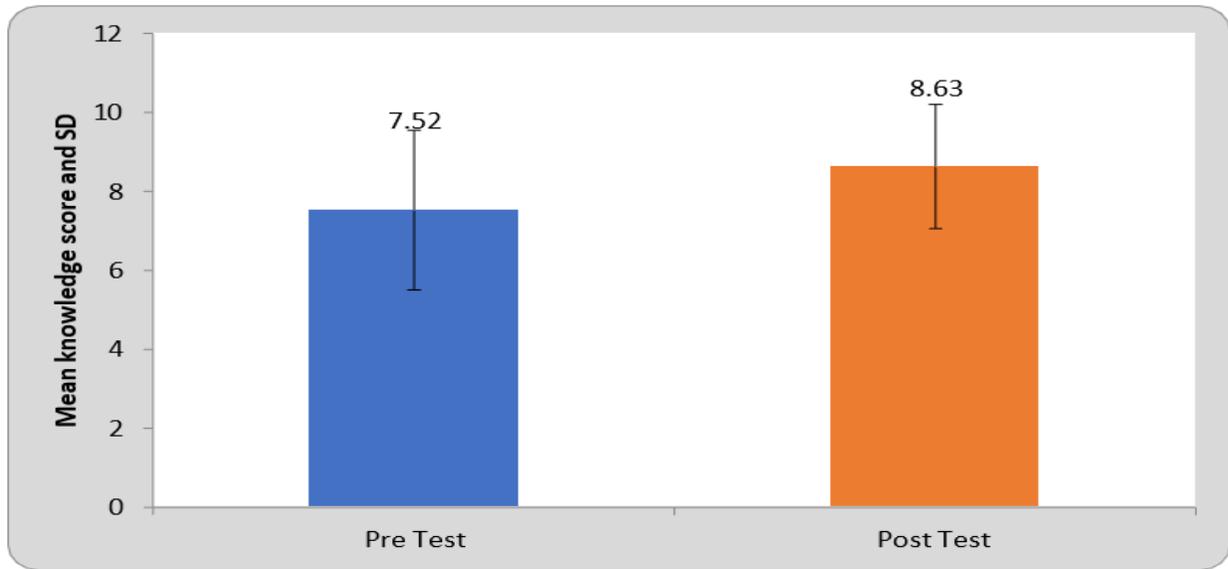
Overall	Mean	SD	Mean Difference	t-value	p-value
Pre Test	7.52	2.03	1.10±2.07	4.31	0.0001
Post Test	8.63	1.58			S,p<0.05

This table shows the comparison of pretest and post test knowledge score of primigravida mothers from selected rural area. Mean, standard deviation and mean difference values are compared and student’s paired ‘t’ test is applied at 5% level of significance. The

tabulated value for n=65-1 i.e. 64 degrees of freedom was 2.00. The calculated ‘t’ value i.e. 4.31 are much higher than the tabulated value at 5% level of significance for overall knowledge score of Primigravida Mothers which is statistically acceptable

level of significance. Hence it is statistically interpreted that Structured Teaching Module(STM) on knowledge regarding home care management of

children among primigravida mothers from selected rural area was effective. Thus the H₁ is accepted.



Graph 11: Significance of difference between knowledge Score in Pre and post-test of Primigravida Mothers - Control Group

Comparison Of the Mean Difference in Knowledge Score Regarding Home Care Management of Children Among Primigravida Mothers from Selected Rural Area in Control and Experimental Group

This section deals with comparison of mean difference in knowledge score regarding home care management of children among primigravida mother in experimental and control group. The hypothesis is

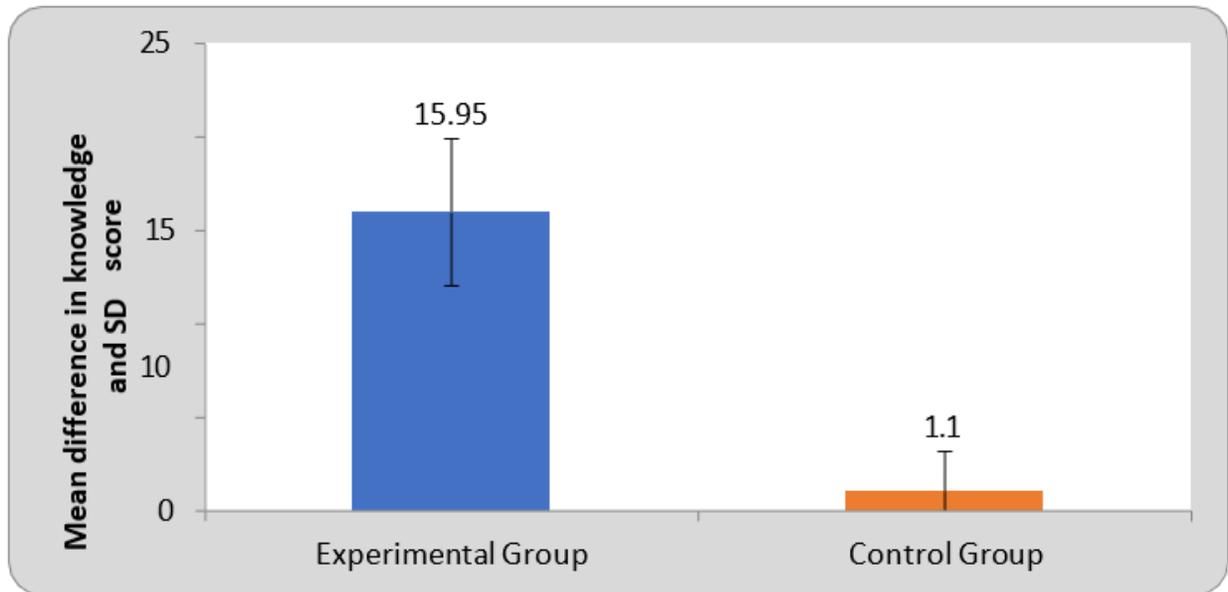
tested statistically with comparison of mean and standard deviation of knowledge score. Significance of difference at 5% level of significance is tested with student's unpaired 't' test and tabulated 't' value is compared with calculated 't' value. Also the calculated 'p' values are compared with acceptable 'p' value i.e. 0.05.

Table 6 : Comparison of mean difference in knowledge score of Primigravida Mothers in experimental group and control group from selected hospital n=130

Group	Mean	SD	t-value	p-value
Experimental Group	15.95	3.91	27.02	0.0001
Control Group	1.10	2.07		S _p <0.05

This table shows the comparison of mean difference in knowledge score of Primigravida Mothers from selected rural area. Mean and standard deviation values are compared and student's unpaired 't' test is applied at 5% level of significance. The tabulated value for n=65+65-2 i.e., 128 degrees of freedom was 1.98. The calculated 't' value i.e. 27.02 are higher than the tabulated value at 5% level of significance for

mean difference in knowledge score of Primigravida Mothers in experimental and control group which is statistically acceptable level of significance. Hence it is statistically interpreted that Structured Teaching Module(STM) on knowledge regarding home caremanagement of children among primigravida mothers from selected rural area was effective. Thus the H₁ is accepted.



Graph 11: Comparison of mean difference in knowledge score of primigravida mothers in experimental group and control group from selected rural area.

Association with Demographic Variables: Post-test knowledge scores were significantly associated with maternal education ($p < 0.05$) and age ($p < 0.05$), but not with family type, occupation, or income.

V. DISCUSSION

The study demonstrated that STM was highly effective in improving knowledge of primigravida mothers on home care management of children. The experimental group showed a significant increase in mean knowledge scores, while the control group did not. These findings align with earlier studies where health education interventions significantly improved maternal knowledge and practices regarding newborn care [10,11].

Education has been consistently reported as a strong predictor of maternal competence in child care [12]. Similar studies conducted in rural India and LMICs confirm that structured teaching programs enhance mothers' awareness of nutrition, immunization, and illness prevention [13,14].

The significant association between maternal education and knowledge gain highlights the importance of tailoring health education strategies to different literacy levels. The absence of associations with family income or occupation suggests that STM

can be equally effective across socio-economic strata, making it a scalable intervention.

VI. CONCLUSION

This study concludes that Structured Teaching Modules are effective, low-cost, and scalable interventions to improve maternal knowledge regarding home care management of children among primigravida mothers. Implementation of STM in community health programs can significantly reduce preventable childhood illnesses and neonatal mortality.

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