

Effectiveness of a Self-Instructional Module on Knowledge Regarding Pneumonia Among Mothers of Under-Five Children in a Selected Primary Health Centre

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Abstract—Pneumonia is one of the leading causes of morbidity and mortality among under-five children, especially in developing countries like India. Mothers play a vital role in the early identification and management of pneumonia. This study aimed to assess the knowledge regarding pneumonia among mothers of under-five children and to evaluate the effectiveness of a self-instructional module (SIM). A pre-experimental one-group pre-test and post-test research design was adopted. The study was conducted among 60 mothers attending a selected Primary Health Centre at Chintamani using a convenience sampling technique. Data were collected using a structured knowledge questionnaire. The intervention consisted of a self-instructional module regarding pneumonia. Descriptive and inferential statistics were used for data analysis.

The findings revealed that in the pre-test, 90% of mothers had inadequate knowledge and 10% had moderate knowledge regarding pneumonia. Following the administration of the SIM, 81.7% of mothers had moderate knowledge and 8.3% had adequate knowledge. The mean post-test knowledge score (18.55 ± 3.16) was significantly higher than the mean pre-test score (10.82 ± 2.76). The calculated paired t-test value was 14.72, which was statistically significant at $p < 0.05$. A significant association was found between post-test knowledge scores and monthly family income.

The study concluded that the self-instructional module was effective in improving maternal knowledge regarding pneumonia among mothers of under-five children. Educational

interventions can enhance awareness and promote early recognition and management of pneumonia in community settings.

Index Terms—Community Health Nursing, Mothers, Pneumonia, Self-Instructional Module, Under-Five Children.

I. INTRODUCTION

Pneumonia is one of the leading causes of morbidity and mortality among under-five children worldwide, especially in developing countries like India. Factors such as malnutrition, overcrowding, poor sanitation, environmental pollution, passive smoking, inadequate immunization, and limited access to healthcare services increase the risk of pneumonia among children. Despite improvements in healthcare services, pneumonia continues to contribute significantly to childhood illness and death.

Mothers play an important role in the prevention, early identification, and management of pneumonia because they are the primary caregivers of children. Early recognition of symptoms such as fever, cough, rapid breathing, chest indrawing, and difficulty in breathing can help in timely treatment and prevention of complications. However, inadequate knowledge among mothers may lead to delayed healthcare-seeking behaviour and poor home management practices.

Health education is considered one of the most effective methods to improve maternal awareness regarding childhood illnesses. Self-instructional modules are simple, economical, and effective educational tools that can help mothers gain knowledge regarding the causes, symptoms, prevention, and management of pneumonia. Improved maternal knowledge may contribute to better child health outcomes and reduction in complications related to pneumonia.

Although pneumonia is preventable and treatable, it remains a major public health concern among under-

five children. It was assumed that many mothers may have inadequate knowledge regarding pneumonia and that educational interventions could improve their awareness. Since the study was limited to mothers attending a selected Primary Health Centre at Chintamani with a sample size of 60 participants during the data collection period, the findings may be limited to similar settings only. Therefore, the present study was undertaken to assess the knowledge regarding pneumonia among mothers of under-five children and to evaluate the effectiveness of a self-instructional module.

II. REVIEW OF LITERATURE

Review of literature is a systematic search of published studies related to the research problem. Previous studies showed that pneumonia is one of the major causes of morbidity and mortality among under-five children. Factors such as malnutrition, poor hygiene, indoor air pollution, overcrowding, and incomplete immunization increase the risk of pneumonia among children.

Several studies also reported that many mothers have inadequate knowledge regarding the causes, symptoms, danger signs, prevention, and management of pneumonia. Lack of awareness among mothers may delay early treatment and increase complications in children.

Research findings further revealed that educational interventions such as teaching programs, information booklets, and self-instructional modules are effective in improving maternal knowledge and promoting appropriate healthcare-seeking behaviour. These studies support the importance of health education in preventing childhood pneumonia.

III. METHODOLOGY

Research Approach

A quantitative research approach was adopted for the present study to assess the knowledge regarding pneumonia among mothers of under-five children and to evaluate the effectiveness of a self-instructional module.

Research Design

A pre-experimental one-group pre-test and post-test research design was used in the study. The design

helped to assess the level of knowledge before and after the administration of the self-instructional module.

Setting of the Study

The study was conducted in a selected Primary Health Centre at Chintamani. The setting was selected because it provided easy accessibility to mothers of under-five children.

Population and Sample

The target population consisted of mothers of under-five children attending the selected PHC. The sample included 60 mothers who fulfilled the inclusion criteria and were willing to participate in the study.

Sampling Technique

Convenience sampling technique was used to select the participants for the study. Mothers who were available during the period of data collection were included.

Inclusion and Exclusion Criteria

The study included mothers who had children aged between 0–5 years, were willing to participate, and could understand Kannada or English. Mothers whose children were diagnosed with pneumonia during the study period and mothers having children above five years of age were excluded from the study.

Variables of the Study

The independent variable of the study was the self-instructional module regarding pneumonia, while the dependent variable was the level of knowledge regarding pneumonia among mothers. Demographic variables included age, education, occupation, monthly income, type of family, and immunization status.

Development of the Tool

The data collection tool consisted of two sections. Section A included demographic variables such as age, education, occupation, family income, family type, and immunization status. Section B consisted of a structured knowledge questionnaire containing 30 multiple-choice questions related to causes, symptoms, prevention, complications, and management of pneumonia.

Validity and Reliability of the Tool

The tool was validated by experts in pediatric nursing, community health nursing, and medical professionals to ensure content validity. Reliability of the tool was established using Cronbach's alpha method, and the reliability coefficient obtained was 0.81, indicating good internal consistency.

Pilot Study

A pilot study was conducted among six mothers of under-five children to assess the feasibility and practicability of the study. The pilot study findings revealed that the study was feasible to conduct.

Data Collection Procedure

Formal permission was obtained from the concerned authorities before conducting the study. Informed consent was obtained from all participants. Initially, a pre-test was conducted using the structured knowledge questionnaire to assess the baseline knowledge regarding pneumonia. After the pre-test, the self-instructional module was administered to the mothers. The post-test was conducted after seven days using the same questionnaire to evaluate the effectiveness of the intervention.

Plan for Data Analysis

The collected data were analysed using descriptive and inferential statistics. Frequency, percentage, mean, and standard deviation were used to describe the data. Paired t-test was used to determine the effectiveness of the self-instructional module, and chi-square test was used to determine the association between post-test knowledge scores and selected demographic variables.

IV. RESULTS

Sociodemographic Characteristics of Participants

Table 1: Distribution of Participants According to Sociodemographic Variables N = 60

Variable	Category	Frequency	Percentage
Age	20–25 years	23	38.3%
	26–35 years	17	28.3%
	≥36 years	20	33.3%

Education	Primary	19	31.7%
	Secondary	7	11.7%
	University	34	56.7%
Immunization Status	Complete	13	21.7%
	Incomplete	22	36.7%
	Not Immunized	25	41.7%

Table 1 shows the distribution of participants according to their sociodemographic characteristics. The majority of mothers (38.3%) were in the age group of 20–25 years, while 33.3% were aged 36 years and above. Regarding educational status, more than half of the participants (56.7%) had university-level education. With respect to immunization status, 41.7% of children were not immunized, whereas 36.7% had incomplete immunization and only 21.7% were completely immunized.

Knowledge Levels of Mothers Regarding Pneumonia

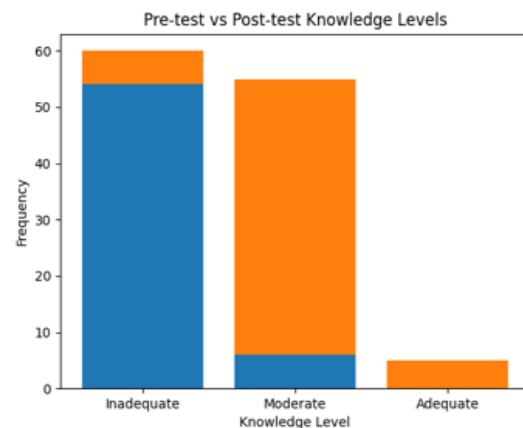


Figure 1: Knowledge Levels of Mothers Regarding Pneumonia

Figure 1 depicts the pre-test and post-test knowledge levels of mothers regarding pneumonia among under-five children. During the pre-test, the majority of mothers (90%) had inadequate knowledge and only 10% had moderate knowledge, while none had adequate knowledge. After the administration of the self-instructional module, a marked improvement was observed in the post-test scores, where 81.7% of mothers had moderate knowledge and 8.3% had adequate knowledge. Only 10% of mothers remained

in the inadequate knowledge category. The findings indicate that the self-instructional module was effective in improving maternal knowledge regarding pneumonia.

Effectiveness of the Self-Instructional Module

Table 2: Comparison of Pre-Test and Post-Test Knowledge Scores

Aspects	Mean	SD	Mean (%)	SD (%)	Paired 't' Test
Pre-Test	10.82	2.76	36.07	9.20	14.72*S
Post-Test	18.55	3.16	61.83	10.53	

*Significant at $p < 0.05$

Table 2 shows the comparison between pre-test and post-test knowledge scores of mothers regarding pneumonia. The mean pre-test knowledge score was 10.82 ± 2.76 , whereas the mean post-test knowledge score increased to 18.55 ± 3.16 . The enhancement mean score was 7.73 ± 4.07 . The calculated paired 't' value was 14.72, which was statistically significant at $p < 0.05$. The findings indicate that the self-instructional module was effective in improving the knowledge of mothers regarding pneumonia.

Table 3: Association Between Post-Test Knowledge Scores and Selected Demographic Variables

Variable	χ^2 Value	p-value	Significance
Age	7.5	0.11	Not Significant
Education	6.18	0.18	Not Significant
Monthly Income	9.55	0.049*	Significant
Occupation	8.89	0.064	Not Significant
Family Type	2.97	0.56	Not Significant

*Significant at $p < 0.05$

Table 3 shows the association between post-test knowledge scores and selected demographic variables. A statistically significant association was found between post-test knowledge scores and monthly income ($p < 0.05$). No significant association was found between knowledge scores and other demographic variables such as age, education, occupation, and family type.

V. DISCUSSION

The present study assessed the knowledge regarding pneumonia among mothers of under-five children and evaluated the effectiveness of a self-instructional module. The findings of the study revealed that the majority of mothers had inadequate baseline knowledge regarding pneumonia during the pre-test assessment. These findings are consistent with previous studies conducted in community settings, which reported poor maternal awareness regarding the causes, symptoms, prevention, and management of pneumonia among children.

Following the administration of the self-instructional module, there was a significant improvement in the post-test knowledge scores of mothers. The increase in mean knowledge scores indicates that the educational intervention was effective in improving maternal awareness regarding pneumonia. The findings support the effectiveness of structured educational interventions in enhancing health-related knowledge and promoting early recognition of illness among children.

The study also identified a significant association between monthly family income and post-test knowledge scores, suggesting that socioeconomic status may influence health awareness and access to information. However, no significant association was found between knowledge scores and other demographic variables such as age, education, occupation, and family type. This indicates that educational interventions can be beneficial for mothers irrespective of their demographic background.

The findings emphasize the importance of integrating maternal health education into primary healthcare services. Community-based educational programs can improve maternal knowledge, encourage early healthcare-seeking behaviour, and ultimately contribute to better child health outcomes.

VI. CONCLUSION

The study concluded that mothers of under-five children had inadequate baseline knowledge regarding pneumonia. The self-instructional module was found to be effective in significantly improving maternal knowledge regarding the causes, symptoms, prevention, and management of pneumonia.

Educational interventions play an important role in enhancing maternal awareness and promoting early identification and timely treatment of pneumonia among children. Strengthening community-based health education programs may help reduce childhood morbidity and mortality related to pneumonia.

VII. RECOMMENDATIONS

1. Regular health education programs should be conducted for mothers regarding prevention and early management of pneumonia among under-five children.
2. Community health nurses should actively educate mothers about danger signs, immunization, and preventive measures related to pneumonia.
3. Similar studies can be conducted with larger sample sizes and in different community settings to improve generalization of findings.
4. Self-instructional modules and other educational materials should be widely distributed in primary healthcare and community settings.
5. Further research can be conducted to assess the long-term effectiveness of educational interventions on maternal practices and child health outcomes.

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