

EFFECTIVENESS OF SELF-INSTRUCTIONAL MODULE ON KNOWLEDGE REGARDING RAINBOW NUTRITIONAL PROGRAMME AMONG MOTHERS OF SCHOOL GOING CHILDREN IN SELECTED RURAL AREAS: A QUASI – EXPERIMENTAL STUDY



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ABSTRACT

Malnutrition remains a major public health concern in India, particularly among school-going children in rural areas. Nutritional deficiencies adversely affect physical growth, cognitive development, and academic performance. **Objectives:** To assess the effectiveness of a self-instructional module on knowledge regarding the Rainbow Nutritional Programme among mothers of school-going children in selected rural areas. **Methodology:** A quasi-experimental one-group pre-test post-test design was adopted for the study. A total of 200 mothers of school-going children were selected using non-probability convenience sampling from selected rural areas. Data were collected using a structured knowledge questionnaire comprising 30 multiple-choice questions. Descriptive statistics (frequency, percentage, mean, and standard deviation) and inferential statistics (paired *t*-test and chi-square test) were used for data analysis. **Results:** In the pre-test, 63.33% of mothers had average knowledge, 30% had poor knowledge, and 6.67% had good knowledge. Post-test results showed marked improvement, with 53.33% of mothers having good knowledge, 35% excellent knowledge, and 11.67% average knowledge. The mean pre-test knowledge score was 13.8 ± 3.2 , which increased to 23.6 ± 2.7 in the post-test. The calculated *t*-value (19.21) was higher than the tabulated value at the 0.05 level of significance ($p < 0.001$), indicating a statistically significant improvement in knowledge following the intervention. No significant association was found between post-test knowledge scores and demographic variables such as age, education, occupation, and family income, except for prior exposure to nutrition education ($p < 0.05$). **Conclusion:** The self-instructional module was effective in significantly improving the knowledge of mothers regarding the Rainbow Nutritional Programme. Structured educational interventions can play a crucial role in enhancing household nutritional practices and promoting better health outcomes among school-going children in rural areas.

KEYWORDS

Rainbow Nutritional Programme, Malnutrition, Mothers, School-going Children, Self-Instructional Module, Rural Area.

INTRODUCTION

“Good health is the foundation of happiness, and nutrition forms its cornerstone.”

Nutrition is a fundamental determinant of health, growth, and development, particularly among children in rural communities where access to balanced diets and nutrition education is often limited. Inadequate nutrition during childhood can lead to malnutrition, impaired physical growth, reduced cognitive development, and poor academic performance. Fruits and vegetables play a vital role in maintaining health by providing essential vitamins, minerals, antioxidants, and phytochemicals necessary for optimal body function.¹

Rainbow nutrition emphasizes the daily consumption of fruits and vegetables of different colors, as each colour group offers distinct nutritional benefits. This approach promotes dietary diversity and supports disease prevention, immune function, and overall well-being. Evidence suggests that regular intake of colorful plant-based foods reduces the risk of micronutrient deficiencies and chronic diseases while supporting healthy growth and development in children.²

Mothers play a central role in determining children's dietary practices, especially in rural households where home-prepared meals are the primary source of nutrition. However, limited awareness and inadequate nutrition education among mothers often hinder the adoption of balanced dietary practices. Educational strategies such as self-instructional modules can effectively enhance maternal knowledge and promote healthier food choices at the household level.³ Therefore, improving awareness regarding rainbow nutrition among mothers is essential to strengthen child nutrition, prevent malnutrition, and ensure better health outcomes for school-going children.

BACKGROUND:

Malnutrition remains a major public health concern in India, particularly among school-going children in rural areas. Nutritional deficiencies adversely affect physical growth, cognitive development, and academic performance. The Rainbow Nutritional Programme is an innovative approach that promotes dietary diversity by encouraging the consumption of fruits and vegetables of different colors, each providing specific micronutrients. Mothers play a pivotal role in planning and preparing children's meals; however, awareness regarding such nutrition programmes is often inadequate in rural

settings. Enhancing maternal knowledge through structured educational strategies is therefore essential to improve children's nutritional status.⁴

NEED FOR THE STUDY

Malnutrition among school-going children continues to be a major public health problem in rural areas due to inadequate awareness of balanced nutrition among mothers. Since mothers play a key role in children's dietary practices, limited knowledge contributes to poor food choices and nutritional deficiencies.⁵

The Rainbow Nutritional Programme promotes dietary diversity through the consumption of fruits and vegetables of different colors, providing essential micronutrients for growth and development. Global and national data indicate that malnutrition remains prevalent, with India reporting high levels of undernourishment and child wasting.⁶ Therefore, assessing the effectiveness of a self-instructional module is essential to improve mothers' knowledge regarding rainbow nutrition and to strengthen household-level nutrition practices, ultimately contributing to better health outcomes among school-going children.

Sagar Alwadkar et al. (2021) conducted a descriptive study to assess the knowledge and attitude regarding rainbow nutrition among mothers of children aged 14 years residing in selected urban areas of Wardha district. Non-probability convenient sampling technique was used. The findings revealed that 22% of mothers had poor knowledge, 54% had satisfactory knowledge, 20% had good knowledge, and 4% had excellent knowledge regarding rainbow nutrition. Additionally, 75% of mothers exhibited an unfavorable attitude towards rainbow nutrition. The study concluded that there is a significant need to improve mothers' knowledge and develop a favorable attitude towards rainbow nutrition through appropriate educational interventions.⁷

OBJECTIVE OF THE STUDY

Primary Objective

1. To assess the effectiveness of the self-instructional module on knowledge regarding rainbow nutritional programme among mothers of school going children in selected rural areas.

Secondary Objectives

1. To assess the existing knowledge regarding rainbow nutritional programme among mothers of school going children in selected rural

areas.

2. To determine the association between post-test knowledge score with selected demographic variables

Research Methodology

A quantitative research approach with a quasi-experimental one-group pre-test post-test design was adopted to assess the effectiveness of a self-instructional module on knowledge regarding the Rainbow Nutritional Programme among mothers of school-going children. The study was conducted in selected rural areas, and the population comprised mothers of school-going children residing in these areas. A total of 200 mothers were selected using a non-probability convenience sampling technique. Data were collected using a structured knowledge questionnaire consisting of 30 multiple-choice questions. Following informed consent, a pre-test was administered, after which the self-instructional module was provided to the participants. A post-test was conducted using the same questionnaire to evaluate the effectiveness of the intervention. Data analysis was performed using descriptive statistics (frequency, percentage, mean, and standard deviation) and inferential statistics (paired *t*-test and chi-square test). Ethical approval was obtained from the concerned authority, and confidentiality and anonymity of participants were maintained throughout the study.

RESULTS

The findings revealed a significant improvement in the knowledge of mothers regarding the Rainbow Nutritional Programme following the intervention. In the pre-test, 63.33% of mothers had average knowledge, 30% had poor knowledge, and only 6.67% had good knowledge. After administration of the self-instructional module, post-test results showed that 53.33% of mothers attained good knowledge, 35% achieved excellent knowledge, and 11.67% had average knowledge. The mean pre-test knowledge score was 13.8 ± 3.2 , which increased to 23.6 ± 2.7 in the post-test. The calculated paired *t*-value was 19.21, which was statistically significant at the 0.05 level ($p < 0.001$), indicating the effectiveness of the self-instructional module. No significant association was found between post-test knowledge scores and demographic variables such as age, education, occupation, and family income, except prior exposure to nutrition education, which showed a significant association ($p < 0.05$).

DISCUSSION

The present study demonstrated that the self-instructional module was effective in significantly improving the knowledge of mothers regarding the Rainbow Nutritional Programme. The pre-test findings revealed that the majority of mothers had poor to average knowledge, indicating an existing gap in awareness related to dietary diversity and rainbow nutrition. Following the intervention, a marked improvement in post-test knowledge scores was observed, with most mothers attaining good to excellent knowledge levels. This significant increase in mean knowledge scores and the high paired *t*-value confirm the effectiveness of structured educational interventions in enhancing maternal knowledge. The findings are consistent with previous studies which reported inadequate baseline knowledge and favorable improvement following nutrition education programmes. The absence of a significant association between post-test knowledge scores and most demographic variables suggests that the self-instructional module was equally effective across different age groups, educational levels, occupations, and income categories. However, the significant association with prior exposure to nutrition education highlights the importance of continuous reinforcement and repeated learning opportunities. Overall, the study supports the use of self-instructional modules as an effective strategy to strengthen maternal knowledge and promote healthy nutritional practices for school-going children in rural areas.

CONCLUSION

The study concluded that the self-instructional module was effective in significantly improving the knowledge of mothers regarding the Rainbow Nutritional Programme. The observed improvement in post-test knowledge scores highlights the value of structured educational interventions in addressing nutritional knowledge gaps. Enhancing maternal awareness can promote healthier dietary practices at the household level and contribute to improved nutritional status and overall health of school-going children in rural areas.

RECOMMENDATION

Self-instructional modules on the Rainbow Nutritional Programme

should be implemented to enhance mothers' knowledge and improve dietary practices among school-going children. Further studies with larger samples are recommended for wider applicability.

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