



EFFECTIVENESS OF A COMPUTER-ASSISTED TEACHING PROGRAMME ON PROTEIN ENERGY MALNUTRITION AMONG ANGANWADI WORKERS

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ABSTRACT

Background: Malnutrition is a major public health concern, particularly among children in low- and middle-income countries. Protein Energy Malnutrition (PEM) is one of the major nutritional problems among under-fives and may lead to impaired physical growth, reduced immunity and increased vulnerability to infections. Anganwadi Workers play an important role as frontline workers under the Integrated Child Development Services (ICDS) programme by providing growth monitoring, supplementary nutrition, health education and referral services. Improving their knowledge regarding PEM is essential for effective prevention and management of childhood malnutrition. **Objectives:** To assess the effectiveness of a computer-assisted teaching programme on knowledge regarding Protein Energy Malnutrition among Anganwadi workers.

Methods: A pre-experimental one-group pretest–post-test design was adopted among 50 Anganwadi workers selected through convenient sampling in Holenarasipura. A structured knowledge questionnaire was administered before and seven days after the computer-assisted teaching programme. Data were analysed using descriptive and inferential statistics.

Results: The mean post-test knowledge score (79.1%) was significantly higher than the mean pre-test score (49.1%), showing an improvement of 30.0% ($t = 25.87$, $p < 0.05$). Significant associations were found between knowledge scores and selected demographic variables.

Conclusion: The computer-assisted teaching programme was effective in improving the knowledge of Anganwadi workers regarding Protein Energy Malnutrition.

Keywords: Anganwadi workers, Computer-assisted teaching, Knowledge, Protein Energy Malnutrition, Pre-experimental study.

INTRODUCTION

Malnutrition is associated with deficiencies, excesses, or imbalances in an individual's intake of energy and nutrients. Undernutrition, including wasting, stunting and underweight, remains a major public health concern, particularly among children in low- and middle-income countries (World Health Organization [WHO], 2024).

Protein Energy Malnutrition is a nutritional disorder resulting from inadequate intake of energy and protein, leading to impaired physical growth, reduced immunity and increased vulnerability to infections. Protein Energy Malnutrition is one of the major nutritional problems among under-fives. Early identification and appropriate nutritional interventions are essential for preventing adverse health outcomes (Park, 2023).

The Integrated Child Development Services programme provides an important platform for addressing childhood malnutrition through supplementary nutrition, growth monitoring, health check-ups and nutrition education services (Ministry of Women and Child Development [MWCD], 2018). Anganwadi Workers play an important role as frontline workers under the Integrated Child Development Services (ICDS) programme by providing growth monitoring, supplementary nutrition, health education and referral services for children and mothers. Anganwadi Workers are key frontline workers under the Integrated Child Development Services (ICDS) programme and their knowledge regarding nutrition and child health plays an important role in early identification and prevention of malnutrition (Baliga & Walvekar, 2017).

The lack of appropriate and relevant teaching material is one of the bottlenecks that hinder training of effective, competent task-oriented professionals who are well versed with the knowledge, attitude and skill that would enable them to solve the problems of the community. Nutrition education interventions among community-level workers can improve their understanding of child nutrition, feeding practices and preventive strategies against malnutrition (Vasanthi et al., 2024).

Despite various nutritional interventions, Protein Energy Malnutrition continues to be one of the major nutritional problems among under-fives. Anganwadi Workers, being in continuous interaction with community members, hold an important responsibility in increasing the success rates of prevention of PEM. However, lack of appropriate and relevant teaching material may hinder effective training and competency development among these workers. Therefore, strengthening their knowledge through effective educational strategies such as computer-assisted teaching programmes is essential for improving community-based nutritional services.

METHODOLOGY

Variables

Independent Variable:

Computer-assisted teaching programme regarding Protein Energy Malnutrition.

Dependent Variable:

Knowledge regarding Protein Energy Malnutrition among Anganwadi Workers.

A pre-experimental one-group pretest–post-test design was adopted to evaluate the effectiveness of a computer-assisted teaching programme on knowledge regarding Protein Energy Malnutrition (PEM) among Anganwadi workers. The study involved one group pretest and post-test, pre experimental design, with non-probability sampling technique in which convenient sampling method was used to draw the sample of 50 Anganwadi workers were interviewed by using structured knowledge questionnaire, by following inclusion and exclusion criteria. The pre-test was followed by implementation of computer assisted teaching programme and post test conducted after 7 days using same structured knowledge questionnaire to find the effectiveness. The results were described by using descriptive and inferential statistical analysis. The study was conducted at selected Anganwadi centres in Holenarasipura. Baseline knowledge was assessed using a structured knowledge questionnaire, followed by the implementation of a computer-assisted teaching programme. A post-test was conducted seven days after the intervention using the same questionnaire. Data were analysed using descriptive statistics (frequency, percentage, mean and standard deviation) and inferential statistics (paired *t*-test and Chi-square test).

RESULTS

Regarding demographic variables, Majority of respondents (46.0%) were in the age group of 18-25 years. 96.0% of the respondents were married. 34.0% of the respondents had received the education of Degree.78.0% of the respondents had 6-8 years' experience respectively. 80.0% of respondents were from nuclear family. 34.0% of respondents were having income between Rs. 5,000-15,000 per month. 52.0% of the respondents were living in urban area. 52.0% of the respondents were getting health related information through mass media.54.0% of the respondents had previous exposure to training programme.

Table 1. Distribution of Participants According to Selected Demographic Variables (N = 50)

Variable	Category	n (%)
Age (years)	18–25	23 (46.0)
Marital status	Married	48 (96.0)
Educational qualification	Degree	17 (34.0)
Experience	4–6 years	39 (78.0)
Type of family	Nuclear	40 (80.0)
Monthly family income	₹5,000–15,000	17 (34.0)
Residence	Urban	26 (52.0)
Source of information	Mass media	26 (52.0)
Previous training on PEM	Yes	27 (54.0)

Table 2. Comparison of Pre-test and Post-test Knowledge Levels on Protein Energy Malnutrition (N = 50)

Knowledge Level	Pre-test n (%)	Post-test n (%)
Inadequate	31 (62.0)	0 (0.0)
Moderate	19 (38.0)	16 (32.0)
Adequate	0 (0.0)	34 (68.0)

Table 3. Comparison of Overall Knowledge Scores Before and After the Intervention (N = 50)

Parameter	Pre-test	Post-test
Mean knowledge score (%)	49.1	79.1
Mean enhancement (%)	—	30.0
Paired t value	—	25.87*
Significance	—	$p < 0.05$

The findings showed that the mean post-test knowledge score of the subjects which was 79.1 % was higher than the mean pre-test score of 49.1 % with enhancement of 30.0% and was found to be significant at 5% level with a calculated 't' value of 25.87*. There was significant association between the knowledge scores with selected demographic variables except with age of Anganwadi Workers ,marital status, family income in both pre-test and post -est knowledge scores, source of information in pretest knowledge scores, educational qualification in post-test knowledge scores.

DISCUSSION

The findings of the present study revealed that the majority of respondents (46.0%) were in the age group of 18–25 years, 96.0% were married, 34.0% had degree-level education, 78.0% had 4–6 years of experience, 80.0% belonged to nuclear families, 34.0% had a monthly family income between ₹5,000–15,000, 52.0% were residing in urban areas, 52.0% received health-related information through mass media and 54.0% had previous exposure to training programmes.

In the present study, the pre-test findings showed that 62.0% of Anganwadi Workers had inadequate knowledge and 38.0% had moderate knowledge regarding Protein Energy Malnutrition, whereas none of the participants had adequate knowledge in the pre-test. After implementation of the computer-assisted teaching programme, 68.0% of the participants achieved adequate knowledge and 32.0% had moderate knowledge in the post-test. This indicates that the computer-assisted teaching programme was effective in improving knowledge regarding PEM among Anganwadi Workers.

The findings showed that the mean post-test knowledge score of the subjects (79.1%) was higher than the mean pre-test knowledge score (49.1%) with an enhancement of 30.0%. The calculated paired t value was 25.87, which was statistically significant at 5% level of significance. This indicates that the computer-assisted teaching programme had a significant effect on improving the knowledge of Anganwadi Workers regarding Protein Energy Malnutrition.

The findings are supported by the fact that structured educational interventions provide systematic and organized learning experiences that help healthcare workers improve their knowledge and skills. Nutrition education interventions among community-level workers can improve their understanding regarding child nutrition, feeding practices and preventive strategies against malnutrition.

The present study also assessed the association between pre-test and post-test knowledge scores with selected demographic variables. The findings showed that there was a significant association between knowledge scores and selected demographic variables except age, marital status and family income in both pre-test and post-test knowledge scores, source of information in pre-test knowledge scores and educational qualification in post-test knowledge scores.

The findings highlight that computer-assisted teaching programmes can be an effective educational strategy for improving knowledge among Anganwadi Workers and may contribute towards strengthening community-based prevention of Protein Energy Malnutrition.

CONCLUSION

The overall findings of the study clearly shown that the computer assisted teaching programme was significantly effective in improving the knowledge of Anganwadi Workers regarding Protein Energy Malnutrition. The post-test knowledge scores were significantly higher than the pre-test scores, demonstrating that computer-assisted teaching is an effective educational strategy for enhancing knowledge on PEM among Anganwadi workers.



LIMITATIONS OF THE STUDY

- The study was conducted among only 50 Anganwadi Workers; therefore, generalization of findings should be done with caution.
- The study was conducted only in selected Anganwadi centres of Holenarasipura.
- The study used a pre-experimental one-group pre-test post-test design without a control group.
- The assessment was limited to knowledge regarding Protein Energy Malnutrition and did not assess the actual practices of Anganwadi Workers.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations are made:

- Similar studies can be conducted on a larger sample size to validate the findings.
- A similar study can be conducted in different settings among Anganwadi Workers.
- Comparative studies can be conducted using experimental and control groups.
- Computer-assisted teaching programmes can be incorporated into training programmes for Anganwadi Workers.
- Further studies can be conducted to assess the impact of educational interventions on practices related to prevention of Protein Energy Malnutrition.

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