IMPACT OF TRAINING PROGRAM TO NURSES REGARDING COMPLEMENTARY FEEDING IN INFANT AND YOUNG CHILDREN: AN EDUCATIONAL INTERVENTIONAL STUDY.

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ARTICLE INFO

Received : 16 October, 2022

Accepted : 10 December, 2022

Published : 27 February, 2023

ORA 322

DOI: https://doi.org/10.3126/bjhs.v7i3.52637

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Citation

Pawana Kayastha, Smriti Mathema, Vijaya Chikanbanjar, Sunil Raja Manandhar. Impact of Training Program to Nurses Regarding Complementary Feeding in Infant and Young Children: an Educational Interventional Study. BJHS 2022;7(3)19. 1857 - 1860.

ABSTRACT

Introduction

Under nutrition is an underlying cause of more than one third of global deaths in children below the age of 5 years. Nutrition education is a critical strategy of intervention to improve child complementary feeding practices which will subsequently decrease mortality and morbidity of under-5 children.

Objective

To determine the knowledge of nurses on complementary feeding practices and also provide appropriate training and verify its effectiveness.

Methodology

It is a hospital based educational interventional study. The time-series was from October 2021 to march 2022 with study done on 24 nursing staff. The nurses underwent one-day training on complementary feeding practices in infant. They were evaluated periodically on their knowledge at four different time points. The effectiveness of training was calculated based on the change in scores, as per mean numeric scores, immediately, 1 and 6months after the training.

Result

The nurses showed high competence by obtaining above average scores (100%) by all participant immediately after training and remained so after 1 month. The mean test score obtained before training was 15.3 which increased to 23 after training, 21.9 after 1 month and 17.8 after 6 months of training. The differences in mean were statistically significant (p value 0.000).

Conclusion

This training intervention improved knowledge of nurses regarding complementary feeding practices, but improvements need to be strengthened and sustained.

KEY WORDS

Complementary feedings, Knowledge, Nurses, Training.

INTRODUCTION

The current global Infant and Young Child Feeding (IYCF) recommendation is that infants be exclusively breastfeed for the first six months of life and there after receive safe and nutritionally adequate complementary foods while breastfeeding continues up to two years of age or beyond. Only 35 % of mothers worldwide provide 4 months of exclusive breast-feeding, while complementary feeding is often untimely, nutritionally inadequate, hygienically poor, and improperly delivered. In most developing countries, childhood malnutrition rates increased significantly at 6 months of age when complementary foods starts being introduced.

In terms of knowledge regarding complementary feeding, 78 % of mothers had knowledge passed down from family, while only 23% received proper education from their physician. Adequate knowledge and understanding in appropriate feeding practice, development of feeding skills, and establishment of responsive feeding are essential for health workers to be able to detect and manage feeding problems in children. Optimal feeding in the first year could prevent almost one fifth of deaths in children under five years of age, saving the lives of over 8 million children by optimal breastfeeding alone. However, the global IYCF indicators are still at suboptimal level, with less than half (43%) being exclusively breastfed, almost a half (6-9 month olds) receive breastmilk and complementary foods and less than a quarter fulfilling dietary diversity and age-appropriate feeding frequency criteria. Previous research has established the importance of nutrition education to improve maternal knowledge about IYCF practices and consequently nutritional status of infants and young children. Community health workers like nurses are agents of health promotion who positively influence the health practices of communities. Studies have also emphasized training program with Primary Health Care nurses on regional food, in order to enable them to promote healthy and safe nutrition in families, ensuring adequate child growth and development. The objective of this study is to evaluate the effect of the training on their knowledge, attitudes and provision in relation to practices of complementary feeding of infants and nutritional assessment for malnutrition in children.

METHODOLOGY

This is a hospital based educational interventional study. We conducted this study in Kathmandu Medical College and Teaching Hospital (KMCTH), Sinamangal, Kathmandu, Nepal from October 2021 to March 2022. The study received approval from the Hospital's Institutional Review Committee (Ref.:0505202102). The aim of this study is to help identify and evaluate the impact of a multi-faceted training on complementary feeding in infant and young children on change and retention of knowledge in nurses. Using a convenience and purposive sampling method 24 nursing staff involved in taking care of children and young infants, namely pediatric ward, Neonatal Intensive Care Unit (NICU), Pediatric Intensive Care Unit (PICU) nurses and Emergency Department nurses were included in the study. Participants were briefed about the purpose of the study and participation was voluntary. Informed written consent was obtained from each nurse participating in the study. We conducted a preliminary Knowledge, Attitude and Practice (KAP) survey on complementary feeding in infant and young children amongst these nursing staffs of KMCTH. For the KAP, a questionnaire with 25 multiple-choice questions, partially adapted from current Infant and Young Child Feeding recommendation guideline. The pediatricians involved in designing the tool included clinicians involved in pediatric care, educators and researchers. This ensured provision of content and face validity to the study tool. In this time-series design study the nurses were evaluated periodically on their knowledge on complementary Feeding practices in infant and young childrenat four different time points (Table I).

Table 1: Evaluation of Knowledge of nurses on complementary feeding in infant and young children.

Knowledge Items	Tools	Evaluation design
Breast feeding practice guideline	5 multiple choice questions	Before training, immediately after training, 1months and 6 months after training
food catagories and balanced diet	5multiple choice questions	Before training, immediately after training, 1 months and 6 months after training
Complementary feeding practice guideline	5multiple choice questions	Before training, immediately after training, 1 months and 6 months after training
Malnutrition and its assessments	5 multiple choice questions	Before training, immediately after training, 1 months and 6 months after training
Anticipatory guidedance and counseling to parents	5multiple choice questions	Before training, immediately after training, 1months and 6 months after training

Participants completed an original questionnaire with questions that focused on breast feeding practice guideline, food categories and balanced diet, complementary feeding practice guideline, malnutrition and its assessments, anticipatory guidance and counseling to parents. A one-day training was designed that was taken on 1st October 2021. The nurses underwent lecture sessions by pediatric faculty and group work (Table II). The nurses re-took the test immediately after being trained and after 1and 6months of the training (November 2021, March 2022). The effectiveness of the training program was assessed by conducting a post-test assessment by using the same questionnaire after the training programme. The correct responses to the test items in the questionnaire were given one mark, with a maximum of 25 marks. We divided the participants on the basis of their pre- and post-test scores into 'very good score' (if the participant secured ≥22), 'good score' (19-21) 'average' (15-18) and 'below average' score (≤14).The pre- and post-answer sets were evaluated, marked, and compared.

The mean number of correct responses in the pretest and posttest were analyzed. The retention of knowledge was

calculated based on the change in scores, as per mean numeric scores, immediately after the training compared to 1and 6 months after the training. Statistical analysis: The data were analyzed by using the Statistical Package for Social Science (SPSS), version 20 and the categorical data were analyzed by using Annova test, chi square test. The following table (2) shows training details.

Table 2: One-Day Training Design.

Topic	Training methodology	Facilitator	Time allocated (in minutes)
1.breast feeding	lecture and interactive session	associate professor , pediatrics	30
2. food catagories and balanced diet	lecture and interactive session	professor , pediatrics	30
3.Complementary feeding practice guideline	lecture and interactive session	assistant professor, pediatrics	30
4.Malnutrition and its assessments	lecture and interactive session	professor, head of department pediatrics	45
5.Anticipatory guidedance and counseling to parents	lecture and interactive session	assistant professor, pediatrics	30
6. case scenario	group work	Facilitators (4)	45

RESULT

A total of 26 participants were recruited in this study of which two failed to complete the entire training program so twenty four students were finally included in this study. These twenty four nurses participated in knowledge evaluation test regarding complementary feeding in infant and young children before the training, immediately after the training, at one month and at six months after the training. The trainees comprised of all females. The median age of the trainees were 31 years. The minimum age of participant was 21 years and maximum age was 40 years. The work experience of nurses varied widely which ranged from 6 months to 20 years. The median year of job experience was 9 years. The highest academic degree of trainees was masters in nursing . The majority (50%) qualified to bachelors degree in nursing. Out of 24 nurses 70.8% (17) were married.

Table 3. Distribution of sociodemographic characteristics of participant nurses:

Variables		frequency N (%)
1. Age(in years)	21-30	11(45.8%)
	31-40	13(54.2%)
2. marital status	married	17(70.8%)
	unmarried	7(29.2%)
3. education	Proficiency Certificate Level (PCL) in Nursing	9(37.5%)
	Bachelors in nursing	12(50%)
	Masters in nursing	3(12.5%)
4. years of job experiences(in years)	<5	7(29.1%)
	6-10	8(33.3%)
	>10	9(37.5%)

However, none of the demographic variables (i.e age, education, work experience and marital status) of participants showed any significant association with their knowledge on complementary feeding of infants

Table 4: Effectiveness of training on complementary feeding in infant and young children at baseline and after completion of training at different time frame.

Complementary feeding practice score	pretest score N (%)	post test N (%)	after 1 month N (%)	after 6 month N (%)
very good (≥22)	0(0%)	21(87.5%)	16(66.7%)	1(4.2%)
good (19-21)	5(20.8%)	3(12.5%)	8(33.3%)	8(33.3%)
average (15-18)	9(37.5%)	0	0	13(54.2%)
below average (≤14)	10(41.7%)	0	0	2(8.3%)

The Table 4 shows the comparative score of the knowledge on complementary feeding practices of participants before , immediately after receiving training, after 1 month and 6 months following training. Pretest scores were relatively low with non of them had very good score, majority had below average 41.7% (10) and only 20.8% (5) obtaining good score score (table 2). Immediately after training knowledge of trainees were highest with majority 87.5% (21) of trainees obtaining very good score. The result shows that hundred percent of nurses trained were competent by obtaining above average scores immediately after training and remained so after 1 month but failed to remain so after 6 month.

The mean pretest score obtained was 15.3 out of total 25 score. There was significant change in mean knowledge score immediately after the traininig, 23 compared to 15.3. The knowledge was retained 1 month after the training, mean knowledge score being 21.9. After 6 months of training the mean score dropped to 17.8. The differences in mean was found to be statistically significant (table 5).

Table 5: Differences in mean score at pretest, immediate post test, at 1 month posttest and at 6 months post test.

Time of Test	pretest	post test	1 month	6 month
Mean	15.3±2.4	23±1.41	21.9±1.1	17.8±2.2
P value	0.000			

DISCUSSION

On the whole, the outcomes of our training intervention were positive. Generally, knowledge and attitudes improved immediately following the training intervention. This is similar to other studies where nutrition education and training of health workers improved personal knowledge, counselling practices and enhanced the communication skills and performance of health workers.[1,10] In a study by Samuel et all the increase in mean knowledge score at baseline, immediate post-intervention and 4 weeks (18.9 ± 2.2, 20.1 ± 2.8, 20.0 ± 2.5) was statistically significant (P = 0.0001) which is comparable to our study result.[1] However, in the present study, the improvements had fallen again by the 4 months post-training visit, though to a level not as low as the baseline level. Similar to our study there was another study by Thakre et al where immediate after the special training, scores rose with no below average marks of any of the participant and majority of participant receiving very good marks which was found to be statistically significant

(P=0.001).[10] However, a short one day training seems inadequate to sustain clinical competency over the months. A study by Kohli et al has concluded that a paradigm shift in training is required with focus on counselling skills and strengthening knowledge-sharing effectiveness in addition to enhancing the knowledge of health care workers with respect to optimal IYCF practices.[7] Similarly our study also emphasized how there is a need for constant re-inforcement of training of pediatric nurses, as their knowledge significantly wears off over months of training. A study by Pelto et al demonstrated that Mothers who received advice from trained health providers had high rates of recalling the messages on specific foods and feeding practice and food preparation recommendations, this further highlights and supports our emphasis on need of re inforcement of training of nurses on complementaray feeding of infant and young children.

CONCLUSION

In-depth knowledge on infant feeding practices was lower than expected in the study population at baseline but attitudes were generally positive. Although the training intervention improved knowledge, attitudes and practice of health workers, these improvements need to be strengthened and sustained.

RECOMMENDATION

Innovative in-service training and regular retraining exercises at the local government level can help to improve the knowledge and practices in this regard.

LIMITATION OF THE STUDY

Longer intervention duration may have been more effective because of a longer exposure of participants to training. The short (1-day) duration of training in this study is thus a possible limitation of study.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

FINANCIAL DISCLOSURE

None

ACKNOWLEDGEMENT

Researchers would like to express sincere gratitude to Kathmandu Medical College for granting the opportunity to carry out this study. We would like to extend our cardinal thanks to all the respondents and facilitators for their kind co-operation and valuable time.

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