



STRUCTURED NUTRITION EDUCATION MODULE FOR NURSE PRACTITIONER MIDWIVES: A PRACTICAL TOOL FOR BRIDGING THE GAP IN ANEMIA CARE

Community Medicine

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ABSTRACT

Anemia during pregnancy is a major global health concern, impacting around 41% of pregnant women. Midwives are pivotal in antenatal care, serving as the first point of contact for expectant mothers and addressing nutritional deficiencies such as anemia. Current study assesses the effectiveness of Structured Nutrition Education (SNE) module in improving midwives' knowledge for anemia management, empowering them to provide improved nutritional guidance and support during pregnancy, thereby enhancing maternal and fetal health outcomes. A cohort of 25 graduate nurses enrolled in the Nurse Practitioner Midwifery (NPM) program and stationed at Telangana's Public Health Care centers were included in study. At the beginning of the study, baseline NPM knowledge was examined. A dietitian then led a 45-60-minute training session using the SNE module to discuss dietary treatment of anemia. This module included interactive educational tools such as flip charts, short video clips, and recipes to provide NPMs with practical approach for counselling pregnant women with anemia. Dietitians continuously observed and assessed post-training knowledge retention at end of month. Training significantly enhanced NPMs' awareness of anemia thresholds, the benefits of oral iron supplementation during fasting, and identifying caloric demands during pregnancy ($p < 0.001$). There was a considerable gain in awareness regarding the diet diversity for pregnant women with anemia. As a result, this knowledge improvement emphasizes the necessity of focused educational interventions in preparing healthcare providers to successfully address common dietary concerns.

KEYWORDS

Structured Nutrition Education, Anemia, Pregnancy

INTRODUCTION

Anemia during pregnancy is a widespread global health concern that impacts both maternal and fetal health outcomes.^[1,2] The World Health Organization (WHO), estimates around 37% of pregnant women worldwide are affected by this condition.^[3] In India, the prevalence of anemia among pregnant women remains a critical public health issue, with 45.7% of those in urban areas and 52.1% in rural areas exhibiting hemoglobin levels below 11 g/dl.^[4] Anemia is linked to various complications, including an increased risk of postpartum hemorrhage (PPH), preterm delivery, low birth weight, and impaired fetal development.^[5,6,7] Research indicates that implementing nutrition education and providing a diet rich in iron-containing foods are significantly associated with improved hemoglobin levels, enhanced dietary intake, and increased nutritional knowledge regarding anemia and iron-rich foods.^[8]

Midwives are integral to the healthcare system, specifically trained to manage low-risk pregnancies and provide antenatal care. They are often the first point of contact for expectant mothers and play a pivotal role in screening, identifying and addressing nutritional deficiencies, including anemia. Given the potential impact of anemia on maternal and fetal health, it is essential to equip midwives with the necessary knowledge and skills to manage this condition effectively. According to studies, Structured Nutrition Education (SNE) effectively improves healthcare providers' understanding of nutritional challenges and how to address them. This study assesses SNE's effectiveness in enhancing NPM's understanding of anemia management.

MATERIALS & METHODS

For the SNE module training, we chose a cohort of 25 graduate nurses enrolled in the Nurse Practitioner Midwifery (NPM) program and stationed at Telangana's Public Health Care Centers. Dietitians assessed the NPM's understanding of anemia-related nutrition before the training. Following this pre-assessment, the registered dietitian conducted a 45–60-minutes training session utilizing a Structured Nutrition Education (SNE) module focused on the dietary management of anemia after which the NPM's knowledge was reassessed to evaluate the effectiveness of the intervention.

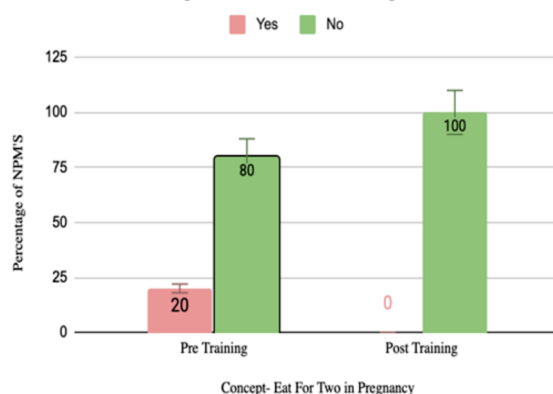
The SNE module, developed by the Department of Nutrition and

Dietetics, included lectures, presentations, and interactive discussions using educational tools such as posters and flip charts to address dietary modifications for anemia management. The module emphasized dietary diversification, advocating for the inclusion of micronutrient-dense foods such as dark green leafy vegetables, pulses, legumes, and vitamin C-rich fruits. NPM's was trained to use the SNE module for educating patients. In addition, they were provided with the SNE module, to facilitate women's education on optimal nutritional practices. Ethical approval was obtained from the Institutional Ethics Committee (IEC Ref No 03 2023). Statistical analyses included descriptive statistics for categorical and continuous variables, as well as independent and paired t-tests. RStudio Desktop (RStudio Team, 2024) was used for all analyses, with a significance level of $p < 0.05$.

RESULTS

The knowledge assessment showed a considerable improvement in midwives' comprehension of anemia management following the training. Prior the training, 80% of NPM's believed that pregnant women should "eat for two." After training, all NPM's (100%) demonstrated appropriate knowledge on the subject, eliminating the misconception ($p < 0.001$) (Fig 1)

Fig 1: Assessment of NPM'S Knowledge

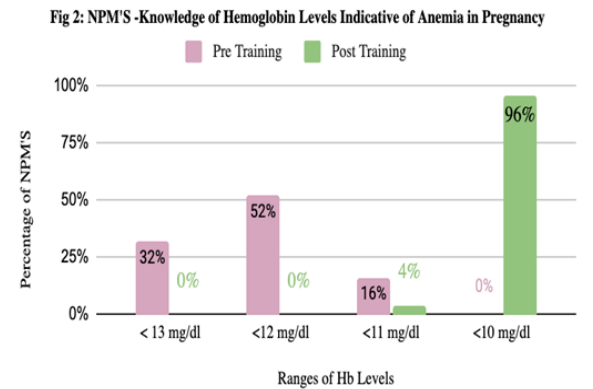


Post training, there was a significant improvement in knowledge ($p < 0.001$), with NPM's identifying increased caloric needs during pregnancy and understanding the recommended intake of 2 servings of fruit and 3 ½ servings of vegetables per day for a balanced diet, especially for anemia ($p < 0.001$) (Table 1).

Table 1: Comparison Of Knowledge Assessment Of NPM's Pre-training And Post-training

Knowledge assessment	Pre(N=25)	Post (N=25)	P-value
Q1) How many extra calories does a pregnant woman need in her 2nd and 3rd trimester?			
150	0 (0%)	0 (0%)	<0.001
250	4 (16%)	0 (0%)	
350	6 (24%)	25 (100%)	
500	15 (60%)	0 (0%)	
Q2) How many servings of fruit should a pregnant woman consume per day?			
1	6 (24%)	0 (0%)	0.004
2	13 (52%)	24 (96%)	
3	6 (24%)	1 (4%)	
4	0 (0%)	0 (0%)	
Q3) How many servings of vegetables should a pregnant woman consume per day?			
1	11 (44%)	0 (0%)	<0.001
2	12 (48%)	0 (0%)	
3	2 (8%)	25 (100%)	
4	0 (0%)	0 (0%)	
Q4) How frequently should a pregnant woman eat green leafy vegetables:			
1-2 times/ week	19 (76%)	1 (4%)	<0.001
3-4 times/week	6 (24%)	24 (96%)	
Daily	0 (0%)	0 (0%)	

It was observed that the NPM's awareness of anaemia thresholds (Fig 2) and the benefits of oral iron supplementation during the fasting stage significantly improved ($p < 0.001$) (Table 2)



The Structured Nutrition Education increased understanding of the interaction of iron and calcium supplements ($p = 0.0498$), and it was also found that all NPMs (100%) appropriately identified that iron absorption was more effective from non-vegetarian foods than vegetarian ones. (Table 2)

Table 2: Knowledge Assessment Of NPM -Iron And Calcium Supplementation In Pregnancy

Knowledge assessment	Pre (N=25)	Post (N=25)	P-value
Q1) When should pregnant women take an iron supplement?			
When fasting	18 (72%)	25 (100%)	0.030
With meal	2 (8%)	0 (0%)	
Anytime	5 (20%)	0 (0%)	
Q2) Can an iron and calcium tablet be taken at the same time?			
Yes	2 (8%)	0 (0%)	0.0498
No	19 (76%)	25 (100%)	
Don't Know	4 (16%)	0 (0%)	
Q3) Is iron absorbed better from non-vegetarian or vegetarian sources?			

Non-veg	6 (24%)	25 (100%)	<0.001
Veg	10 (40%)	0 (0%)	
Don't Know	9 (36%)	0 (0%)	

DISCUSSION:

In this study, the Structured Nutrition Education (SNE) module resulted in a considerable increase in NPMs' nutrition knowledge, particularly in the setting of pregnancy-related anemia. This finding was consistent with the findings of Baute et al.^[9], who demonstrated that educational programs for healthcare personnel can successfully expand their knowledge base, boosting the quality of care they deliver to patients. Furthermore, the current study found that NPMs improved significantly in their comprehension of vital nutritional requirements, which are critical for controlling anemia during pregnancy. All NPM's increased greatly in their understanding of optimum calorie intake, iron supplements, and the importance of eating green leafy vegetables. This finding aligns with the work of Shakhshir et al.,^[10] which emphasizes that multifaceted approaches combining education with support mechanisms were essential for improving compliance with supplementation. Henceforth, the improvement in the NPM's knowledge is particularly important, as they are often the primary source of nutritional advice for pregnant women. By fostering a deeper understanding of nutritional needs, the SNE module empowers midwives to deliver informed guidance that can influence dietary choices and health behaviors among their patients.

CONCLUSION

The SNE module considerably increased NPM's understanding and was useful in educating the patients. This SNE curriculum equips NPMs and other health care providers (Asha & Aganwadi workers) to provide nutritional advice, perhaps resulting to better maternal and fetal health outcomes. Future research should focus on larger, multi-site studies with longer follow-up periods to assess the long-term effects of such educational interventions.

We also acknowledge Dr. Murali Mohan Reddy Gopireddy, consultant epidemiologist & global lead, Evidence synthesis division, Coguide Academy for statistical inputs

Acknowledgement & Financial support

We acknowledge Fernandez Hospital Educational & Research Foundation (FHERF) for funding the study. We thank the team from NMTI, Fernandez Foundation for support in conducting the study.

Conflict Of Interest

There are no conflicts of interest.

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