Implementing International Federation of Gynecology and Obstetrics Nutrition Checklist for Pregnant Women: Opportunities and Challenges in Low- and Middle-income Countries

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Abstract

Background: The triple burden of malnutrition (TBM) presents a significant threat to the health of mothers and their future generations, particularly in low- and middle-income countries. Though having adequate macro- and micronutrients and maintaining a healthy weight are essential for all, pregnant women require special attention. However, their nutrition status and dietary requirements are not focused upon during their clinical visits.

Methods: International Federation of Gynecology and Obstetrics (FIGO) nutrition checklist was administered to 714 women for the first time in selected private healthcare facilities in 3 states of India. A descriptive analysis of data was done to assess their nutrition status and dietary pattern. Logistic regression was done to evaluate any significant association of their dietary and supplementary intake with the hemoglobin (Hb) levels. The feedback on FIGO checklist administration from 50 healthcare providers (HCPs) was also collected using a survey questionnaire.

Result: The analysis of FIGO checklist data has shown that a significant proportion (48%) of women are overweight or obese and 33% are with low Hb. The increased Hb levels were significantly associated with supplement intake. However, the associations observed between any other dietary intake and Hb levels were insignificant. Healthcare providers considered the checklist as an important tool to encourage nutrition-related dialogues with women and recommended its use during clinical visits.

Conclusion: The FIGO checklist holds promising potential as a nutrition intervention to curb the increasing burden of malnutrition by keeping health, nutrition status, and weight management in check. However, the challenges associated with its administration should be addressed to have a greater impact.

Keywords: International Federation of Gynecology and Obstetrics nutrition checklist, Nutrition status, Pregnant women, Triple burden of malnutrition.

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Introduction

The TBM, attributed to the coexistence of persistent undernutrition, micronutrient deficiency, and rapidly increasing obesity, is one of the major public health concerns in developing countries, including India.[1,2] Both undernutrition (macro- and micronutrient deficiencies) and overnutrition are detrimental to health and can lead to several serious outcomes such as anemia and cardiovascular diseases, respectively.[3,4] The prevalence of this triple burden phase of nutrition transition is because of qualitative and quantitative changes in dietary patterns and behaviors, along with other factors such as physical activity, age, education, and family wealth status.[2,5–7] The consequences of any form of malnutrition are manifold during pregnancy as nutrition plays a crucial role in determining the health of a mother as well as the fetus.[8,9]

Over the years, the Government of India (GoI) has launched various initiatives which aim at improving the nutrition status of pregnant women in the country. These include the National Health Mission, Matritva Sahyog Yojana, Janani Suraksha Yojana, and the POSHAN Abhiyaan, among others, that focuses on measures to improve maternal and child care and nutrition by promoting proper antenatal care and supplementary nutritional support during and after pregnancy.[10–12]

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However, the women's lack of nutritional education and non-compliance to dietary recommendations, along with inadequate nutritional counseling by their HCPs have been some of the major barriers to desired maternal and fetal health outcomes.[13–15] The HCPs, as well as the women, need to be sensitized to think about nutrition first and the nutrition assessment followed by appropriate counseling should be a part of the standard of care during routine

antenatal visits. One such intervention, the FIGO Nutrition Checklist, a brief nutritional questionnaire, was developed in 2015 by the FIGO Initiative on Adolescent, Preconception, and Maternal Nutrition. This FIGO checklist consists of four sections, with questions on specific dietary requirements, body mass index (BMI), diet quality, and micronutrients.[16,17] The aim of this tool is to help assess the nutrition status among prepregnant and pregnant women and provide tailored nutrition counseling based on the issues identified from the data.

As documented in previous studies, the checklist has been administered and tested for its reliability and usability at different places in the world. For instance, the results from a pilot feasibility study in Dublin, Ireland suggested that the use of a checklist could identify women with nutritional issues and also helped in initiating the discussion related to nutrition during consultations.[16] The aim of this paper is to highlight the opportunities and challenges experienced during the implementation of the FIGO nutrition checklist for the first time in a number of selected private healthcare facilities in three states of India. Herein, we assess the ease of use and the acceptability of the FIGO nutrition checklist on the basis of feedback received from HCPs. The study also explores the overall nutrition status and Hb levels of prepregnant and pregnant women as captured through the administration of the FIGO nutrition checklist.

METHODS

Study Setting and Participants

This is a pilot trial done to assess the usability and acceptability of the FIGO nutrition checklist amongst pregnant and prepregnant women and their HCPs. FIGO has advised the modification of the checklist as per the local context. Therefore, the checklist was modified as per our understanding of Indian dietary requirements. The modified checklist was administered in a few healthcare facilities from both metro and non-metro regions in three states (Karnataka, Tamil Nadu, and Madhya Pradesh) in India. This was the first time ever that this kind of nutrition checklist was tested in India as no such nutritional assessment of pregnant women was being carried out before. Since this was just a pilot study, no sample size was estimated.

Both purposive and convenience samplings were used to select the participants. The FIGO checklist was administered to both pregnant and prepregnant women (aged 18–45) who got registered with the selected healthcare facilities. Healthcare providers who are currently practicing in these facilities and were in contact with these women [nurses, obstetrician–gynecologist (ob-gyn), and dietitians] were included.

Data Collection

In total, 714 FIGO checklist forms were filled in by pregnant and prepregnant women from selected facilities, and their data was collected, which covered the questions in four sections as follows: Specific dietary requirements, BMI, diet quality, and micronutrients. Demographic details such as respondents' age and pregnancy state along with their anthropometric measurements including body weight, body height, and BMI were also recorded. The Hb and blood pressure (BP) tests were obtained as per the standardized methods during a routine check-up.

The feedback was also collected from 50 HCPs from these facilities using a structured, closed-ended questionnaire, documenting their responses on acceptability and ease of use of the checklist.

Statistical Analysis

The descriptive analysis of FIGO checklist data was done. Statistical analyses were performed using Stata, version 15.1, software. The continuous variables (i.e., age) were expressed as mean, and standard derivation. All the categorical variables (e.g., anemic/non-anemic, and pregnancy state) were expressed as numbers and percentages. Logistic regression analysis was done to study the relationships between Hb levels (dependent variable) and dietary-related independent variables.

Ethical approval for the study was taken from the Institutional Ethics Committee (IEC). Verbal consent for participation was requested after explaining that participation in the study is entirely voluntary, and confidentiality and anonymity will be strictly maintained.

RESULTS

The study documents the cross-sectional analysis of checklist data obtained from 714 women and also presents the perceptions and experiences of some of the HCPs regarding the usability and acceptability of the FIGO checklist.

Women Respondents Segregated by BMI

The mean age of all women respondents was 27.9 years. Out of 714 respondents, 5.9% were underweight, 45.7% were normal weight, and a total of 48% of respondents were either of overweight or of obese (34% overweight and 14.2% obese) (Fig. 1).

Pregnancy is a state of high physiological demand that needs to be able to nourish both the mother and the fetus. Insufficient iron and micronutrients levels in mothers may develop iron or micronutrient deficiency anemia. However, in a pregnant state, menstrual bleeding is one of the major contributing factors to anemia. Therefore, we looked upon the proportions of anemic vs non-anemic women segregated by the state of pregnancy (pregnant/non-pregnant women).

The Proportion of Anemic vs Non-anemic Women Segregated by the State of Pregnancy (Pregnant/non-pregnant Women)

Of all the pregnant women in this study, 32.2% were anemic and 67.8% were non-anemic (Fig. 2A). Of all the non-pregnant women, 39.1% were anemic and 60.9% were non-anemic. The proportion
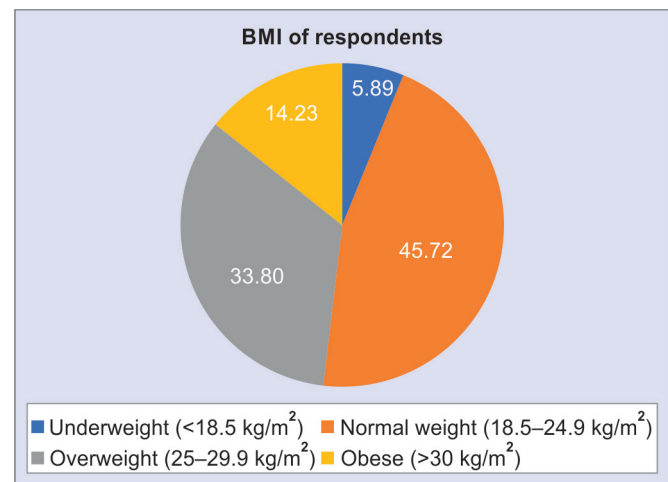

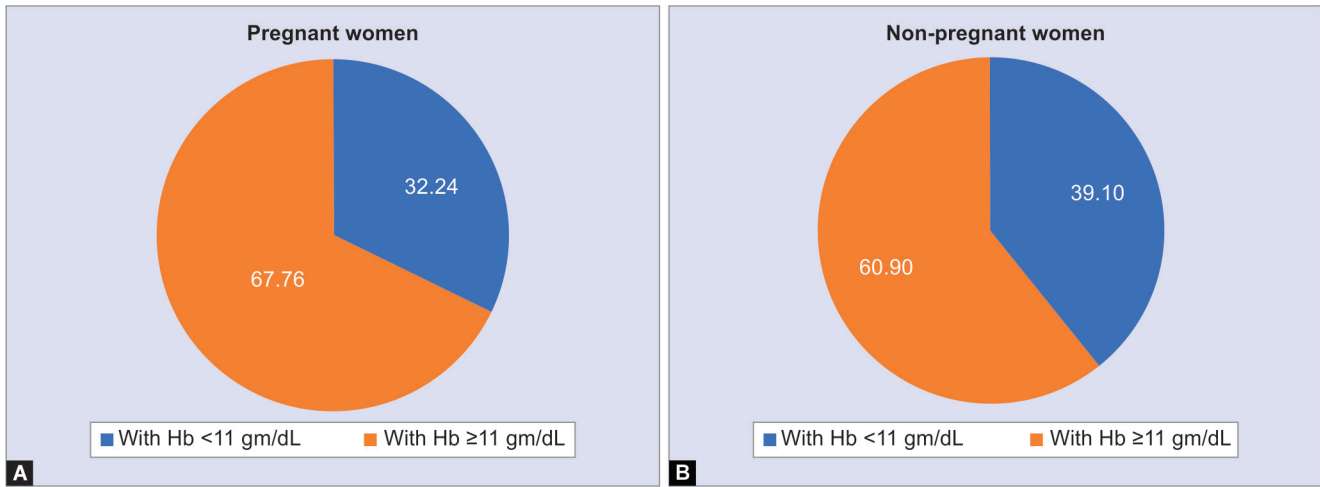**Fig. 1:** Women respondents segregated by BMI

Figs 2A and B: Anemic vs non-anemic women segregated by pregnant or non-pregnant women state
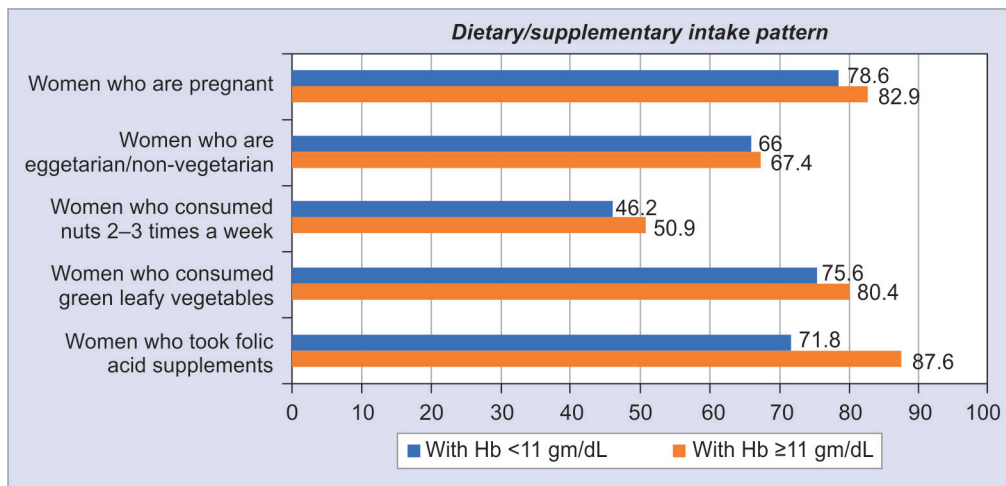

Fig. 3: Women respondents segregated by their dietary/supplementary intake pattern

of anemic women is slightly higher in the non-pregnant group as compared to the pregnant group as shown in Figure 2B.

The Proportion of All Women Respondents Segregated by their Dietary/Supplementary Intake Pattern

The proportions of women who have a non-vegetarian/eggetarian diet, or consumed nuts and green leafy vegetables 3–4 times a week, or taken folic acid supplements during prepregnancy and early pregnancy stages were slightly higher in the group with normal Hb as compared to the group with Hb less than 11 gm/dL as shown in Figure 3. However, the only association that was found to be statistically significant was an intake of folic acid supplements with increased Hb levels (OR 2.81; p <0.0001) as analyzed by logistic regression. Since the rest of the results were found to be insignificant, no further association of dietary intake with Hb levels could be drawn from this.

Responses of Healthcare Professionals (HCP Respondents)

The proportion of healthcare professionals belonging to different categories (gynecologist/dietician/nursing staff) and regions (metro/non-metro) are given in Table 1.

Table 1: Key characteristics of healthcare professionals

Description	Number (N)	Percentage (%)
Category		
Gynecologist	10	20
Dietician	3	6
Nursing staff	37	74
Region		
Metro	21	42
Non-metro	29	58

Out of 50 healthcare professionals, only 9 respondents (18%), of which 7 were nursing staff and 2 were gynecologists, reported the use of checklist as "somewhat difficult" while other 41 respondents (82%) found it "simple" (Fig. 4B). Furthermore, 13 (26%) respondents reported that they took only 5 minutes of time to administer the checklist while the rest of the 36 (72%) respondents took 5–10 minutes (Fig. 4C). While 31 respondents (62%), of which 28 were nursing staff and 3 were gynecologists reported that dietary history or recall was being taken as a routine before the introduction of
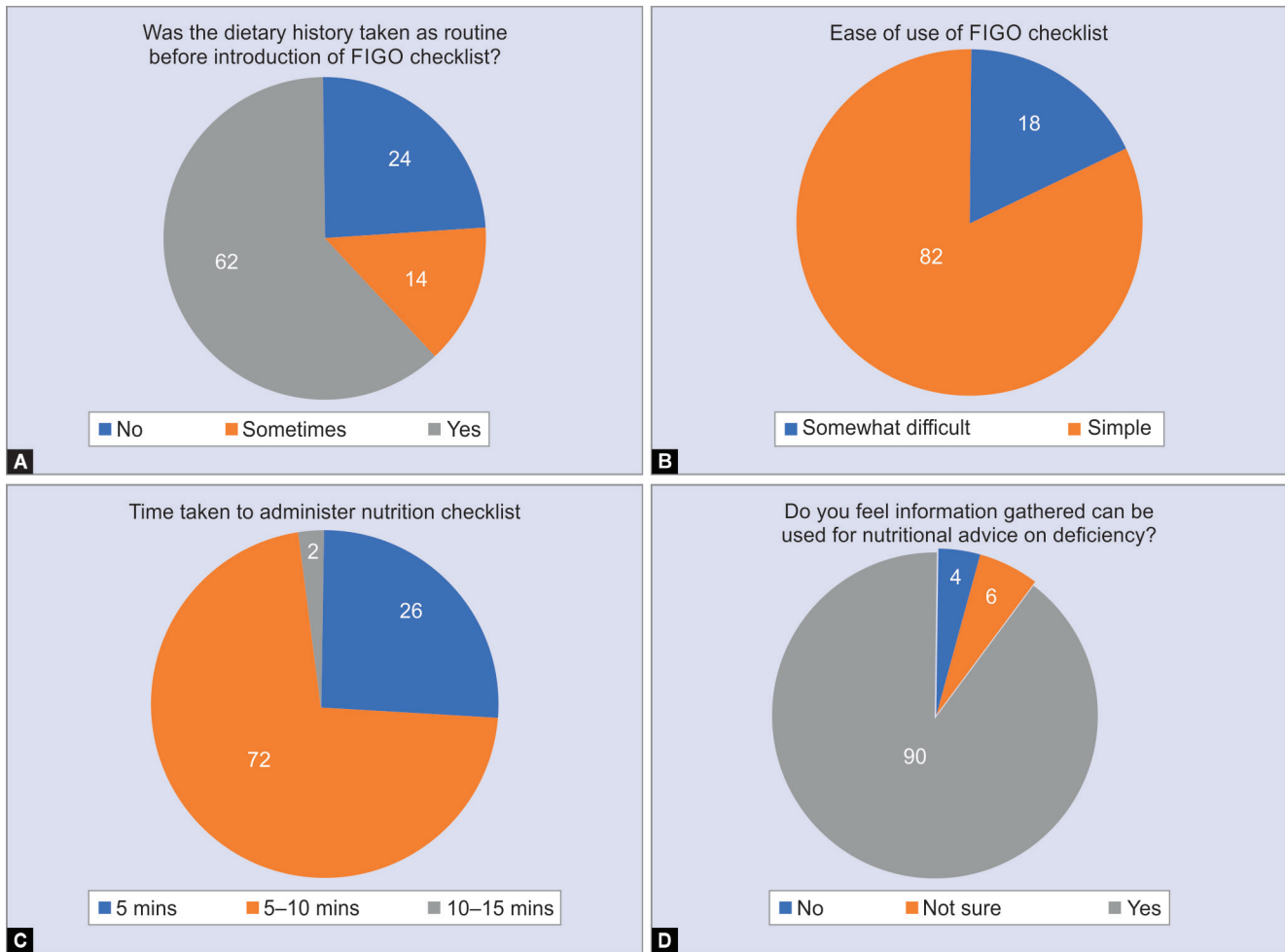
Figs 4A to D: Responses of HCPs respondents

this FIGO nutrition checklist (Fig. 4A), they also suggested that there was no structured method. The majority of the respondents (90%) agreed that information gathered from the FIGO checklist could help in delivering advice on prepregnancy/pregnancy weight gain or any nutritional deficiency (Fig. 4D).

Discussion

Malnutrition pervades all sections of society from the underserved to those with sufficient resources. Adequate nutrition for pregnant women leads to improved pregnancy and birth outcomes and works toward breaking the intergenerational cycle of malnutrition.[18,19] This study highlights the opportunities and challenges associated with the administration of the FIGO nutrition checklist in select healthcare facilities. The checklist aims to assess the nutritional status and offer specific nutrition advice to pregnant women and to those planning pregnancy.

The first-time administration of the FIGO nutrition checklist in select districts in India has provided an in-depth understanding of efficiently administering the checklist for optimizing its benefits. First of all, the checklist administration during antenatal visits has sensitized both HCPs and pregnant women to think nutrition first. Besides, the data collected on macro- and micronutrient uptake and Hb level has helped in assessing the nutritional status and key performance indicators of pregnant women in one

snapshot. Previous studies have suggested that women desire to have nutrition-related discussions with their doctors during their antenatal care visits.[16,20–22] The FIGO checklist can help address this by facilitating an interactive platform where pregnant women can speak to doctors and clarify their doubts along with gaining a better understanding of their dietary requirements.

Of the 714 women that were a part of this study, around one-third were anemic with Hb below 11 gm/dL, and the proportion of anemic women was slightly higher in the non-pregnant group compared to the pregnant group. Furthermore, a significant proportion of women was found to be either overweight or obese. However, no statistically significant difference was observed in the dietary patterns or nutrient uptake in women with differential Hb or BMI levels. The insignificant results could be due to respondent bias or gaps in data collection. One of the key learnings that emerged was around the importance of the capacity building of paramedics on how to collect and record data in a robust manner, which will improve the accuracy of the nutritional status. Equipping them with the skills and knowledge is also essential to generate awareness about the right nutrition and mobilize community participation to achieve optimal nutrition practices and meet the challenge of TBM.

The data collected should, ideally, be validated for accuracy by using nutritional assessment tools such as 24-hour dietary recall or food frequency questionnaire (FFQ) to rule out any respondent

biases. For instance, a previous study by Tsoi et al. used a locally validated FFQ along with FIGO nutrition checklist to strengthen the validity of their results.[23] Moreover, the original FIGO checklist that was developed for the global use needed to be contextualized as per the Indian settings to improve its acceptability in the local population. It is important to ensure that pregnant women are screened for their nutritional status with the appropriate use of the FIGO nutrition checklist and the data collected should be able to facilitate the delivery of specific nutrition advices to them through tailored counselling by their HCPs.

The majority of HCPs reported that the checklist can be easily administered in less than 10 minutes. Even though dietary history or recall was being undertaken before the introduction of FIGO nutrition checklist, as reported by most of the respondents, there was either no structured way of collecting and recording data or the information collected was not being used toward developing tailored nutritional counselling. Almost all the respondents agreed that information gathered from the checklist could help in advising on prepregnancy and pregnancy weight gain, and nutritional deficiency.

CONCLUSION

This study supports the use of FIGO nutrition checklist to identify prepregnant and pregnant women with suboptimal nutrition status and to address their nutrition-related health issues through dietary assessments and tailored counselling. However, proper efforts are required to carry out the administration of nutrition checklist in a more structured and robust manner in order to achieve improved pregnancy outcomes. Some of the recommended strategies are as follows:

- Capacity building of paramedics through trainings for enhanced awareness on nutrition, communication skills, and proper administration of FIGO nutrition checklist
- Modification of FIGO checklist as per Indian context and validation of checklist data using nutrition assessment tools such as 24-hour dietary recall/FFQ for greater quality and accuracy.
- Assessment of the nutrition status of women using the findings from the checklist and delivering tailored nutrition counseling for improved pregnancy outcomes.

Clinical Significance

As malnutrition is unacceptably high in India, the HCPs as well as the women need to be sensitized to think about nutrition first. Since no such nutrition assessment tool was being used with pregnant women during their antenatal visits, this study highlights the administration of the FIGO nutrition checklist as one of the promising interventions that will help assess the dietary pattern and nutrition status of prepregnant and pregnant women and also facilitate the nutrition-related dialogues between women and their HCPs during clinical visits in healthcare facilities. The study also focuses on the opportunities and challenges identified during the first phase of FIGO checklist implementation in some of the districts of India which will help in streamlining the implementation of the checklist in a more structured and efficient manner in the future.

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