STM JOURNALS

International Journal of
Women's Health Nursing and Practices

ISSN: 2584-170X
Volume 4, Issue 1, 2026
January–June
DOI (Journal): 10.37591/IJWHNP

https://journals.stmjournals.com/ijwhnp

Research IJWHNP

A Descriptive Cross-Sectional Study to Assess the Knowledge and Practice of Antenatal Mothers Regarding Maternal Diet Including Macronutrients and Micronutrients in Selected Hospitals of Indore (M.P.) in the Year 2022–2023

Rakhi Chandel[1,*], Hephziba Elza Biju[2], Anusha Joseph[2], Vinti Arther[2], Megha Lawrence[2], Preeti Sawner[2], Shefali Narware[2], Aarti Khede[2]

Abstract

A balanced and adequate diet is most important during pregnancy to meet the mother's increased needs and prevent nutritional stress. Maternal nutrition during pregnancy plays a crucial role in lowering both maternal and infant mortality rates. This study aimed to evaluate the level of knowledge and the dietary practices of antenatal mothers concerning maternal nutrition, including both macronutrients and micronutrients. A descriptive cross-sectional research design was used, involving 100 pregnant women selected through a purposive sampling method. Data were gathered using a self-developed knowledge questionnaire along with a practice checklist. The results indicated that out of the 100 antenatal mothers, 84% demonstrated an average level of knowledge about maternal nutrition, 12% had poor knowledge, and only 4% showed good knowledge regarding dietary requirements during pregnancy, including macronutrient and micronutrients. In terms of dietary practices, the findings revealed that 54% of the participants followed good dietary practices, 44% had fair practices, and only 2% exhibited poor dietary practices during pregnancy. Furthermore, the analysis showed a statistically significant association between the mothers' occupation and the number of children they had with their level of knowledge about maternal diet. (X^2=18.444($p<0.05$), and X^2 =15.940($p<0.05$) respectively). The correlation between knowledge score and practice score is 0.203916, which indicates a low positive correlation. The study concluded that the practice of antenatal mothers is good, but the knowledge score is average, and there could be many reasons for good practices, but due to a lack of knowledge, public perception is limited. Therefore, community nutritional education and antenatal nutritional counseling need to be strengthened in remote areas.

***Author for Correspondence**
Rakhi Chandel
E-mail: rakhi.chandel@choithramnursing.com

[1]Head and Professor, Department of Child Health Nursing, Choithram College of Nursing, Manik Bagh Road Indore, Madhya Pradesh, India
[2]Student, Department of Nursing, Choithram College of Nursing, Manik Bagh Road Indore, Madhya Pradesh, India

Received date: January 05, 2026
Accepted date: March 01, 2026
Published date: March 19, 2026

Citation: Rakhi Chandel, Hephziba Elza Biju, Anusha Joseph, Vinti Arther, Megha Lawrence, Preeti Sawner, Shefali Narware, Aarti Khede. A Descriptive Cross-Sectional Study to Assess the Knowledge and Practice of Antenatal Mothers Regarding Maternal Diet Including Macronutrients and Micronutrients in Selected Hospitals of Indore (M.P.) in the Year 2022–2023. International Journal of Women's Health Nursing and Practices. 2026; 4(1): 41–46p.

Keywords: Antenatal mothers, counseling, macronutrients, micronutrients, pregnancy

INTRODUCTION

Pregnancy is an important phase in a woman's life, during which she undergoes various physical and psychological changes. During this period, the body's requirement for energy, macronutrients, and micronutrients increases to actively support the healthy growth and development of the fetus and to maintain the overall health of the mother. Nutrition

plays an important and definite role during pregnancy in maintaining sound maternal health. To meet nutritional needs, antenatal mothers are encouraged to consume a diet rich in vegetables, fruits, and whole grains and to take daily vitamins and mineral supplements to guarantee an adequate intake of iron and folic acid. Poor nutritional intake during pregnancy can negatively affect fetoplacental development and interfere with normal placental functioning. Trace elements play an essential role in maintaining cellular structure and regulating many biological processes in the body. Therefore, deficiencies or imbalances in important micronutrients, such as zinc, copper, iron, and magnesium, may lead to various reproductive and pregnancy-related complications. These may include difficulty in conception, developmental abnormalities in the fetus, fetal loss, premature rupture of membranes, and the birth of infants who are small for their gestational age (SGA). The World Health Organization (WHO) antenatal care (ANC) guidelines recommend a total of 49 interventions, among which 14 focus specifically on nutrition. In India, national guidelines follow these global recommendations and include a set of essential nutrition interventions for pregnant women, with particular emphasis on improving maternal dietary intake. One of India's major initiatives, POSHAN Abhiyan under the National Nutrition Mission, aims to enhance maternal nutrition by strengthening capacity building, utilizing technology, promoting behavior change communication, encouraging community participation, and improving coordination across different sectors [1, 2].

According to the Global Burden of Disease Study 2017, unhealthy dietary patterns were responsible for more deaths worldwide than any other risk factor in 2017. The study estimated that a poor diet contributed to approximately 11 million deaths globally. Of these, approximately 3 million deaths were linked to excessive sodium consumption, another 3 million were associated with insufficient intake of whole grains, and nearly 2 million deaths resulted from inadequate fruit consumption.

In India, several strategies and programs have been implemented to improve maternal nutrition. These include providing take-home rations and hot cooked meals for pregnant and lactating women, supplying micronutrient supplements, promoting food fortification, distributing subsidized staple foods through the public distribution system, offering cash transfer schemes, supporting nutrition-sensitive agricultural practices, and delivering nutrition education and counseling. Despite these efforts, progress in improving maternal diets remains limited due to challenges, such as inefficient service delivery systems, logistical constraints, limited resources, low program utilization, and significant inequalities in access to food and healthcare services [3–6].

Objectives of the Study

- To measure the level of knowledge among antenatal mothers about maternal nutrition, including both macronutrients and micronutrients.
- To assess the dietary practices of pregnant women related to maternal nutrition, including macronutrients and micronutrients.
- To identify the relationship between the knowledge level of antenatal mothers and selected demographic characteristics.
- To analyze the correlation between knowledge and practices of antenatal mothers regarding maternal diet.

METHOD

A descriptive cross-sectional study was conducted from 2022 to 2023 to evaluate the knowledge and practices of pregnant women regarding maternal diet, with a focus on macronutrient and micronutrient intake. The study targeted all pregnant women of various age groups and gestational weeks, with the accessible population comprising pregnant women attending outpatient departments (OPDs) or admitted to selected hospitals.

The inclusion criteria were as follows: antenatal mothers who were attending OPDs, willing to provide information, able to understand Hindi, and available during the data collection period. The

exclusion criteria were as follows: antenatal mothers who refused to participate and postnatal mothers attending OPDs. A total of 100 antenatal mothers were selected using a non-probability purposive sampling technique based on the inclusion criteria. Information was gathered using a self-designed knowledge questionnaire and a practice checklist. The data collected were analyzed using both descriptive and inferential statistical techniques.

RESULT AND DISCUSSION

Summary of Key Findings

The primary outcome measures of the study examined the knowledge and practices regarding maternal diet among 100 antenatal mothers. The findings revealed that 84% of antenatal mothers had an average knowledge score about maternal diet, 12% had poor knowledge, and 4% had good knowledge. Regarding practice scores, 54% of mothers had good practices, 44% had fair practices, and 2% had poor practices concerning maternal diet.

The secondary outcome measures of the study revealed that the demographic data indicated that 46% of the antenatal mothers were aged 19–24 years, 29% were aged 25–30 years, 17% were under 18 years, and 8% were over 30 years. Most mothers (87%) were housewives, and 85% were Hindus. Fifty-five percent had completed secondary education, 41% were primipara, 69% were vegetarians, 43% of their husbands had private jobs, 54% were from rural areas, and 40% were at 26–38 weeks of gestation. The average monthly income of families showed that 49% had an income of less than ₹15,000.

This study hypothesized a correlation between knowledge and practice regarding maternal diet and an association with various sociodemographic factors. The findings showed that there was no statistically significant relationship between knowledge or practice scores and the sociodemographic characteristics of the participants. However, a weak positive correlation was observed between knowledge and practice scores, indicating that better knowledge may slightly contribute to improved dietary practices among expectant mothers (Figure 1).

Strengths and Limitations of the Study

The strength of the study is that it used a well-defined sample size of 100 antenatal mothers, providing a reasonable basis for statistical analysis. The study also focused on maternal diet knowledge and practices, allowing for targeted data collection and analysis. The demographic characteristics of the participants offered a detailed description of the study population, which helped in understanding the background and context of the sample.

However, this study had certain limitations. First, its cross-sectional design restricted the ability to determine a causal relationship between knowledge, practices, and sociodemographic factors. Second, the data on knowledge and practices were obtained through self-reported responses, which may have led to bias because participants might have overestimated their actual knowledge or dietary behaviors. Finally, no significant relationship was observed between sociodemographic factors and knowledge or practice scores during analysis and interpretation. This could indicate either insufficient statistical power in the study or that these demographic factors may have less influence on maternal dietary knowledge and practices than anticipated [7].

Knowledge Level of Antenatal Mothers Regarding Maternal Diet

Table 1 presents the mean scores, standard deviations, and correlations between knowledge and practice among the study participants. The average knowledge score was 12.9 with a standard deviation of 2.99, indicating a moderate level of variability in participants' understanding of the subject matter. The mean practice score was 10.31 with a standard deviation of 2.65, reflecting a slightly lower but comparable variation in the implementation of recommended practices.

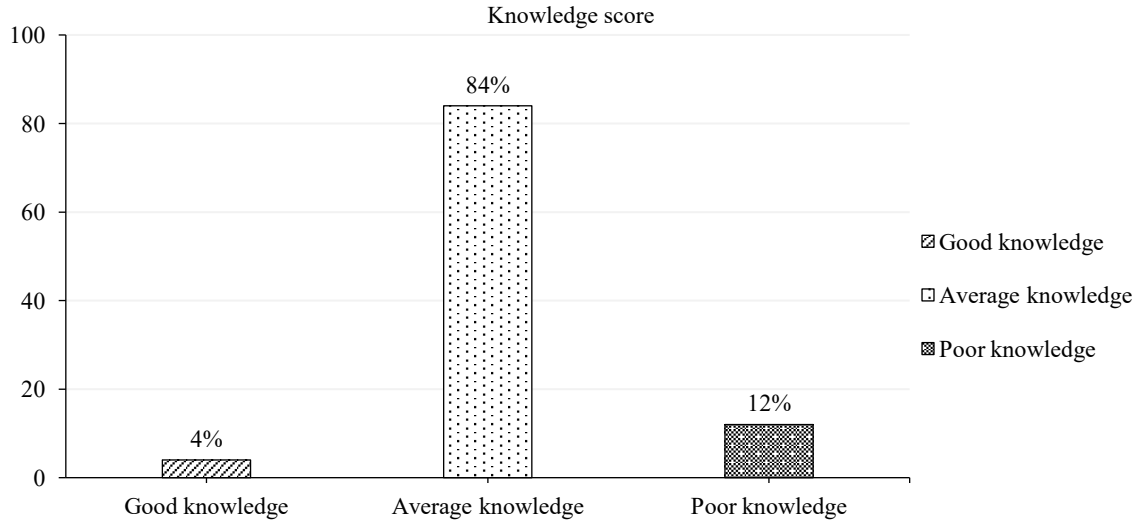

Figure 1. The bar graph shows the knowledge level of antenatal mothers regarding maternal diet, including macronutrient and micronutrients.

Table 1. Correlation between knowledge score and practice score.

Variable	Mean score	Standard deviation (SD)	Correlation
Knowledge score	12.9	2.99	0.203916
Practice score	10.31	2.65	

The correlation coefficient between knowledge and practice scores was 0.204, suggesting a weak positive relationship. This implies that higher knowledge levels are somewhat associated with better practices, although the relationship is not strong. In practical terms, while increased knowledge may contribute to improved behavior or the implementation of practices, other factors, such as attitudes, accessibility, and socio-environmental influences, may also play significant roles in shaping practice.

These findings highlight the importance of educating participants not only to improve their knowledge but also to provide support and resources that enable the translation of knowledge into effective action. This weak correlation indicates that awareness alone may not always guarantee appropriate practice, emphasizing the need for integrated interventions that address both knowledge and behavior change.

Interpretation and Implications in the Context of the Totality of Evidence

This study adds valuable data on the levels of knowledge and practice regarding maternal diet among pregnant women in a specific demographic setting. It highlights that, although the knowledge level is average, practice regarding maternal diet is better, although not optimal.

The findings suggest that there is scope for improvement in educational interventions aimed at antenatal mothers to enhance both knowledge and practice concerning maternal diet. This could lead to better maternal and fetal health outcomes [8].

The positive correlation between knowledge and practice scores suggests that improving maternal knowledge could lead to better dietary practices; however, other factors (such as cultural beliefs or socioeconomic status) might also play a role.

Controversies Raised by this Study

The study did not find any significant associations between sociodemographic variables and knowledge or practice scores, which could be controversial if other studies in similar settings have found such associations.

Future Research Directions

Future research could adopt a longitudinal study design to gain a clearer understanding of the cause-and-effect relationships between knowledge, dietary practices, and sociodemographic factors. Further research could explore the underlying factors influencing maternal diet knowledge and practices, such as cultural beliefs, access to healthcare resources, and quality of education. Additional clinical research could investigate the direct impact of improved maternal diet knowledge and practices on maternal and neonatal outcomes, which could inform more targeted public health interventions and policies [9, 10].

CONCLUSION

The significance of following a balanced and diverse diet both before pregnancy and throughout the pregnancy period is extremely important and should not be overlooked. Nutritional deficiencies during pregnancy are a significant public health concern, especially in underprivileged and high-risk populations. The study concluded that women residing in rural areas exhibited poor knowledge regarding maternal diets but still practiced good dietary habits. The government provides sufficient supplements to expectant mothers through various schemes; however, these women often lack awareness of the nutritional value and importance of these supplements. This highlights a notable knowledge gap among expectant mothers.

Financial Support and Sponsorship

Self-financed.

Conflicts of Interest

The author has declared no conflicts of interest.

REFERENCES

1. Sairoz PK, Prabhu K, Dastidar RG, Aroor AR, Rao M, Shetty S, et al. Micronutrients in adverse pregnancy outcomes. F1000Res. 2024;11:1369. doi:10.12688/f1000research.124960.4. PMID:38807919; PMCID: PMC11131564.
2. Mousa A, Naqash A, Lim S. Macronutrient and micronutrient intake during pregnancy: An overview of recent evidence. Nutrients. 2019;11(2):443. doi:10.3390/nu11020443. PMID:30791647; PMCID: PMC6413112.
3. Anderson AS. Symposium on nutritional adaptation to pregnancy and lactation. Proc Nutr Soc. 2001;60(4):497–504. doi:10.1079/pns2001113. PMID:12069403.
4. Ramakrishnan U, Lowe A, Vir S, Kumar S, Mohanraj R, Chaturvedi A, et al. Public health interventions, barriers, and opportunities for improving maternal nutrition in India. Food Nutr Bull. 2012;33(2 Suppl):S71–S92. doi:10.1177/15648265120332S105. PMID:22913108.
5. Girard AW, Dzingina C, Akogun O, Mason JB, McFarland DA. Public health interventions, barriers, and opportunities for improving maternal nutrition in Northeast Nigeria. Food Nutr Bull. 2012;33(2 Suppl):S51–S70. doi:10.1177/15648265120332S104. PMID:22913107.
6. Mason JB, Saldanha LS, Ramakrishnan U, Lowe A, Noznesky EA, Girard AW, et al. Opportunities for improving maternal nutrition and birth outcomes: Synthesis of country experiences. Food Nutr Bull. 2012;33(2 Suppl):S104–S137. doi:10.1177/15648265120332S107. PMID:22913110.
7. Shrimpton R. Global policy and programme guidance on maternal nutrition: What exists, the mechanisms for providing it, and how to improve them? Paediatr Perinat Epidemiol. 2012;26(Suppl 1):315–325. doi:10.1111/j.1365-3016.2012.01279.x. PMID:22742618.
8. Kureishy S, Khan GN, Arrif S, Ashraf K, Cespedes A, Habib MA, et al. A mixed methods study to assess the effectiveness of food-based interventions to prevent stunting among children under-five years in Districts Thatta and Sujawal, Sindh Province, Pakistan: Study protocol. BMC Public Health. 2017;17(1):24. doi:10.1186/s12889-016-3976-y. PMID:28056945; PMCID: PMC5216601.
9. Rai RK, Kumar SS, Parasannanavar DJ, Khandelwal S, Rajkumar H. Tipping the scale: The role of a national nutritional supplementation programme for pregnant mothers in reducing low birth

weight and neonatal mortality in India. Br J Nutr. 2022;127(2):289–297. doi:10.1017/S0007114521000982. PMID:33745458; PMCID: PMC8756072.
10. Prentice AM. Can maternal dietary supplements help in preventing infant malnutrition? Acta Paediatr Scand Suppl. 1991;374:67–77. doi:10.1111/j.1651-2227.1991.tb12009.x. PMID:1957632.

