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Food Habits and Cultural Influences on Anemia Prevalence Among Female Students of Maniba Bhula Nursing College

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ABSTRACT

Introduction: Anemia is one of the most common nutritional deficiencies affecting women worldwide, especially in developing countries like India. It is a condition characterized by a deficiency of hemoglobin or red blood cells, leading to reduced oxygen transport in the body. Young women, particularly adolescents and college students, are among the most vulnerable groups due to increased nutritional demands, menstrual blood loss, and inadequate dietary intake. Iron deficiency remains the primary cause, though other factors such as folic acid, vitamin B12 deficiency, and parasitic infections can also contribute.[1]

Food restrictions during menstruation or puberty also contribute to micronutrient deficiencies. Traditional beliefs discouraging consumption of iron-rich foods (like meat, eggs, or leafy greens) during menstruation or illness worsen anemia rates.[2]

Food habits and cultural practices play a crucial role in influencing the nutritional status and risk of anemia among young women. In many communities, cultural beliefs, dietary restrictions, traditional cooking methods, and food preferences significantly shape daily eating patterns. For example, consumption of iron-rich foods such as green leafy vegetables, meat, and fortified grains may be limited due to cultural taboos, economic constraints, or lack of awareness. Additionally, habits like drinking tea or coffee with meals can inhibit iron absorption, further increasing the risk of anemia.[3]

Methodology: A quantitative, cross-sectional survey study was conducted among 355 Female Students of Maniba Bhula Nursing College. The sample were selected using a non-probability consecutive sampling technique. Data were collected through a structured questionnaire that included 8 demographic questions, 9 questions regarding menstrual and health history, Physical and physiological parameters, 25 questions for food habits and 25 questions for cultural influence. The data were analyzed using statistical and inferential methods.

Result: Findings of the study show that 54% female students were having anemia. Most of the female students had moderate anemia (50.8%), followed by mild anemia (46.6%), while only a few (2.6%) had severe anemia. The mean food habit score was 59.35 ± 5.13, and the mean cultural influence score was 43.65 ± 4.23. The mean hemoglobin level among anemic students was 10.51 ± 1.18 g/dl, with a mean BMI of 20.29 ± 4.85**.** A low positive correlation ($r = 0.146$, $p = 0.044$) was found between food habits and cultural influences. Significant associations were observed between anemia prevalence and selected socio-demographic factors such as education, family income, and menstrual characteristics.

Conclusion: The findings indicate that dietary patterns and cultural practices play a vital role in influencing the nutritional status and hemoglobin levels of these students. Inadequate intake of iron-rich foods, irregular meal patterns, and the cultural avoidance of certain foods during menstruation or specific life stages were found to contribute to higher rates of anemia.

Keywords: Anemia, Food habits, Cultural influences, Female students, Iron deficiency, Nursing college

INTRODUCTION:

Anemia continues to be a major public health concern, particularly among adolescent girls in India. This period of life is marked by rapid physical growth, hormonal changes, and the onset of menstruation, all of which increase the body's demand for iron and other nutrients. When this increased requirement is not met through diet, it leads to iron deficiency anemia \ the most common type of anemia seen in this age group.[6] According to the World Health Organization (WHO, 2021), anemia is defined as hemoglobin levels below 12 g/dl in non-pregnant women, and it remains a major cause of morbidity and reduced work performance among young females.[4]

In India, despite the implementation of several national health programs such as the Weekly Iron and Folic Acid Supplementation (WIFS) and Anemia Mukt Bharat initiative, the prevalence of anemia among adolescent girls remains high.[8] The National Family Health Survey (NFHS-5, 2021) reported that approximately 59.1% of adolescent girls aged 15–19 years are anemic. This high prevalence is influenced by multiple factors such as poor dietary habits, low intake of iron-rich foods, consumption of tea or coffee immediately after meals (which inhibits iron absorption), early marriage, and cultural taboos that restrict certain foods during menstruation[5].

Anemia has serious health and social implications. It leads to fatigue, poor academic performance, decreased concentration, and reduced immunity. In the long term, adolescent anemia can continue into adulthood, increasing the risk of complications during pregnancy, low birth weight babies, and maternal mortality. Hence, assessing the hemoglobin levels and identifying the degree of anemia among adolescent girls is essential to develop targeted interventions for prevention and control.[7]

Cultural practices, socioeconomic status, and awareness about nutrition play an important role in determining the food habits of young women. In many Indian households, girls often eat last or consume smaller portions, leading to inadequate nutrient intake. Furthermore, limited knowledge about iron-rich foods and their combinations with vitamin C-rich foods (which help in iron absorption) can reduce dietary effectiveness. Therefore, assessing the relationship between food habits, cultural influences, and anemia prevalence is crucial to improve health outcomes among young females.[6]

Food habits and cultural beliefs play a crucial role in determining nutritional status, particularly in relation to anemia among women and adolescent girls. However, beyond biological and economic factors, cultural norms and traditional food practices strongly influence what, when, and how people eat directly affecting anemia prevalence.[9]

In many Indian communities, dietary choices are guided by cultural and religious beliefs. For example, vegetarianism, fasting, and food restrictions during menstruation or certain religious days limit the intake of iron-rich foods such as meat, fish, and green leafy vegetables (Kaur et al., 2020).[6] Additionally, common practices such as consuming tea or coffee immediately after meals reduce iron absorption, while low intake of vitamin C–rich foods further worsens iron deficiency. Cultural taboos, gender bias in food distribution, and preference for carbohydrate-based meals over protein- and micronutrient-rich

foods are also important factors contributing to anemia, especially among adolescent and young adult females (Toteja & Singh, 2020).[7]

Food habits formed through family traditions and social customs can either promote or hinder good nutrition. In India, adolescent girls often eat last in the family and in smaller quantities, leading to nutritional imbalance and anemia. Lack of awareness regarding the importance of balanced diets, iron supplementation, and proper meal combinations adds to the problem. Thus, cultural practices and dietary behaviors are deeply interlinked with the occurrence and persistence of anemia in female populations.[9]

Understanding how food habits and cultural beliefs affect hemoglobin levels is vital for designing effective health education and nutritional intervention programs. Encouraging iron-rich diets, promoting culturally acceptable iron sources, and improving awareness about nutrient absorption can help reduce anemia prevalence among women and adolescents.

The study was conducted because anemia was seen as a major health concern among adolescent and young adult girls**,** especially in India. Many students were reporting symptoms such as weakness, tiredness, and frequent illness, which are commonly linked to low hemoglobin levels. Researcher also noticed that dietary habits, cultural food restrictions, and irregular eating practices could be contributing factors. Since nursing students are expected to have better health awareness, the high possibility of anemia among them raised concern and required scientific assessment. The study also aimed to identify prevalence of anaemia among girls and to assess the food habits and cultural influence among Identified anaemic female students.

Materials and Methods

A quantitative, cross-sectional survey design was used to fluid out Anemia prevalence among female students of Maniba Bhula Nursing College between July 26, 2025, and July 28, 2025. Permissions were obtained from the Institutional Ethics Committee (ref no: MBNC/191/2025-26), the Principal of Maniba Bhula Nursing College. A total of 355 Female Students of Maniba Bhula Nursing College was screened. From this group, 191 girls were identified with anemia and were considered as the study sample. These participants were recruited using a consecutive sampling technique**.**

Data were collected through a structured questionnaire that included 8 demographic questions, 9 questions regarding menstrual and health history, Physical and physiological parameters, 25 questions for food habits and 25 questions for cultural influence. The content validity of the tool was established by seven experts, and the reliability was assessed by using test retest method and formula used was intra class coefficient (r = 0.912) for the food habit questionnaire and for cultural influence questionnaire (r = 0.876).

Data analysis included calculating the mean, standard deviation, range, and median for knowledge using SPSS version 22.0 (IBM SPSS Statistics). The Karl Pearson test was used to determine the correlation between the mean scores of food habit and cultural influence with haemoglobin.

Result

Findings of demographic variables

The demographic profile of the 191 anemic adolescent girls showed that the majority (58.6%) were between 17–20 years of age, followed by (38.7%) in the 21–24 years age group. Most participants were unmarried (99%), and only 1% were married. In terms of education, students were distributed across all academic years, with the highest proportion from the second year (33%), followed by first year (27.7%)**,**

third year (19.9%), and fourth year (19.4%). Regarding family income, (24.1%) belonged to families earning above ₹52,734 per month, while smaller proportions fell into decreasing income categories, with (4.7%) reporting income below ₹2,640 per month. Dietary patterns were almost equally divided, with (50.3%) vegetarian and (49.7%) non-vegetarian. A large proportion (78%) reported that health professionals were their primary source of information on iron deficiency anemia, while (11%) had no source of information. Concerning parental education, (39.3%) had parents educated up to high school, and (30.4%) had graduate-level educated parents. Parental occupation revealed that (43.4%) were engaged in skilled agricultural and fishery work, while (20.9%) were skilled workers, shop or market sales workers, and (18.8%) were in professional occupations.

Findings of Menstrual and Medical History

Among the participants, most of them reported a menstrual duration of 3–5 days (62.3%), while 30.4% experienced periods lasting more than 5 days. Heavy menstrual bleeding was noted by 36.1%, and 37.7% reported episodes of fainting or dizziness during menstruation. Nearly half (47.1%) experienced regular fatigue or weakness. More than half of the girls (55%) had been clinically tested for anemia, yet only 6.3% were currently taking iron or folic acid supplements. Additionally, regular health-centre visits were uncommon, with only 15.2% reporting routine check-ups.

Table1. Prevalence of anemia among female students of Maniba Bhula Nursing College
N = 355

Sl.No	Category	Frequency	Percentage
1	Severe Anaemia (<8 gm/dl)	5	1.42 %
2	Moderate Anaemia (8gm/dl to 10.9gm/dl)	97	27.32 %
3	Mild Anemia (11gm/dl to 11.9gm/dl)Normal	89	25.07 %
4	Normal	164	46.19 %
Total		355	100 %

The data from table 1 indicate that while nearly half of the participants (46.19%) had normal hemoglobin levels, a significant proportion (53.81%) were anemic to varying degrees. Moderate anemia was the most prevalent (27.32%), followed by mild anemia (25.07%), whereas severe anemia was relatively low (1.42%). This suggests that although severe cases are minimal, anemia remains a considerable health concern in the population, with more than half requiring nutritional or medical intervention.

Table 2 Range, mean, standard deviation and median height, weight, BMI and Hb level
N=191

Variables	Range	Mean	Standard deviation	Median
Height	137-175	154.22	6.32	153.0
Weight	31-99	48.30	11.99	45.0
BMI	13.70-41.8	20.29	4.85	19.1
Hb level	6.11-13.50	10.51	1.18	10.80

The data from table 2 reveal that the participants had an average height of 154.22 cm and a mean weight of 48.30 kg, with corresponding BMI values ranging widely (13.7–41.8) and averaging 20.29, indicating overall normal nutritional status with some underweight or overweight cases. The mean hemoglobin level was 10.51 g/dl**,** below the normal cut off, suggesting that anemia is prevalent in this group despite moderate variability in values.

Table 3 Range, mean, standard deviation and median Food Habit
N=191

Range	Mean	Standard deviation	Median
41-72	59.35	5.13	59.0

From table 3, it is evident that the food habit score shows a moderate range from 41 to 72, with a mean value of 59.35 and a relatively low standard deviation of 5.13**,** indicating that most values are clustered closely around the average. The median of 59 further confirms that the distribution is centered and consistent, with minimal variability among the participants.

Table 4: Range, mean, standard deviation and median score of cultural Influence
N=191

Range	Mean	Standard deviation	Median
33-58	43.65	4.23	43.0

From table no 4, it is evident that the cultural influence score shows a range from 33 to 58**,** with a mean of 43.65 and a low standard deviation of 4.23**,** indicating that the data points are closely grouped around the average. The median value of 43 aligns closely with the mean, suggesting a balanced distribution with minimal variability among the participants.

Table 5: Correlation between mean score of food habit and cultural influences among Identified anaemic female students
N=191

Variables	Mean	Standard deviation	r value (Karl Pearson's)	Type of correlation	p value
Food Habit	59.35	5.13	0.146	Low positive	0.044*
Cultural Influence	43.65	4.23			

*Significant at 0.05 level

Table no.5 shows a low positive correlation (r = 0.146) between food habit scores and cultural influence scores among anemic female students, which is significant at the 0.05 level (p = 0.044). This indicates that although the relationship is weak, better food habits and favourable cultural practices are mildly associated with each other in influencing the nutritional behaviour of the anemic participants.

Table 6: Correlation between mean score of food habit and Haemoglobin level among Identified anaemic female students

N=191

Variables	Mean	Standard deviation	r value (Karl Pearson's)	Type of correlation	p value
Food Habit	59.35	5.13	0.073	Low positive	0.313 (NS)
Haemoglobin level	10.51	1.18			

NS- Not significant

It is evident from table no.6 that the correlation analysis shows a low positive relationship (r = 0.073) between food habit scores and hemoglobin levels; however, this association is not statistically significant (p = 0.313). This indicates that in this sample, food habits did not have a meaningful influence on hemoglobin levels, suggesting that other factors may be contributing more strongly to anemia status.

Table 7: Correlation between mean score of cultural influence and Haemoglobin level among Identified anaemic female students

N=191

Variables	Mean	Standard deviation	r value (Karl Pearson's)	Type of correlation	p value
Cultural Influence	43.65	4.23	0.007	Low positive	0.921 (NS)
Haemoglobin level	10.51	1.18			

NS- Not significant

It is evident from table no 7 that the correlation between cultural influence scores and hemoglobin levels is very weak (r = 0.007) and statistically non-significant (p = 0.921). This indicates that cultural practices had no meaningful association with hemoglobin status among the participants. Overall, cultural influences did not appear to contribute to variations in anemia levels in this study sample.

Association between prevalence of anemia with selected socio demographic variables

The chi-square analysis shows that age, education level, and monthly family income have a statistically significant association with anemia severity among the 191 participants, as indicated by p-values of 0.036, 0.035, and 0.041 respectively. This suggests that younger age groups, lower education levels, and lower income categories are more likely to experience moderate or mild anemia. In contrast, marital status, consanguinity, dietary pattern, source of information about anemia, parental education, and parental occupation showed no significant association with anemia status ($p > 0.05$). Overall, the findings highlight that socio-demographic factors such as age, education, and economic status play an important role in anemia severity, while other variables do not appear to influence anemia levels in this sample.

DISCUSSION:

In present study 54% were found to be anemic, indicating a moderate to high prevalence rate. The maj-

ority of anemic students reported inadequate dietary intake of iron and protein, irregular meal patterns, and avoidance of certain foods (like meat, eggs, and leafy vegetables) during menstruation due to cultural beliefs. Significant associations were observed between anemia and socio-demographic variables such as age, education, family income, and dietary pattern ($p < 0.05$). A positive correlation was found between food habit scores and cultural influence scores, suggesting that restrictive cultural practices negatively impact nutritional status.

The findings are consistent with studies by Kaur et al. (2021) and Patel & Sharma (2020), which highlighted that poor dietary diversity and cultural restrictions during menstruation increase the risk of anemia among adolescent and young adult females. Cultural taboos such as avoiding "hot foods" like eggs, fish, and meat can lead to insufficient iron intake. Economic factors and lack of awareness further exacerbate the problem.

These findings underscore the need for continuous health education and dietary counseling programs, particularly for young women in academic institutions.[6]

LIMITATION

The study was limited to a one-time interaction with female students. The study was conducted in a single college only.

Since sample size was small, findings cannot be generalized.

CONCLUSION

Based on the study's findings, it was concluded that the participants had an average level of awareness and understanding of iron deficiency anemia and its prevention. To improve both awareness and practices, interventional measures such as nutritional supplementation, counseling, and education are necessary. Community health nurses should focus on educating individuals, providing counseling, and offering nutritional supplements. They can also demonstrate how to prepare iron-rich meals. Additionally, the government's initiatives to reduce iron deficiency anemia should be incorporated into health education programs.

Reference:

1. Bentley, M. E., & Griffiths, P. L. (2003). The burden of anemia among women in India. European Journal of Clinical Nutrition, *57*(1), 52–60. https://doi.org/10.1038/sj.ejcn.1601504
2. World Health Organization. (2023). Anaemia. https://www.who.int/news-room/fact-sheets/detail/anaemia
3. Singh, R. K., Patra, S., & Mondal, S. (2019). Cultural and dietary practices influencing anemia among adolescent girls: A review. Journal of Nutrition and Health Sciences, 6(2), 202–208.
4. World Health Organization. (2021). Global nutrition report: Addressing anemia in women and children. WHO.
5. Ministry of Health and Family Welfare. (2021). National Family Health Survey *(NFHS-5):* Fact sheets for India and states/*UTs*. Government of India.
6. Kaur, K., Pannu, P., & Singh, N. (2020). Prevalence and factors associated with anemia among adolescent girls in India: A review. International Journal of Community Medicine and Public Health, *7*(5), 1823–1828.

7. Toteja, G. S., & Singh, P. (2020). Micronutrient deficiency disorders in India: Prevalence, causes and intervention strategies. Indian Council of Medical Research.
8. Ministry of Health and Family Welfare. (2020). Anemia Mukt Bharat: Intensified National Iron Plus Initiative *(I-NIPI)* strategy. Government of India.
9. Bharati, S., Pal, M., & Bharati, P. (2019). Influence of socio-cultural factors on anemia among Indian women: A review. Journal of Biosocial Science, *51*(6), 831–845.