A Study to Assess the Prevalence of Anemia and Knowledge Regarding Anemia among Adolescent Girls of Selected Schools of Gurugram, Haryana

Jyoti[1], Varinder Kaur[2], Arindam Chatterjee[3]

[1]PG Tutor, SGT University, Gurugram, Faculty of Nursing, SGT University, Budhera, Gurugram, [2]Assistant Professor, MM University, Solan, College of Nursing, MM University, Solan, [3]Medical Officer, MBBS, MD(FMT) DCH Sonipat

Abstract

Background: Anemia is a major nutritional health problem in developing countries like India because of poor dietary habits and malnutrition. The prevalence of anemia is inordinately higher among adolescents as they are signalized by marked physical activity and rapid growth spurt; therefore they need additional nutritional supplements and are at utmost risk of developing nutritional anemia.

Materials and Methods: A quantitative research approach with descriptive Research design was adopted for the study. A total of 86 adolescent girls studying in Vinay public school, Gurugram, Haryana who met the inclusion criteria were selected using total enumerative sampling technique. The tools consists of demographic variables, knowledge questionnaire and Sahli's hemoglobinometer to assess the knowledge and prevalence regarding anemia.Reliability of the tool was established by Cronbach's alpha method and it was found to be 0.84Ethical permission was obtained from ethical committee SGT University and the written informed consent was taken from each participant before administering the tool

Results: Findings of the present study revealed that majority 81% adolescent girls have poor level of knowledge followed by 19% adolescent girls have moderate level of knowledge regarding anemia. Overall prevalence and knowledge regarding anemia has range value varied from of 3-16 with mean 9.8 and standard deviation 2.88. The area of residence had significant difference on knowledge score regarding anemia in adolescent girls when P value is ≤ 0.05.

Conclusion: Knowledge level affects the prevalence rate of anemia in adolescent girls. Majority of adolescent girls have poor level of knowledge. Most of adolescent girls fall under moderate category of anemia.

Key Words: *prevalence, anemia, knowledge, adolescent girls.*

Introduction

Anemia is the condition of having a lower-than-normal number of red blood cells or quantity of haemoglobin. Anemia diminishes the capacity of the blood to carry oxygen. Patients with anemia may feel tired, fatigue easily, appear pale, develop palpitations, and become short of breath. Children with chronic anemia are prone to infections and learning problems.[1]

Adolescents are vulnerable to both macro and micro nutrient deficiencies. Iron requirements increase due to growth during adolescence. Adolescent girls are particularly vulnerable group as their requirement of iron

Corresponding author:
Ms. Jyoti
PG Tutor, SGT University, Gurugram
Faculty of Nursing, SGT University, Budhera
Gurugram
Email: jyoti_nursing@sgtuniversity.org
Contact No.: 7404393216

as well as its loss from the body is high which may be due the blood loss during menstruation and poor dietary habits. The average monthly menstrual blood loss is about 45 ml and causes the loss about 22mg of iron as a result as peak in the prevalence of iron deficiency anemia frequently occurs among females during adolescence.

The world health report of World Health Organization (WHO) states that the world wide mortality rates of iron deficiency anemia is 60,404,000 in 2017. It also states that the world wide morality rate of iron deficiency anemia's 13,704,953 cases in India 2017 moreover the risk of anemia is further aggravated by poverty illiteracy, ignorance and lack of knowledge.[2]

According to National Family Health Survey (NFHS)–IV (2015-16), the prevalence of anemia among women aged 15 to 49 years is 53%. According to National Family Health Survey (NFHS)–IV (2015-16), the prevalence of anemia among adolescent girls aged 15-19 years is 54%. The disaggregate data of adolescent girls suffering from anemia in the country, urban and rural-wise is not available. In order to tackle this health problem, some initiative has been launched in the country. The initiative is targeted at all adolescents across the country with the aim for achieving haemoglobin level of 12 gm% by the age of adolescence by 2018. The important element of the initiative are as follows as capacity building , health and nutrition education, Increasing control through periodic, De-worming, Appropriate immunization.[3]

In India the prevalence of anemia among adolescent girls were 56% and this amount to an average 64 million girls at any point in time. Studies conducted in different regions of India shown that prevalence of anemia was 52.5% in Madhya Pradesh, 37% in Gujarat, 41.4% in Karnataka, 85.4% in Maharashtra, 21.5% in Shimla, 56.3% in Andhra Pradesh, 58.4% in Tamilnadu.

Need of the Study:

Chaudhary SM, DhageVR.(2018) conducted a cross sectional study on anemia among adolescent females in the urban area of Nagpur. Data was collected from 296 adolescent females aged between 10–19 years through simple random sampling method. Results depicted that the prevalence of anemia was found to be 35.1%. A significant association of anemia was found with socio-economic status and literacy status of parents. Mean height and weight of subjects with anemia was significantly less than subjects without anemia. Hence it is concluded that a high prevalence of anemia among adolescent females was found, which was higher in the lower socio-economic strata and among those whose parents were less educated. It was seen that anemia affects the overall nutritional status of adolescent females.[4]

Nutritional problems during Adolescents period are causing impact not only in girl's quality of life, also affect her family members and community as well. Anemia in adolescent age is one of the important public Health Problem which also increases morbidity significantly. Therefore the investigator thought that Nutritional Anemia is the most frequent among adolescent girls so they thought to do a research on assessment of the prevalence of anemia and knowledge regarding anemia among adolescent girls of selected schools of Gurugram.

Statement of Problem

A study to assess the prevalence of anemia and knowledge regarding anemia among adolescent girls of selected schools of Gurugram

Objectives of the Study

- To assess the prevalence of anemia among adolescent girls.
- To assess the knowledge regarding anemia among adolescent girls.
- To determine the association of knowledge score regarding anemia with selected demographic variables.

Review of Literature

A. noviani, D. Indarto, A. probandari (2017) conducted a cross sectional study on high prevalence

anemia in female adolescents with low intake of vitamins and minerals. Data was collected from 120 female adolescents girls aged between 13-17years. Results illustrated that 37.5% female adolescents was found anemic and the result of chi-square analysis indicated a positive association between folic acid (OR=1.6), Magnesium (OR=1.17) and Manganese (OR=1.97) and anemia, but it was not significant. Inadequate vitamin B12 intake increased 1.78 times anemia risk. Thus, it is concluded that higher risk of anemia was found in female adolescents with inadequate intake of Vitamin B12 and Magnesium.[5]

Ahankari A.S, Myles P.R, Fogarty A.W, Dixit J.V, Tata L.J (2017) conducted a cross-sectional study on 13 to 17 years old adolescent girls living in 34 villages of Osmanabad district. Data was collected from 1010 adolescent girls on individual health, dietary, socio demographic factors, and anthropometric measurements were taken. Logistic and linear regressions were used to identify risk factors associated with IDA and Hb levels, respectively. Results demonstrated that 87% had anemia. The prevalence of anemia was 17% were having mild anemia followed by 65% were having moderate while 5% were having severe anemia. Therefore, it is concluded that anemia prevalence was extremely high among adolescent girls in rural area of Maharashtra. There is urgent need of comprehensive preventive intervention for the adolescent girl's population.[6]

A.K. Arya, P. Lal, N. Kumar, S. Barman (2017) conducted a cross sectional study to determine the prevalence of anemia among adolescent girls in an urban slum of Kanpur, Uttar Pradesh. Data was collected from 400 adolescent girls aged between 10-19 years. Results depicted that the prevalence of anemia among adolescent girls was found to be 78.5%, of which 40% had mild followed by 33% had moderate while only 5.5% had severe anemia. Thus it is concluded that anemia was significantly higher among the adolescent girls whose mothers were either illiterate or having only primary education and those belonging to lower socioeconomic status. A special attention is needed to improve their haemoglobin status through proper implementation of intervention programs such as iron and folic acid supplementation and dietary modifications along with special emphasis on health education.[7]

Material and Methods

The study was conducted from October 2019-December 2020.A quantitative research approach with descriptive Research design was adopted for the study. A total of 86 adolescent girls studying in Vinay public school, Gurugram, Haryana who met the inclusion criteria were selected using total enumerative sampling technique. The conceptual framework of the study is based on General system model. The tools consists of demographic variables, knowledge questionnaire and Sahli's hemoglobinometer to assess the knowledge and prevalence regarding anemia. Reliability of the tool was established by Cronbach's alpha method and it was found to be 0.84. Ethical permission was obtained from ethical committee SGT University and the written informed consent was taken from each participant before administering the tool. The data was analyzed and interpreted in terms of objectives of the study. Descriptive and inferential statistics were utilized for the data analysis. A p value ≤ 0.5 was considered as significant for the present study.

Findings

TABLE 1: Frequency and % Distribution of adolescent girls in terms of selected demographic variables

N= 86

S.No.	Demographic variables	f (%)
1.	**Age(years)** a. 13-14 b. 15-16 c. Up to 18 years	 37 (43%) 47 (54%) 2 (3%)
2.	**Education** a. 8th b. 9th c. 10th d. 11th e. 12th	16 (19%) 30 (35%) 21 (24%) 13 (15%) 6 (7%)
3.	**Religion** a. Hindu b. Muslim c. Christian d. Others	85 (98%) 1 (2%) - -
4.	**Type of family** a. Nuclear b. Joint family c. Extended family d. Single parent	 33 (39%) 49 (57%) 2 (2%) 2 (2%)
5.	**Mother's educational status** a. No formal education b. Primary c. Secondary d. Higher secondary e. Undergraduate and above	 6 (7%) 24 (28%) 39 (45%) 14 (16%) 3 (4%)

Cont... **TABLE 1: Frequency and % Distribution of adolescent girls in terms of selected demographic variables**

N= 86

6.	Father's educational status a. No formal education b. Primary c. Secondary d. Higher secondary e. Undergraduate and above	 3 (3%) 13 (15%) 31 (36%) 28 (33%) 11 (13%)
7.	Family income per month a. less than Rs.10000 b. 10000-20000 c. 20000-30000 d. More than 30000	 19 (22%) 32 (37%) 16 (19%) 19 (22%)
8.	Area of residence a. Urban b. Rural	 23 (28%) 63 (73%)
9.	Type of diet a. Vegetarian b. Non vegetarian c. Eggetarian	 60 (70%) 9 (10%) 17 (20%)
10.	Onset of menarche a. Yes b. No	 64 (74%) 22 (26%)
11.	History of taking iron supplements a. yes b. no	 14 (16%) 72 (84%)
12.	Source of health information? a. newspaper/ magazine b. radio/ television c. friends/ relatives d. health professionals	 12 (14%) 17 (20%) 39 (45%) 18 (21%)
13.	Do you have knowledge regarding anemia? a. Yes b. No	 34 (39%) 52 (61%)

Data presented in table 1 depicted that nearly half (54%) of adolescent girls belongs to age group 15-16 years. 35% of adolescent girls were studying in class 9th. Majority (98%) of adolescent girls belongs to Hindu religion. Most (57%) of adolescent girls were having joint family.Nearly half (45%) of adolescent girl's mother had secondary education 36% of adolescent girls father were having secondary education. 38% of adolescent girls' family income per month was Rs.10000-20000. Most (73%) of adolescent girls were from rural area of residence and most (70%) of adolescent girls were having vegetarian diet. Most (74%) of adolescent girls had attained onset of menarche and majority (84%) of adolescent girls had no history of taking iron supplements. Majority (61%) of adolescent girls were having no knowledge regarding anemia.

Findings revealed that majority of the participants (81%) of had inadequate level of knowledge followed by 19% with moderately adequate level of knowledge.

TABLE 2: Prevalence and severity of anemia among adolescent girls.

N=86

Severity of anemia	Percentage %
Mild (10-11gm/dl)	37.5
Moderate (7-10gm/dl)	55.6
Severe (<7gm/dl)	6.9

Findings represented that 37 partipants had moderate anemia followed by 27 participants with mild and only 5 with severe anemia. Findings also revealed that knowledge score ranged from 3-16. The mean knowledge score & standard deviation was 9.8±2.88.It is also concluded that area of residence had significant difference on knowledge score regarding anemia in adolescent girls.Whereas selected demographic variables of adolescent girls age, education, religion, type of family, mother's education status, father's education status, family income per month, type of diet, onset of menarche, history of taking iron supplements, sources of health information were not statistically significant at 0.05 level of significance.

Discussion

Findings in the present study revealed that half (54%) of the girls were between the age group 15-16 years. Nearly half (35%) of girls were studying in class 9. Most (73%) of adolescent girls were from rural area of residence. Most (57%) of adolescent girls were having joint family. Most (74%) of adolescent girls had attained onset of menarche while 26% of adolescent girls had not attained onset of menarche. The findings are consistent with the findings of the study conducted by Toppo M, etal[8]where it was found that the most of girls (36.4%) belong to age group 14-16 years. Mostly (80%) of girls had attained menarche.

The result shows that majority (81%) of adolescent girls have poor level of knowledge followed by 19% adolescent girls having moderate level knowledge regarding anemia. Not a single girl had good level of knowledge regarding anemia. The findings are consistent with the findings of R.Sridevi[9] where it was found that the maximum 43 (61.4%) adolescent girls are having inadequate level of knowledge regarding anemia, 26 (37.1%) adolescent girls are having moderate level of knowledge regarding anemia and1 (1.5%) adolescent girls are having adequate level of knowledge regarding anemia.

Conclusion

The following conclusions were drawn from the findings of the study:

- Knowledge level affects the prevalence rate of anemia in adolescent girls.
- Majority of adolescent girls have poor level of knowledge followed by few who had moderate level of knowledge regarding anemia.
- Most of adolescent girls were from rural area of residence while some were from urban area.

· Demographic variables mother's educational status, father educational status, family income per month, had significant difference on knowledge score regarding anemia in adolescent girls.

· Mostly of adolescent girls falls under moderate category of anemia.

Implication of The Study

The findings of the study have several implications which are discussed under the following areas.

Nursing Pratice

· Nurses are the backbone of every health care set up of any country. The nursing practice has gone under many evolutions in the recent past. The expanded role of professional nurse is to emphasize the activities which include the promotive, preventive, curative and the rehabilitative aspects. The nurse educator has the responsibility to update the knowledge of adolescent girls. They should be able to identify and understand the knowledge regarding prevention of anemia in adolescent girls.

· The nursing personnel working in the community unit must be well acquainted with knowledge regarding the prevention of anemia in adolescent girls of age group 13-18 years.

· The study has an important implication in the nursing education and other fields. Nurse educator has the responsibility to upgrade the knowledge regarding prevention of anemia in the adolescent girls of age group 13-18 years.

· In service and continue education programs needs to be planned and implemented for the health care personnel to upgrade the knowledge regarding prevention of anemia in adolescents' girls age group 13-18 years.

· The nursing educator /clinical instructor should be encouraged the adolescent's girls and their parents to improve their knowledge regarding prevention of anemia among the adolescent's girls age group 13-18 years.

· By adopting the different teaching strategies like lectures, seminars, related video and workshops regarding prevention of anemia can be disseminated effectively.

Nursing Administration

· Administrator should include the questionnaire for the adolescent girls to assess the knowledge regarding prevention of anemia among adolescent girls age group 13-18 years.

· The nurse as an administrator organizes and conducts teaching programs for the adolescent girls regarding prevention of anemia among adolescent girls age group 13-18 years.

· Nurse administrator should be aware about the general problem faced by the adolescent girls regarding prevention of anemia.

· Nurse administrator should ensure that there are adequate facilities of using different types of strategies to conduct the programs on prevention of anemia among adolescent girls age group 13-18 years.

Nursing Research

· Nursing research is a strong foundation for the evidence-based nursing. Hence nursing staffs and students should be encouraged to conduct research. Research provides knowledge regarding the prevention of anemia among adolescent girls age group 13-18 years.

· Research studies need to be explored in the other health care setting to make timely referral of parturient in order to save their lives as women's health is Nation's health.

Recommendations

Ø Similar studies can be undertaken on a large sample for making a more valid generalization.

Ø Study can be conducted on different samples.

Ø A comparative study can be conducted to assess effectiveness of structured teaching program with other instructional methods.

Ø A correlation study can be conducted to analysis of knowledge regarding prevention of anemia among adolescent girls age group 13-18 years.

Ø The study can be replicated on large sample size.

Ø A similar study can be done to assess the prevalence and knowledge regarding anemia in adolescent girls of urban population.

Ø A similar study can be performed for various diseases.

Ø A similar study can be done to compare the prevalence and knowledge regarding anemia in adolescent girls of urban and rural population.

Ethical Consideration: Ethical approval to conduct this study was obtained from DRC and the ethical committee of the Faculty of Nursing, SGT University.

Conflict of Interest : There is no conflict of interest among the authors.

Source of Funding: Self

References

1. William C. Shiel Jr., Definition of Anemia. Available from: https://www.medicinenet.com/script/main/art.asp?articlekey=15491
2. World Health Organization, Global Nutrition Targets 2025: Anemia Policy Brief, 2014, https://www.who.int/nutrition/publication/globaltargets2025_policybrief_anemia/en/.
3. Press Information Bureau, Anaemia in women. Available from: https://pib.gov.in/PressReleasePage.aspx?PRID=1575151
4. Chaudhary SM, Dhage VR. A study of anemia among adolescent females in the urban area of Nagpur. Indian J Community Med. 2008 Oct; 33(4):243-5. doi: 10.4103/0970-0218.43230. PMID: 19876498; PMCID: PMC2763695.
5. AniNoviani, DonoIndarto, Ari Probandari. High Prevalence Anemia in Female Adolescents with Low Intake of Vitamins and Minerals. 2nd Public Health International Conference, 2017; Atlantis Press: 2468-5739.
6. Ahankari A.S, Myles P.R, Fogarty A.W, Dixit J.V, Tata L.J. Prevalence of iron-deficiency anemia and risk factors in 1010 adolescent girls from rural Maharashtra, India: a cross-sectional survey. Public Health 2017; 142: 159-166.
7. Arya AK, Lal P, Kumar N, Barman S. Prevalence of anemia among adolescent girls in an urban slum of Kanpur, Uttar Pradesh. Int J Med Sci Public Health 2017; 6(9):1378-1381.
8. Patil N, Jagadeesh KV, Priyanka KY, Kari A, Angolkar M. Prevalence of anemia among adolescent girls in a North Karnataka school: a cross sectional study. Int J Community Med Public Health 2018; 5: 5360-4.
9. Divya D, Kokilamma D, Sudharani P, Sreelatha. A study to assess the knowledge regarding measures to improve haemoglobin levels among adolescent girls at selected colleges Tirupati. International Journal of Applied Research 2017; 3(8): 648-652.