

IRON DEFICIENCY ANEMIA AMONG ADOLESCENT GIRLS – A REVIEW**Ms. Geetanjali Behera* | Dr. Brintha Balakrishnamony******Research Scholar, Himalayan University, Itanagar, Arunachal Pradesh, India.****Professor, Himalayan University, Itanagar, Arunachal Pradesh, India.***DOI: <http://doi.org/10.47211/tg.2021.v08i03.019>****ABSTRACT**

Anemia is a condition where there is a deficiency of red blood cells in the body. This can lead to a lack of oxygen in the body, which can cause fatigue, weakness, and shortness of breath. Adolescent girls are at a higher risk of developing anemia due to factors such as menstruation, poor nutrition, and pregnancy.

Anemia can be caused by a variety of factors. One of the most common causes of anemia in adolescent girls is iron deficiency. Iron is an essential mineral that is needed to make hemoglobin, the protein in red blood cells that carries oxygen throughout the body. Without enough iron, the body cannot produce enough red blood cells, which can lead to anemia. Pregnancy can also increase the risk of anemia in adolescent girls. During pregnancy, the body needs more iron to support the growth and development of the fetus. If the body does not have enough iron, it can lead to anemia. It is important for pregnant adolescent girls to get regular prenatal care and to take iron supplements as prescribed by their doctor. By conducting a review of literature, it can identify existing research on anemia among adolescent girls and gaps in the research. This can help researcher to develop a research question and to design a study that addresses the gaps in the research.

Key Words: *Iron deficiency, review or literature, anemia, adolescent girl.*

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INTRODUCTION

By conducting a review of literature, researcher wanted to identify existing research on anemia among adolescent girls and gaps in the research. It may help to develop a research question and to design a study that addresses the gaps in the research.

Adolescent girls are at a higher risk of developing iron-deficiency anemia due to factors such as menstruation. During menstruation, girls lose blood, which can lead to a decrease in iron levels in the body. Additionally, girls may not be getting enough iron in their diet, which can also contribute to anemia. Foods that are rich in iron include red meat, poultry, fish, beans, and leafy green vegetables. Pregnancy can also increase the risk of anemia in adolescent girls. During pregnancy, the body needs more iron to support the growth and development of the fetus. If the body does not have enough iron, it can lead to anemia. It is important for pregnant adolescent girls to get regular prenatal care and to take iron supplements as prescribed by their doctor. Iron deficiency causes approximately half of all anemia cases worldwide, and affects women more often than men. "Anemia is a condition in which the number of red blood cells or their oxygen carrying capacity is insufficient to meet physiologic needs, which vary by age, sex, altitude, smoking, and pregnancy status". The red blood cells (RBCs) constitute the most abundant component of human blood and are responsible for providing life-supporting oxygen to other cells of the body. Haemoglobin, a pigment present in red blood cells, binds oxygen and delivers it to various cells in the body. A lower number of RBCs, poor haemoglobin concentrations, or inability of haemoglobin to transport sufficient oxygen result in decreased oxygen transport to the body cells and subsequent physiological effects. The amount of Iron absorbed by the body depends not only on the amount consumed through the diet, but also how much of that can be absorbed and assimilated within the body. Iron present in plant-based foods (non-haem iron) has lower absorbability than that present in animal foods such as red and organ meats (haem iron). Since loss of iron occurs through menstrual bleeding in women of reproductive age, iron needs are higher in women than in men. **(Sonu Meena, 2018).**

Anemia is one of the most widespread nutritional deficiency diseases and a major public health concern affecting the entire world, of all the ages, both gender and is often ignored in both developed and developing countries. Anemia is classified into three degrees according to WHO: mild, moderate and severe. Hb cut-off values of anemia are 10.0-11.9 g/dl (mild), 7.0- 9.9 g/dl (moderate) and < 7.0 (2) g/dl(severe). Nutritional anemia is one of India's major public health problems, where more than 60% is prevalent in adolescent girls. There are other conditions, causing anemia such as folate, vitamin B12 and vitamin-A deficiencies, chronic inflammation, parasitic infection, and inherited disorders. **(Toteja ,2006)**

Upadhye JV and Upadhye JJ (2017) in their article entitled evaluation of iron deficiency in juvenile young ladies. The examination results uncovered that; the predominance of sickliness was seen as 90%. A critical relationship of paleness was found with financial status and education status of guardians. Mean tallness and weight of subjects with sickliness was essentially not as much as subjects without iron deficiency. A high pervasiveness of pallor among juvenile females was found, among those whose guardians were less instructed. The investigation inferred that, the general predominance of iron deficiency among young adult females was seen as 90%. There is critical association of anemia health illness with financial status and guardians' instructive status. There is have to expand consciousness of weakness in young adult young ladies and guardians. Iron deficiency is a major cause of anemia and is more prevalent in developing countries, posing additional burden on health care systems, in the presence of scarcity of resources. The high- risk group consists of females and children, but comparatively it is higher in females due to physiological reasons. **(Minaz et al, 2016)**

Aulakh R.(2016) reported the association between earlier menarche age and risk of anemia has also been observed in previous studies documenting much higher prevalence rates of anemia among post-menarchael girls than pre-menarchael girls. This could be because of hormonal changes which occur at the time of onset of menarche and blood loss during menstruation.

Adolescent girls are one of the important segments of the population. They are the future mothers whose nutritional status affects that of the newborn baby. A study highlights the fact that it is not common to have anemia among girls who are over nourished or obese. Adolescence anemia increases with age of the adolescent. Occurrence of anemia was not associated with religion, type of family, birth order, education status and occupation of parents. Non-availability of nutritional food, lack of money for buying food, traditional beliefs and taboos about diet and insufficient balanced diet are resulting in anemia. This is the underlying and associated cause of childhood illness and death. It makes the child susceptible to infection, and lower recovery from illness **(Chauhan et al, 2015)**

Nguyen et al, (2015) developed the complex etiology of anemia to direct appropriate prevention strategies. Number of children and socio-economic status were directly associated with Hb concentration. Similarly, RBP was directly (0.27 per mg/dl) associated with Hb and also indirectly (0.09 per mg/dl) with ferritin. Hookworm infection was indirectly associated with Hb through RBP and ferritin.

Premalatha, (2012) conducted a study to estimate prevalence of iron deficiency anemia and the associated factors that induce iron deficiency anemia. A cross-sectional survey was carried out among 400 selected school adolescence girls and the prevalence of anemia was found to be 78.75%.

Karkada, (2010) A qualitative analysis study was conducted on factors influencing anaemia among anemic adolescent girls. The purpose of the study was to analyze the factors influencing anaemia among anemic adolescent girls. Data was collected using interview method from a sample of 10 adolescent girls who were selected from rural areas of Udupi district, Karnataka using small non-probability purposive sampling method. The result shown that factors responsible for anaemia among anemic adolescent girls were decreased calorie intake, protein intake and iron intake. The study concluded that the knowledge of causes of anaemia among adolescent girls about food containing iron was less.

Bhanushali, et al., (2010) stated that the main reason of Iron deficiency anemia is excessive loss of iron or demand of iron associated with menstruation and child birth. Due to poverty, inadequate diet, pregnancy, lactation, poor educational level and poor access to health services women become an easy prey for anemia.

Mei Ciu Chang, et al., (2009) highlighted the prevalence of anemia in healthy adolescent girls and a reproductive-age group of adult women residing in an urban area. A total of 441 individuals comprising healthy, non-pregnant, non-lactating, reproductive-age women (aged 13 to 50 years) participated in the study. Prevalence of anemia amongst adults (41.7%) was higher than adolescents (28.3%). Nutrient intake of anemic adolescents was lower than nonanemic adolescents. The results highlighted on the prevalence of anemia among the adolescent girls and reproductive-age group of women, which may be helpful in combating this common disorder in the urban population.

Niba Johnson et al 2016 conducted a study on a study on knowledge regarding prevention of iron deficiency anemia among adolescent girls in selected pre-university colleges of mangaluru. The study result showed that majority (84%) of the study sample had moderately adequate knowledge, 11% had inadequate knowledge and 5% had adequate knowledge on prevention of iron deficiency anaemia. There was no significant association found between knowledge scores and the selected demographic variables of the adolescent girls ($p > 0.05$)

Siva PM et al 2016 conducted a study on Prevalence of Anaemia and Its Associated Risk Factors Among Adolescent Girls of Central Kerala. **Results:** The prevalence of anaemia was 21%. Risk factors associated with anaemia in the univariate analysis were presence of ova or cyst in stool ($p = 0.003$, OR = 2.94) and number of pads per day during menstruation ($p = 0.004$). Protective factors were hand washing after toileting ($p = 0.021$, OR = 0.311), hand washing before food intake ($p = 0.026$, OR = 0.5), foot wear usage ($p = 0.022$, OR = 0.25) and jaggery consumption (0.042). The factors which were significant in logistic regression were worm infestation, number of pads per day, washing hands before food intake and foot wear usage.

Mohan RJ, Sujatha (2008) T. An experimental research study was conducted to assess the effectiveness of nutritional intervention among women with anaemia in a selected village, Thiruvallur district. The objective of the study was to determine the effect of consuming nutritive balls on hemoglobin level of women with anaemia. The sample consisted of 60 anemic women in the age group of 15-45 years were selected by simple random sampling method, in which 30 anemic women in experimental group and 30 anemic women in control group. The intervention included preparation of nutritive balls by the investigator. The result shown that in experimental group, pretest Hb is 9.59 gm and post test is 10.18 gm, the gain score is 0.59 gm whereas in control group, 0.07 gm score is observed, thereby the effect of nutritive balls was proven.

Sajjan TJ. (2008) A study was conducted on Consumption pattern of green leafy vegetables and impact of nutrition education on hemoglobin status of rural adolescent girls in Dharwad. A total of 300 school going adolescent girls were selected in the age group of 13-16 years. Prevalence of anaemia was found to be 100%. Specific information on the consumption pattern of green leafy vegetables indicated that the adequacy of green leafy vegetable was less than ten percent. Nutrition education intervention resulted in significant increase in the mean knowledge scores. The mean pretest knowledge score was 13.70 and was increased to 24.43 after intervention. The study concluded that, nutrition education is one of the appropriate, effective and sustainable approaches to combat iron deficiency anaemia.

CONCLUSION

In conclusion, anemia is a condition where there is a deficiency of red blood cells in the body. Adolescent girls are at a higher risk of developing anemia due to factors such as menstruation, poor nutrition, and pregnancy. Symptoms of anemia can include fatigue, weakness, and shortness of breath. Treatment for anemia may include iron supplements and dietary changes. Iron supplements can help to increase the amount of iron in the body, which can help to increase the production of red blood cells. Dietary changes can also help to increase the amount of iron in the body. Foods that are rich in iron include red meat, poultry, fish, beans, and leafy green vegetables.

REFERENCES

1. Toteja, G. S., Singh, P., Dhillon, B. S., Saxena, B. N., Ahmed, F. U., Singh, R. P & Sarma, U. C. (2006). Prevalence of anemia among pregnant women and adolescent girls in 16 districts of India. *Food and Nutrition Bulletin*, 27(4), 311-315
2. Upadhye JV, Upadhye JJ. Assessment of anemia in adolescent girls. *Int J Reprod Contracept Obstet Gynecol* 2017;6:3113-7.
3. Minaz Mawani, Savera Aziz, Gulshan Bano, Sumera Aziz (2016). Iron deficiency anemia among women of reproductive age, an important public health problem: situation analysis. *Reproductive system & sexual disorders: current research*. 5(3):1-6.
4. Aulakh R. (2016) Adolescent Anemia: Risk Factors. *Int J Pediatr Res*.2016;3(7):478-479.doi:10.17511/ijpr.2016.7.15
5. Chauhan AS, Chauhan SR, Bala DV (2015). Anemia among adolescent girls and its socio- demographic associate. *International multispecialty journal of health*.1(9):1-8.
6. Nguyen, P.H., Gonzalez-Casanova, I., Nguyen, H., Pham, H., Truong, T.V., Nguyen, S., Martorell, R., & Ramakrishnan, U. (2015) Multicausal etiology of anemia among women of reproductive age in Vietnam. *European Journal of Clin Nutr*. 69(1): 107-
7. Premalatha, T., Valarmathi, S., Srijayanth, P., Sundar, J.S. & Kalpana, S. (2012). Prevalence of Anemia and its Associated Factors among Adolescent School Girls in Chennai, TamilNadu, INDIA. *Epidemiology*. 2:118
8. Karkada, S. (2010). Factors influencing anemia among anemic adolescent girls a qualitative analysis. *Nightingale*. 6(2): 2730
9. Bhanushali, M.M., Shirode, A.R., Joshi, Y.M., & V.J. Kadam (2010). An intervention on iron deficiency anemia and change in dietary behaviour among adolescent girls. *International Journal of Pharmacy and Pharmaceutical Sciences*. 3: 40-42
10. Mei Ciu Chang, Bee Koon Poh, Janice June, Norsakira Jefrydin & Srijit Das (2009). A study of prevalence of anemia in adolescent girls and reproductive-age women in Kuala Lumpur. 5(1): 63-68
11. Sonu Meena , Mrs. Yashaswinideepak, "Effectiveness of Structured Teaching Programme on Knowledge Regarding Iron Deficiency Anemia Among Adolescent Girls In Higher Secondary School", *IOSR Journal of Nursing and Health Science (IOSR-JNHS)* e- ISSN: 2320–1959.p- ISSN: 2320–1940 Volume 7, Issue 2 Ver. VI (Mar-Apr .2018), PP 76-80 www.iosrjournals.org DOI:10.9790/1959-0702067680 www.iosrjournals.org
12. Niba Johnson, Noufeena D. Y., Parvathi1, Priya Joseph, Priya Reshma Aranha, Asha P. Shetty A STUDY ON KNOWLEDGE REGARDING PREVENTION OF IRON DEFICIENCY ANEMIA AMONG ADOLESCENT GIRLS IN SELECTED PRE- UNIVERSITY COLLEGES OF MANGALURU. *Int J Cur Res Rev | Vol 8 • Issue 18* September 2016
13. Siva PM, Sobha A, Manjula VD. Prevalence of Anaemia and Its Associated Risk Factors Among Adolescent Girls of Central Kerala. *J Clin Diagn Res*. 2016 Nov;10(11):LC19-LC23. doi: 10.7860/JCDR/2016/20939.8938. Epub 2016 Nov 1. PMID: 28050409; PMCID: PMC5198362