



INTERNATIONAL JOURNAL OF AYURVEDA AND PHARMACEUTICAL CHEMISTRY

(A peer reviewed journal dedicated to allied Sciences)

PUBLISHED BY

Greentree Group Publishers (GGP)
greentreegrouppublishers@gmail.com

Volume 10 Issue 2 | 2019

CONTACT DETAILS

- submittoijapc@gmail.com
- www.ijapc.com
- e issn 2350-0204
- editor@ijapc.com

INDEXED IN

Open Access Scholarly Resources, ZB MED Germany, ZB MED Search Portal for Life Sciences, ZDB, Electronic Journals Library, Directory of Research Journals Indexing, I2OR, IP Indexing Portal, Geneva Foundation for Medical Education and Research, hbx composite catalog and many more..



A Cross Sectional Study to know Prevalence of Anemia among Young Girl Students

Jagruti Chaple*

*Department of Kriya Sharir, Mahatma Gandhi Ayurved medical College, Hospital & RC, Salod (H) Wardha, M.S, India

ABSTRACT

Background-

The prevalence of anemia is more in young girl students which is primarily due to improper nutrition intake; One of the common reasons for anemia among young girl is the increase prevalence of menstrual bleeding. The objective of our study was to study the anemia prevalence among girls studying in DMIMS.

Material and Methods: Crosssectional study was conducted among 100 BAMS girl students between the age 18-28 years in Mahatma Gandhi Ayurved Medical College and Research centre, Salod (H), DMIMS Wardha. Informed written consent was taken from the participant students. WHO criteria were taken for determining severity of anemia with determined hemoglobin (Hb) concentration.

Result: Among the study subjects, 74% (n=100) had anemia as per the WHO criteria. When assessed by WHO criteria of anemia severity, out of the 74% anemic girl students, 58% were mildly anemic and only 16% were moderately anemic and no subject was found severely anemic. Majority of the anemic subjects had mild anemia. Study showed that 15% girl students were having bleeding more than 5 days and 47% subjects with 5 days bleeding during menstruation and 15% students were the victim of irregular menstrual cycle. In 13% students heavy menstrual bleeding was found and 19% students were having low appetite. These were some contributing factors for anemia. No any history was found regarding previous illness.

Conclusion: Present study revealed that the anemia prevalence among DMIMS health science students to be 74%. The common reasons for anemia among young girls is the increase prevalence of menstrual bleeding and improper nutrition intake. The intervention needed are providing health education on the ill effect of anemia and the life style modification such as eating habits along with nutritional supplementation.

KEYWORDS *Anemia, Prevalence, DMIMS, MGAMC*



Greentree Group Publishers

Received 21/12/19 Accepted 08/03/19 Published 10/03/19



INTRODUCTION

Anemia is the condition in which there is a deficiency of red blood cells or hemoglobin in the blood. It is one of the world's most widespread nutritional problems¹. World Health organization (WHO) reports highest prevalence of anemia in India within the South Asian countries². Moreover, prevalence of anemia is high in all states of India³.

The anemia prevalence is very high in India due to-

I) Low Dietary intake of iron (less than 20 mg/day and the folic acid intake (less than 70mg/day)

II) Poor bioavailability of iron (3-4% only) in phytate and fiber rich Indian diet and

III) Infection such as malaria and hookworm infestation which leads to chronic blood loss⁴.

Anemia has major detrimental effects on the health of society. Apart from this, it also affects socio-economic development of the state as well as nation. Women and neonates suffers lot of consequences of anemia that includes increased risk of low birth weight, prenatal, intranatal and neonatal mortality, prematurity, inadequate iron stores for the new born, increased risk of maternal morbidity and mortality and lowered physical activity, mental concentration and productivity. Those women having mild

anemia may experience weakness, lethargy and fatigue and reduced work capacity⁵. Adolescence being the phase of rapid growth, has an increased demand for iron requirement both boys and girls but more so in girls because of menstruation. Anemia not only affects the present health status of girls and also causes lot of health issue but also has various harmful effects in future pregnancy, that puts the women at three times more risk of low birth weight deliveries and nine times higher risk of prenatal mortality thus contributing significantly for increased infant mortality rate and 30% maternal mortality⁶.

The anemia prevalence is more in girl students due to several factors like irregular nutritional intake, and menstrual bleeding. Major work regarding prevalence of anemia has been done in pregnant females, adolescents and young children. There are relatively few studies in adolescent population of our country. So the present study was conducted to determine the anemia prevalence in urban, educated and young girl students of Ayurved in the age group 18-28 years.

MATERIALS AND METHODS

Cross sectional study was carried out on 100 randomly selected healthy girls students between 18 to 28 year age group in Mahatma Gandhi Ayurved Medical



College and Research centre, Salod (H), DMIMS Wardha. Approval was taken from the Institutional ethics committee (Datta Meghe Institute of Medical Sciences, Deemed to be University, Wardha) on 31.12.2015 (Ref.No. DMIMS (DU)/IEC/2015-16/1771). Informed written consent was taken from the study subjects. Students were interviewed by predesigned questionnaire that contains the information regarding awareness of Anemia, Nutritional status, Menstrual cycle, H/O worm infestation, any other disease and Hemoglobin status. Information was collected in a friendly atmosphere after obtaining written informed consent from the girls. One ml of venous blood drawn by vein puncture (Ante Cubital vein) under aseptic precaution was collected with EDTA (Ethylene Diamine Tetra Acetic Acid). Hemoglobin was estimated by Sahli's method in the department of Kriyasharir, MGAMCH and RC, Salod (H) Wardha.

All the data thus collected was compiled, tabulated and analyzed statistically. The WHO classification of anemia was used for classifying the subjects according to severity of anemia⁷. as shown in Table 1.

OBSERVATION AND RESULTS

The anemia prevalence in educated, young, unmarried college going Ayurved girl

students with body weight more than 45kg in age group 18-28 years was 74%.

Table 1 World Health Organization criteria for the classification of anemia

Grading of anemia	Non pregnant females
No anemia	>12 g/dl
Mild anemia	10-11.99 g/dl
Moderate anemia	7-9.99 g/dl
Severe anemia	<7 g/dl

Out of the 74 % anemic, 58% were mildly anemic i.e. Hb was in range of 10-11.99 gm% and only 16 % were moderately anemic i.e. Hb was in range of 7-9.99 gm%, no subject was found severely anemic. The lowest Hb recorded was 8.2g/dl. The highest Hb record was 13.8g/dl, summarized in **Table 2**.

Table 2 Classification of subjects for anemia as per the WHO

WHO Classification of anemia	No. of subjects = (Total subjects=100)
No anemia (Hb: >12 g/dl)	26
Mild anemia (Hb: 10-11.99 g/dl)	58
Moderate anemia (Hb: 7-9.99 g/dl)	16
Severe anemia (Hb: <7 g/dl)	Nil

In this study the menstrual bleeding for more than 5 days was found among 15% girls while 47% subjects were with 5 days menstruation cycle and 15% students were the victim of irregular menstrual cycle. Heavy menstrual bleeding was found in 13% students and 19% students were having low appetite. No any history was found regarding previous illness. 68% girl student's complaint of hair fall. Nutritional intake was inadequate, irregular and with consumption of less calories, low iron rich



foods and green leafy vegetables. Study shows 46% girls were on vegetarian diet. These are some contributing factors for anemia.

Table 3: Contributing factors of anemia

	Heavy	Normal	Total
Menstrual flow	13	87	100
Menstrual bleeding days	<5days	5days	>5days
	38	47	15
Menstrual cycle	Regular	Irregular	Total
	85	15	100
Diet	Veg	Mix	Total
	46	54	100
H/o Worms	Present	Absent	Total
	1	99	100
Appetite	Normal	Low	Total
	81	19	100

Summarized data of **Table no.3** shows the menstrual bleeding for more than 5 days was found among 15% girls while 47% subjects were with 5 days menstruation cycle and 15% students were the victim of irregular menstrual cycle. Heavy menstrual bleeding was found in 13% students and 19% students were having low appetite. History of worm was found only in 1% student. No any history was found regarding previous illness. 68% girl

Any other symptoms	Hair fall	Stomatitis	Dyspnoea	Other no Symptoms	Total
	68	6	1	25	100

In a study done by Dr. Gurpreet et al. performed among urban, college going girl students, the prevalence of anemia was 36.49%¹⁰. While in this study we found

students complaint of hair fall. Nutritional intake was inadequate, irregular and with consumption of less calories, low iron rich foods and green leafy vegetables. Study shows 46% girls were on vegetarian diet. These are some contributing factors for anemia.

DISCUSSION

Present study found that the anemia prevalence among MGAMC students was 74%. Out of 74% anemic students, the percentage of girl students with mild anemia was 58%. There have been several studies that have assessed the prevalence of anemia in different geographic populations within the country.

In a study done by Babita *et al* among the nursing students in Punjab, the prevalence of anemia was found to be 94%⁸. Majority of them were mild anemic. According to study done by Dey et al. in the state of Meghalaya anemia prevalence was 49% in women of reproductive age group⁹.

74% prevalence among young girl students and majority of them were mild anemic.

In a study by Panath *et al.* performed among 273 female students of Wardha



district, Maharashtra, the prevalence of anemia was 53%¹¹.

In the present study, majority of the anemic subjects had mild anemia, only 16 % were moderately anemic and no subject was found severely anemic among Ayurved Medical college girl students in DMIMS.

A lower prevalence of 19% was also reported in Government Medical College among female students in Kerala¹². Thus it becomes obvious that there is a high degree of variability in the prevalence of anemia among different studies conducted. The high variability of prevalence anemia that is reported among the study could be attributed to different factors such as socioeconomic background, awareness about nutrition, figure consciousness and lifestyle. Although it is generally assumed that students residing at hostel tend to have poor eating habits. One of the common reasons for anemia among young women is the increase prevalence of menstrual bleeding.

For example a study by Verma et al reported that out of 187 girls 83 (44.38%) were mildly anemic, 26 (13.9%) were moderately anemic and 5 (2.67%) were severely anemic¹³. A study by Sanjeev Chaudhary et al. among 296 adolescent females in the Urban Area of Nagpur, the prevalence of anemia was 36.49%¹⁴. World bank report published in 1993 stated that

income and overall nutrition improvement have greatest impact on reducing anemia in India¹⁵.

In present study subjects with anemia had greater propensity for heavy menstrual bleeding. The main risk factor causing anemia was menstrual flow more than five days and passing the clots during menstrual cycle. Duration of menstrual flow was found to be predictor of anemia in a multivariate analysis.

CONCLUSION

Present study showed that the prevalence of anemia among MGAMC girl students was 74%. Improper dietary habits and changing lifestyle are the main contributing factor accompanied with irregular menstrual cycle. The intervention needed is to provide health education on the ill effect of anemia and the life style modification particularly with respect to eating habits along with nutritional supplementation to be carried out in this population so to reduce the morbidity of anemia and its complication.



REFERENCES

1. Galloway R. Anemia prevention and control: what works. Part I: Program guidance. 2003. Population, Health and Nutrition Information Project [PHNI]. Jorge Scientific Corporation, Washington D.C. p11
2. Ezzati M, Lopez AD, Dogers A, Vander HS, Murray C. Selected major risk factors and global and regional burden of disease. *Lancet* 2002;360-1347-1360
3. DLHS on RCH. Nutritional status of children and prevalence of anemia among children, adolescent girls and pregnant women December 2006. Chapter 3, 19-27
4. Toteja GS, Singh P, Dhillon BS, Saxena BN, Ahmed FU, Singh RP, et al. Prevalence of anemia among pregnant women and adolescent girls in 16 districts of India. *Food Nutr Bull* 2006; 27 : 311-315
5. Gillespie S, Johnston J. Expert Consultation on Anaemia Determinants and Interventions. Ottawa-Micronutrient Initiative 1998. p1-37
6. Stoltzfus RJ. Rethinking anaemia surveillance. *Lancet* 1997; 349: 1764-1766.
7. Report of WHO group of experts on nutritional anaemia. Technical report series Geneva WHO 1972. World Health Organization.
<http://www.who.int/iris/handle/10665/40977>
8. Babita. Estimate the prevalence of anemia among unmarried female college students attending nursing college and influence of socio-economic-demographic factors. *J Nursing and Health Sci.* 2014;3:05-08.
9. Dey S, Goswami S, Goswami M. Prevalence of anaemia in women of reproductive age in Meghalaya: a logistic regression analysis. *Turk J Med Sci* 2010; 40: 783-789.
10. Gurpreet Singhand Kuldip Singh, Prevalence of anaemia in urban college going girl students, *Biomedical Research* 2017, 28(3), p1040-1042
11. Panath AV, Panath SA, Asrar S. Iron Deficiency Among Rural College Girls-A result of poor nutrition and Prolonged Menstruation, *Journal Of Community Nutrition and Health.* 2013;2(2):56-60.
12. Manjula VD, Parmeshwari P, Pothan L, Prevalence of anemia among female undergraduate students of Government Medical College Kottayam, Kerala, *Int J Med Health Sci.* 2014;3(2)133-38
13. Verma R, Kharab M, Deswal S, Arora V, Kamboj R. Prevalence of anaemia among women of reproductive age group in a rural block of Northern India. *Indian J Comm . Health* 2014;26:359-364.
14. Chaudhary S M, Dhage Vasant. A Study of Anemia Among Adolescent Females in the urban Area of Nagpur, *Indian Journal of Community Medicine.* 2008 33(4)243-245.



15. Invest in Health. World Development Report World Bank 1993. Available at <http://documents.worldbank.org/curated/en/468831468340807129/pdf/121830REPLACEMENT0WDR01993.pdf>, last accessed on 09.03.2019 at 1.50 PM