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Awareness and Prevalence of Anemia Among Adolescent Females of a Mining-Industrial Region

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Abstract : *Adolescent anemia is a very common health problem. Anemia commonly known as iron deficiency, is most common among females. Anaemia is caused due to inadequacy of red blood cells and as well as the defective structure of the same. Low amount of hemoglobin concentration in the blood is an indicator of anemia. As per World Health Organization adolescence covers the age groups between 10 and 19 years. This is the vital phase in a girl's life when she is transforming into a woman. The adolescence age group is vital as they are the future of a country. The percentage of adolescent females suffering from iron deficiency are quite high in developing countries. About 57 per cent of Indian adolescent females are anemic. National Family Health Survey (NFHS) data at the national level shows an increasing percentage of anemia affected adolescent females of ages between 15 to 19 years from 54.1 in 2015-16 to 59.1 in 2019-20. At the state level there is an increasing trend from 59.5 in 1998-99 to 62.0 in 2005-06 to 62.2 in 2015-16 and to 70.8 in 2019-20. Anemic condition takes a great toll on a female's health- mental as well as physical. It effects cognitive development of individuals. Most females are not aware of this red blood cell deficiency and even if they are they do not go for proper care. The older adolescent age groups are most prone to anemia but still there are no initiatives for anemia awareness and prevention. The present study will focus on the awareness about anemia in females in the age group of 17 to 19 years, their status of anemia and the socio-economic and nutritional factors behind the same. The effect of the deficiency on their overall health will also be looked into. Adolescent females of Asansol-Raniganj-Durgapur a mining-industrial region of Paschim Bardhhaman district of West Bengal have been selected for the study. The strong resource base has favored its development as a mining-industrial region. Selection of samples has been done from this region keeping in view the level of pollution here and its health impact. The rural-urban framework of the region will provide a comparative base of the health status of adolescent females. The study is based on two types of data - primary and secondary. NFHS data has been used as a secondary source. Primary data has been collected through a sample survey on 75 adolescent females. The survey brings forth the fact that there is lack of awareness about anemia irrespective of residential location, caste, religion, educational status, occupation of parents etc.*

Key words: *Female Health, Anemia, Adolescence, Cognitive development, Mining-Industrial region*

Introduction

Medical geography better known as “Geography of Health”, a branch of geography and public health developed because of the fact that health issues and diseases are of scientific

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interest as well as vital for human wellbeing. Health is a combined phenomenon of social, economic and medical factors. Hippocrates the Greek physician was the first known medical geographer who thought that physical environment has an influence on health (Mayer, 2015). "If you want to learn about the health of a population, look at the air they breathe, the water they drink and the places they live", this quote found in treatise of Hippocrates (Rautray and Mohanty, 2022) indicates the impact that environmental conditions have on health.

As per World Health Organization (WHO) adolescence covers the age groups between 10 and 19 years. This is the vital phase in a girl's life when she is transforming into a woman. The adolescence age group is vital as they are the future of a country. About fifty per cent of the world's population are constituted by the females. Their health issues are most vital yet that is the most neglected matter. Anemia is the most common deficiency among females. Anemia is caused due to inadequacy of red blood cells and as well as the defective structure of the same. Low amount of hemoglobin concentration in the blood is an indicator of anemia. It has a great impact on the health condition of females. Apart from several health impacts, it effects cognitive development. The deficiency may be caused due to several factors such as genetic, nutritional, socio-economic etc.

Habtegiorgis S.D. et al. (2022) in their research article on "Prevalence and associated factors of anemia among adolescent girls in Ethiopia: A systematic review and meta-analysis" discussed how age, residing in rural areas and poor diets resulted in high incidences of anemia among adolescent girls in Ethiopia. Here adolescent girls were of the age 15 to 19 years. They have discussed how adolescents is a neglected age group in terms of anemia prevention and awareness. They have suggested that iron supplementation and health education for adolescent girls of rural areas are required for prevention of anemia (Habtegiorgis, et al, 2022). Ramirez B.P. et al. (2024) in their research article on "Relationship between Blood Lead Levels and Anemia: A Cross-Sectional Study on Mining Workers from Peru" have found out weak association between blood lead levels and anemia and low inverse correlation between haemoglobin and blood lead levels (Ramirez, et al, 2024). The studies bring forth the seriousness of the health issue for which literatures on the same has been reviewed in the later sections. More detailed studies are required to be undertaken to investigate into the impact of polluted environment on health. The present study is an attempt to investigate into the anemic conditions of adolescent females of a mining-industrial region of Paschim Barddhaman District. The studies on adolescent anemia though conducted in different states of India has not been done in the mining-industrial region of Paschim Barddhaman district of West Bengal and herein lies the distinctiveness of this study.

Objectives

The present study has been carried out for achieving the following objectives:

i) To identify the iron deficient status of adolescent females under study.

ii) To identify the factors behind the iron deficient conditions of the females under study.

iii) To identify the effect of iron deficiency on the health conditions of adolescent females and to suggest measures for improvement.

Statement of the Problem

Adolescent anemia is a very vital health issue especially among females. The adolescent age group specially the older age group of 15 to 19 years are not only comparatively more iron deficient but also neglected. There are no programs undertaken by Government of India for anemia prevention and awareness for adolescents whereas such programs exist for pregnant women.

The sample adolescent females under study are students of undergraduate level of ages between 17 and 19 years which can be considered as a sub-set of the broader age group of 15 to 19 years. Selection of samples has been done from this region keeping in view the level of pollution here and its health impact.

Previous Works

Several works on adolescent anemia have been reviewed to have a better insight into such a widespread and yet a neglected health issue.

Toteja G.S. et al. (2006) in their paper titled "Prevalence of anemia among pregnant women and adolescent girls in 16 districts of India" have highlighted how anemia causes serious health consequences in pregnant women and adolescent girls. The percentage of adolescent girls suffering from anemia are quite high. Though Government of India has programmes of anemia prevention and awareness for pregnant women but such programmes are non-existent for adolescent girls.

Bharati P. et al. (2009) in their paper titled "Burden of anemia and its socioeconomic determinants among adolescent girls in India" brings forth the fact that the highest rate of occurrence of anemia among adolescent girls is highest in Jharkhand in eastern India while it is comparatively low in the northeastern states. They have also explained how the factors of age and residence do not have any relation with anemic status. The two most important factors effecting anemia are standard of living of the household and the literacy level of the adolescent girls themselves.

Rati S.A. and S. Jawadagi (2014) in their paper on "Prevalence of Anemia among Adolescent Girls Studying in Selected Schools" focussed on the high rate of prevalence of anemia among adolescent girls especially the girls over 14 years of age. They also emphasised on the fact that making parents and their children aware of their nutrition would help in treating anemia before their children became adolescent.

Goyal N. et al. (2015) in their short article on "Prevalence of anaemia among school adolescent girls" discuss the occurrence of anemia among adolescent girls of rural and urban schools of Haldwani. Anemia was determined on the basis of data collected through a questionnaire and

hemoglobin concentration was estimated using Haemoglobin Colour Scale. The study revealed that almost half of the adolescent girls of rural and urban schools of Haldwani were anemic.

Srivastava A. et al. (2016) in their research article on "Nutritional anaemia in adolescent girls: an epidemiological study" brings forth the fact that anemia among adolescent females is very common. The study was conducted on unmarried adolescent girls in rural areas of Amroha district of Uttar Pradesh. The paper also discusses the importance of health education and other programmes for alleviating anemia. The study brings forth the positive relation between nutritional factors and anemia, whereas negative relative between social-demographic factors and anemia.

Upadhye J.V. and J.J. Upadhye (2017) in their research article on "Assessment of anaemia in adolescent girls" have brought out the fact that anemia rate in adolescent girls of ages 12 to 18 years under study is 90 per cent. In the study, they found that there is relation between occurrence of anemia and socio-economic status and educational level of the parents. They also discussed that average weight and height of the anemic adolescent girls are less as compared to those who are not anemic. The paper highlighted the necessity of increasing awareness about anemia among the adolescents and their parents.

Bindra V. (2017) in her review article "Anemia in Adolescence" has discussed about adolescence anemia. She elaborated on the groups which are prone to such anemia, the harmful effects of anemia on adolescents and the ways to fight the disorder. She has highlighted how female adolescents are vulnerable and how their health issues are neglected.

Ocak Seda et al. (2017) in their paper titled "Adolescents and Anemia" have found that adolescents are most prone to anemia and the most common cause of anemia in them is related to nutritional deficiency. Improper diet and improper eating habit is the most common cause. Anemia among adolescent females is more common due to blood loss during menstrual cycles.

Dambal S. and S.Panneerselvam (2018) in their paper titled "Anemia in Adolescent girls" have discussed how anemia among adolescence girls are a global health problem with India having a high rate of about 56 per cent of adolescent girls effected with anemia. The paper also discusses how through proper medical intervention such as iron supplementation, improvement in nutrition, and health education along with counselling can improve the anemic condition.

Swami P.D. and S. Kumar (2018) in their research article on "Prevalence of anaemia and its self-reported symptoms among schools going adolescents of Gwalior Township" have talked about the existence of anemia among school going adolescents consisting of girls and boys. They found out that prevalence of anemia is more in girls compared to boys. The study suggested periodical screening of concentration of haemoglobin in the blood and intake of iron rich foods for early determination of anemia.

Anand D. and R.K. Anuradha (2019) in their research article titled "Prevalence of Anemia among Adolescent Girls: A Cross-Sectional Study" have elaborated how anemia in adolescent

girls effects their physiological and cognitive development which in turn greatly impacts their work performance.

Chandrakumari A.S. et al (2019) in their article on "Prevalence of Anemia Among Adolescent Girls in a Rural Area of Tamil Nadu, India" have talked about the high incidence of anemia among adolescent girls specially those of 16 years of age and above and those belonging to the lower strata of the society. They have suggested for intake of iron and folic acid tablets for prevention of anemia in adolescent girls.

Mekale R.C. et al. (2020) in their paper titled "Prevalence of anemia in adolescent girls- A cross-sectional study from Karnataka" have stated that adolescent population is highest in India, second being China. Anemia affected adolescents are also quite high in India. The study concluded that prevalence of anemia is closely related to low economic and social status.

Gupta A. et al. (2022) in their paper titled "Characterisation of anemia amongst school going adolescent girls in rural Haryana, India" discusses the high incidence of anemia among rural adolescent girls of Haryana. They have discussed that as anemia occurs due to inflammation and due to unknown causes in high proportion, so as a result iron and folic acid supplementation alone cannot reduce rates of anemia in adolescent girls. The adolescent age group under study is 12 to 19 years.

Verma Kamala and G.C. Baniya (2022) in their article "Prevalence, knowledge, and related factor of anemia among school going adolescent girls in a remote area of western Rajasthan" found out that the incidence of anemia is quite high and there exists lack of awareness about the anemic condition among adolescent girls.

Sari Puspa et al. (2022) in their article titled "Iron Deficiency Anemia and Associated Factors Among Adolescent Girls and Women in a Rural Area of Jatinangor, Indonesia" focusses on the iron deficient status of 95 adolescent girls and 85 women residing in the rural areas of Jatinangor district of Indonesia. Their iron deficient status is caused due to physiological reasons. It was found out that nutritional intake cannot play a role in prevention of anemia.

Subramanian Muthathal et al. (2022) in their article titled "Prevalence of Anemia Among Adolescent Girls Residing in Rural Haryana: A Community-Based Cross-Sectional Study" have found out that there is a high rate of prevalence of anemia among adolescent girls who have started having periods. The study also found out the significant role of mothers' education in acknowledging the existence of the anemic condition of their daughters and in making efforts in tackling the problem.

Vaira R. et al. (2022) in their article titled "Factors related of Anemia in Adolescent Girl" have established the how Body Mass Index, Middle-Upper Arm Circumference, patterns of menstruation and patterns of eating are related to occurrence of anemia among class XI and XII students of Banjarmasin, Indonesia.

Chakraborty Mahashweta et al. (2023) in their research article titled "Is the burden of anaemia among Indian adolescent women increasing? Evidence from Indian Demographic and Health Surveys (2015–21)" revealed the high rate of existence of anemia among adolescent women and how socio-economic factors play a significant role in determining such status.

Research Gap

Several studies on anemia and adolescent females have been conducted which have brought out the seriousness of the health issue requiring urgent attention through awareness generation and prevention. The present study focusses on the female adolescents of age ranging between 17 and 19 years who are most anemia deficient. The samples have been selected from a mining-industrial region of Paschim Barddhaman district, West Bengal. The study is based on the assumption that the mining-industrial environmental conditions of the region might have a negative effect on health. A comparative study is attempted as the region includes both rural and urban areas. Although the issue of anemia is prevalent in the Indian context, yet no such work exists that discusses the condition of adolescent females in West Bengal especially in the mining-industrial region of Paschim Barddhaman district.

Purpose and Its Significance

Adolescent anemia among females being a common and serious health problem needs to be extensively studied since it has serious and long-term consequences on physical and cognitive development.

The Study Area

The mining-industrial region of Paschim Barddhaman district of West Bengal has been selected for the present study. The region is geographically and economically significant in terms of resource and industrial-mining base respectively. Physical environment being an important determinant of health conditions, it has been assumed that the mining-industrial environmental conditions may be poor which can have a negative effect on health of the inhabitants of the region. The region includes Asansol, Raniganj and Durgapur with both rural as well as urban areas. A comparable study of the iron deficient status of adolescent females of the urban and rural areas has been aimed for better analysis.

Materials and Methods

The study is based on both primary and secondary data. National Family Health Survey (NFHS) data has been used as a secondary source. National, state and district level data of NFHS-1, NFHS-2, NFHS-3, NFHS-4 and NFHS-5 on anemia in women has been considered. Primary data has been collected through a structured questionnaire for analysis and interpretation. The sample size consists of about 75 adolescent females.

Anemia in Women- National, State and District Level Scenario

NFHS data available for the older adolescent group of 15-19 years has been considered. As per NFHS-5, at the national level, in the year 2019-20, 59.1 per cent of women in the age group of 15-19 years are anemic, percentage of anemic women are more in rural areas as compared to urban areas. Percentage of anemic women in the age group of 15 to 19 years in the year 2015-16 (NFHS-4) was 54.1 which has decreased from 56.0 in the year 1998-99 (NFHS-2). At the state level percentage of women in the age group of 15-19 years has increased from 59.5 in 1998-99 (NFHS-2) to 62.0 in 2005-06 (NFHS-3) to 62.2 in 2015-16 (NFHS-4) to 70.8 in 2019-20 (NFHS-5). At the state level in the year 2019-20 (NFHS-5), percentage of anemic women in rural areas are more than anemic women in urban areas. At the district level, in the year 2019-20 (NFHS-5), the percentage of anemic women in the age group of 15-19 years is 65.6. The secondary data clearly highlights that anemia in adolescent females are rising over the years.

Sample

The study has been conducted on 75 adolescent females. The adolescent females were aged between 17 and 19 years. All of them were students belonging to the undergraduate level. Geographically they are located in the mining-industrial region of district of Paschim Barddhaman, West Bengal.

Result and Discussion

The outcomes from the sample survey have been discussed under the following heads:

Residential Location

Awareness and exposure to information is dependent upon the place where one resides. It is assumed that awareness is comparatively more in urban areas. The sample survey results show that majority (69.3 per cent) of the adolescent females are from rural areas and the rest i.e., 30.7 per cent are from urban areas. But it was seen that there is no impact of location on awareness and prevalence of anemia among the sample females.

Caste Composition

Caste has a bearing upon the level of social development and status which in turn impacts consciousness and awareness. The caste categories are general, scheduled castes, scheduled tribes and other backward classes. The sample survey reveals that majority i.e., 53.3 per cent of the adolescent females belong to general category, 26.7 per cent belong to other backward classes (OBC), 14.7 per cent belong to scheduled castes and 5.3 per cent belong to scheduled tribe category. But it was seen that there is no impact of caste on awareness and prevalence of anemia.

Religious Composition

Taboos and restrictions are associated with religions specially when it is related to a females' health condition. The sample survey reveals that 89.4 per cent of the adolescent females belong to Hinduism and 5.3 per cent follow Islam and Sari respectively. But the study found out that religion has no impact on awareness and presence of anemia among adolescent females.

Height and Weight of the Adolescent Females

The adolescent females under study were asked to mention some basic information's about themselves. These basic information's may indicate to some extent the physical condition of an individual. Height and weight are such basic information about physical stature. The heights were classified as less than 5 feet and 5feet and above. The sample survey shows that 93.3 per cent of the adolescent females have height of 5 feet and above which is quite normal for the age group of 17 to 19 years. The rest 6.7 per cent of the sample adolescent females have height below 5 feet.

The weights in kilogram were classified as less than 40, 40 to 50, 50 to 60 and 60 and above. The sample survey shows that 61.3 per cent of the adolescent females have weights between 40 and 50 kilograms. About 22.7 per cent of the sample adolescent females have weights between 50 and 60 kilograms which was quite normal in relation to their heights. But those12 per cent of them who have weights of 60 kilograms and above were slightly overweight.

Educational Status and Level of the Parents

Education can make an individual conscious and aware. Parents educational status is important as conscious parents can take a pivotal role in ascertaining the health conditions of a family. The sample survey reveals that 97.3 per cent of the adolescent female's mothers are literate and only a meagre per cent i.e., 2.7 are illiterates while all fathers are literates. The sample survey also revealed that 50 per cent of the mothers are educated up to the secondary level and only 11.1 per cent are graduates. The study shows that 50.7 per cent of the fathers are educated up to the secondary level, 19.7 per cent are graduates and 2.8 per cent are post graduates.

Occupation of The Parents

Occupation of the parents are important as it determines the financial conditions of the family. Awareness supported with stable financial status are needed for well-being of the family members. The sample survey shows that 94.6 per cent of the mothers are housewives and 5.4 per cent are engaged in service. The sample survey further revealed that 43.7 per cent of the fathers are engaged in business, 36.6 per cent are engaged in service and 14.1 per cent are engaged as daily labourers. About 2.8 per cent of the fathers are unemployed.

Single Child Status

The sample adolescent females were asked to mention the number of siblings they have.

This was done to have a knowledge about the number of family members. This was also needed to be known to have an idea of nutritional deficiency among them if any. The more the number of members the more may be the nutritional deficiency. The sample survey showed that most of the adolescent females i.e., 81.3 per cent are not single child and only 18.7 per cent of them are single child.

Awareness about Blood Group

An individual can be said to be conscious only when one is aware of their own vital health information. The blood group of an individual is a very vital statistics and is determined at the time of birth. The sample survey revealed that though 77.3 per cent of the adolescent females know about their blood group still a 22.7 per cent of the adolescent females do not know their blood group. This clearly indicates lack of awareness about the vital information on health among adolescent females.

Testing of Hemoglobin

The sample females were asked whether they had ever tested their amount of hemoglobin in their blood. The sample survey showed that only 14.7 per cent of the adolescent females had tested amount of hemoglobin content in their blood. The reports of the tested individuals were below the standard limit of 12mg/dl. But it was found that those who had tested for hemoglobin were not aware about their reports on the same. About 85.3 per cent of the adolescent females had never tested the amount of hemoglobin in their blood (Table 1). Though adolescent anemia is a very common health issue but still there is lack of consciousness among the females and their parents about the same.

Table 1: Testing of Hemoglobin (Figures are in percentages)

Yes	No
14.7	85.3

Source: Sample Survey, November 2023

Type of Food Consumption

Health conditions are dependent upon the type of food consumption. The type of food consumption- vegetarian or non-vegetarian was enquired about. The sample study revealed that 96 per cent of the adolescent females consume non-vegetarian food and the rest i.e., only 4 per cent consume vegetarian food.

Suffering from any Permanent Disease

Nutritional deficiency is not the only cause of anemia, other factors such as underlying

diseases may also cause the same. Adolescent anemia is a very common health problem and its impact on overall health condition is also significant, so the females under study were asked whether they were suffering from any permanent disease or not. The sample study revealed that 5.3 per cent of the adolescent females were suffering from diseases such as thyroid, asthma, high blood pressure, migraine etc. But most of the sample adolescent females i.e., 94.7 per cent did not report the existence of any disease.

Age of Onset of Menstruation

There is a particular age for onset of menstruation. So, the sample adolescent females were asked to state the age when they started to menstruate. The data obtained through survey was categorized as 10 to 12 years, 12 to 14 years and 14 years and above. The sample survey shows that 69.3 per cent of the adolescent females have started to menstruate from the age of 14 years and above, 25.3 per cent of them had their menstruation between 12 to 14 years and 5.4 per cent of them had their periods between 10 to 12 years.

Irregularity in Menstrual Cycle

Anemia may be one of the causes of irregularity in menstrual cycle. The females under study were enquired about any kind of irregularity in their monthly menstrual cycles. Irregularity was interpreted as missing or skipping of monthly cycles. About 9.3 per cent of the sample adolescent females reported irregularity in their menstrual cycles while most (90.7 per cent) reported no such irregularity.

Discomfort Associated with Mentrual Periods

Moderate to severe discomfort associated with periods can also be an indicator of an underlying health issue among females. Since anemia could also be a possible cause the sample females were asked to state their condition while on periods. About 41.3 per cent of the sample adolescent females reported moderate to severe menstrual cramps, heavy bleeding during their periods. Medicines such as pain killers with hot water therapy could do away with their discomfort. About 58.7 per cent of the sample females did not report any kind of discomfort during their periods.

Problems in Concentrating on Studies

Anemia hampers cognitive development; thus, an attempt was made to know whether the sample females faced any problems concentrating on their studies. Though they might not be aware of the existence of their health issue but certain vital symptoms may help them to recognize the same. The sample study revealed that 53.3 per cent of the adolescent females have concentration problems while 46.7 per cent do not face such problems.

Awareness about Anemia

As adolescent anemia is a very common health issue anemia specially among females so

the females under study were asked whether they knew about anemia. The sample survey revealed that 57.3 per cent of the adolescent females knew about the meaning of anemia and 42.7 per cent of them did not know about anemia (Figure 1). This itself is a clear indication about the lack of exposure and awareness about adolescent anemia.

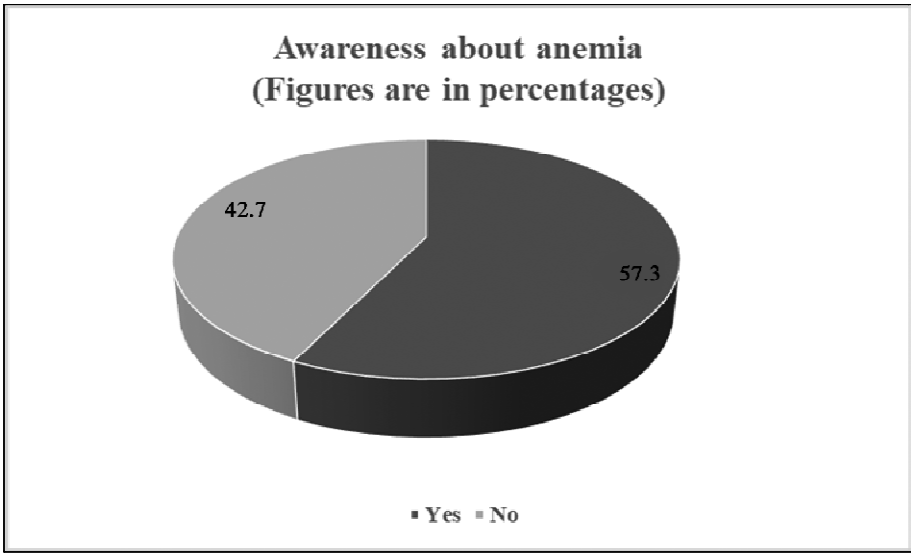

Figure 1: Awareness about anemia

Source: Sample Survey, November 2023.

Status of Anemia

The sample study was conducted to find out the existence of anemia among the adolescent females. The sample survey revealed that most of the adolescent females i.e., 98.7 per cent were not aware whether they were anemic or not as they never tested the amount of hemoglobin in their blood. Only a few i.e., 1.3 per cent of them reported having hemoglobin below the normal level (12g/dl), hence anemic. Those with hemoglobin below the normal level were asked about whether any medications in the form of iron supplement were required for such condition. But they reported that no medicines were prescribed for the same.

Status of Anemia of Mothers

The sample study was done to know about the presence of anemia in mothers of sample adolescent females. Since any health condition can be genetic so the females under study were asked about their mothers' anemic status. The survey results revealed that most of the sample adolescent females i.e., 98.7 per cent did not know about their mother's anemic status. This also brings forth the fact there is lack of exposure as well as awareness about this vital health issue among females.

Awareness about Dietary Supplements of Anemia

The sample study wanted to find out the knowledge of the adolescent females about the dietary supplements for anemia. The sample survey revealed that most of the adolescent females i.e., 74.7 per cent do not know about the food supplements for anemia. Only 25.3 per cent of them know about foods that help in alleviation of anemia.

Conclusion

Adolescent anemia is a vital health issue which affects almost 57 per cent of the female population (Bindra, 2017) requires awareness creation and prevention. The existing studies have clearly brought out the graveness of the problem and discussed why it needs to be tackled at the earliest. The present study found that there was lack of awareness about anemia among the adolescent females. The study samples of adolescent females have normal weight, height as per their age and no serious permanent or existing diseases. The onset of menstruation occurred within the age range of 11 to 15 years. Though a considerable per cent of the sample experience regular menstrual cycles but about 42 per cent of them experience discomfort during periods. The study has found out that there is no significant impact of residential location-urban and rural on awareness about and prevalence of anemia. Caste composition and religion do not impact awareness. Educational status, level and occupation of the parents might be a controlling factor for lack of awareness. The parents of the sample females were not qualified up to a high level, mostly educated up to the secondary level. Professionally they were also not well-off which might have affected awareness. A significant per cent of the sample adolescent females did not know their type of blood group. A large per cent of the sample did not test their hemoglobin, even though a considerable per cent of them were having problems concentrating on their studies. This might be because they are unaware of the problems that are caused by anemia. Most of them have never heard of the term anemia and so it is quite obvious that they are unaware about their anemic or non-anemic status.

Awareness generation is the need of the hour so that the health problems which might be occurring due to anemia is remaining unnoticed. Intervention of educational institutions- schools and colleges in the matter of awareness creation in terms of periodic screening of hemoglobin concentration and iron rich food and medicine intake is suggested for timely identification and management of the problem. The timely and proper acknowledgement of the problem can lead to well-being of the adolescents- physical as well as cognitive. Healthy living is what needs to be targeted at.

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