

A Case Control Study on Anemia and Selected Factors among Adolescent Girls in Sri Krishna Arts College in Kancheepuram District

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Abstract: *Anemia is worldwide problem most commonly due to wide spread nutritional deficiency it has been reported that iron is required for growth adolescents. Low iron stores throughout childhood may contribute to a delay age of menarche and anemia in adolescent may impair immune response. Profoundly affected groups are adolescent girl 74 to 98% , pregnant women 80 to 98%, women in child bearing age 74 to 99%. The objective of the study is to assess the prevalence of anemia and find the association between anemia and selected risk factors. The research design was case control design. The data was analyzed using descriptive and inferential statistics. The result of the study revealed prevalence anemia is common among adolescent girls and 33% of adolescents had moderate anemia. The chi-square value $p < 0.05$ was found significant in following demographic and selected risk factors like size of the family, family income, type of size, worm infestation, menstrual history, knowledge on anemia and hygiene. This study recommends to replicate with large sample and comparative study may be conducted to assess the impact of two or more methods used to impart the nutritional education in the study.*

Keywords: Anemia, Prevalence, Risk factors

1. Introduction

Life is not just the opposite of death nor is health just the absence of disease. Health is a being of a person that is felt physically, mentally, socially and spiritually. Thus health man's greatest possession, as it lays a solid foundation for his happiness. The term anemia is derived from ancient of Greek for bloodless it is one of the most common disorder which affect the vitality of many persons around the world in which blood deficient in either quality or quantity of red blood cells. WHO defines anemia as condition in which the hemoglobin content of blood is lower than normal as a result of deficiency. It is classified into levels based severity, viz, mild 10-11.9 gm/dl, moderate 7-9 gm/dl and severe 7gm/dl. Anemia is a reduction in red blood cells which in turn decreases the oxygen carrying capacity of the blood. Anemia reflects as abnormality in red blood cells number, structure or function. Anemia is principle manifestation of many abnormal conditions such as 1. Deficiency state caused by dietary lack of iron, vitamin B12 and folic acid etc. 2. Hereditary disorder red blood cells. 3. Disorders involving the haematopoietic tissues. Anemia is the most common disorder serious public level significance in the developing world and the most common among adolescents and women of reproductive age. Profoundly affected groups are adolescent girls 74-90 %, pregnant woman 80-90 % and women child bearing age 74-99 %. Lauambe et al. Conducted an experimental study on age pattern in stunting and anemia among adolescent girls. The finding reveal that 52.5% are adolescents were stunted and 43% were under weight compare to boys. Rawat conducted a cross sectional study among adolescent girls in Meerut for various social demographic factors which were found to be significantly associated with anemia among adolescents girls. Prevalence of anemia was significantly higher $p < 0.001$ among adolescent girls who belonged to joint family, below poverty line, family size, illiterate, labourers. Nathiangpul conducted a descriptive study on anemia, the finding revealed

prevalence of anemia was high 69.2 % among college girls and 23.04% reported positive for hook worm infestation.

2. Problem statement

A Case control study on anemia and selected factors among adolescent girls in Sri Krishna Arts college in Kancheepuram district.

3. Methodology

3.1 Research design

The research design adopted by the investigator was case control design. There are four basic steps in conducting a case control study, selection of cases and controls, matching, measurements of exposure and analysis and interpretation. In the present study the adolescent girls were screened for anemia and 2 groups formed, one with anemia and other without anemia. Using simple random sampling technique 30 adolescent girls with anemia (cases) and 30 without anemia (Control) were chosen. Interview was done to find out the exposure to selected factors related to anemia among adolescent girls in case and control groups.

3.2 Setting

The setting for the present study was Sri Krishna arts college in Kancheepuram district. There were about 350 students pursuing arts subjects like BA, BBA and B.Com, in each class there were 40 to 50 students.

3.3 Population

The target population for the present study were the adolescent girls and accessible population were the adolescent girls studying the Sri Krishna Art College in Kancheepuram. The eligible population of the study include

Volume 7 Issue 4, April 2018

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those adolescent girls who were diagnosed to suffer from anemia (Case group) and those who did not suffer from anemia (Control group) available at the same setting.

3.4 Sample Size

The sample in the study were adolescent girls studying in Sri Krishna Art College, the sample size was arbitrarily decided to be 60, 30 in case group and 30 control group.

3.5 Sampling Technique

The researcher decided to use simple random sampling technique in this study. It provides equal chance for every individual participating in the study. From the eligible population, 30 adolescent girls with anemia (Case) and 30 adolescent girls without anemia (Control) were selected using simple random technique and who fulfilled the inclusion and exclusion criteria.

3.5.1 Inclusion Criteria

- Adolescent girls who were studying in Sri Krishna Arts College, Kancheepuram.
- Adolescent girls who were chosen as case group based on diagnostic criteria.
- Adolescent girls who were between 17 to 20 years.
- Whoever present at the time of data collection
- Who knew Tamil

3.5.2 Exclusion Criteria

- Adolescent girls who were suffering from fever and other chronic illness at the time of data collection.
- Adolescent girls who were taking treatment for anemia
- Adolescent girls who had not attend the menarche.
- Adolescent girls who refused to participate.
- Adolescent girls who were not present at the time of data collection.

3.6 Development of the Tool

The tool used for the research study was structured interview and observation schedule. Interviews are the verbal exchange between the researcher and respondent to obtain information regarding the study factor. The tool contained screening form, demographic factors and risk factors. Instruction to the interviewer was adequately spelled, time required to interview a girl was 15 to 20 mins.

3.6.1 Description of tool

It consists of three sections

Section 1 – Screening Form for anemia. It consisted of the space to specify hemoglobin status of the individual after undergoing the cyanhaemoglobin test.

Section 2 – Demographic Factors such as age, type of family, number of family members, Order of birth, Family income, year of study and religion.

Section 3 – Risk factors related to anemia such as worm infestation, choice of food, consumption of iron, hygiene, medical history, knowledge on iron source.

4. Data Analysis

Data was analysed by using descriptive and inferential statistical analysis.

To access the prevalence of anemia among adolescent girls data were assessed using descriptive statistics. To find the association between anemia and demographic factors in case and control group, frequency, percentage, chi-square and odds ratio were used. To find strength of association between anemia and risk factors in case and control group chi-square and odds ratio were used.

5. Result

Figure 1: Reveals majority of adolescent girls whoever surveyed suffered from 40% moderate anemia and least number 4% suffered from severe anemia, 33% were normal.

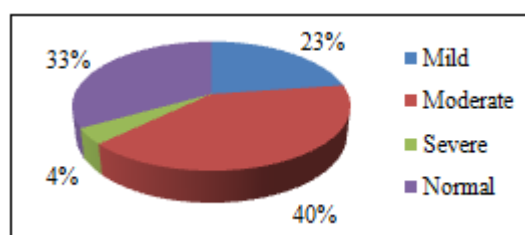


Figure 1: Percentage Distribution of Prevalence of anemia among adolescent girls

Table 1: Association between anemia and worm infestation among adolescent girls of case and control group, N=60

S. No	Worm Infestation	Case (30)		Control (30)		Chi-square Value
		F	%	F	%	
1	Positive	21	70.0	6	20.0	15.15(S) d.f= 1, OR = 9.3
2	Negative	9	30.0	24	80.0	

The obtained odd's ratio was 9.3, suggesting that the adolescent girls with worm infestation have a risk 9.3 times greater than those who did not suffer from worm infestation. Further, the obtained X^2 value 15.15 ($p < 0.05$) was significant.

Table 2: Association between anemia and Menstrual history among adolescent girls of case and control group, N=60

S. No	Menstrual History	Case (30)		Control (30)		Chi-square Value
		F	%	F	%	
1	Duration of menstrual Flow • Less than 3 year • 3-4 years • More than 4 years	- 6 24	- 20 80	- 8 22	- 26.7 73	0.37 (NS) d.f=1 OR = 0.6
2	Menstrual Cycle • Regular • Irregular	8 22	26.7 13.3	19 11	63.3 33.7	8.4(S) d.f=1, OR = 0.6
3	Frequency of getting Menstruation • Less than 28 days • 28 – 30 days • More than 30 days	10 12 8	33.3 40 26.6	5 6 19	16.6 20 63.3	8.14 (S) d.f = 2
4	Number of pads used • Heavy • Scanty • Normal	5 18 7	16.7 60 23.3	6 5 19	20 16.6 63.3	12.5 (S) d.f = 2

Table 2 explains frequency, percentage, chi-square value and odd's ratio of menstrual history among adolescent girls. The obtained X^2 value ($p < 0.05$) was significant therefore significant association between duration of menstrual cycle, frequency of getting menstruation, number of pads used and anemia.

6. Discussion

The results of the study have been discussed on the basis of the study objectives.

6.1 Majority of adolescent girls who were surveyed suffered from 60(40%) moderate anemia and least number 6(4%) from severe anemia, 50(33.3%) were normal. It is inferred that majority of adolescent girls 100(66%) suffered from anemia and thus the prevalence of anemia was high among adolescent girls.

6.2 The study findings revealed there were association between anemia and risk factors.

6.3 The study findings revealed that there is an association between anemia and selected demographic factors.

7. Implications

The finding of the study have implications in nursing service, nursing education and nursing research and nursing administration.

7.1 Nursing Services

The study will help the nurse in the hospital and community to plan for nutritional educational programs. Preventing iron deficiency anemia during adolescent period will increase their status. This helps the nurses to implement the educational programs at primary level in preventing anemia. More health education activities can be initiated for the students and early detection of any other health and nutritional problems. The underlined factors like hygienic factors must be ensured to prevent anemia.

7.2 Nursing Education

The nursing teachers can use the result of the students as an information to the students. Nursing education should help in inculcating value and sense of responsibility in the students to care for the adolescent girls in community and hospital to bring our healthy women and healthy child to the nation. In different levels of nursing education i.e. basic, post basic, masters and doctoral programs the subject related to adolescent's and women's health programs can be of more concern.

7.3 Nursing Research

This study on finding out anemic students in college implies that more studies are required on various dimensions such as awareness of physiological changes and nutrition, psychological status and nutrition and health problem related to nutrition. Future investigator can use the findings and the methodology as reference material. It shows the area which

needs further exploration. It provides awareness for further studies among the students in this area.

7.4 Nursing Administration

Nursing administrators may involve themselves in policy making and budgeting for health programs. Anemia is prevalent problem and this can be totally solved by proper health education. The nurse administrators should provide materials like flash cards, flip charts, flannel boards and free handouts on anemia which can be regularly distributed to the adolescent girls. Proper arrangements should be provided to conduct health education.

8. Conclusion

The study is case control study and it was undertaken to find out the prevalence of anemia and risk factors among adolescent girls in Sri Krishna Arts College. The study found prevalence of moderate anemia is high among adolescent girls.

9. Acknowledgement

The author would like to thank the management of Sri Krishna Art College, Kancheepuram.

10. Funding

This research was self-funded and no grant was received.

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