Journal of Pharmaceutical Research International

33(49A): 299-311, 2021; Article no.JPRI.76055
ISSN: 2456-9119
(Past name: British Journal of Pharmaceutical Research, Past ISSN: 2231-2919, NLM ID: 101631759)

A Comparative Study to Assess the Knowledge of Anemia among School Children in Selected Urban and Rural Schools of Bilaspur, Chhattisgarh

Shailvina D. Masih[1*] and C. C. Linson[1]

[1]Sarvepalli Radhakrishnan University (SRK), University, Bhopal (M.P), India.

Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

Article Information

DOI:10.9734/JPRI/2021/v33i49A33333
Editor(s):
(1) Dr. Koteshwara Mudigonda, Propharmex Company, India.
Reviewers:
(1) Ievgeniia Burlaka, Bogomolets National Medical University, Ukraine.
(2) Ray Wagiu Basrowi, Universitas Indonesia, Indonesia.
Complete Peer review History: https://www.sdiarticle4.com/review-history/76055

Review Article

Received 28 August 2021
Accepted 02 November 2021
Published 11 November 2021

ABSTRACT

The aim of the research was to assess the knowledge and prevalence of anemia among rural and urban school children. A quantitative approach was used for the present study. The study population wasthe school children, 9-14 years of age studying in 6th to 9th standard of rural and urban schools of Bilaspur, Chhattisgarh. The sample size consisted of 50 children from urban and 50 children from rural school. The objectives of the study were to assess the knowledge of anemia among children in urban and rural school. Compare the knowledge of anemia among children in urban and rural school. To find out the association between knowledge and selected demographic variables. Among the urban school children 14(28%) had inadequate knowledge, 26(52%) had moderately adequate knowledge, and, 10(20%) were having adequate knowledge. Among the rural school children 35(70%) had inadequate knowledge, 12(24%) had moderately adequate knowledge, and 3(6%) had adequate knowledge. There is significant difference in the level of knowledge regarding Anemia among urban and rural school children. There is significant association between knowledge of urban school children and occupation of mother.
There is significant association between knowledge of rural school children and educational qualification of father.

**Corresponding author: E-mail: masihshailvina@gmail.com;*

Keywords: Anemia; urban and rural; schools; school children.

1. INTRODUCTION

"Iron lacks the glitter of gold or the sparkle of silver but outshines both in biological importance."

(Pandit Jawaharlal Nehru)

Life is not just opposite of the death, nor is health just absence of disease. Health is a "well being" of a person that is felt physically (in the body) mentally (in the mind), socially (in relation to other) and spiritually (in relation to the God), thus the health is a man's greatest possessions, for it lays a solid foundation for his happiness.

Health is wealth an individual who stays healthy possess wealth while an unhealthy man loses wealth. In order to be well and healthy, our body needs nourishment. If these nutrients which are very essential for our body are deficient, it can lead to various health problems, and one of the most common health problems that can arise due to nutritional deficiency is Anemia. Iron deficiency anemia affects two billion people globally. Nutritional anemia affects more than 2000 million individuals of which 90 % are from the developing countries, whereas in the developed countries it is 7 %. According to WHO, prevalence of anemia in Asia 58.4 % and Africa 74 %. Prevalence of anemia in Bangladesh is 98 % and 94 % for boys and girls respectively [1].The key to child health is in much greater emphasis on all round improvement of the competence of the mother's physical condition, health and nutrition and education. Such attention to the mother must start not after she has become a mother but when she herself as a child, adolescent and an adult, because today's adolescent girls tomorrow's mother [2]. India is one of the largest developing countries in the world. It constitutes around 20% of the school going children. The future of our country rests on the children who will become future citizens and leaders of tomorrow. Care of the children is not only vital in itself, but it is the most important aspect of the health of the community as a whole [3].

1.1 Need for the Study

"The secret of national health lies in the hands of children"

(Pandit Jawaharlal Nehru)

According to WHO'S conservative estimation, 20 % of world's population suffers from a degree of anemia which may affect their productivity. Nutritional anemia is a recognized public health problem throughout the world. An estimated 30 % of the world's population is anemic, with the global prevalence of anemia among 6-12 years old children to be 36 % and 77 % in developing regions respectively. The (DGHS) Directorate general of health services (2003-04) has reported prevalence of anemia among 12-14 years of girls in southern states of India. In Tamilnadu among 12-14 years of girls 46.3 % girls were Normal, 38.3 % had Mild Anemia, 15.2 % had Moderate Anemia and 0.2 % of girls had Severe Anemia. In Kerala 45.6 % girls were normal, 45 % and 9.4 % girls had mild and moderate anemia. In Karnataka 38.2 % girls are normal, 44.6 %, 17% and 0.2 % girls had mild, moderate and severe anemia. In Andhra Pradesh 27.3 % girls are normal, 46.9 %, 23.3 % and 2.5 % girls had mild, moderate and severe anemia respectively.

When anemia is a controllable disorder it should not be allowed to mushrooming in developing countries. Mere health education will prevent the occurrence of anemia. To combat anemia extraordinary food is not required rather, locally available foods are enough to curb anemia. While the nurses working in well baby clinics, pediatric unit, schools, and community areas have more access to children, they are the better people to disseminate knowledge on anemia. Since, the investigator is also one among them she thought of a heartfelt urgent need to contribute a small portion to this preventable problem through this minor study. So let's all (Nurses, Children, Parents) take it as a challenge to prevent anemia and promote the well being of children who are tomorrow's King [4-5].

1.2 Statement of the Problem

A Comparative study to assess the knowledge of anemia among school children in selected urban and rural schools of Bilaspur, Chhattisgarh

1.3 Objectives

- To assess the knowledge of anemia among children in urban and rural school.
- Compare the knowledge of anemia among children in urban and rural school.

- To find out the Association between knowledge and selected demographic variables such as age, sex, birth order, type of family, educational status of mother and father, occupation of mother and father, total income of family, religion and dietary pattern [6].

1.4 Hypotheses

- There is a significant difference between the level of knowledge regarding anemia among urban and rural school children.
- There is a significant association between knowledge of anemia among rural and urban school children with their specific demographic variable such as age, sex, birth order, type of family, educational status of mother and father, occupation of mother and father, total income of family, religion and dietary pattern.

1.5 Operational Definitions

1.5.1 Anemia

It refers to those children whose Hb is <12 gm % is diagnosed to have anemia which is estimated by using Sahil's apparatus.

1.5.2 School children

It refers to the students between the age group of 9-14 years**,** studying in the selected school of urban and rural area.

1.5.3 Knowledge

It refers to awareness on definition, causes, and prevention of anemia.

1.5.4 Assumptions and limitations

- Both urban and rural school children have anemia.
- Selected demographic variables may influence Knowledge of anemia.
- Urban school children have more knowledge of anemia when compared to that of rural school children.
- The sample size was limited to 50 students.
- The period of study was limited to 6 weeks.
- The study was limited to school children of Bilaspur, Chhattisgarh.

1.5.5 Review of literature

The literature reviewed for the present study has been presented under the following heading.

SECTION-A: Prevalence of anemia among school children.

SECTION-B: Factors related to iron deficiency anemia.

SECTION-C: Effects of anemia among school going children.

2. METHODOLOGY

2.1 Research approach and design

The research approach used for the study is quantitative. The research design used for this study is descriptive design.

2.1.1 Study setting

The study was undertaken in Govt. higher secondary school at Bilaspur, Chhattisgarh.

2.1.2 Population

The school children, 9–14 years of age studying in 6^{th} to 9^{th} standard.

2.1.3 Sample, sampling size, technique

The sample size was 50 children from urban and 50 children from rural school. The total study sample consisted of 100 school children. Simple Random sampling technique by Lottery method was used.

2.2 Criteria for Selection of Sample

2.2.1 Inclusion criteria

School children who are:

- Between 9– 14 years of age.
- Not suffering from any chronic illness.
- Available during data collection.
- Willing to participate in the study.
- Able to read and write.

2.2.3 Exclusion criteria

School children who are:

- Below 9 or above 14 years of age.
- Suffering from any chronic illness.

- ❖ Not willing to participate in the study.

2.3 Description and Development of The Tool

In the process of the developing the tool, the investigator reviewed the research literature and discussed with subject experts in the nursing field.

The tools used for study consisted of two sections:

2.3.1 Section 1

It dealt with the demographic data of school children includes age, sex, birth order, type of family, education of mother and father, occupation of mother and father, total income of family, religion, and dietary pattern.

2.3.2 Section 2

It consists of two parts to assess the knowledge of anemia among school children.

PART- A: Semi-structured questionnaire on knowledge on anemia.

PART- A This part consist of 25 multiple choice knowledge questions about Anemia. The maximum possible score is 25.

2.4 Scoring Procedure

Semi structured questionnaire on knowledge of anemia consisted of 25 items. Score 0 -13 was given for inadequate knowledge, score 14 -19 was given for moderate knowledge, score 20 -25 was given for adequate knowledge.

Table 1. Scoring of the students

Level of knowledge	Actual scores	Percentage of scores
Inadequate knowledge	0-13	< 50%
Moderate knowledge	14-19	51– 75%
Adequate knowledge	20-25	76-100%

3. RESULTS

3.1 Major Findings of the Study

- Among the urban school children 14 (28 %) had inadequate knowledge, 26 (52 %) had moderately adequate knowledge, and, 10 (20 %) were having adequate knowledge
- Among the rural school children 35 (70 %) had inadequate knowledge, 12 (24 %) had moderately adequate knowledge, and 3 (6 %) had adequate knowledge.
- There is significant difference in the level of knowledge regarding Anemia among urban and rural school children.
- There is significant association between knowledge of urban school children and occupation of mother.
- There is significant association between knowledge of rural school children and educational qualification of father.

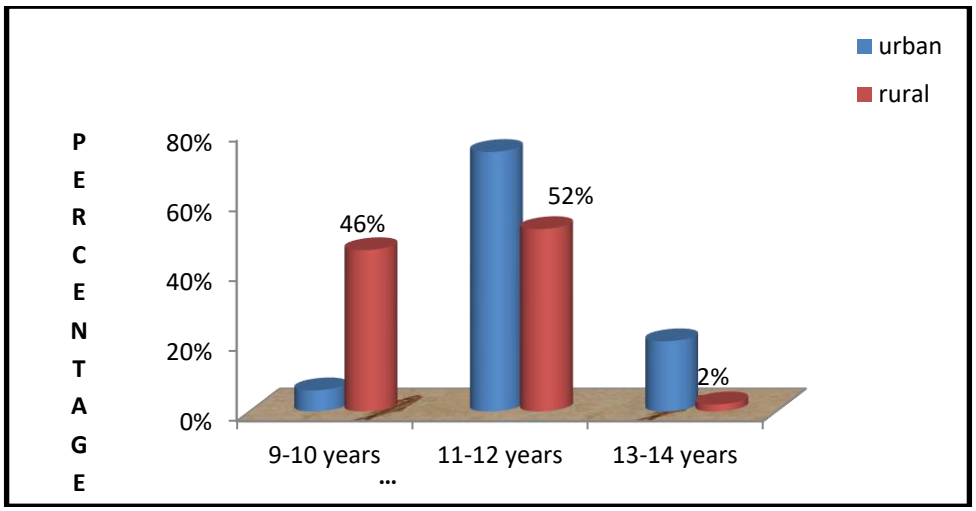

Fig. 1. Distribution of samples for urban and rural areas in terms of age in years

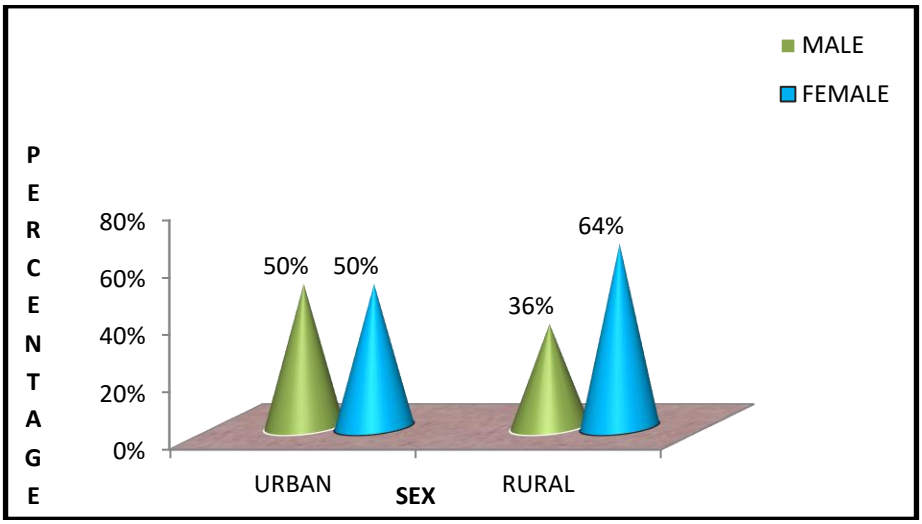

Fig. 2. Distribution of samples for urban and rural areas in terms of gender

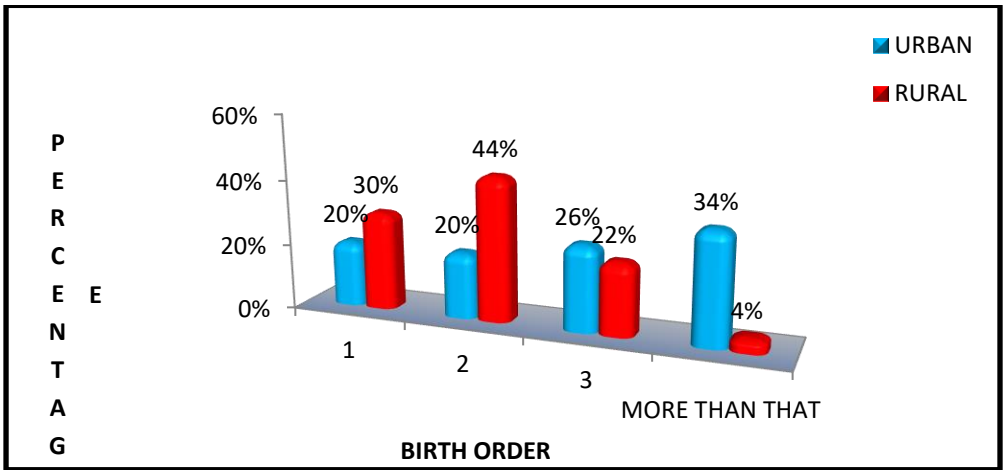

Fig. 3. Distribution of samples for urban and rural areas in terms of birth order

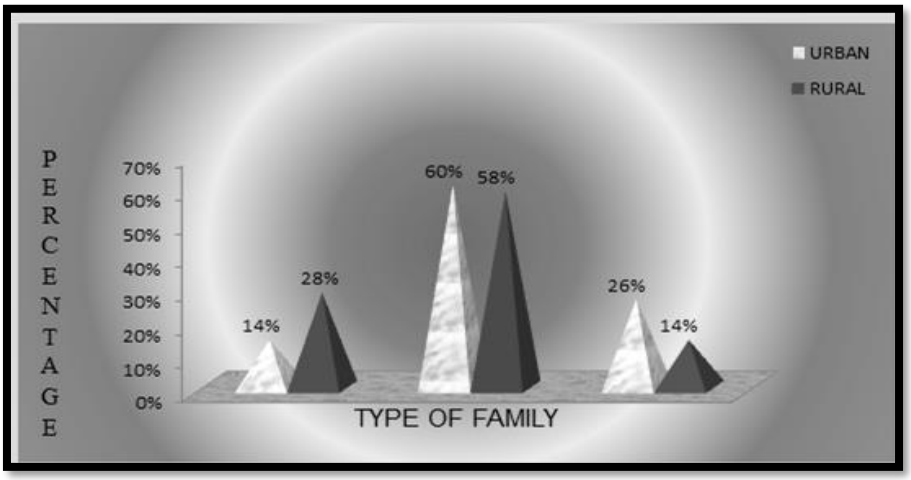

Fig. 4. Distribution of samples for urban and rural areas in terms of type of family

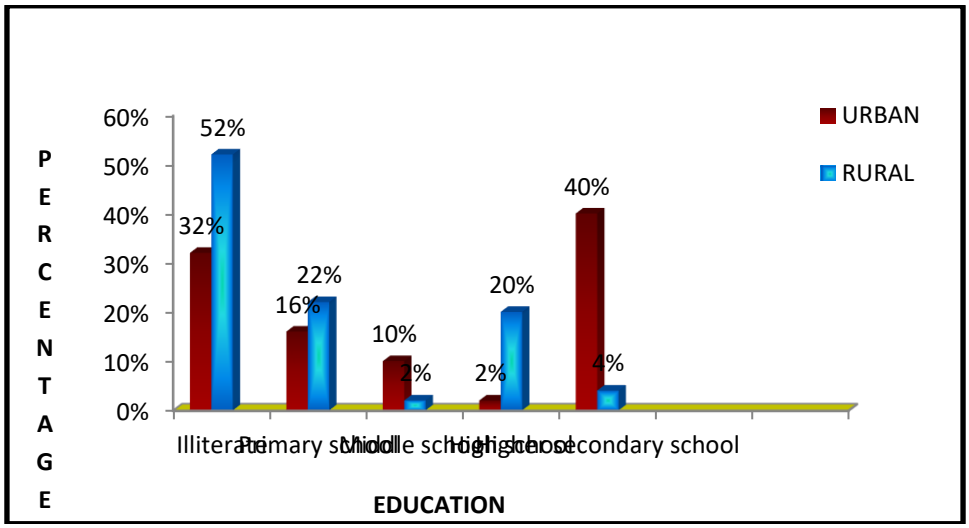

Fig. 5. Distribution of samples for urban and rural areas in terms of educational qualification of mother

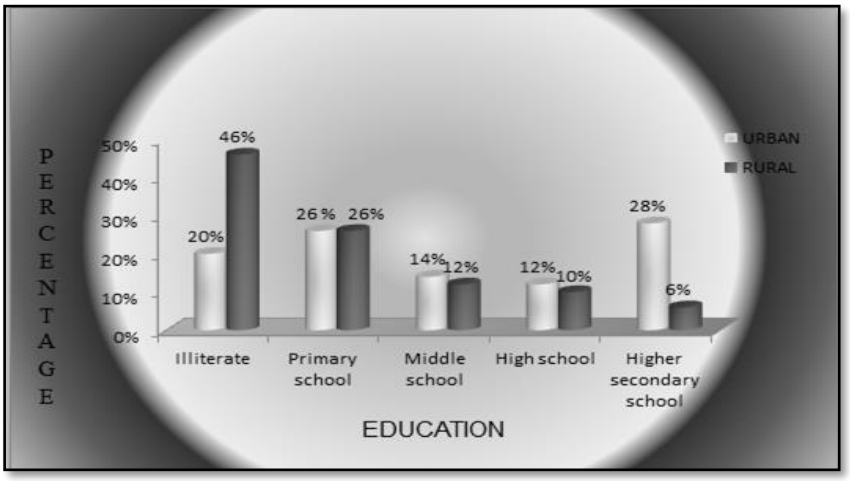

Fig. 6. Distribution of samples for urban and rural areas in terms of educational qualification of father

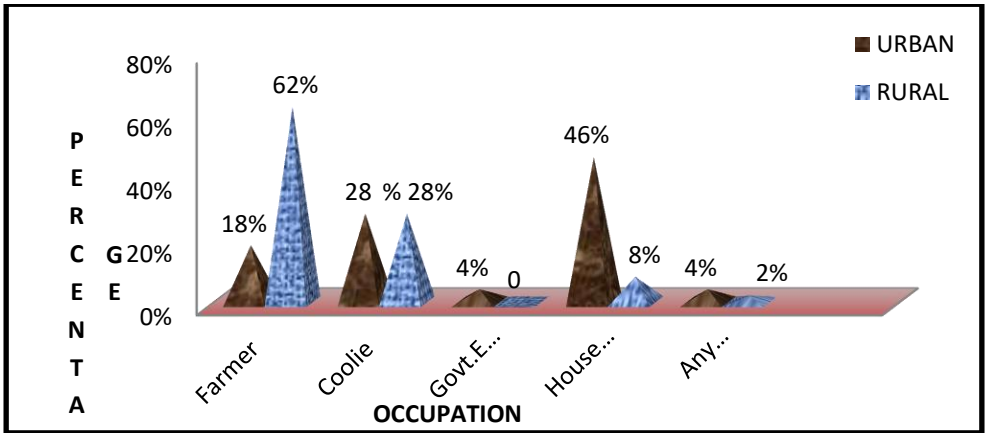

Fig. 7. Distribution of samples for urban and rural areas in terms of occupation of mother

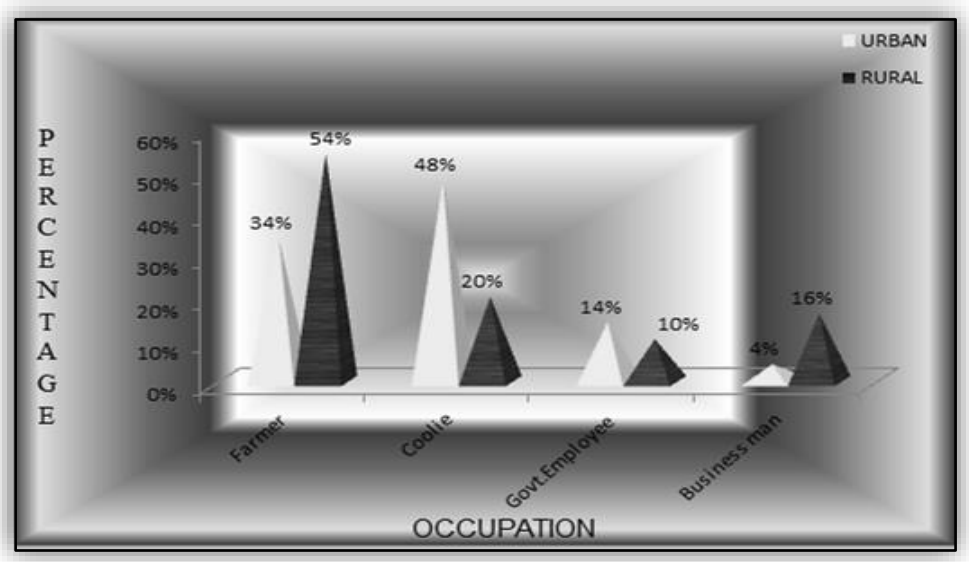

Fig. 8. Distribution of samples for urban and rural areas in terms of occupation of father

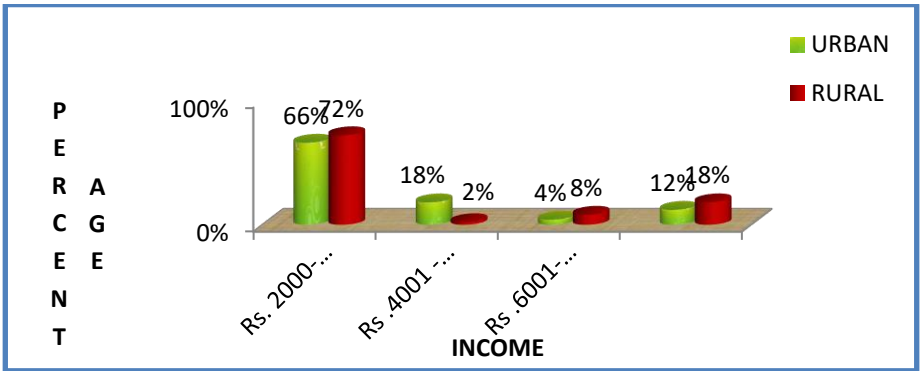

Fig. 9. Distribution of samples for urban and rural areas in terms of total income of family

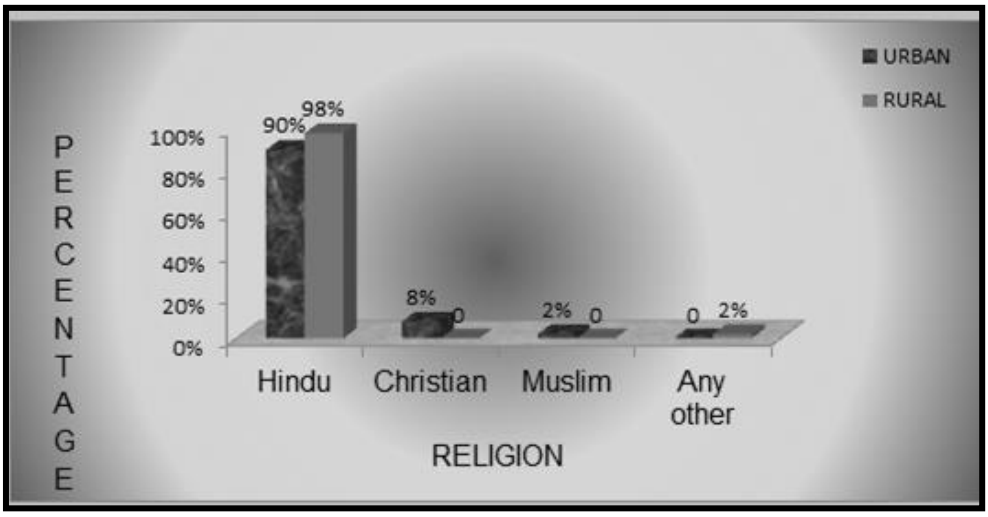

Fig. 10. Distribution of samples for urban and rural areas in terms of religio

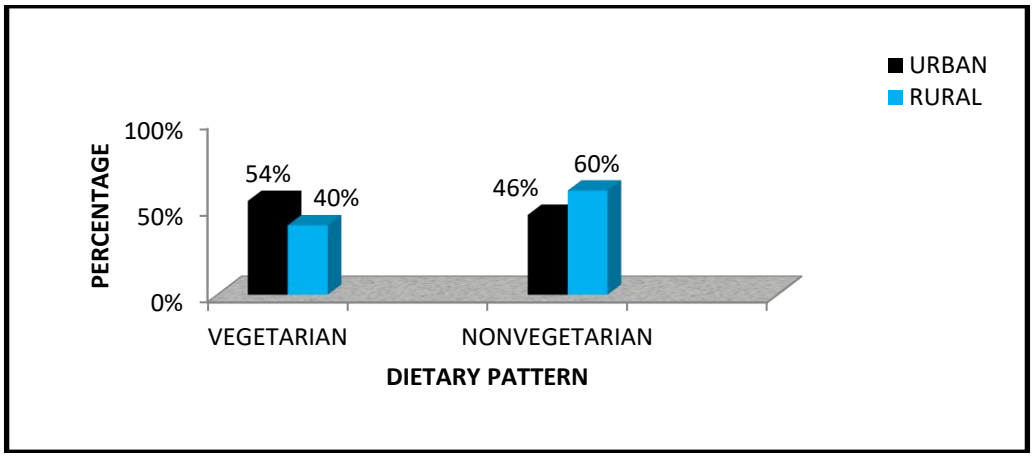

Fig. 11. Distribution of samples for urban and rural areas in terms of dietary pattern

SECTION 2

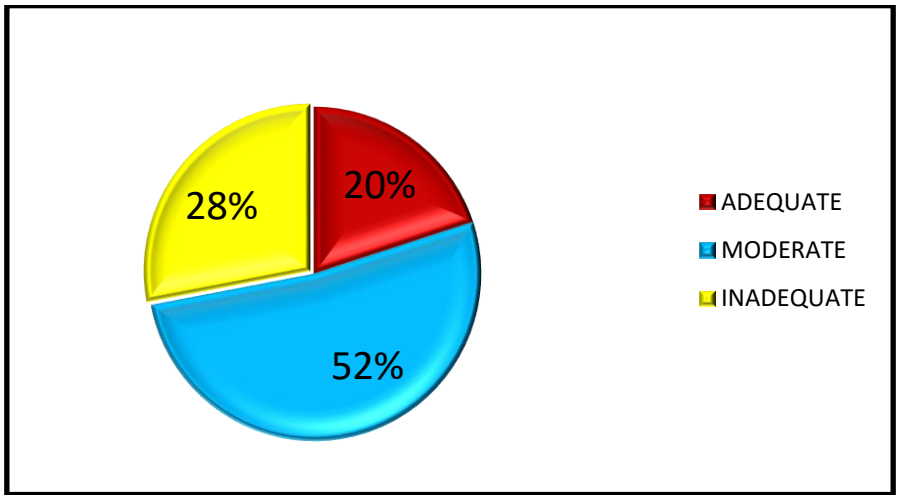

Fig. 12. Distribution of level of knowledge of urban school children

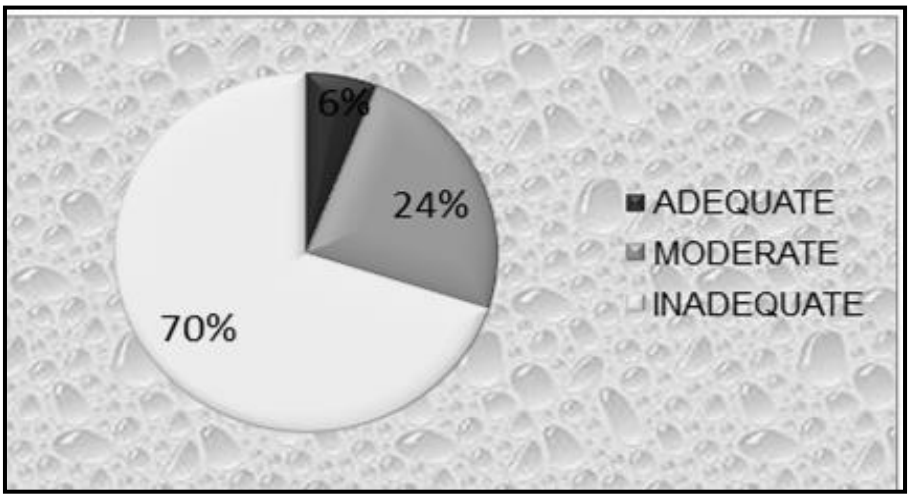

Fig. 13. Distribution of level of knowledge of rural school children

3.2 Section -3{a}

Table 2 shows that the knowledge of urban and rural school children is compared by using't' test for statistical analysis. The school children show the significant difference in the level of knowledge regarding anemia.

3.3 Section– 4

The Table - 3 shows that there is no significant association between the knowledge and demographic variable except occupation of mother.

Table 2. Comparison of knowledge among urban and rural school children regarding anemia (n=100)

Group	Number	Mean	Standard deviation	't' value
Urban school children	50	15.84	4	
Rural school children	50	11.24	5	3.74

Table 3. Association between the knowledge of anemia in urban school children with demographic variables (n=50)

S. no.	Demographic Data	Knowledge Level			
		Adequate knowledge	Moderately Adequate	Inadequate knowledge	χ^2 value
1.	Age				
	9-10 years	0	2	1	
	11-12 years	8	21	8	# 1.8800
	13-14 years	0	6	4	
2.	Sex				
	Male	3	14	8	# 2.1640
	Female	7	12	6	
3.	Birth order				
	1	1	6	3	
	2	5	4	1	# 9.4390
	3	3	7	3	
	more than that	1	9	7	
4.	Type of family				
	Joint family	1	4	2	# 3.1121
	Nuclear family	8	13	9	
	Extended family	1	9	3	
5.	Educational qualification of mother				
	Illiterate	4	7	5	# 6.8999
	Primary school	4	2	2	
	Middle school	1	2	2	
	High school	0	1	0	
	Higher secondary school	3	13	4	
6.	Educational qualification of father				
	Illiterate	1	4	5	#11.0251
	Primary school	5	6	2	
	Middle school	2	5	0	
	High school	1	4	1	

S. no.	Demographic Data	Knowledge Level			
		Adequate knowledge	Moderately Adequate	Inadequate knowledge	χ^2 value
	Higher secondary school	1	7	6	
7.	0ccpation of mother				
	Farmer	0	3	6	* 22.110
	Coolie	6	8	0	
	Govt.Employee	0	2	0	
	House wife	4	13	6	
	Any other	0	0	2	
8.	0ccpation of father				
	Farmer	1	9	7	
	Coolie	9	12	3	# 11.012
	Govt.Employee	0	5	2	
	Business man	0	1	1	
9.	Total income of family				
	Rs. 2000-4000/month	8	5	10	
	Rs .4001 -6000/month	1	6	2	# 4.4651
	Rs .6001-8000/month	1	1	0	
	Rs. > 10000/month	0	4	2	
10.	Religion				
	Hindu	9	23	13	
	Christian	1	2	1	# 1.0032
	Muslim	0	1	0	
	Any other	0	0	0	
11.	Dietary pattern				
	Vegetarian	5	14	8	# 0.1601
	Non-vegetarian	5	12	6	

** Significant at 0.05 level, # Not significant at 0.05 level*

Table 4. Association between the knowledge of anemia in rural school children with demographic variables (n=50)

S.No	Demographic Data	Knowledge Level			
		Adequate knowledge	Moderately Adequate	Inadequate knowledge	χ^2 value
1	Age				
	9-10 years	2	7	14	
	11-12 years	1	5	20	# 1.9600
	13-14 years	0	0	1	
2	Sex				
	Male	0	6	12	# 2.5112
	Female	3	6	23	
3	Birth order				
	1	0	7	8	
	2	1	3	18	# 9.9612
	3	2	2	7	
	more than that	0	0	2	

S.No	Demographic Data	Knowledge Level			
		Adequate knowledge	Moderately Adequate	Inadequate knowledge	χ^2 value
4	Type of family				
	Joint family	1	6	7	# 6.2210
	Nuclear family	1	6	22	
	Extended family	1	0	7	
5	Educational qualification of mother				
	Illiterate	0	3	23	#11.9623
	Primary school	2	4	5	
	Middle school	0	0	1	
	High school	1	4	5	
	Higher secondary school	0	1	1	
6	Educational qualification of father				
	Illiterate	0	1	22	* 22.712
	Primary school	2	4	7	
	Middle school	0	2	4	
	High school	1	2	2	
	Higher secondary school	0	3	0	
7	0ccpation of mother				
	Farmer	1	5	24	
	Coolie	1	4	9	# 6.2133
	Govt.Employee	0	0	0	
	House wife	1	2	1	
	Any other	0	0	1	
8	0ccpation of father				
	Farmer	1	4	22	
	Coolie	1	3	6	# 4.7311
	Govt.Employee	1	1	3	
	Business man	1	3	4	
9	Total income of family				
	Rs. 2000-4000/month	2	10	24	
	Rs .4001 -6000/month	0	0	1	# 2.0412
	Rs .6001-8000/month	0	1	3	
	Rs. > 10000/month	1	1	7	
10	Religion				
	Hindu	3	11	35	
	Christian	0	0	0	# 0.3951
	Muslim	0	0	0	
	Any other	0	0	1	
11	Dietary pattern				
	Vegetarian	1	5	14	
	Non-vegetarian	2	7	21	# 0.1540

**Significant at 0.05 level, # Not significant at 0.0 5 level*

The Table 4 shows that there is no significant association between the knowledge and demographic variable except educational qualification of father.

4. DISCUSSION

4.1 The First Objective wasto Assess the Knowledge of Anemia Among Children in Urban and Rural School

Table 2 shows that the distribution of level of knowledge regarding anemia in urban school children are: 14(28%) had inadequate knowledge, 16(52%) had moderately adequate knowledge and 10(20%) had adequate knowledge. In rural school children 35(70%) had inadequate knowledge, 12(24%) had moderately adequate knowledge, and 3(6%) had adequate knowledge.

4.2 The Second Objective was to Compare the Knowledge of Anemia Among Children in Urban and Rural School

The study showed that there was a significant difference in mean score between urban and rural school children. The mean value of urban school children 15.84 was significantly greater than the mean score of rural school children 11.24.The difference between the urban and rural school children's knowledge were calculated, the 't' value is 3.74.

4.3 The Third Objective of the Study was to Find Out the Association Between the Knowledge of Anemia with Selected Demographic Variables of Urban and Rural School Children

The Table 4 shows that in urban school children there is no significant association between the demographic variable namely age, sex, birth order, type of family, educational status of mother and father, occupation of father, total income of family, religion and dietary pattern (since calculated value is lesser than the table value). But there is significant association between the knowledge of urban school children and occupation of mother (since the calculated value is more than the table value). [χ^2 =22.1, df= 8, p<0.05]

4.4 Implication for Nursing Education

- Content and experience related to anemia and its management is an important part of basic nursing education programmes both in hospital and community settings. The primary task is to identify the essential contents for nurse to master at the basic level and evaluate and update the content as an ongoing future. Only this updated information will enhance confident in students about the correct way of maintaining their health status.
- Nursing students can be taught about identification of anemia and its treatment.

4.5 Implication for Nursing Administration

- **N**urseadministrators can disseminate the research knowledge into the practice, so that the school children will become beneficial.
- In-service education is to be provided to the nursing personnel at various levels to make them aware of Anemia, etiology/ risk factors, management (diet, exercise, iron and folic acid tablets) and preventive measures.
- Update the nurse's knowledge about current practices and treatment through workshops and conference. This will enable them to provide health education holistically to the children with Anemia on conservative management.

4.6 Implication for Nursing Research

- The findings of the study can be used to prepare education module on prevention of anemia and can be taught to the school children. To find the effectiveness of various teaching strategies to educate students, parents, relations and also the public.
- Nurses can be involved in conducting research on Anemia in broader aspects which involves observing cooking practice, selection of foods etc through longitudinal study

5. CONCLUSION

School health nurses can teach instructors how to recogniseanaemic youngsters based on clinical indications and function as a liaison between the schoolchildren and the health-care organisation. School children's iron and folic acid supplement programmes can be monitored on a regular basis. For anaemic schoolchildren, a special dietary regimen should be adopted.

Taking a balanced diet, exercising, maintaining personal hygiene, and avoiding going barefoot must be stressed in school children, and kids must be prioritised to avoid severe anaemia.

6. RECOMMENDATIONS FOR FURTHER RESEARCH

- A similar study can be conducted by using large samples to generalize the findings at national or state level.
- A study can be conducted among the same population after introducing a health education programme.
- A similar study may be conducted as an experimental approach assessing prevalence of anemia before and after administration of iron and folic acid tablets.
- Comparative study can be conducted among the school children in private and government schools.
- A study can be conducted to identify the factors influencing anemia among school children.

CONSENT AND ETHICAL APPROVAL

As per international standard or university standard guideline participant consent and ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Agrawal DN. “Approach to the diagnosis of anemia”, Health screen. 2006; 2(20): 10-19.
2. Anand K. “Iron deficiency in school children”, European Journal of Clinical Nutrition. 2000; 54(34): 678-683.
3. Anshu S et al., “Identification of an appropriate strategy to control anemia in school children of poor communities”, Indian Pediatrics. 1999; 37(17): 234-240.
4. Awasthi S. “Prevalence of anemia in school children”, Journal of Pakistan medical association, 1997; 42(2): 3-5.
5. Balgir et al., “Physical growth health and nutritional status of ashram school Tribal children in North Orissa”, Indian Journal of Nutrition and Dietetics. 1999; 36: 440-443.
6. Behrman ER, Kliegman MR. “Nelson Essentials of Pediatrics”, 4th edition, Saunders. 2005;622-627.

Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle4.com/review-history/76055