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Research Article

Effectiveness of Gamification-Based Health Education Through a Snake and Ladder Game on Selected Ailments and Prevention Knowledge Among School Children: A Quasi-Experimental Study

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Abstract

School children are more susceptible to get selected ailments when they expose towards precipitating factors. These ailments may affect their health and cause complications. hence, we need to give health education regarding selected ailments and its prevention. Games are an innovative and challenging educational method. Studies demonstrated that GAME was an effective method of imparting information to the children. Hence the study was undertaken by the researcher with the objectives of assessing the existing knowledge, evaluate the effectiveness of game-based learning and finding the association between post-test knowledge score of school children on healthy dietary pattern and their selected demographic variables.

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KEYWORDS: Gamification; Snake and Ladder game; Health education; School children; Selected ailments and prevention.

1. INTRODUCTION

The objectives of the study

1. To assess the existing knowledge regarding selected ailments and its prevention among school children in selected government schools, Bengaluru.
2. To assess the effectiveness of snake and ladder game on selected ailments and its prevention among school children in selected government schools, Bengaluru.
3. To find an association between knowledge scores of school children regarding selected ailments and its prevention among school children with their selected demographic variables.

A child is precious not only to his parents, to his family, community, nation but also to the world at large. In fact, child is a citizen of world and thus it becomes the responsibility of the wide population of the whole universe to look after the interests of children all over.1Children are assets of our country. The children of school age form an extremely high proportion of Indian‟s population both in rural and urban areas. The number of school children is 5-14 years age group constitutes about 15% of the total population. It is a period of physical growth and development. Early detection of disease is made in a controlled group of population. Many defects can be timely corrected, and many infections can be timely immunized. It is, therefore, important that the physical and mental health of this segment of the population should be the concern of all those responsible for ensuring the health of the people.2 The health habits of school children are regards personal hygiene, clean surroundings, diet, exercise, rest and recreation if formed at an early stage still remain with person throughout life and will help to develop healthy citizens in the full and positive sense of the term. So, the school is the best place for giving health education on health subjects.2The final aim of all child health and care programmes is a healthy infant growing up to be an equally healthy child later on a physically healthy and mentally healthy, alert and socially adjustable individual who should be able to complete and achieve full potentials as an adult.1 Health education of school children is an important part of prevention of health problems. Though health problems depend upon the geographical area and 1 demographic aspect, but some ailments are common among school children such as Diarrhoea, Fever, cold and cough, Dental caries and anaemia etc.3Paediatric education should be an important part of the student‟s curriculum.

Research design

A researcher's overall plan for obtaining answers to the research questions or testing the research hypothesis is referred to as the research design. The research design selected for the present study was pre-experimental one group pre-test post-test test design. Keeping in view the objectives of the study, a design was developed enable the investigator to assess the effectiveness of snake and ladder game on knowledge regarding selected ailments and its prevention among school children in selected government schools, Bengaluru.

Group	Pre-test	Intervention	Post-test
S	O_1	X	O_2

Keys:

S: School children

O_1: Pre-test on knowledge of school children regarding selected ailments

X: Administration of prepared Snake and Ladder game on selected ailments. O_2: Post-test on knowledge of school children regarding selected ailments

Variables under the study

Variables are qualities, properties or characteristics of person, things or situations change of vary

Two variables were identified in this study. They are:

1. Independent variable
2. Dependent variable

Independent variable: It is a stimulus or activity that is manipulated or varied by the researcher to create the effect on the dependent variable. In this study independent variable refers to Snake and Ladder game.

Dependent variable: It is the outcome or response due to the effect of the independent variable, which research wants to predict or explain. In this study dependent variable refers to knowledge level of school children regarding selected ailments.

Research Setting

Setting is the physical location in which data collection takes place, can be natural, partially controlled, or highly controlled. The present study was conducted in Government high school, Sunkenahalli, Bengaluru, Karnataka.

The selection of the area was done on the basis of

- Feasibility of conducting study.
- Availability of the samples.
- Geographical proximity.

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Target population

Population is the entire set of the subjects or aggregation of cases that are of interest to the researcher and that meet the specified set of criteria. The target population of present study was the school children.

Sample and Sampling Technique Sample

Sample may be defined as representative unit of a target population, which is to be worked upon by researchers during their study. Sampling is the process of selecting a representative segment of the population under study.

Sample size

In the present study, the sample size consists of 60 high school children.

Sample technique

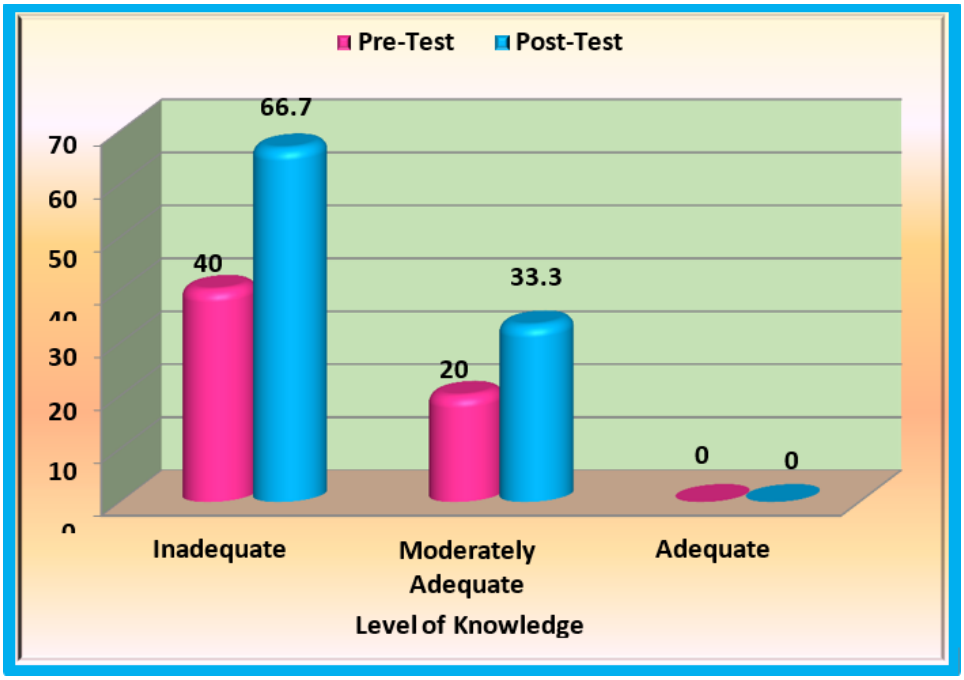
Sampling technique is the process of selecting a group of people or other elements with which to conduct a study. In the present study, simple random sampling technique was used to select the sample.

KNOWLEDGE REGARDING SELECTED AILMENTS AND THEIR PREVENTION AMONG SCHOOL CHILDREN IN SELECTED GOVERNMENT SCHOOLS, BENGALURU.

Existing knowledge regarding selected ailments and its prevention among subjects N=60

Sl.no	Level of knowledge	Frequency	Percentage
1	Inadequate	40	66.7
2	Moderately Adequate	20	33.3
3	Adequate	00	00
Total		**60**	**100.0**

The above table shows that the majority, 40(66.7%) of school children had inadequate knowledge regarding selected ailments and its prevention and the remaining 20(33.3%) had moderately adequate knowledge regarding selected ailments and its prevention.



Existing knowledge regarding selected ailments and its prevention among subjects.

Comparison of level of knowledge regarding selected ailments and their prevention among school children N=60

Sl.no	Level of knowledge	Pre-test		Post-test	
		Frequency	Percentage	Frequency	Percentage
1	Inadequate	40	66.7	00	00
2	Moderately Adequate	20	33.3	05	8.3
3	Adequate	00	00	55	91.7
Total		**60**	**100.0**	**60**	**100.0**

From table no 12 and figure 14, it was found that, majority 55(91.7%) of school children's had adequate knowledge regarding selected ailments and its prevention after play way method. it can be concluded that structure teaching program was effective in increasing knowledge of school children's.

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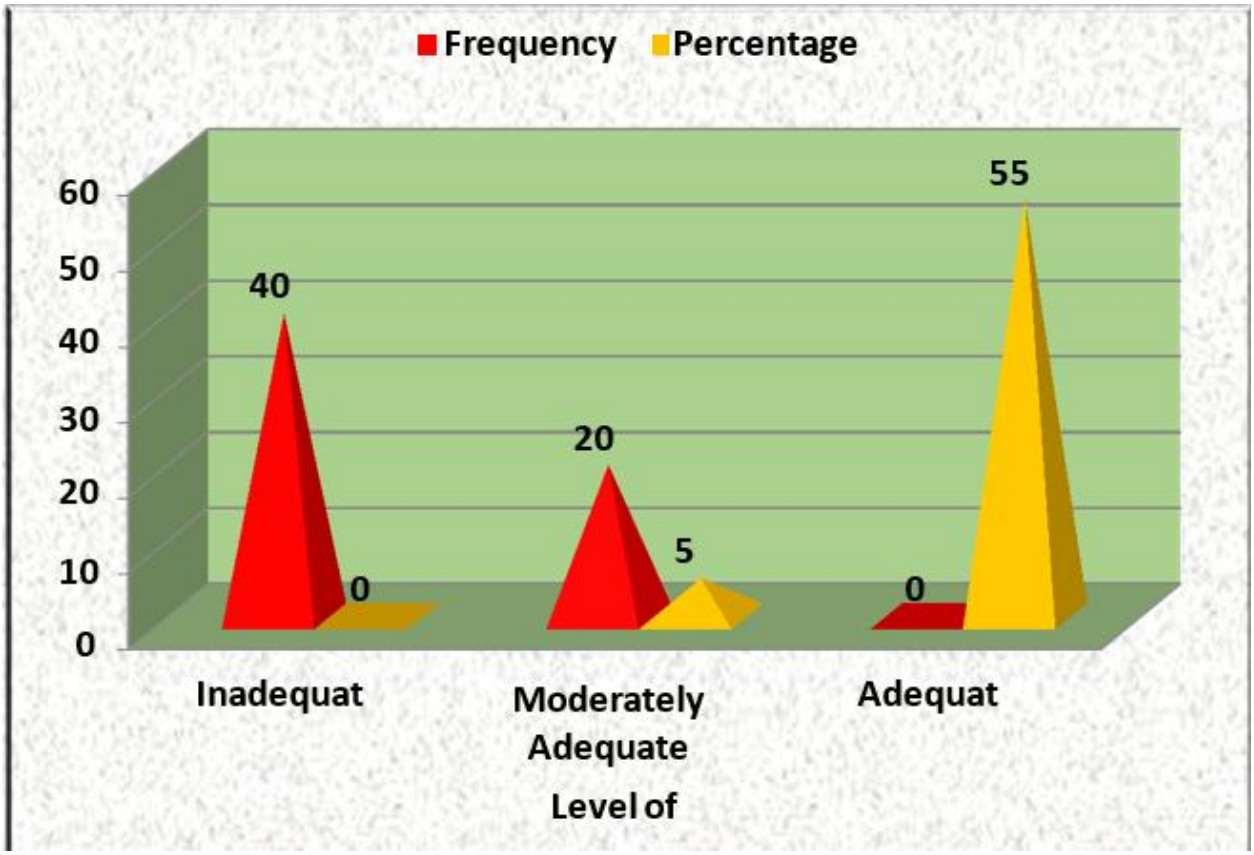

Comparison of level of knowledge regarding selected ailments and its prevention among school children

Comparison of mean level of knowledge regarding selected ailments and its prevention among school children N=60

Sl.no	level of knowledge	Pre-test	Post-test	t-value	p-value
		Mean ± SD	Mean ± SD		
1	Inadequate	10.57 ± 1.27	Nil		**Sig**
2	Moderately Adequate	13.4 ± 0.59	17.6± 0.57	-14.2	**<0.0001(S)**
3	Adequate	Nil	24.4±16.5		**Sig**

The above table depicts that mean level of knowledge regarding selected ailments and its prevention among school children has increased significantly in all levels after play way method.

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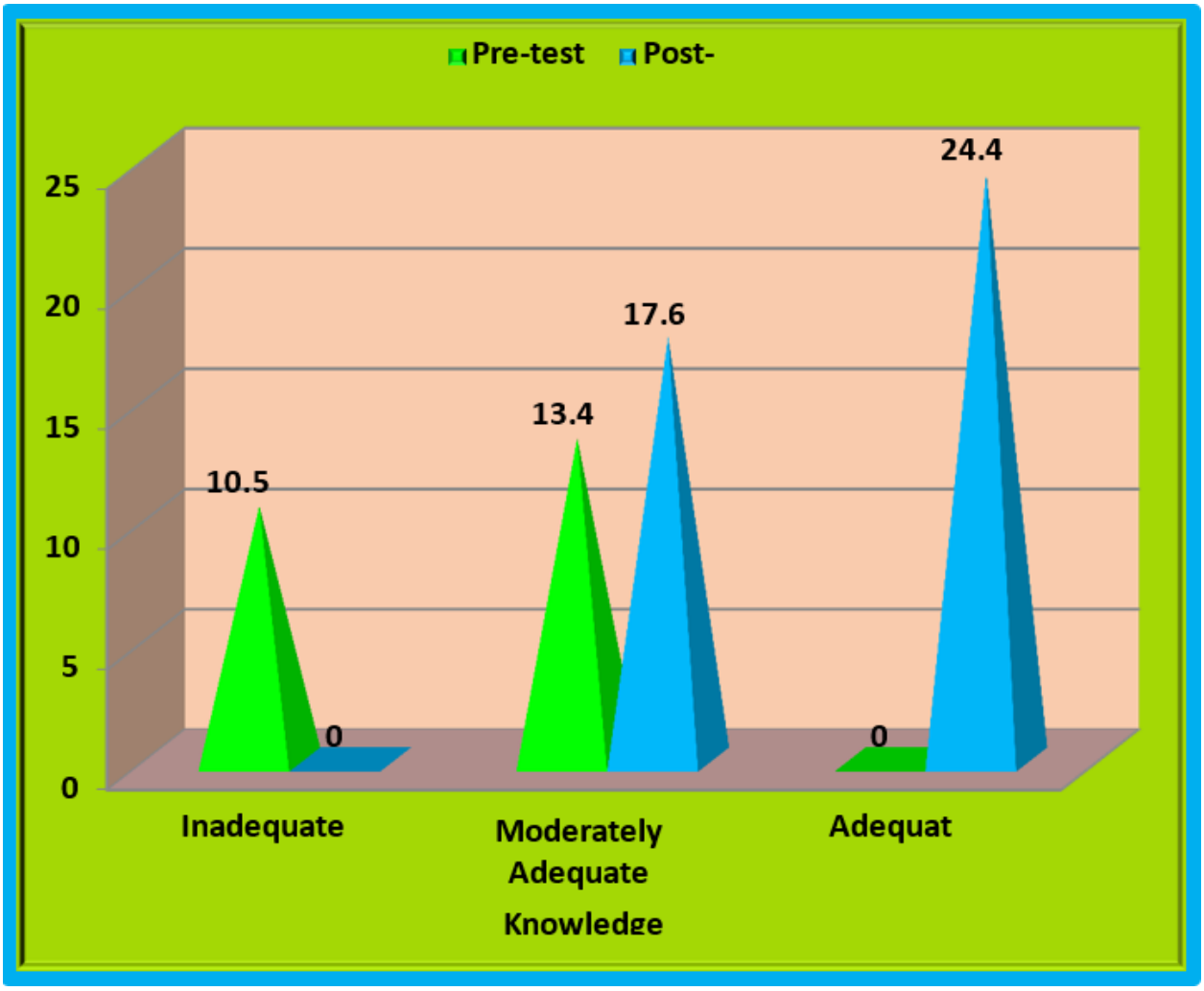

Comparison of mean level of knowledge regarding selected ailments and its prevention among school children

Paired t-test comparing overall knowledge regarding selected ailments and its prevention among school children N=60

Paired Differences					
Mean	**Std. Deviation**	**Std. Error Mean**	**t-value**	**df**	**Sig. (2-tailed)**
-9.63	2.02499	0.2614	-36.8	59	**<0.0001(S)**

The paired difference between mean pretest & mean posttest knowledge score was seen to be -9.63 with t-value equal to -36.8 indicates that overall knowledge regarding selected ailments and its prevention among school children has increased significantly

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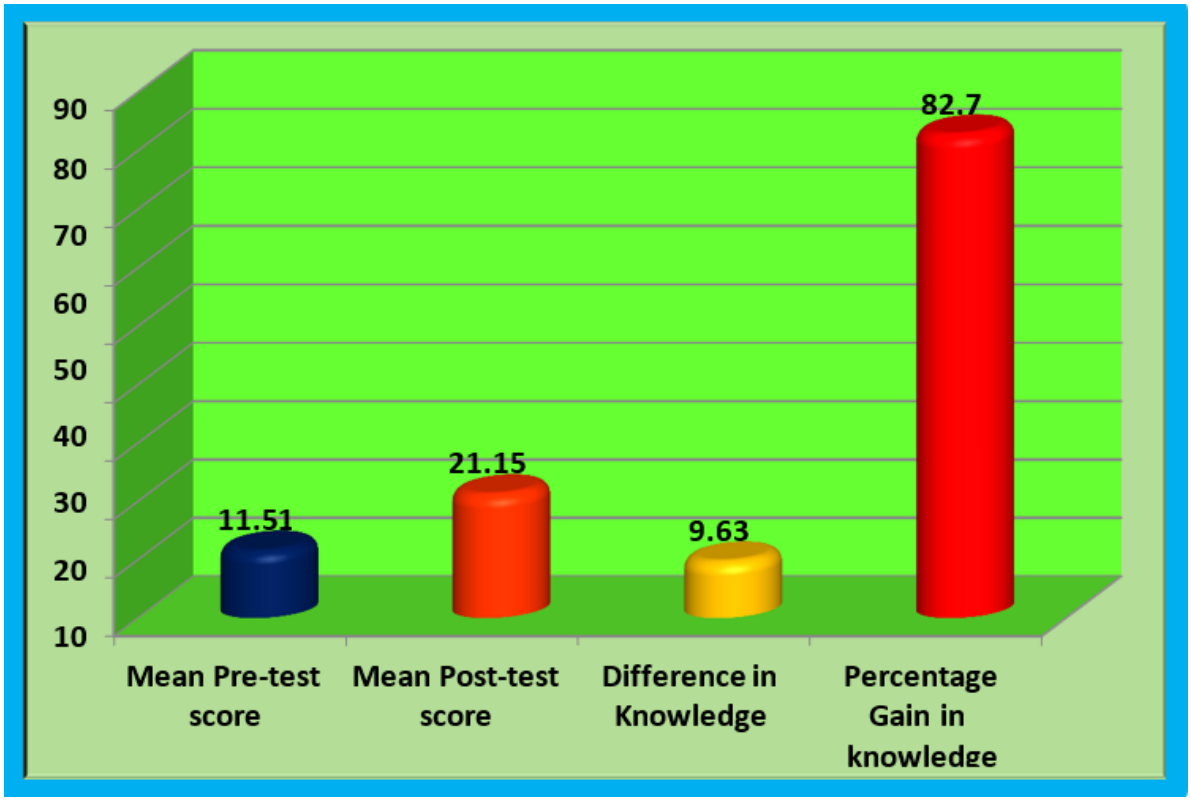

Comparison of overall knowledge regarding selected ailments and its prevention among school children

Figure 16 revealed that the mean pretest knowledge score of school children was 11.51 and mean post test score was 21.15 and the difference in knowledge score was 9.63. The percentage gain in knowledge score was 82.7% indicating that play way method was effective in increasing the overall knowledge regarding selected ailments and its prevention among school children

Section-wise comparison of overall knowledge regarding selected ailments and its prevention among school children N=60

Sl.no	Section	Pre-test	Post-test	t-value	p-value
		Mean ± SD	Mean ± SD		
1	Section-A	2.36 ± 0.68	4.36 ± 0.78	-16.82	**<0.0001(S)**
2	Section-B	2.26 ± 1.00	4.28 ± 0.84	-13.01	**<0.0001(S)**
3	Section-C	2.18 ± 0.83	4.35 ± 0.71	-16.32	**<0.0001(S)**
4	Section-D	2.25 ± 0.89	4.03 ± 0.80	-16.73	**<0.0001(S)**
5	Section-E	2.45 ±0.76	4.11 ± 0.80	-12.66	**<0.0001(S)**

From table no 15 and figure 17, it was found that, overall mean knowledge regarding selected ailments and its prevention among school children had increased significantly with regard to each section of the questionnaire after play way method.

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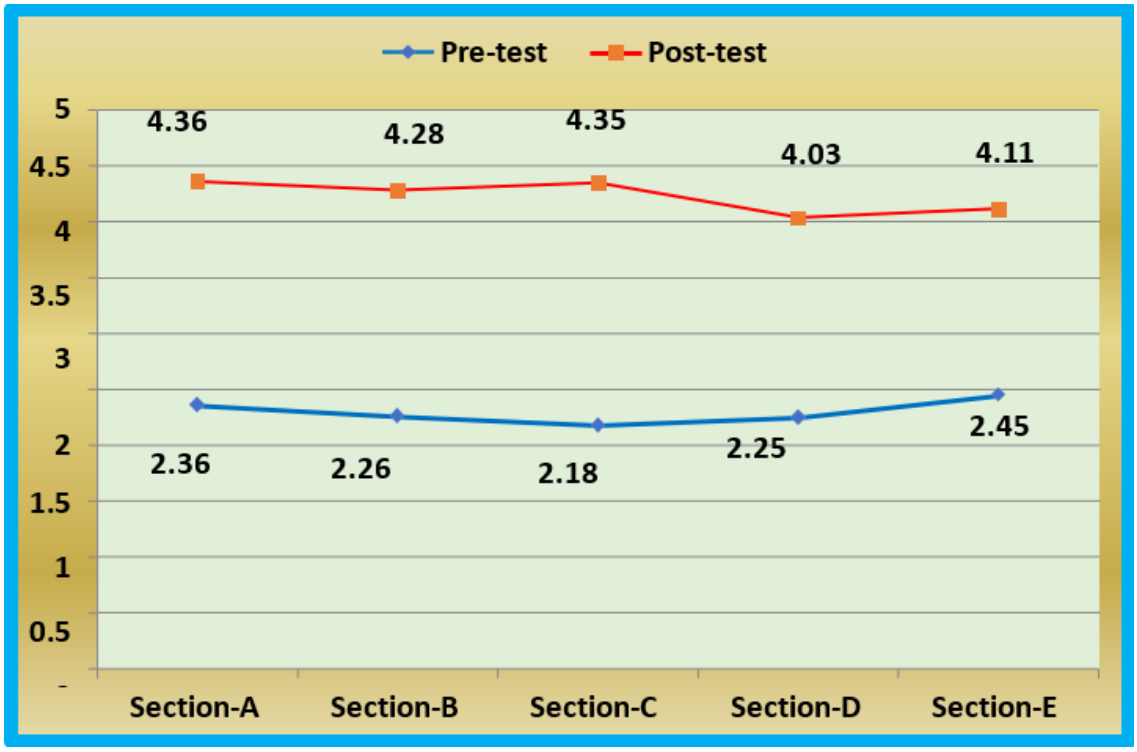

Section-wise comparison of overall knowledge regarding selected ailments and its prevention among school children

Overall Conclusions:

• Self-administered questionnaire on knowledge regarding selected ailments and their prevention among school children was effective, and it has enhanced the knowledge of school children.

SECTION IV: ASSOCIATION BETWEEN POST-TEST KNOWLEDGE SCORES WITH SELECTED DEMOGRAPHIC VARIABLES.

Association between post-test knowledge score of school children regarding selected ailments and their prevention among school children with their selected demographic variables.

S.I No.	Pre-test knowledge		Chi-square	Df	p-value	Result
	≤M	>M				
Age						
13 years	09	02	1.50	2	0.47	NS
14 years	14	09				
15 and above	17	09				
Gender						
Male	21	11	0.03	1	0.85	NS
Female	19	09				
Class						
8th standard	17	03	7.35	2	0.02	**S**
9th standard	09	11				
10th standard	14	06				
Birth Order						
First	24	14	0.71	1	0.70	NS
Second	12	04				
Third	04	02				
Types of family						
Nuclear	30	12	6.2	2	0.04	**S**
Joint	06	8				
Extended	04	0				
dietary pattern						
Non vegetarian	1	1	0.25	1	0.61	NS
Mixed	39	19				
No. of children's in						

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family						
One	04	04	3.686	3	0.297	NS
Two	20	08				
Three	12	08				
Above Three	04	0				
Religion						
Hindu	36	16	4.529	3	0.210	NS
Muslim	00	02				
Christian	03	01				
Other	01	01				
monthly income						
<4000	07	05	5.850	3	0.119	NS
5000-8000	16	04				
9000-12000	05	07				
>12000	12	04				
Suffered						
Yes	27	14	0.039	1	0.844	NS
No	13	6				

Table no 16 revealed that knowledge score of school children regarding selected ailments and its prevention was not associated with their socio-demographical variables such as age, gender, birth order, dietary pattern, No. of children's in family, religion and monthly income but it was highly associated with class and types of family with smaller chi-square p-value less than 0.05.

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