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Influence of an Intervention Programme on Health and Hygiene Practices among School Children in Mangalore City

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ABSTRACT: Health is the normal and sound state of the body. Hygiene refers to the good practices that prevent diseases and leads to good health especially through cleanliness, proper sewage disposal, and supply of safe drinking water. With the kind of health risks that are posed to the human race today, it has become vital to stay as hygienic as possible. In fact, most of the new-world diseases like bird flu and swine flu have been attributed to lack of hygiene. Hygiene is a habit that needs to be focused on and inculcated in children at an early age. Children need to be taught the importance of hygiene early on so that it becomes a habit. Children are the most susceptible to hygiene-related disorders like skin issues, rashes, infections, wounds, etc. Hence an intervention on health and hygiene was administered after the pretest to 52 children studying in V, VI and VII standard aged 10-12 years in Mangalore city. Respondents were from Government and Aided school. It was seen from the finding that pre-test practice score was found to be 44.3 percent as compared to post-test practice score (68.9%) towards health and hygiene by Government school. It was also seen from the finding that pre-test practice score was found to be 47.0 percent as compared to post-test practice score (69.5%) towards health and hygiene by Aided schools. The respondent's practice level between pre-test and post-test was found to be highly significant ($\chi^2 = 135.94^*$) showing the effectiveness of an intervention programme.

I. INTRODUCTION

Health is Wealth but to maintain good health one need to have good habits. A proper hygiene is a sign of good health. Hygiene helps to reduce the development and spread of illnesses and infections. Health is a great source of peace and happiness. It refers to the physical, emotional and psychological well-being of a person Hygiene refers to all those activities that are done for improving and preserving, maintaining sound health. And it need not be restricted to our bodies alone; it needs to be maintained in our surroundings as well. A person with a healthy lifestyle and hygienic habits lives a long and happy life.

Hygiene plays a vital role in preventing some of the common communicable disease which spread mainly through water, food, personal contact and surrounding environment.

Majority of the health problems affecting school children are preventable by promotion of hygienic practices through proper health education. Teaching children the importance of good hygiene can install habits, which will improve their health for a lifetime. Beginning healthy hygiene habits at a young age will help older children to transit themselves into adult hygiene routines.

The importance of school health has been acknowledged across countries since the beginning of 20th century. School health services have tended to focus on nutritional support and clinical assessment. These inputs are absolutely necessary, but so is the need to assess the state of personal hygiene, which is directly or indirectly related to the above-mentioned factors, especially in a developing country like India.



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This study is undertaken by the investigator to find the practices on health and hygiene and the influence of intervention programme on practices of health and hygiene among school children in Mangalore city.

II.RELATED WORK

Harikiran *et al.* (2008) assessed the knowledge, attitude, and practice (KAP) toward oral health among 11 to 12-year-old school children in a government-aided missionary school of Bangalore city. They found that only 38.5percent of the children brush their teeth two or more times a day. Pain and discomfort from teeth (35.1%) were common while dental visits were infrequent. Fear of the dentist was the main cause of the irregular visit in 46.1percent of study participants. A High proportion of study participants reported having hidden sugar at least once a day: soft drinks (32.1%), milk with sugar (65.9%), and tea with sugar (56.1%). It was found that 5.4percent and 3.9percent of the study participants smoke and chew tobacco, respectively. The Results of this study suggest that oral health KAP of study participants are poor and needs to be improved. Systematic community-oriented oral health promotion programs are needed to improve oral health KAP of school children.

SihraJitendra *et al.* (2018) evaluated the status of knowledge and practices. This study was conducted on 1385 students of the 6 selected schools in Jaipur city. Knowledge was good on some aspects of hygiene whereas in some aspects knowledge was not adequate. The Practice was not good among them.

Saud Nur-E- *et al.* (2016) analysed the oral hygiene condition and practices among the school going children of rural areas in Bangladesh. A population based cross sectional descriptive study. Sample sizes total of 270 subjects. Subjects were recruited from age range (4–14 years) by purposive sampling. A total of 270 cases were interviewed and examined. Data were collected from school going children in different rural areas of Bangladesh. All children were interviewed (face-to-face) using a semi structured questionnaire. Clinical examination was performed to measure the oral hygiene status. Statistical analysis was carried out using SPSS program version 16.0. Among all participants, 44.44percent (120) were female and 55.55percent (150) were male. Findings reveal poor oral and dental health condition of the survey population and their lack of knowledge and awareness conducive to good oral and dental health. Findings also reveal their reliance on informal sector providers for treatment of oral and dental health illnesses due to non-availability of qualified professionals. Oral hygiene practice is a neglected chore in the daily routine of the survey population as revealed through real life observation in the study area. The community people hardly used toothbrush and/or toothpaste/powder. Instead, they used various abrasive materials like charcoal powder, branches of trees claimed to have medicinal properties, etc. for cleaning teeth, which is damaging and in turn, cause different oral and dental health problems.

Tomar ShashiPrabha *et al.* (2017) analysed the oral hygienic practices among school going children and assessed their oral health status. A cross sectional study carried out in 150 school children from two schools near medical area Jabalpur (75 from each school) between the age group of 10-15 years. The study showed that only 34 percent children had the habit of brushing both time morning and at night before going to bed. Only 22percent of children used correct brushing technique. Regarding oral health status of school children's dental caries 54.7percent, followed by dental cavities (52.7%) were the most common problems found.

Quadri *et al.* (2018) studied the oral hygiene practices that are commonly followed by Arab children and to see its relationship with their dental caries status. A cross-sectional study with the multistage random sampling technique was conducted. Socio-demographic data and information on oral hygiene practices like the use of toothbrushes, dental floss, siwak, frequency of brushing along with number of snacks per day per day between meals, and consumption of sugar per day was obtained. Presence of plaque on tooth surfaces was reported using a plaque index, which was followed by a DMFT index to determine the dental caries status. Among the sample of 500 school children, the mean plaque score in male (mean = 0.69; SD = 0.50) was slightly higher than the female (mean = 0.66; SD = 0.46). Increased frequency of snacks (CI = -0.00, 0.09) and sugar consumption (CI = 0.04, 0.27) per day significantly showed higher values of DMFT. Also, the odds of dental caries among the school children who were



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irregular in brushing their teeth was higher in contrast to the children brushing once (OR = 0.89; CI = 0.70, 1.12) or twice (OR = 0.80; CI = 0.64, 0.93) per day.

Asiedu *et al.* (2011) found that most school children observed did not practice proper hand washing with soap, both in school and at home due to the unavailability and inaccessibility of hand washing facilities such as soap, towel and clean running water. However, the majority (90.2%) of those who used the school toilet practiced hand washing with soap after defecation. Private schools were found to be 63 percent ($p = 0.02$) less likely to wash their hands after using the toilet, 51 percent ($p = 0.03$) less likely to wash their hands before eating and 77percent ($p < 0.001$) less likely to wash their hands with soap after eating compared to their public school counterparts.

Sarkar (2013) examined the knowledge and practice of personal hygiene among the primary school children in a slum area of Calcutta. Pre designed questionnaires were used to elicit the information. A pre and post test was conducted and found that the knowledge and practice of personal hygiene was not satisfactory among the children.

Bashtawy (2015) studied the personal hygiene in school children aged 6–12 years in Jordan. A questionnaire was used to collect information about demographic characteristics, and then the children were interviewed and inspected regarding their general hygiene, including the state of their uniform or clothes, bathing, oral care, hand washing before and after eating, hand washing after use of the toilet, covering one's mouth when sneezing and coughing, appropriate disposal of solid tissue and unkempt hair or nails. Data were analysed using the SPSS programme version 14. Descriptive distribution statistics and the Pearson chi-square test were computed. The prevalence of cleanliness and neatness among school children was 76.7 percent.. Furthermore, these improved with age. Poor oral hygiene (47.6%) and not washing hands after eating (47.1%) followed by unkempt hair (44.0%) were the main types of poor personal hygiene.

Amin and Al-Abad (2008) evaluated oral hygiene practices, dental knowledge, dietary habits and their relation to caries among male primary school children in Al Hassa, Saudi Arabia. The Study included 1115 Saudi male children selected by multistage random sampling from 18 public primary schools. Decayed teeth were diagnosed in 68.9 percent and only 24.5percent of the students brushed their teeth, 29 percent of them never received instructions regarding oral hygiene practices.

Kamath *et al.* (2014) assessed the awareness regarding oral hygiene practice amongst children toward oral health in rural population of Mangalore city. They found that 52percent children brush their teeth twice a day and 98.9percent children brushed in horizontal direction.

Khatoon *et al.* (2017) studied the impact of school health education programme on personal hygiene among school children in the age range 10-12 years of Lucknow district. The knowledge on personal hygiene was inadequate and practice was low among the students in the pre test. In the post test knowledge and practice were enhanced significantly.

ShresthaAshutosh *et al.* (2014) assessed the change on knowledge and practice regarding personal hygiene among primary school children in Urban Area of Karnataka, India after educational interventions. The mean knowledge score of personal hygiene increased from 51.55 to 75.46 which was statistically significant at paired t 13.01, DF 19 and $p < 0.01$. The mean practice score of personal hygiene increased from 44.19 to 69.22 which was statistically significant at paired t 7.26, DF 8 and $p < 0.01$. There is need of proper health education intervention through the framework of schools for the school children, for improvement regarding personal hygiene among them, throughout the nation.



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III. METHODOLOGY

Aim

The study aimed at finding out the Influence of an intervention programme on practices of health and hygiene among school children in Mangalore city.

Objectives:

1. To know the existing practices of school children on health and hygiene
2. To find the Influence of an intervention programme on practices of health and hygiene among school children in Mangalore city.

Research Design:

Two schools were identified for conducting the intervention programme. One Government school and one Aided school were selected as these children found to have less practices on health and hygiene after the initial test. Children aged 10-12 years studying in V, VI and VII standards from Government (30) and Aided (52) a total of 82 were drawn as samples for the intervention programme. Based on the inputs after administering the questionnaire, an intervention module was systematically developed for children to enhance their practices on health and hygiene. Intervention was administered for one academic year.

IV. SIMULATION AND RESULTS

Background information:

Intervention Programme was administered to respondents of Government (30) and Aided school (52) children after conducting the pre-test. Most of the children were of 12 and 11 years. Children studying in VI standard were more when compared to V and VII standard students. Girl students were more than boys. Majority of the students belonged to Kannada speaking Hindu nuclear families. Most of the children were nonvegetarians. Higher percentages of the respondents were from the income range Rs.12897-17196. Considerable percentage of the respondent's mothers was illiterate followed by a Primary level of education. Higher percentages of the respondents' fathers and mothers were commission agents, brokers.

TABLE -1: Overall Mean Practice scores of Respondents on Health & Hygiene

N=82

Aspects	Practice Scores				Paired 't' Test
	Mean	SD	Mean (%)	SD (%)	
Pre test	103.0	6.6	46.0	2.9	67.76**
Post test	155.1	3.2	69.2	1.4	
Enhancement	52.0	7.0	23.2	3.1	

** Significant at 1% level, Statements = 56, Max. Score = 224

Table 1 reveals the overall mean practice score of respondents on health and hygiene. It was seen from the finding that pre-test practice score was found to be 46.0 percent as compared to post-test practice score 69.2 percent towards health and hygiene. Further, the mean enhancement of practice score from pretest to post test was found to be 23.2 percent. The data subjected for paired 't' test reveals the enhancement of practice score and was found to be statistically significant ($t = 67.76^{**}$).

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TABLE –2 : Mean Practice scores of Respondents on Health & Hygiene by Type of school

Type of school	Sample (n)	Aspects	Scores				Paired 't' Test
			Mean	SD	Mean (%)	SD (%)	
Government	30	Pre test	99.3	4.9	44.3	2.2	53.89**
		Post test	154.3	3.4	68.9	1.5	
		Enhancement	55.0	5.6	24.6	2.5	
Aided	52	Pre test	105.2	6.5	47.0	2.9	50.70**
		Post test	155.6	3.0	69.5	1.3	
		Enhancement	50.3	7.2	22.5	3.2	

** Significant at 1% level, Statements = 56, Max. Score = 224

Table2 reveals the mean practice score of respondents on health and hygiene by type of schools. It was seen from the finding that pre-test practice score was found to be 44.3percent as compared to post-test practice score (68.9%) towards health and hygiene by Government school. Further, the mean enhancement of practice score from pretest to post test was found to be 24.6 per cent. The data subjected for statistical test reveals the enhancement of practice score and was found to be statistically significant ($t = 53.89^{**}$).

It was seen from the finding that pre-test practice score was found to be 47.0percent as compared to post-test practice score (69.5%) towards health and hygiene by Aided schools. Further, the mean enhancement of practice from pretest to post test was found to be 22.5percent. The data subjected for statistical test reveals the enhancement of practice score and was found to be statistically significant ($t = 50.70^{**}$).

TABLE -3 : Aspect wise Overall Mean Practice scores on Health & Hygiene among School Children

N=82

No.	Aspects	Practice Scores (%)						Paired 't' Test
		Pre-test		Post-test		Enhancement		
		Mean	SD	Mean	SD	Mean	SD	
I	General Health	55.6	9.4	71.9	4.4	16.4	6.5	22.85**
II	Personal hygiene	45.7	12.9	69.2	5.8	23.4	9.0	23.54**
III	Environmental hygiene	52.7	14.2	73.9	9.6	21.2	10.1	19.01**
IV	Food hygiene	45.3	22.3	67.2	10.8	22.0	13.9	14.33**
V	Water hygiene	13.4	6.4	53.9	4.4	40.5	17.2	21.32**
VI	Dental & Oral hygiene	55.0	18.5	81.8	16.4	26.8	12.6	19.26**
VII	Visual hygiene	60.2	25.7	76.5	21.6	16.3	16.5	8.95**

** Significant at 1% level, Statements = 56, Max. Score = 224

Table 3 indicate the overall mean practice scores on health and hygiene among school children. In the pre-test it was found that the mean practice on General health was found to be 55.6percent, followed by Dental and oral hygiene (53.5%), Environmental hygiene (52.7%) and low practice on Food hygiene(45.3%), Visual hygiene(42.8%), Personal hygiene(38.6%) Water hygiene(13.4%).



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In the post-test it was found that the respondents had a high practice on dental and oral hygiene (81.8%) followed by Visual hygiene(76.5%), Environmental hygiene(73.9%), General health(71.9%), Personal hygiene (69.2%), Food hygiene (67.2%), Water hygiene(53.9%).It was found from the intervention programme that there was a mean enhancement of 40.5 percent on Water hygiene 26.8 percent on Dental and oral hygiene, 23.4 percent on Personal hygiene, 22 percent on Food hygiene and21.2 percent on Environmental hygiene, 16.4 percent on General health, 16.3 percent on Visual hygiene.

The data wasanalyzed statistically by using pairedt-test and found that there was a highly significant difference among school children with respect to practice on various aspects of health and hygiene in pre and post-test.

TABLE - 4: Aspect wise Mean Practice scores on Health & Hygiene among Government School Children

N=30

No.	Aspects	Practice Scores (%)						Paired 't' Test
		Pre-test		Post-test		Enhancement		
		Mean	SD	Mean	SD	Mean	SD	
I	General Health	52.0	8.6	70.0	4.8	18.0	4.8	20.54**
II	Personal hygiene	41.0	10.2	66.9	4.8	25.9	8.2	17.30**
III	Environmental hygiene	54.8	13.7	76.3	8.3	21.5	10.1	11.66**
IV	Food hygiene	50.7	20.5	70.4	9.6	19.7	13.8	7.82**
V	Water hygiene	13.3	6.8	53.2	3.7	39.9	6.8	32.14**
VI	Dental & Oral	60.0	12.6	88.6	9.9	28.6	11.1	14.11**
VII	Visual hygiene	60.4	27.9	80.8	22.4	20.4	16.2	6.90**

** Significant at 1% level, Statements = 56, Max. Score = 224

Table 4 indicates the overall mean practice scores on health and hygiene among Government school children. In the pre-test it was found thatthe respondents had better practice on Visual hygiene (60.4%), followed by Dental and oral hygiene (60%),Environmental hygiene (54.8%), and General health(52%), and Food hygiene (50.7%), less practice on Personal hygiene(41%) and Water hygiene(13.3%).

In the post-test it was found that the respondents had a high practice on Dental and oral hygiene (81.8%),Visual hygiene(76.5%), Environmental hygiene(73.9%),General health(71.9%), Personal hygiene(69.2%), Food hygiene (67.2%) and moderate practice on Water hygiene(53.9%).It was found from the intervention programme that there was a mean enhancement of 39.9 percent on Water hygiene 28.6 percent on Dental and oral hygiene, 25.9 percent on Personal hygiene, and 21.5 percent on Environmental hygiene, 20.4 percent on Visual hygiene, 19.7 percent on Food hygiene and 18 percent on General health.

The data wasanalyzed by using paired t-test and found that there was a highly significant ($p<0.05$) difference among school children with respect to practice on various aspects of health and hygiene in pre and post-test.

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TABLE -5 Aspect wise Overall Mean Practice scores on Health & Hygiene among Aided School children

N=52

No.	Aspects	Practice Scores (%)						Paired 't' Test
		Pre-test		Post-test		Enhancement		
		Mean	SD	Mean	SD	Mean	SD	
I	General Health	57.6	9.2	73.0	3.7	15.4	7.1	15.64**
II	Personal hygiene	48.5	13.6	70.5	5.9	22.0	9.3	17.06**
III	Environmental hygiene	51.4	14.5	72.5	10.1	21.0	10.1	14.99**
IV	Food hygiene	42.1	23.0	65.4	11.2	23.2	13.8	12.12**
V	Water hygiene	13.4	6.3	54.2	4.8	40.9	7.5	39.32**
VI	Dental & Oral hygiene	52.1	20.7	77.9	18.1	25.8	13.4	13.88**
VII	Visual hygiene	60.1	24.6	74.0	20.8	13.9	16.4	6.11**

** Significant at 1% level, Statements = 56, Max. Score = 224

Table 5 indicates the overall mean practice scores on health and hygiene among Aided school children. In the pretest it was found that majority of the respondents had better practice on Visual hygiene(60.4%), followed by Dental and oral hygiene (60%), Environmental hygiene (54.8%), General health(52%), and Food hygiene (50.7%), low practice on Personal hygiene(41%) and Water hygiene(13.3%).

In the post-test it was found that the majority of the respondents had high practice on Dental and oral hygiene (81.8%), Visual hygiene(76.5%), moderate practice on Environmental hygiene(73.9%), General health(71.9%), Personal hygiene(69.2%), Food hygiene (67.2%) and Water hygiene(53.9%). It was found from the intervention programme that there was a mean enhancement percentage of 39.9 percent on Water hygiene 28.6 percent on Dental and oral hygiene, 25.9 percent on Personal hygiene, and 21.5 percent on Environmental hygiene, 20.4 percent on Visual hygiene, 19.7 percent on Food hygiene, and 18 percent on General health.

The data was analyzed statistically and found that there was a highly significant difference ($p < 0.05$) among school children with respect to practice on various aspects of health and hygiene in pre and post-test.

TABLE – 6: Respondents Pretest and Post-test Practice level on Health and hygiene

N=82

Practice level	Respondents				χ^2 Test
	Pre-test		Post-test		
	N	%	N	%	
Low	74	90.2	0	0.0	135.94*
Middle	8	9.8	57	69.5	
High	0	0.0	25	30.5	
Total	82	100.0	82	100.0	

* Significant at 5% Level, $\chi^2 (0.05, 2df) = 5.991$

Table- 6 depicts the pre-test and post-test practice level of the respondents on health and hygiene. It was clear from the findings that majority of the respondents in the pre-test (90.2%) were found to have low practice level on health and hygiene as compared to 9.8 percent of the respondents with moderate practice level in the pre-test. Further, in the post-test 69.5 percent of the respondents had moderate practice level as compared to remaining 30.5 percent of the respondents with high practice level. However, the respondent's practice level between pre-test and post-test was found to be highly significant ($\chi^2 = 135.94^*$) showing the effectiveness of an intervention programme.

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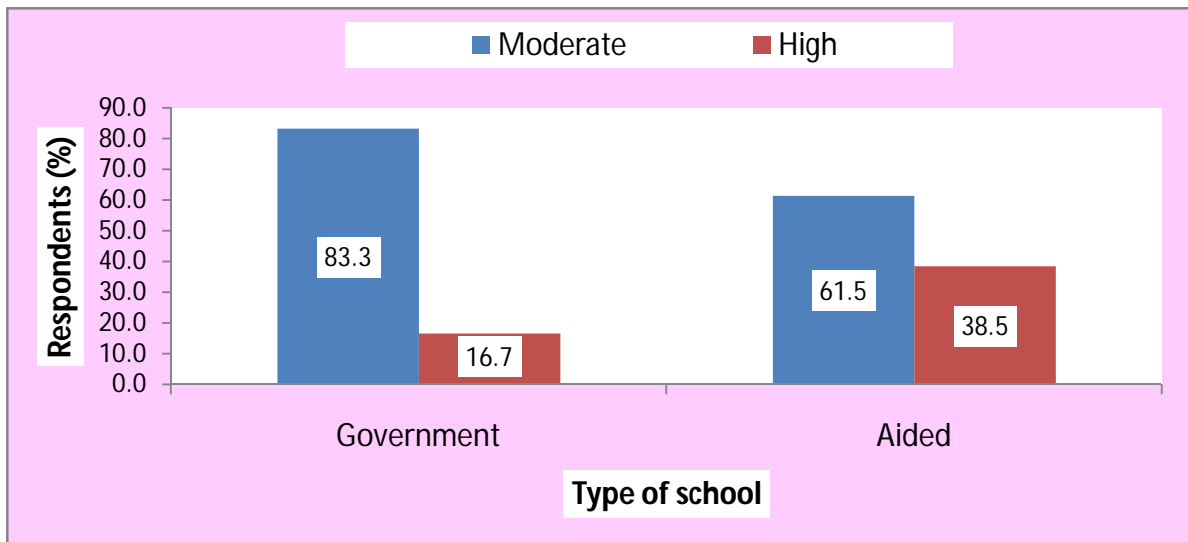


Figure .1 : Association between Type of school and Post-test Practice level on Health and hygiene

It is clear from Figure 1 that higher percentage (38.5%) of the aided school respondents were found to be high as compared to (16.7%) Government school respondents in their practice of health and hygiene (Figure-60). The association between the type of school and practice level was statistically significant. ($\chi^2 = 4.26^*$, $p < 0.05$).

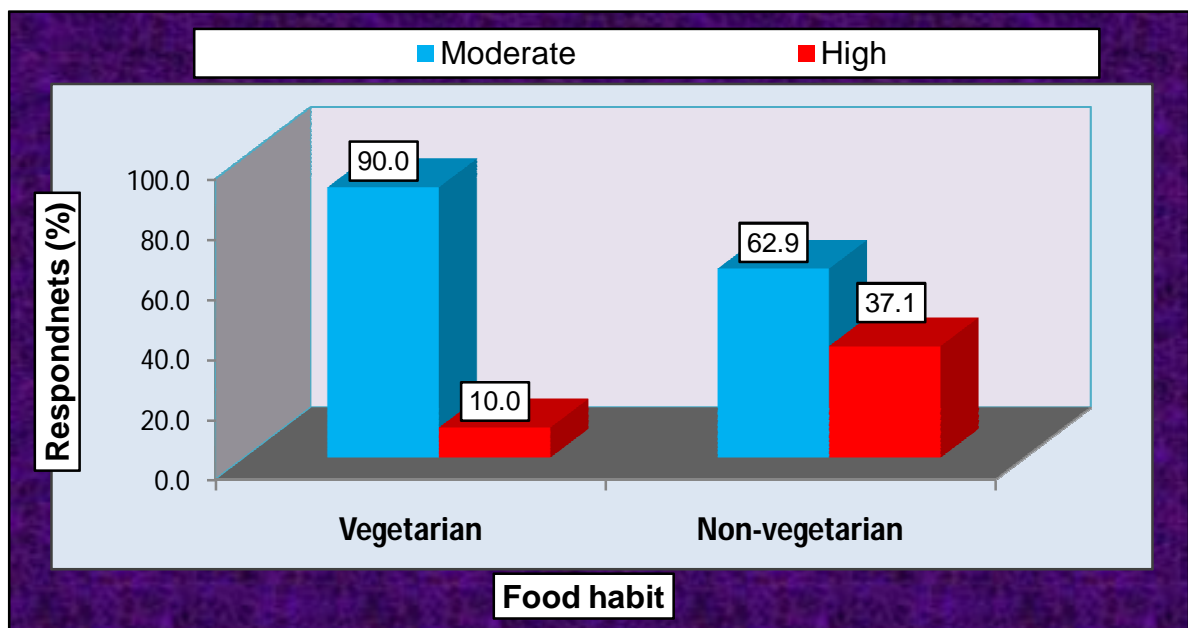


Figure.2: Association between Food habit and Health problems and Post-test Practice level on Health and hygiene



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Figure 2 indicates the association between food habit and health problems and post-test practice level on health and hygiene. It was evident from the findings that higher percentage of non-vegetarian respondents (37.1%) found high in their practice when compared to vegetarian (10%) respondents (Figure-64). However, the association between the type of food habit and practice level of health and hygiene was found to be statistically significant. ($\chi^2=5.24^*$, $p<0.05$).

V. CONCLUSION

The mean enhancement of practice score from pretest to post test was found to be 24.6 per cent among the Government school children and 22.5 per cent among the aided school children.

The respondent's practice level between pre-test and post-test was found to be highly significant ($\chi^2 = 135.94^*$) showing the effectiveness of an intervention programme.

It is found from the results that there was a significant association between type of school, food habit with practice level on health and hygiene ($p<0.05$).

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