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A Case-Control Study to Assess Risk Factors and Levels of Dental Caries among Cases and Controls in Selected Primary Schools of Bagalkote City

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Abstract **Original Research Article**

A Case-Control Study to Assess Risk Factors and Levels of Dental Caries among Cases and Controls in Selected Primary Schools of Bagalkote City**.** ***Background*****:** Dental caries is a prevalent and significant public health issue-affecting children globally. It is largely preventable through proper oral hygiene practices and awareness of associated risk factors. This study aimed to assess the level of dental caries and identify associated risk factors among school-aged children in Bagalkote city.

Objectives:

- To assess the level of dental caries among cases and controls
- To identify risk factors contributing to dental caries
- To compare the levels of caries and associated risk factors between cases and controls
- To determine associations between demographic variables and dental caries/risk factors

Methods**:** A case-control research design was adopted. A total of 100 children (50 cases and 50 controls) from B.V.V's Kannada and English Medium Primary Schools in Bagalkote were selected using purposive sampling. Data were collected using a structured questionnaire, the International Caries Detection and Assessment System (ICDAS), and a WHO-based risk factor assessment tool. Data were analyzed using descriptive statistics, z-tests, and chi-square tests. ***Results*****:** The majority (56%) of the case group exhibited established dental decay, while 62% of the control group had early decay. Both groups showed a high proportion (96%) of children with moderate risk factors for dental caries. No statistically significant difference was found in risk factors or caries levels between cases and controls ($p > 0.05$). Chi-square analysis revealed no significant associations between demographic variables (age, gender, residence, parental education, hygiene habits, etc.) and the level of dental caries or risk factors in either group. ***Conclusion*****:** Despite variations in oral hygiene practices and demographic characteristics, no significant associations were observed between risk factors and dental caries levels among the studied groups. The findings suggest the need for targeted oral health education and preventive strategies in primary schools. ***Implications:*** The study highlights the importance of integrating oral health awareness into school health programs and the role of nurses and educators in promoting dental hygiene among children.

Keywords: Dental Caries, Case-Control Study, Risk Factors, Primary School Children, ICDAS, Oral Hygiene

INTRODUCTION

"Even Pearls Are Dark before the Whiteness of Teeth"
William.R. Alger

Growth and development is the unique process in every child's life, which occurs in a sequence during different stages of deveplopment.it, is an essential feature of life of a child that distinguishes him or her from and adult. The process of growth starts from the time of conception and continuous until child grow into child. Schoolchildren continue to learn values and competences they will bring into the adult world. Growth is an essential feature of life of a child that distinguishes him/her from an adult. The process and continues until the child grows into a fully mature adult [1]. Skills such as taking a first step or smiling for first time are called developmental milestone. Children reach milestones in how they play, learn, speak, act and move. All children develop at own place, but these milestones give you a

general idea of the changes to expect as your child grows [2]. When your child is born, they have a full set of 20 primary teeth that grows in by the age of three. After that, your child's permanent teeth push out the baby teeth throughout childhood until they are all completely replaced. This process is known as eruption your baby's primary teeth, also called baby teeth, begin to loosen and fall out around the age of six. For most children, loss of primary teeth happens in a predictable pattern, and permanent teeth replace the ones falling out. Between ages of about 6 and 7 years, the primary teeth start to fall out and the permanent teeth begin to come through. The bottom middle teeth, called lower central incisors, fall out first. They are followed by the top middle teeth, also called upper central incisors. Most people have all 32 permanent teeth by the age of 21. In some cases, the third molars, also called wisdom teeth, don't develop or erupt properly. Because of this, having 28-32 permanent teeth is also considered normal [4]. Dental caries, otherwise known as tooth decay, is one of the most prevalent chronic diseases of people worldwide; individuals are susceptible to this disease throughout their lifetime. The disease develops in both the crowns and roots of teeth, and it can arise in early childhood as an aggressive tooth decay that affects the primary teeth of infants and toddlers [5].

MATERIALS AND METHODS

The Research approach adopted in this present study is Quantitative Descriptive research approach was use to conduct the study. Because this study is intended to assess the risk factors of dental caries and level of dental caries will be assessed by international caries assessment system.

Research approach quantitative research approach. The present study is Non-experimental descriptive design. A purposive sampling technique were used to select of 100 school age children of bvvs Kannada & English medium primary school Bagalkot was selected by purposive sampling Technique permission was taken from participants for study. Primary Caries Icdas & Rating Scale to Assess the Risk Factors of Dental Caries of school age children.

Study Design: The study design adopted for this study was NON-experimental descriptive case control research design.

Setting of the Study: The present study was conducted BVVS Kannada & English medium primary school, Vidyagiri, Bagalkot.

Participants:

In the present study children who are studying in the BVVS Kannada & English medium primary school Vidyagiri Bagalkot, permission from the principal of our institute, Data was collected from children by asking questions to the rating scale purpose of the study. Written Consent was obtained from parents of participants. According to the convenience of class 6-10 years of children class students' data was collected.

Instruments:

The study was conducted using a structured closed ended questionaries' for collecting information related to sociodemographic variables among school going children. International caries detection assessment system (ICDAS 2008) use to assess the dental caries. Total score was 6. Rating scale to assess the risk factors of dental caries.

DESCRIPTION OF DATA COLLECTION INSTRUMENTS

Section I: Socio Demographic Variables

In this study socio demographic variables refers to selected variables refers to age of child, gender, Type of residences, Education of father, Education of mother, Current class\grade, residence, Frequency of tooth brushing, type of tooth paste used, use of any additional oral hygiene measures, Frequency of consumption of sugary food and drinks, Drinking water resources, Presences of any other oral issues.

Section II: Primary Caries ICDAS

The scale was diagnosed by the dental caries; the score is 0 to 6 to identify the International Caries Detection Assessment Scale.

Scoring: Total points 6 score where, minimum 0 and maximum score 6.

Section III: Consists of WHO Brief assessment scale by WHO with 24 items to assess the Risk factors of dental caries. Scoring of items in WHO-BREF scale: 72

Data Collection Procedures:

The data collection was carried out from 11-04-2025 to 25-04-2025, among children who are studying in the BVVS primary school Vidyagiri Bagalkot, Permission was obtained from Principal of the school. Data was collected from by explaining the purpose of the study. Written consent was obtained from the participants parents. According to the convenience of class 1st, 2nd, 3rd, & 4th, class students data was collected.

Variable under Study

Study variables for the present study were Risk factors and level of dental caries among cases and controls in selected primary schools of Bagalkote city."

Sociodemographic Variables:

Age of child, gender, Type of residences, Education of father, Education of mother, Current class\grade, residence, Frequency of tooth brushing, type of tooth paste used, use of any additional oral hygiene measures, Frequency of consumption of sugary food and drinks, Drinking water resources, Presences of any other oral issues.

Statistical Analysis:

The obtained data were statistically examined in terms of the objectives of the study using descriptive and inferential statistics. A master sheet was prepared with responses given by the study participants. Frequencies and Percentage was used for the analysis of demographic data, and Karl-Pearson's correlational coefficient was used to determine significance of correlation between level of dental caries and mental Risk factors of children. and The Chi square(x^2) test to find out the association between socio demographic variables and level of dental caries and Risk factor of dental caries among cases and controls with their selected demographic variables.

Ethical Clearance: A certificate of ethical permission was obtained from ethical committee of the institution and written consent was taken from each participant parents.

RESULTS

SECTION I: Description of socio demographic characteristics of Schoolchildren. N =100

Table 1: Percentage distribution of children in their age group case and control

S/No	Age In Year	Case		Control	
		F	P	F	P
01	6-8years	34	68%	16	32%
02	9-10years	16	32%	34	68%

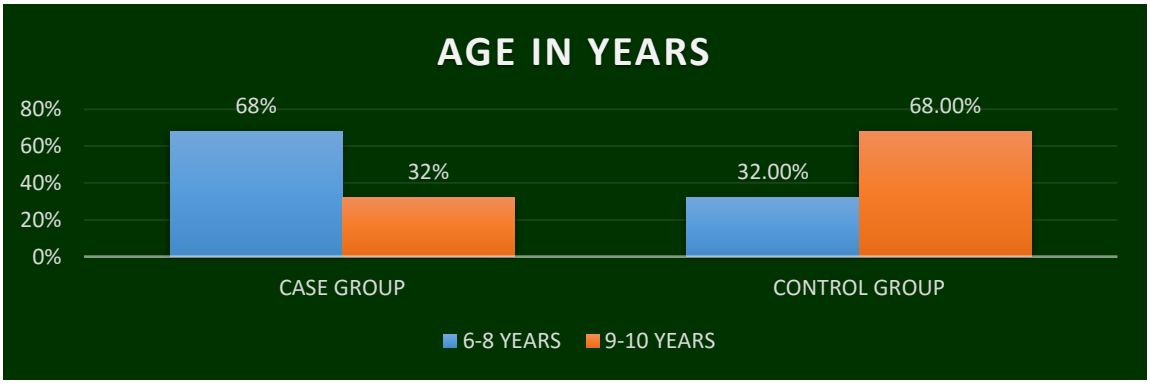

Figure 1: Clustered column Percentage distribution of children according to their age group

Figure narrates the percentage distribution of children according to their age. Among the cases, (68%) of children were belonging to 6-8 years of age, (32%) percentage of children were belonging to 9-10 years of age.

Among the control, (68%) of children were belonging to 9-10 years of age, and (32%) of children were belonging to 6-8years of age (Fig. 1).

Table 2: Percentage distribution of children in their gender case and control

S/No	Gender	Case		Control	
		F	P	F	P
01	Male	30	60%	25	50%
02	Female	20	40%	25	50%

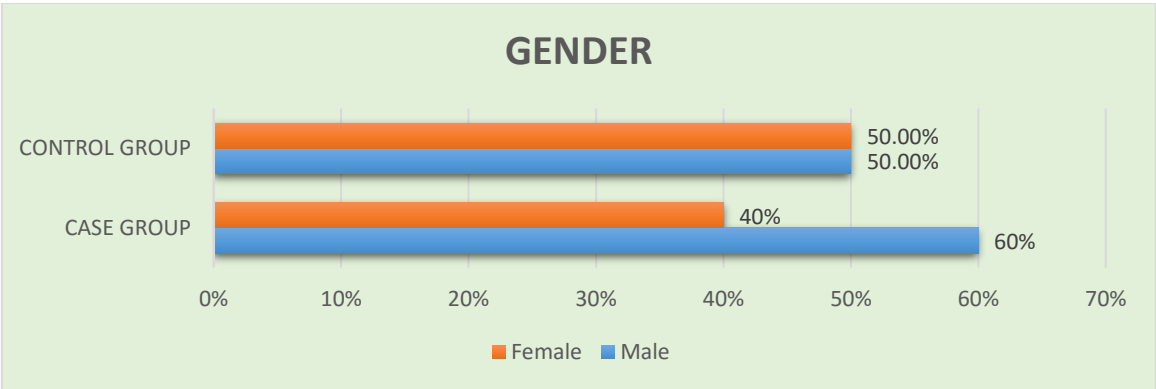

Figure 2: Clustered bar Percentage distribution of children according to their gender

Figure depicts the percentage distribution of children by the gender. Among the cases, (40%) percentage of children were females, 60% of children were male.

Among controls, (50%) of children were males & 50% of children were females (Fig. 2).

Table 3: Percentage distribution of children in their type of residence in case and control

S/No	Type of Residence	Case		Control	
		F	P	F	P
01	Urban	42	84%	50	100%
02	Rural	8	16%	0	0%

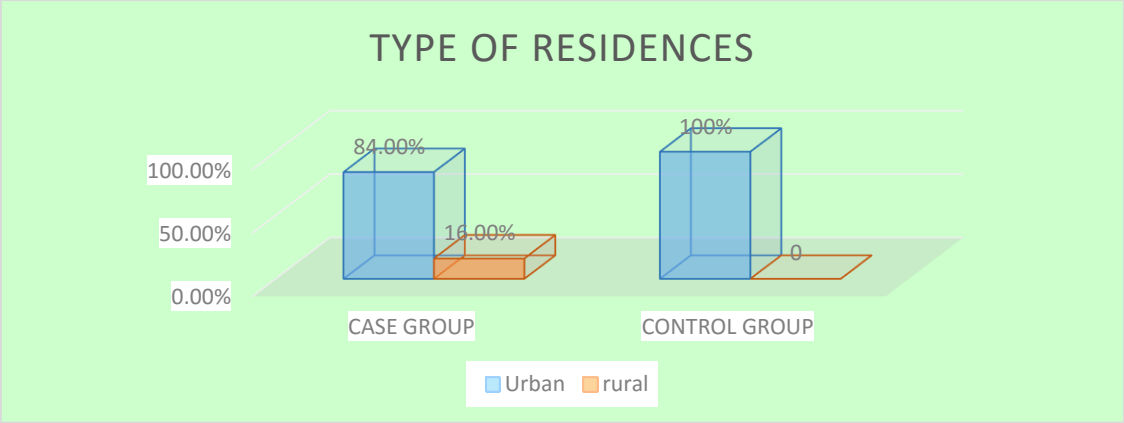

Figure 3: 3-D clustered column Percentage distribution of children according to their type of residences

Figure depicts the percentage distribution of children by type of residences. Among the case group, (84%) percentage of children were from urban area, 16% of children were from rural area.

Among control group, (100%) of children were from urban area& 0% of children were from rural area (Fig. 3).

Table 4: Percentage distribution of children in their education of father in case and control

S/No	Education of father	Case		Control	
		F	P	F	P
01	Illiteracy	11	22%	5	10%
02	Primary education	17	34%	19	38%
03	Higher primary	8	16%	14	28%
04	PUC	3	6%	2	4%
05	Degree and above	11	22%	10	20%

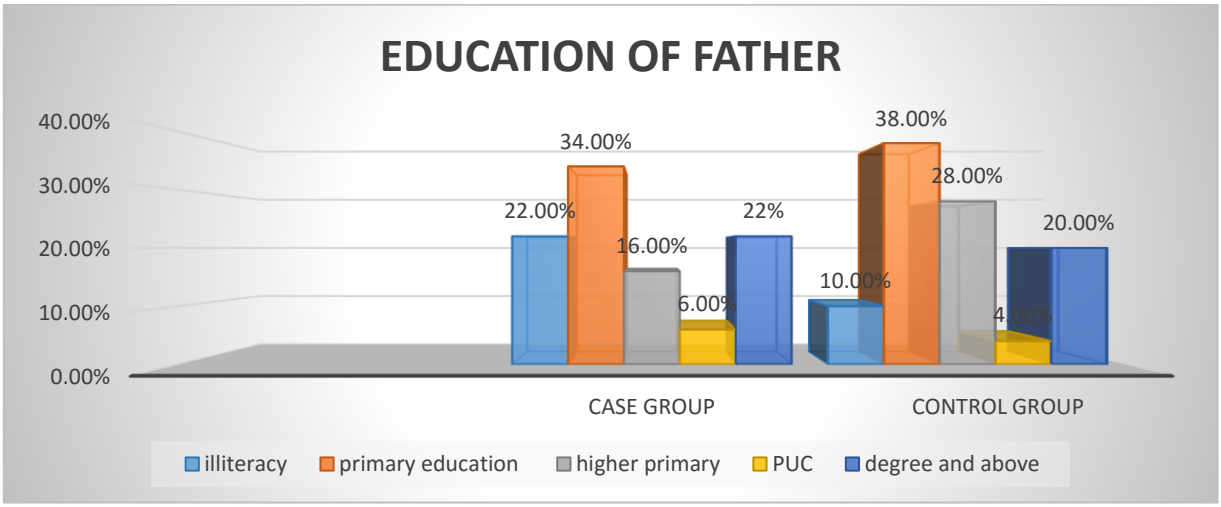

Figure 4: 3-D clustered column Percentage distribution of children according to their education of father

Percentage wise distribution of children's according to their father education status. Among cases, (34%) of father are studies primary education, 22% of father are completed illiteracy and degree & above, 16% of father are completed higher primary, 6% of father are completed PUC.

Among control group 38% of father's are completed primary education, 28% of father completed are higher primary education, 20% of father's study completed are degree and above, 10% of fathers completed are illiteracy, 4% of father's competed are PUC (Fig. 4).

Table 5: Percentage distribution of children in their education of mother in case and control

S/No	Education of mother	Case		Control	
		F	P	F	P
01	Illiteracy	17	34%	8	16%
02	Primary education	20	40%	26	52%
03	Higher primary	4	8%	7	14%
04	PUC	5	10%	4	8%
05	Degree and above	4	8%	5	10%

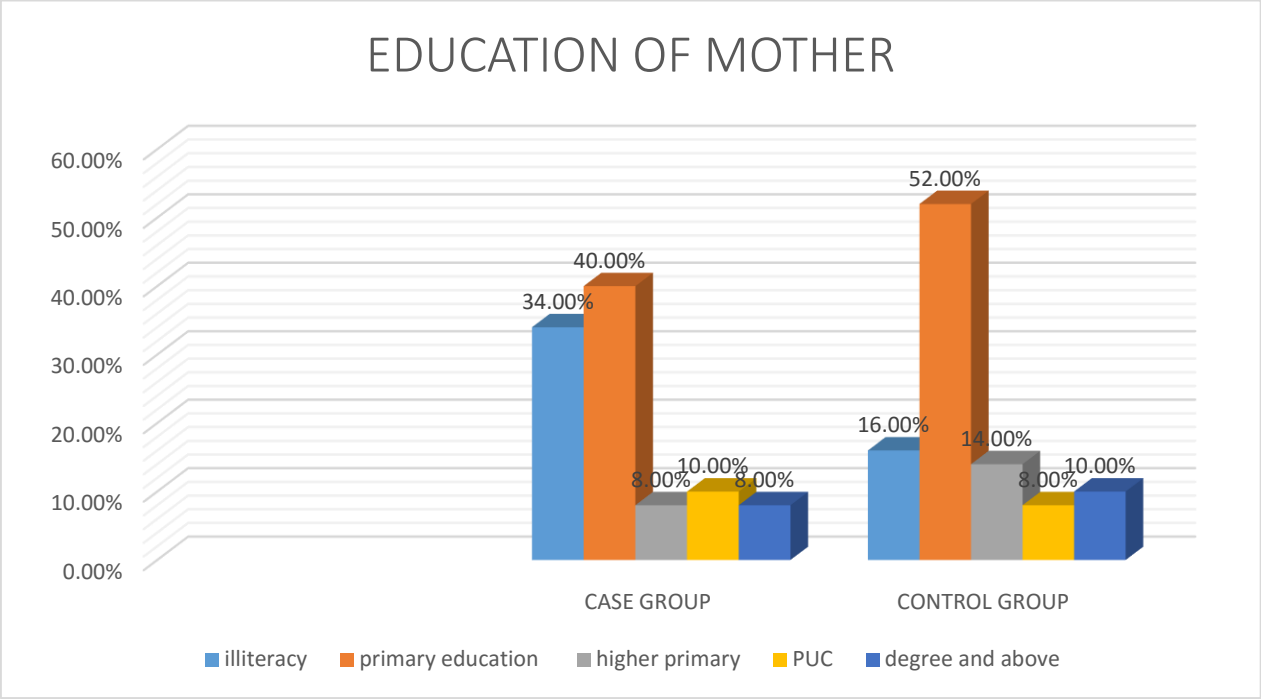

Figure 5: 3-D clustered column Percentage distribution of children according to their education of mother

Percentage wise distribution of children's according to their mother education status. Among cases, (40%) of mother are studies primary education, 8% of mother are completed higher primary and degree & above, 10% of mother are completed PUC, 34% of mother are completed illiteracy.

Among control children's 52% of mother are completed primary education, 16% of mother completed are illiteracy, 14% of mother study completed are higher primary, degree & above, 10% of mother completed are, 8% of mother competed are PUC (Fig. 5).

Table 6: Percentage distribution of children in their current class/grade in case and control

S/No	Current Class/Grade	Case		Control	
		F	P	F	P
01	1st standard	11	22%	7	14%
02	2nd standards	20	40%	9	18%
03	3rd standards	14	28%	23	46%
04	4th standards	3	6%	11	22%
05	5th standards	2	4%	0	0%

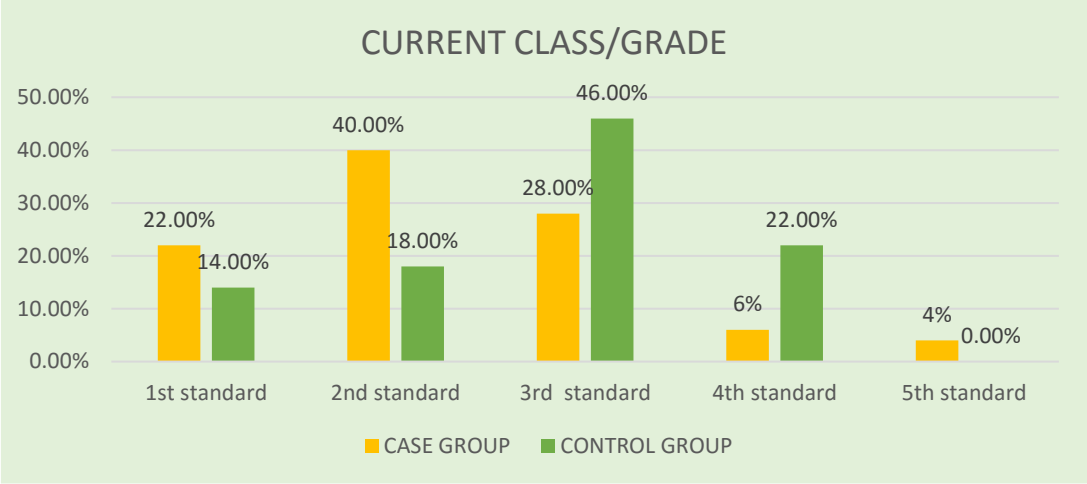

Figure 6: Clustered column Percentage distribution of children according to their current class/grade

Percentage wise distribution of children's according to their current class/ grade. Among cases, percentage (40%) of children are from 2nd standard, 28% of children are from 3rd standard, 22% of children are from 1st standard, 6% of children are from 4th standard and 4% of children are from 5th standard.

Among control children's 46% of children are from 3rd standard, 22% of children are from 4th standard, 18% of children are from 2nd standard, 14% of children are from 1st standard and 0% of children are from 5th standard (Fig. 6).

Table 7: Percentage distribution of children in their frequency of tooth brushing in case and control

S/No	Frequency of tooth brushing	Case		Control	
		F	P	F	P
01	Once a day	20	40%	17	34%
02	Twice a day	20	40%	20	40%
03	Thira's a day	10	20%	13	26%
04	Only before bed	0	0%	0	0%

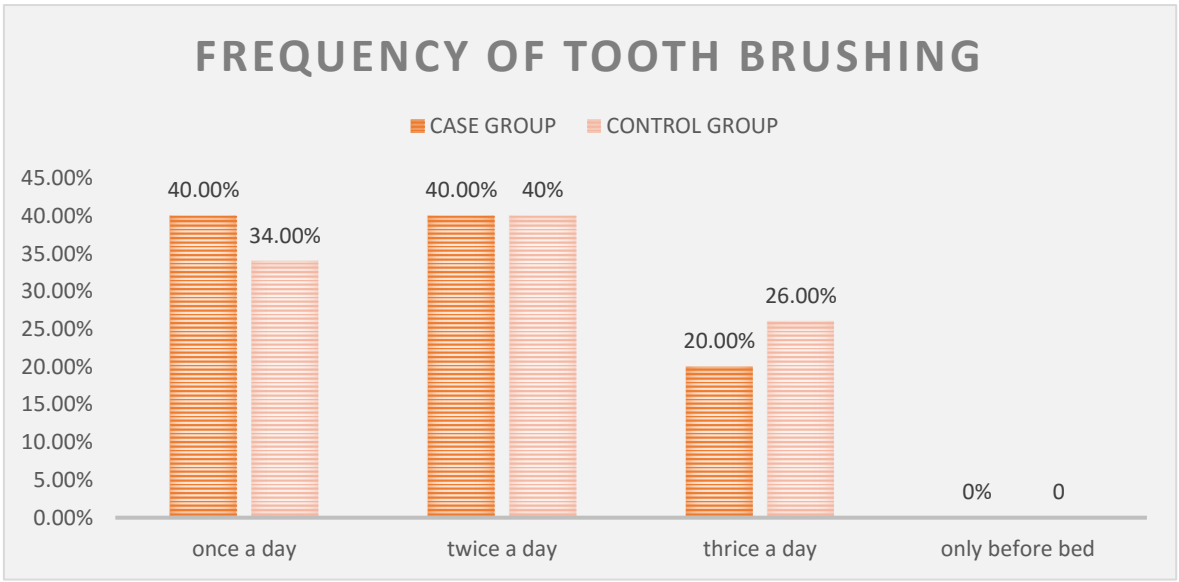

Figure 7: Clustered column Percentage distribution of children according to their current class/grade

Percentage wise distribution of children's according to their frequency of tooth brushing. Among cases, percentage (40%) of children do once a day, 40% of children do twice a day, 20% of children do thrice a day and 0% of children do only before bed.

Among control group children's (40%) of children do twice a day, 34% of children do once a day, 26% of children do thrice a day and 0% of children do only before bed (Fig. 7).

Table 8: Percentage distribution of children in their frequency of tooth brushing in case and control.

S/No	Type of Toothpaste Used	Case		Control	
		F	P	F	P
01	Fluoride	31	62%	28	56%
02	Non fluoride	19	38%	22	44%

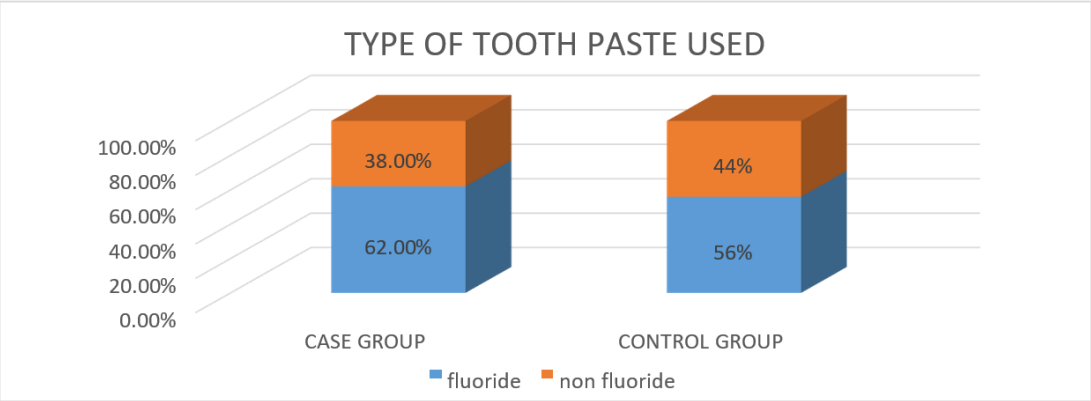

Figure 8: 3-D stacked column Percentage distribution of children according to their type of toothpaste used

Figure depicts the percentage distribution of children by type of toothpaste used. Among the case group, (62%) percentage of children use fluoride paste, 38% of children use Non-fluoride paste.

Among control group children, (56%) of children use fluoride paste & 44% of children use Non-fluoride paste (Fig. 8).

Table 9: Percentage distribution of children in their use of any additional oral hygiene measures in case and control

S/No	Use of any additional oral hygiene measures	Case		Control	
		F	P	F	P
01	Mouth wash	39	78%	23	46%
02	Flossing	11	22%	27	54%

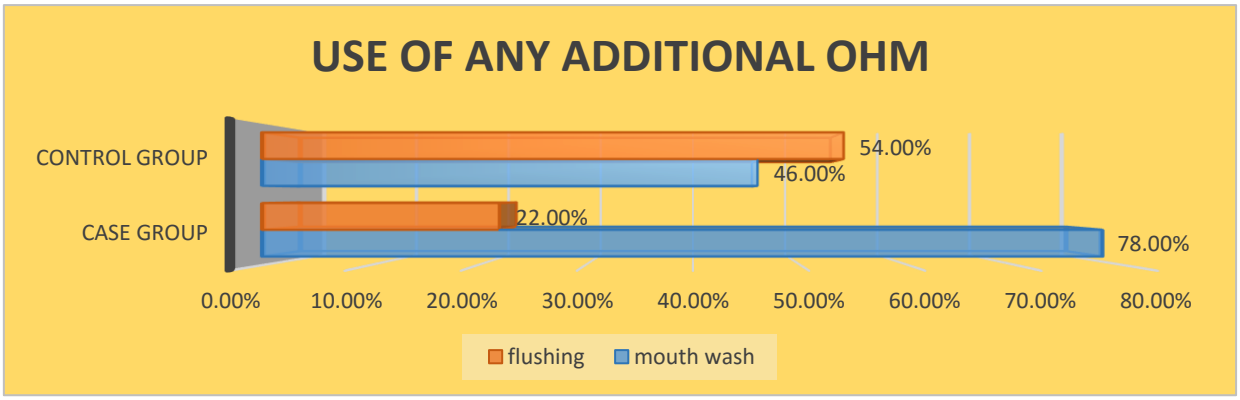

Figure 9: 3-D clustered bar Percentage distribution of children according to their Use of any additional oral hygiene measures

S/No	Frequency of consumption of sugary content food & drinks.	Case		Control	
		F	P	F	P
01	Frequency/week	30	60%	41	82%
02	Frequency/month	20	40%	9	18%

Figure depicts the percentage distribution of children by use of any additional oral hygiene measures. Among the cases, (78%) percentage of children use Mouthwash, 22% of children use Flossing.

Among control, (54%) of children use Flossing & 46% of children use Mouthwash (Fig. 9).

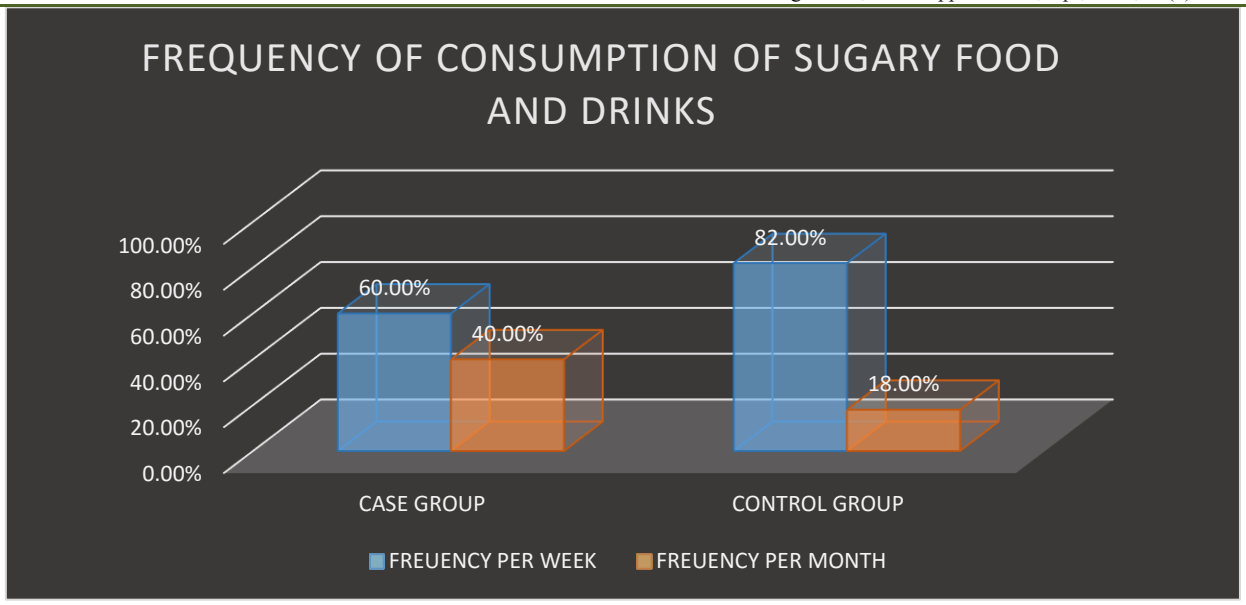

Figure 10: 3-D clustered column Percentage distribution of children according to their Frequency of consumption of sugary food & drinks

Figure depicts the percentage distribution of children by frequency of consumption of sugary content food and drinks. Among the cases, (60%) percentage of children consumes for a week sugary content food and drinks, 40% of children consume for a monthly sugary content food and drinks.

Among controls, (82%) of children consumes for a week sugary food and drinks & 18% of children consume for a monthly sugary food and drinks (Fig. 10).

Table 10: Percentage distribution of children in their Drinking water resources in case and control

S/No	Sources of Drinking Water	Case		Control	
		F	P	F	P
01	Tap water	25	50%	19	38%
02	Bottled water	4	8%	0	0%
03	Filtered water (e.g., RO system)	17	34%	31	62%
04	Well water	4	8%	0	0%
05	Rainwater	0	0%	0	0%

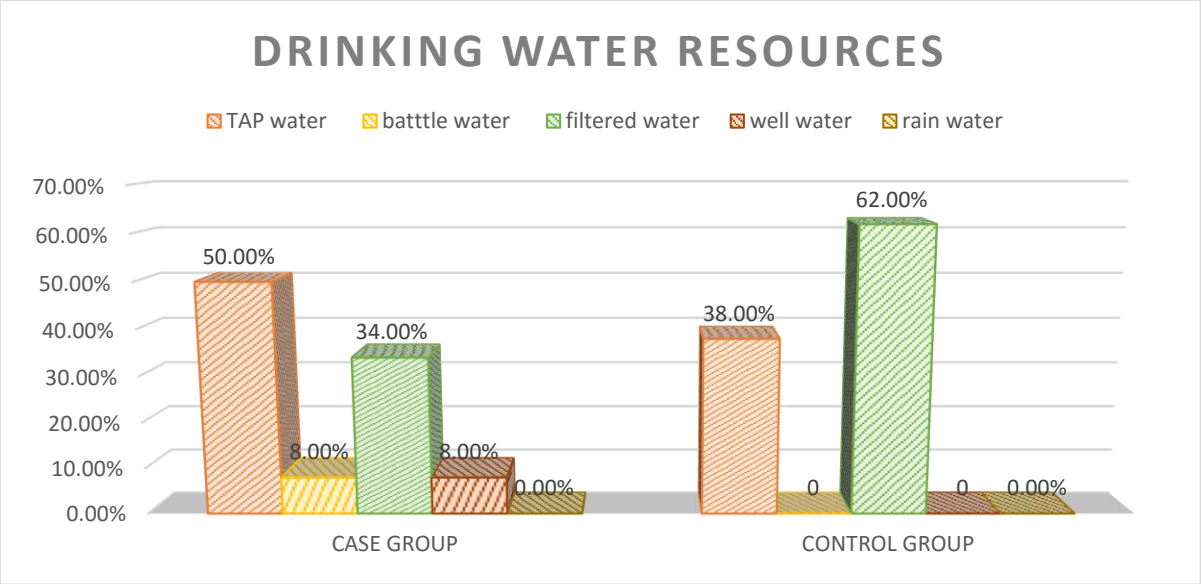

Figure 11: 3-D clustered column Percentage distribution of children according to their drinking water resource

Percentage wise distribution of children's according to their sources of drinking water. Among cases, percentage (50%) of children are from tap water, 34% of children are from filtered water, 8% of children are from battle water & well water, 0% of children are from rain water.

Among control children's 62% of children are from drink-filtered water, 38% of children are from tap water, 0% of children are from battel water, well water and rain water (Fig. 11).

Table 11: Percentage distribution of children in their Presences of any other oral issues in case and control

S/No	Presences of any other oral issues.	Case		Control	
		F	P	F	P
01	Gum disease	2	4%	0	0%
02	Bleeding	14	28%	3	6%
03	No any diseases	34	68%	47	94%

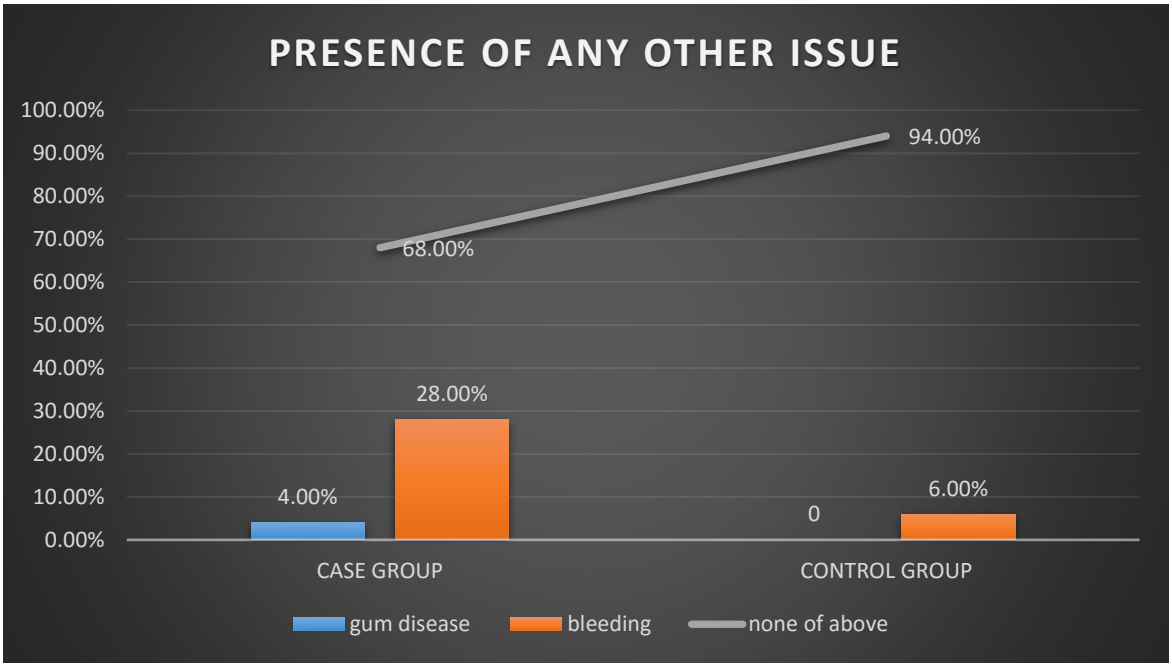

Figure 12: Custom combination Percentage distribution of children according to their presences of any other oral issue

Percentage wise distribution of children in their presences of any other oral issue among the percentage (68%) in none of above in case. percentages (28%) of children were in well bleeding in case and (4%) in bleeding in case (Fig. 12).

Among control children are suffering from 94% of children's are no any diseases, 6% children's are the bleeding, and 0% of children's are gum diseases.

SECTION II: Assessment of Level of Dental Caries Among Cases and Controls.

Table 12: Frequency and percentage distribution of the level of dental caries among cases and control. n=100

Level of dental caries	Range of score	Cases		Control	
		Frequency(F)	Percentage (%)	Frequency(F)	Percentage (%)
Sound	0	0	0%	19	38%
Early decay	1-2	1	2%	31	62%
Established decay	3-4	28	56%	0	0
Severe decay	5-6	21	42%	0	0
Total	**6**	**50**	**100**	**50**	**100**

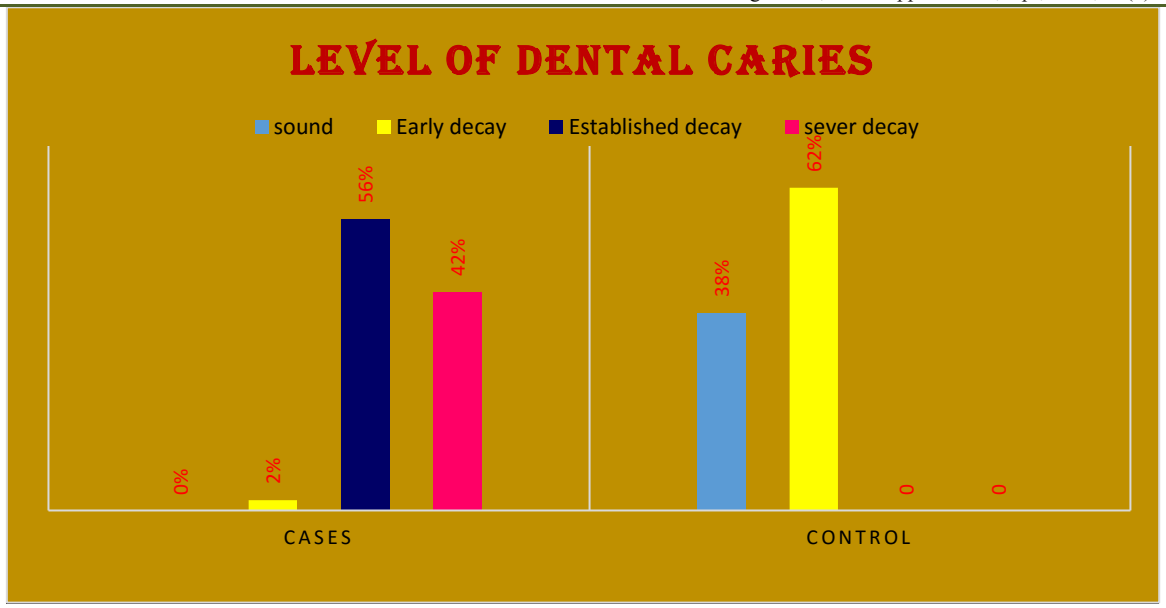

Figure 13: Clustered column Percentage distribution of children according to their level of dental caries among cases and control

Percentage distribution of children according to their level of dental caries affected majority 62% in control group and 56% in cases where mild affected the dental caries, 42% in the cases&38% in control group were moderate affected in dental caries and there is unaffected in children (Fig. 13).

SECTION III: Assessment of Risk Factors of Dental Caries Among Cases and Controls.

Table 13: Frequency and percentage distribution of the level of dental caries among cases and control. n=100

Risk Factors (Overall)	Range of score	Cases		Control	
		Frequency(F)	Percentage (%)	Frequency(F)	Percentage (%)
Low Risk	1-35	0	0	0	0
Moderate Risk	36-55	48	96%	48	96%
High Risk	56-72	2	4%	2	4%
Total	**72**	**50**	**100**	**50**	**100**

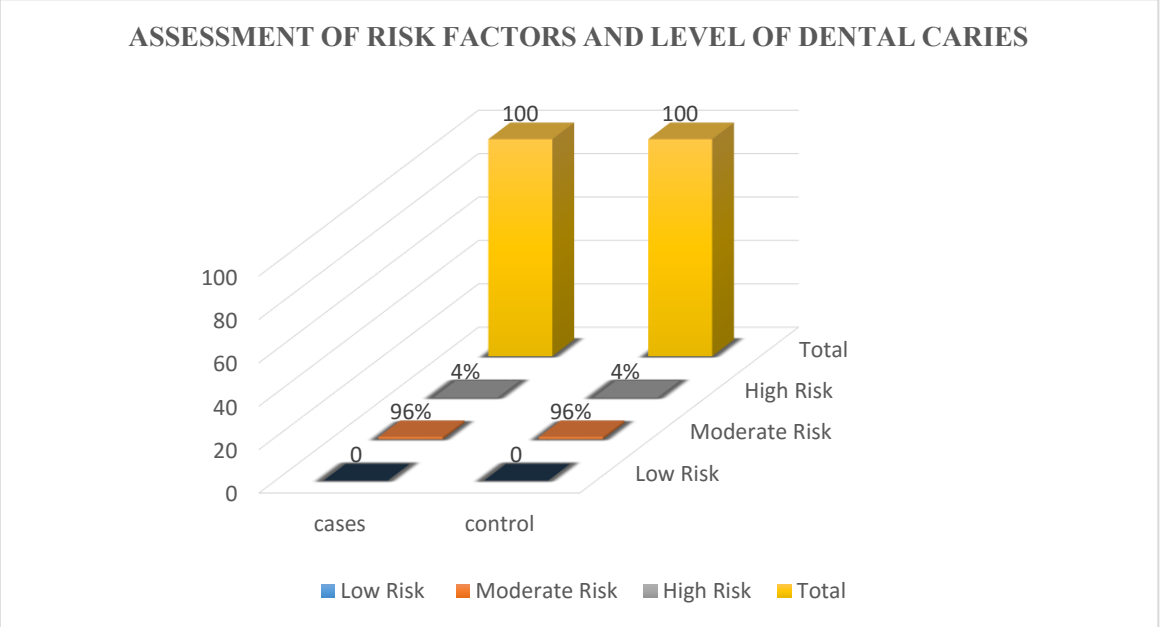

Figure 14: 3-D Column Percentage distribution of children according to their risk factors of dental caries among cases and control

Percentage distribution of children according to their children to assess the risk factors of dental caries the performance of the majority of 96% in both the group cases and control in moderate risk, and high risk affected children in minority 4% in both groups, were low risk children is 0% in figure (Fig. 14).

SECTION IV: Compare The Risk Factors and Level of Dental Caries Between Cases and Controls.

Table 14 comparison of mean, standard deviations & 'z' value of selected risk factors of dental caries between cases and control school age children.

Table 14: Risk Factors Cases and Controls N=50

S/No	Group	Selected risk factors		Mean difference	'Z' Value	Table value	Inference
		Mean	Standard deviation				
01	Cases	46.74	1.19	-2.74	0.3953	1.96	NS
02	Control	49.48	49				

NS=No Significant P≥0.05

Table 14 depicts that the mean and standard deviation for selected risk factors of dental caries among cases and control group of children were 46.74 (SD±1.19) and 49.48 (SD±49) respectively. The mean difference was -2.74. The 'Z' value was 0.3953. There was a no significant difference between the selected risk factors of dental caries among cases and control group of school age children (p≥0.05).

Table 15: Comparison of mean, standard deviation & 'z' value of selected level of dental caries (ICDAS) between cases and control school age child

S/No	Group	Selected risk factors		Mean difference	'Z' Value	Table value	Inference
		Mean	Standard deviation				
01	Cases	2.25	8.35	1.47	1.4532	1.96	NS
02	Control	0.78	2.121				

NS=No Significant P≥0.05

Table 15 depicts that the mean and standard deviation for selected risk factors of dental caries among cases and control group of children were 2.25 (SD±8.35) and 0.78 (SD±2.121) respectively. The mean difference was -1.47. The 'Z' value was 1.4532. There was a no significant difference between the selected risk factors of dental caries among cases and control group of school age children (p≥0.05).

SECTION V: Association Between Level of Dental Caries Among Cases and Controls with their Selected Demographic Variables (Cases). N=50

S/No	Socio demographic variables	Degree of freedom (DF)	Chi square value	Table value	p value	Level of significance	Significances of association
01	Age in years	1	0.1282	1.96	0.7203	0.05	NS
02	Gender	1	0.2375	1.96	0.6260	0.05	NS
03	Type of residence	1	0.01059	1.96	0.9180	0.05	NS
04	Education of father	4	0.436369	1.96	0.9794	0.05	NS
05	Education of mother	4	0.1208	1.96	0.9982	0.05	NS
06	Current class/grade	4	3.7993	1.96	0.4338	0.05	NS
07	Frequency of tooth brushing	3	0.0444	1.96	0.9975	0.05	NS
08	Type of tooth paste used	1	1.4314	1.96	0.2315	0.05	NS
09	Use of any additional OHM	1	0.7984	1.96	0.316	0.05	NS
10	Frequency of consumption of sugary content food &drinks	1	1.7972	1.96	0.1801	0.05	NS
11	Sources of Drinking water	4	1.579	1.96	0.8126	0.05	NS
12	Presence of any other oral issues	2	2.191	1.96	0.3344	0.05	NS

The table shows that chi-square computed between level of dental caries among cases and controls with their selected demographic variables the chi square value for all the sociodemographic variables with these factors association between level of dental caries among cases and controls with their selected demographic variables is not significant. It can be concluded that the 'p' value is the 0.05 there was no significant association between factors promoting for level of dental caries with their selected demographic variable hence, the research H3 hypothesis was rejected.

S/No	Socio demographic variables	Degree of freedom (DF)	Chi square value	Table value	p value	Level of significance	Significances of association
01	Age in years	1	0.4548	1.96	0.5001	0.05	NS
02	Gender	1	2.122	1.96	0.1452	0.05	NS
03	Type of residence	1	0.0211	1.96	0.8845	0.05	NS
04	Education of father	4	1.0418	1.96	0.9034	0.05	NS
05	Education of mother	4	2.98976	1.96	0.5595	0.05	NS
06	Current class/grade	4	1.08694	1.96	0.8963	0.05	NS
07	Frequency of tooth brushing	3	4.314	1.96	0.2295	0.05	NS
08	Type of tooth paste used	1	0.0133	1.96	0.9082	0.05	NS
09	Use of any additional OHM	1	0.0888	1.96	0.7657	0.05	NS
10	Frequency of consumption of sugary content food &drinks	1	0.5885	1.96	0.4430	0.05	NS
11	Sources Drinking water	4	3.0887	1.96	0.5431	0.05	NS
12	Presence of any other oral issues	2	5.1148	1.96	0.0775	0.05	NS

Control group =50

The table shows the chi-square computed between level of dental caries among cases and controls with their selected demographic variables such as age in years, gender, type of residence, education of father, education of mother, current class/grade, frequency of tooth brushing, type of tooth paste used, use of any additional OHM, frequency of consumption of sugary content food & drinks, sources of drinking water, presences of any other oral issues 0.4548, 2.122, 0.0211, 1.0418, 2.98976, 1.08694, 4.314, 0.0133, 0.0888, 0.5885, 3.0887, 5.1148, and the chi square value for all the sociodemographic variables with these factors association between level of dental caries among cases and controls with their selected demographic variables is not significant. It can be concluded that the 'p' value is the 0.05 there was no significant association between factors promoting for level of dental caries with their selected demographic variable hence, the research H3 hypothesis was rejected.

SECTION VI: Association between risk factors of dental caries among cases and controls with their selected demographic variables.

S/No	Socio demographic variables	Degree of freedom (DF)	Chi square value	Table value	p value	Level of significance	Significances of association
01	Age in years	1	0.0478	96	0.8269	0.05	NS
02	Gender	1	0.3624	1.96	0.5472	0.05	NS
03	Type of residence	1	0.1937	1.96	0.6599	0.05	NS
04	Education of father	4	0.8891	1.96	0.9261	0.05	NS
05	Education of mother	4	1.19246	1.96	0.8793	0.05	NS
06	Current class/grade	4	4.3603	1.96	0.3594	0.05	NS
07	Frequency of tooth brushing	3	4.507	1.96	0.2117	0.05	NS
08	Type of tooth paste used	1	0.02278	196	0.8800	0.05	NS
09	Use of any additional OHM	1	1.7657	1.96	0.1839	0.05	NS
10	Frequency of consumption of sugary food &drinks	1	2.3385	1.96	0.1262	0.05	NS
11	Drinking water resources	4	2.0976	1.96	0.7178	0.05	NS
12	Presence of any other oral issues	2	4.9006	1.96	0.0863	0.05	NS

Risk Factors (Cases) N=50

The above table shows that the chi-square computed between Risk factors of dental caries among cases and controls with their selected demographic variables these factors association between Risk factors of dental caries among cases and controls with their selected demographic variables is not significant. It can be concluded that there was no significant association between factors promoting for level of dental caries with their selected demographic Variable. Hence, the research H3 hypothesis was rejected.

S/No	Socio demographic variables	Degree of freedom (DF)	Chi square value	Table value	P value	Level of significance	Significances of association
01	Age in years	1	0.13782	1.96	0.7105	0.05	NS
02	Gender	1	0.332	1.96	0.5645	0.05	NS
03	Type of residence	1	0.00416	1.96	0.9486	0.05	NS
04	Education of father	4	0.8918	1.96	0.9257	0.05	NS
05	Education of mother	4	9.2298	196	0.556	0.05	NS
06	Current class/grade	4	7.8767	1.96	0.0962	0.05	NS
07	Frequency of tooth brushing	3	9.9773	1.96	0.0188	0.05	Significant
08	Type of tooth paste used	1	0.0133	1.96	0.9082	0.05	NS
09	Use of any additional OHM	1	0.4829	1.96	0.4871	0.05	NS
10	Frequency of consumption of sugary food &drinks	1	0.1301	1.96	0.7183	0.05	NS
11	Drinking water resources	4	4.0887	1.96	0.3941	0.05	NS
12	Presence of any other oral issues	2	4.2699	1.96	0.1183	0.05	NS

Risk Factors (Control) N=50

The findings presented in table shows that chi-square computed between Risk factors of dental caries among cases and controls with their selected demographic variables such as the significant of these variable is frequency of tooth brushing 7.8767, these factors association between Risk factors of dental caries among cases and controls with their selected demographic variables is not significant. But it can be significant to the frequency of tooth Brushing It can be concluded that there was no significant association between factors promoting for level of dental caries with their selected demographic variable hence, the research hypothesis was accepted.

DISCUSSION

SECTION I: Description of socio demographic characteristics of Schoolchildren.

Percentage wise distribution of children according to their age group that higher percentage (68%) of children are in the age group of 6-8 years in cases, & 9-10 years in control.

Percentage wise distribution of children according to their gender that higher percentage (60%) in cases & (50%) in control of children are in the gender male, Percentage wise distribution of children according to their residence that reveals highest percentage is (100%) of children in the control group (84%) in cases group in the urban area.

Percentage wise distribution of according to their educational qualification reveals that highest percentage (38%) of father had primary education in control group, (34%) percentage of primary education in case group.

Percentage wise distribution of according to their educational qualification reveals that highest percentage (52%) in control group, (40%) percentage of primary education in case group.

Percentage wise distribution of children according to their current class/grade that higher percentage (46%&28%) of children are in the 3rd standard in case control group, Percentage wise distribution of children according to their frequency of tooth brushing that higher percentage (40%&40%) of children are doing in brush per day twice a day in case control group, Percentage wise distribution of children according to their using tooth brushing that higher percentage (62%&52%) of children using brush toothpaste fluoride in case control group, Percentage wise distribution of children according to their using maintain oral hygiene that higher percentage (78%) of children using mouth wash in case group, and percentage (54%) is used in flushing to maintain the oral hygiene in control group.

Percentage wise distribution of children according to their Frequency of consumption of sugary food & drinks that higher percentage (82%) of frequency per week in children are control group, and Percentage (60%) is used in frequency per week in case group.

Percentage wise distribution of children according to their drinking water resources that higher percentage (62%) of filtered water in children are control group, and percentage (50%) in tap water in case group.

Percentage wise distribution of children according to their presences of any other oral issue that higher percentage (94%) of none of above in the oral issues of children are control group, and percentage (68%) in none of above in case group.

II. Assessment of Level of Dental Caries among Cases and Controls

Percentage distribution of children according to their level of dental caries affected majority 62% in

control group and 56% in cases where mild affected the dental caries, 42% in the cases&38% in control group were moderate affected in dental caries and there is unaffected in children.(fig 5.13)

III. Assessment of Risk Factors of Dental Caries among Cases and Controls

Percentage distribution of children according to their children to assess the risk factors of dental caries the performance of the majority of 96% in both the group cases and control in moderate risk, and high risk affected children in minority 4% in both groups, were low risk children is 0% in figure (fig 5.14)

IV. Compare the Risk Factors and Level of Dental Caries between Cases and Controls

Depicts that the mean and standard deviation for selected risk factors of dental caries among cases and control group of children were 46.74 (SD±1.19) and 49.48 (SD±49) respectively. The mean difference was -2.74. The 'Z' value was 0.3953. There was a no significant difference between the selected risk factors of dental caries among cases and control group of school age children (p≥0.05). control depicts that the mean and standard deviation for selected risk factors of dental caries among cases and control group of children were 2.25 (SD±8.35) and 0.78 (SD±2.121) respectively. The mean difference was -1.47. The 'Z' value was 1.4532. There was a no significant difference between the selected risk factors of dental caries among cases and control group of school age children (p≥0.05).

V. Association between Level of Dental Caries among Cases and Controls with Their Selected Demographic Variables.

The table shows that chi-square computed between level of dental caries among cases and controls with their selected demographic variables It can be concluded that the 'p' value is the 0.05 there was no significant association between factors promoting for level of dental caries with their selected demographic variable hence, the research hypothesis was rejected.

Control group the table shows the chi-square computed between level of dental caries among cases and controls with their selected demographic variables it can be concluded that the 'p' value is the 0.05 there was no significant association between factors promoting for level of dental caries with their selected demographic variable hence, the research hypothesis was rejected.

VI. Association between Risk Factors of Dental Caries among Cases and Controls with Their Selected Demographic Variables

The above table shows that the chi-square computed between Risk factors of dental caries among cases and controls with their selected demographic variables it can be concluded that there was no significant association between factors promoting for level of dental caries with their selected demographic variable. Hence, the research hypothesis was rejected.

Control group the findings presented in table shows that chi-square computed between Risk factors of dental caries among cases and controls with their selected demographic variables such as the significant of these variable is frequency of tooth brushing, 7.8767, these factors association between Risk factors of dental caries among cases and controls with their selected demographic variables is not significant. But it can be significant to the frequency of tooth Brushing It can be concluded that there was no significant association between factors promoting for level of dental caries with their selected demographic variable hence, the research hypothesis was accepted.

LIMITATIONS

Students who are studying in selected BVVS Kannada & English medium primary school vidygiri, Bagalkot.100 school age children studying in BVVS Kannada & English medium primary school vidyagiri, Bagalkot. Getting permission from school authority. Data collection by 100 students.

CONCLUSION

The study found that school age children The mean and standard deviation for selected risk factors of dental caries among cases and control group of children were 46.74 (SD±1.19) and 49.48 (SD±49) respectively. The mean difference was –1.47, The 'Z' value was 0.3953. There was a no significant difference between the selected risk factors of dental caries among cases and control group of school age children (p≥0.05).

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REFERENCES

1. MoirangthemFollow B. Growth and development for pre-school [Internet]. Slide Share. [cited 2024 Apr 13]. Available from: https://www.slideshare.net/BinandMoirangthem/growth-and-development-forpreschool
2. Child development: Milestones, ages and stages - children's hospital of orange county [Internet]. Children's Hospital of Orange County. CHOC - Children's Hospital of Orange County; 2014 [cited 2024 Apr 13]. Available from: https://www.choc.org/primary-care/ages-stage
3. What to know about eruption of child's permanent teeth [Internet]. WebMD. [cited 2024 Apr 13]. Available from: https://www.webmd.com/children/what-to-knoweruption-childs-permanent-teeth
4. Selwitz RH, Ismail AI, Pitts NB. Dental caries. Lancet [Internet]. 2007;369(9555):51–9.Available from: http://dx.doi.org/10.1016/s0140-6736(07)60031-2