A CROSS-SENCTIONAL SURVEY OF SCHOOLS ABOUT THE DENTAL CARIES AND KNOWLEDGE AND AWARENESS OF PARENTS ABOUT ORAL HEALTH

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Abstract:
Objective: The aim of this study was the evaluation of the oral health knowledge's association with respect to children's dental cavities.
Methodology: The design of the research was cross sectional and the research was carried out at Allied Hospital Faisalabad. In order to make an assessment of the dental cavities, we took the oral examination of a total of 399 children who were school going. For that purpose of gauging the parents' knowledge about oral health, we use a self-devised questionnaire.
Result: The percentage of boys and girls as the test subjects in our research was 49 and 51 respectively. The percentage of dental caries prevalence was 70 having a mean score of DMFT as 1.4, which was, as compared to boys, considerably greater in girls. With the increase in age from 12 to 15 years, the dental cavities increased. Many parents went to the dentists only when the children had a toothache, despite their knowledge of the fact that the prevention of dental caries was possible with regular visits to the dentist.
Conclusion: This research concludes that the probability of dental caries is higher in girls as compared to boys. The knowledge of parents about oral hygiene affects the oral health of their children. We conclude to suggest that the authorities should devise the programs to create awareness of oral health amongst parents and their parents.
Keywords: *Fluoridation, Urbanization, Sepsis, Discrepancies, Inefficiency, Oral Hygiene.*

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INTRODUCTION:

From developed countries, dental caries has greatly shifted their base to developing countries in the last few decades. Their treatment is very costly and in developed countries, they rank 4th [1]. Dental caries, if not treated, cause dental sepsis, discomfort, pain and loss of school attendance; resultantly, affect the life quality of children [2]. Because of water lacking fluoridation, fewer programs in schools and communities regarding prevention, refined carbohydrates consumption and inefficiency of arrangements of oral healthcare, dental caries prevail in developing countries. Whereas, the socio-economic factors and urbanization contribute to increased numbers of dental caries [3]. The factor which prevents substantially the dental caries is good oral hygiene. We know little about the knowledge of school going children of developing countries regarding oral health. The social class of the children's family, maternal education and dietary habits affect their status of dental health [4 – 7]. The research study of Al-Hosani reports that the parents whose socio-economic status is better and have high education, dental caries prevail low in their children [8]. Workshop of US Surgeon General, Children and Oral Health, published a report and found the discrepancies in children's oral health and their ability to get treatment of dental caries. The number of untreated cases of dental disease was in Sixty per cent greater than those who were from families with high incomes [9]. Unemployment, under educated parents and low income are also the factors of chronic disease and poor health [10]. As researchers mention in their study on registered children at the general dental clinic, northern London [11] that the poor children tend to visit least and they suffer more from dental caries. Additionally, the frequent visitors have little chances of dental disease, thus increasing the score of treatment. Since 2004 there have been no major survey in Pakistan regarding dental health [12]. Our aim in this research was to find out the dental caries prevalence in children of 12 to 15 years' age who are school going, along with the knowledge of their parents about oral health. The results from this research can prove to be useful for evaluation of health services in Allied Hospital Faisalabad and planning of programs of oral health.

METHODOLOGY:

Our research design was cross-section which took place at Allied Hospital Faisalabad. In order to make an assessment of the dental cavities. On the basis of A.A Khan's [13] prevalence study in Faisalabad, we calculated a sample size of (380). We applied the following formula; ninety-five percent of confidence interval level, five percent standard error. We used

Fifty-five percent expected prevalence as well. We selected 2 schools from city of Faisalabad. Further, we took 28 children from each school as using simple random sampling. For the prevention of dropping out due to an extra examination of participants, we increased the sample size to 392 (originally 380). We contacted the school headmasters and took approval from them to include their schools in our study. The population of Faisalabad city generally belong to the low socio-economic background. We used WHO's recommended specifications [15] to take the clinical dental examination, as all the permanent teeth erupt by this age. We devised a questionnaire from research articles of the similar nature, altered them accordingly, translated them in the Urdu language, and assessed the parents' knowledge of oral health. Pakistan's national and official language is Urdu [16] and most of the people understand it. The children carried those questionnaires to their homes, their parents filled them and sent those back to schools through their children the next day, which we collected. We sterilized dental explorers, dental lamp, CPI and mouth mirror to detect dental cavities and after that conducted strict protocol of cross infection. The single operator did the oral examination of all twenty-eight permanent teeth (excluding the third molars) to detect the dental cavities, filled and missing teeth (congenital or extracted). For dental cavities of children, we presented the proportions and frequencies of discrete variables and Standard mean for continuous variables. For categorical variable, we applied T-test for mean's differences. To check the knowledge of parents regarding dental cavities, we applied the analysis of multivariable and univariate logistic regression. Further for statistical analysis, we entered the completed questionnaires and DMFT variable in STATA.

RESULTS:

The parent's knowledge of oral health information was limited to 150 (38%) as only this much of them participated. Out of the total of 150 students, 51% (77) were girls and 49% (73) were boys. The age distribution frequency was; 10% (15) 12 years, 24% (36) 13 years, 26% (39) 14 years and 40% (60) 15 years of age. The ft, mt and dt scores were 0.15 (0.03), 0.05 (0.02) and 1.17 (0.09) respectively while 1.4 (0.10) was overall mean DMFT. 1.14 and 1.06 were the mean DMFT scores in girls and boys respectively. DMFT value according to stratification of age showed 1.33 in 12 – 13 years old, 1.41 in 14 years old and 1.45 in 15 years old children. The research indicates the increase in DMFT with an increase in age. Distribution of students with respect to parents' education was; under ten years' education 22% (33), intermediate 49% (74) and above twelve

years 29% (43). While according to categories of lower education 39% (59), middle education 49% (74) and higher education were 12% (17). Categories of family income were; less than rupees 15 thousand 31% (47) and above 15 thousand were 69% (103). Independent variable included age and gender of the student, while knowledge, education and income of parents. Dental cavities prevalence was the dependent variable. Knowledge of oral hygiene, child variables and socioeconomic status were the categories of variables. The observations indicated the odds of dental cavities less in girls than boys while the results were not significant, p-value was >0.05. The child's age, family income and education level of parent increased the odds of dental cavities; however, the results were insignificant. The parents responded to the question of plaque as; remains of food particles in teeth 53.3% (80), stains 32.7% (49), and no knowledge of plaque 14% (21). Response to the question of plaque's effect on teeth was; causes dental cavities 41% (62), causes gum to bleed 26.7% (40), discolors teeth 22% (33) and no knowledge of plaque's effects 10% (15). Response to the question

of factors causing dental cavities was; bacteria 25.33% (38), sweets 24.33% (37), sugar 14.67% (22), frequent snacking 15.3% (23) and no idea of factors 15.3% (23). A total of 92.6% (139) parents provided their children with toothpaste and brush for teeth cleaning and 7.3% (11) Miswak. On the other hand, 35% (53) didn't have fluoridated toothpaste and 65% (97) had fluoridated toothpaste. The children of the parents of the opinion that fluoride was useless to prevent dental cavities had the odds of dental cavities 2.29 more than the others (p-value = 0.034, OR = 2.3). The increase in parent's education caused an increase in OR of dental cavities. The children of parents having higher education had OR 3.34 as compared to the children of parents having low education. The children of parents not providing fluoridated toothpaste had odds of dental cavities 3 times greater than those who provided fluoridated toothpaste (p = 0/009). The association of incidence of dental cavities with the parents' knowledge about fluoride was significant. Those who were unknown had odds of dental cavities incidence 1.82 times greater than those having knowledge (p = 0.028)

Table – I: Gender and Age Stratification

Variables		Number	DMFT		D-T		M-T		F-T	
Gender	Boys	73	1.16	1.14	0.97	1.1	0.04	0.19	0.15	0.36
	Girls	77	1.62	1.38	1.36	1.3	0.06	0.27	0.15	0.56
Age	12 Years	15	1.33	1.44	1.13	1.3	0	0	0.2	0.41
	13 Years	36	1.33	1.53	1.16	1.38	0	0	0.16	0.44
	14 Years	39	1.41	1.18	1.15	1.13	0.07	0.26	0.17	0.55
	15 Years	45	1.45	1.18	1.2	1.19	0.08	0.27	0.11	0.435
Total		**150**	**1.4**	**1.3**	**1.2**	**1.2**	**0.1**	**0.2**	**0.2**	**0.47**

X - Y Scatter Chart
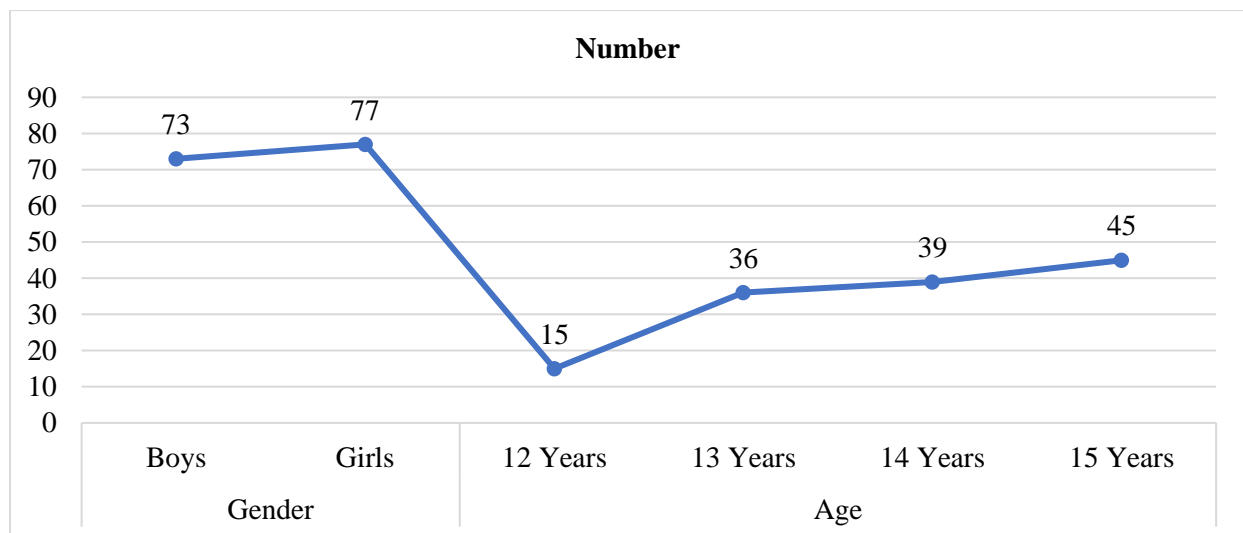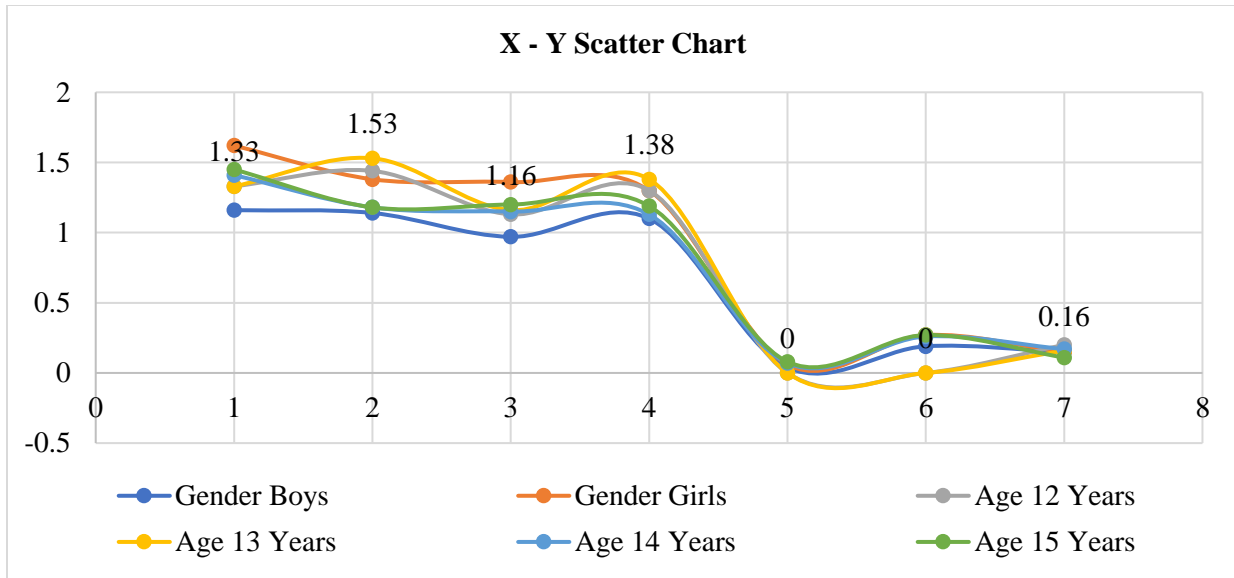
Table – II: Gender and Age Percentage (DMFT, DT, MT and FT)

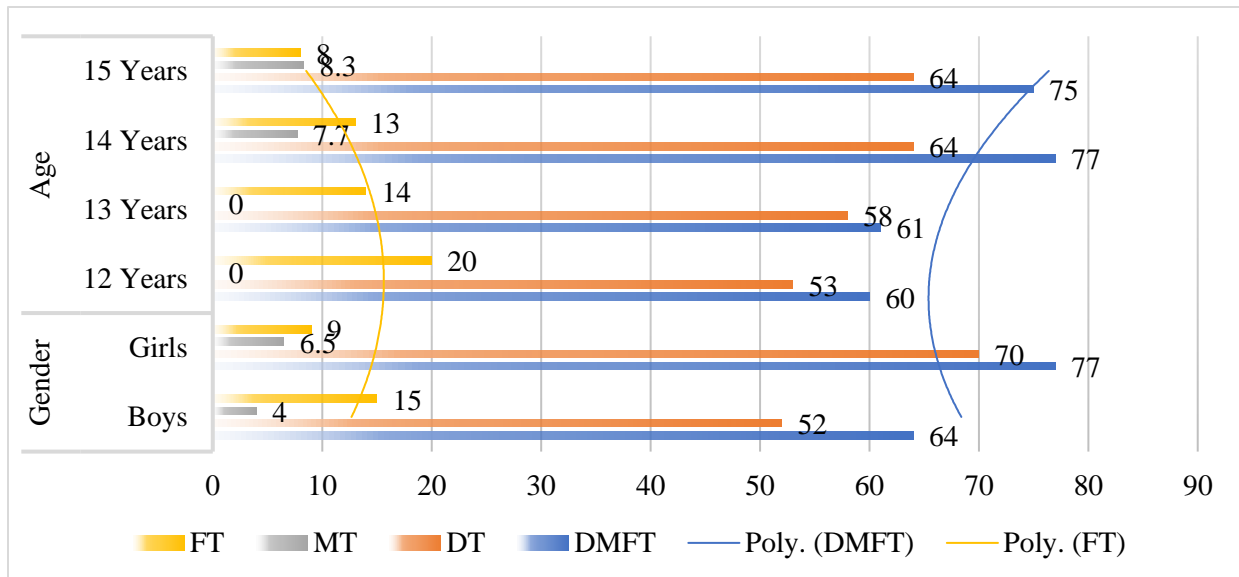| Variables		DMFT	DT	MT	FT
Gender	Boys	64	52	4	15
	Girls	77	70	6.5	9
Age	12 Years	60	53	0	20
	13 Years	61	58	0	14
	14 Years	77	64	7.7	13
	15 Years	75	64	8.3	8
Total		70.7	61	5	12

Table – III: Questions and their Replies (Number and Percentage)

Questions		Number (150)	Percentage	Mean DMFT	SD DMFT	P-Value
Dental caries can be protected through brushing teeth.	Yes	114	76	1.4	1.3	0.5
	No	31	20.7	1.2	1.1	
	I don't Know	5	3.3	1.2	1.1	
Children need guidance about brushing teeth.	Yes	98	65.3	1.4	1.3	0.8
	No	52	34.7	1.4	1.3	
Use teeth cleaning tools.	Toothpaste and Brush	139	92.7	1.4	1.3	0.3
	Muswak	11	7.3	1.8	1.5	
Dental carries cause.	Sugar	22	14.7	1.8	1.6	0.6
	Sweets	37	24.7	1.4	1.2	
	Soft Drinks	9	6	1.2	1.1	
	Snacks	23	15.3	1.1	1.2	
	Bacteria	38	25.3	1.4	1.2	
	I don't know	21	14	1.4	1.3	
What is dental plaque?	Food remaining on teeth	80	53.3	1.4	1.2	0.08
	Stains	49	32.7	1.2	1.2	
	I don't Know	21	14	2	1.62	
What are the effects of plaque on your teeth?	Teeth color change	33	22	1.3	1.4	0.8
	Dental Cavity	62	41.3	1.3	1.3	
	Bleeding Gums	40	26.7	1.5	1.3	
	I don't Know	15	10	1.5	1.3	
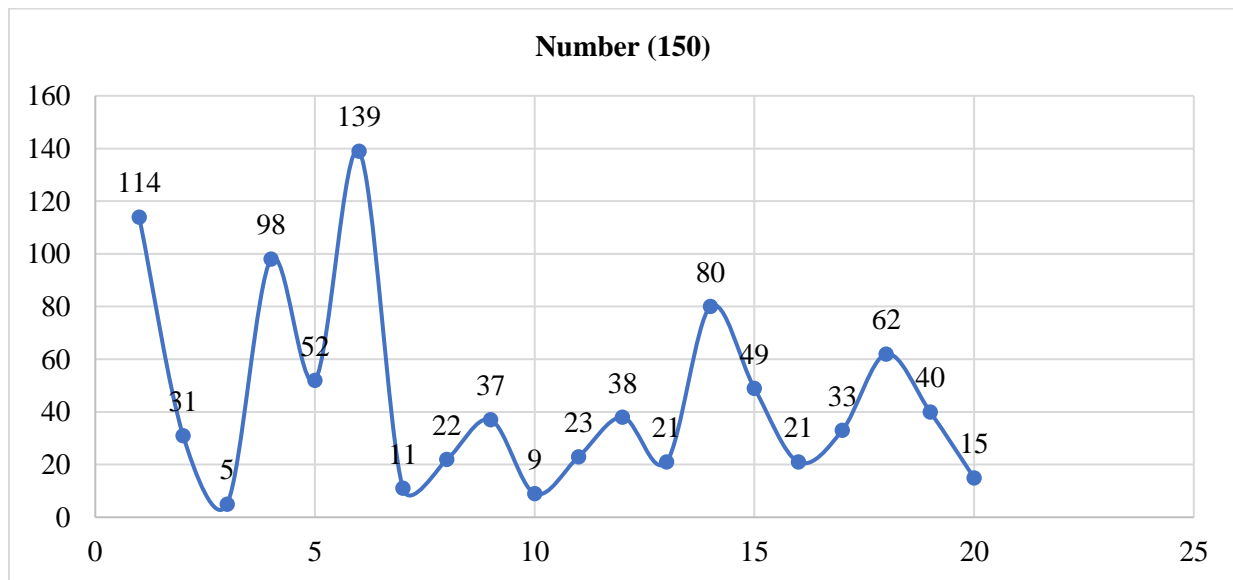
Number (150)

Table – IV: Questions and their replies

Questions		Number 150	Percentage	Mean DMFT	P-Value
What is fluoride?	Yes	96	64.00	1.375	0.753
	No	54	36.00	1.444	
Do you and your child use fluoride toothpaste?	Yes	97	64.00	1.250	0.0497
	No	53	36.00	1.680	
Dental caries can be prevented through fluoride.	Yes	89	59.00	1.350	0.552
	No	61	41.00	1.470	
Fluoride can reverse dental cavities.	Yes	105	70.00	1.530	0.053
	No	45	30.00	1.090	
What function does fluoride serve?	Teeth Whitening	26	27.00	1.580	0.022
	Teeth Cleaning	46	31.00	0.930	
	Teeth Hardness	32	21.00	1.500	
	Bacteria Protection	21	14.00	2.000	
	Don't Know	25	17.00	1.440	
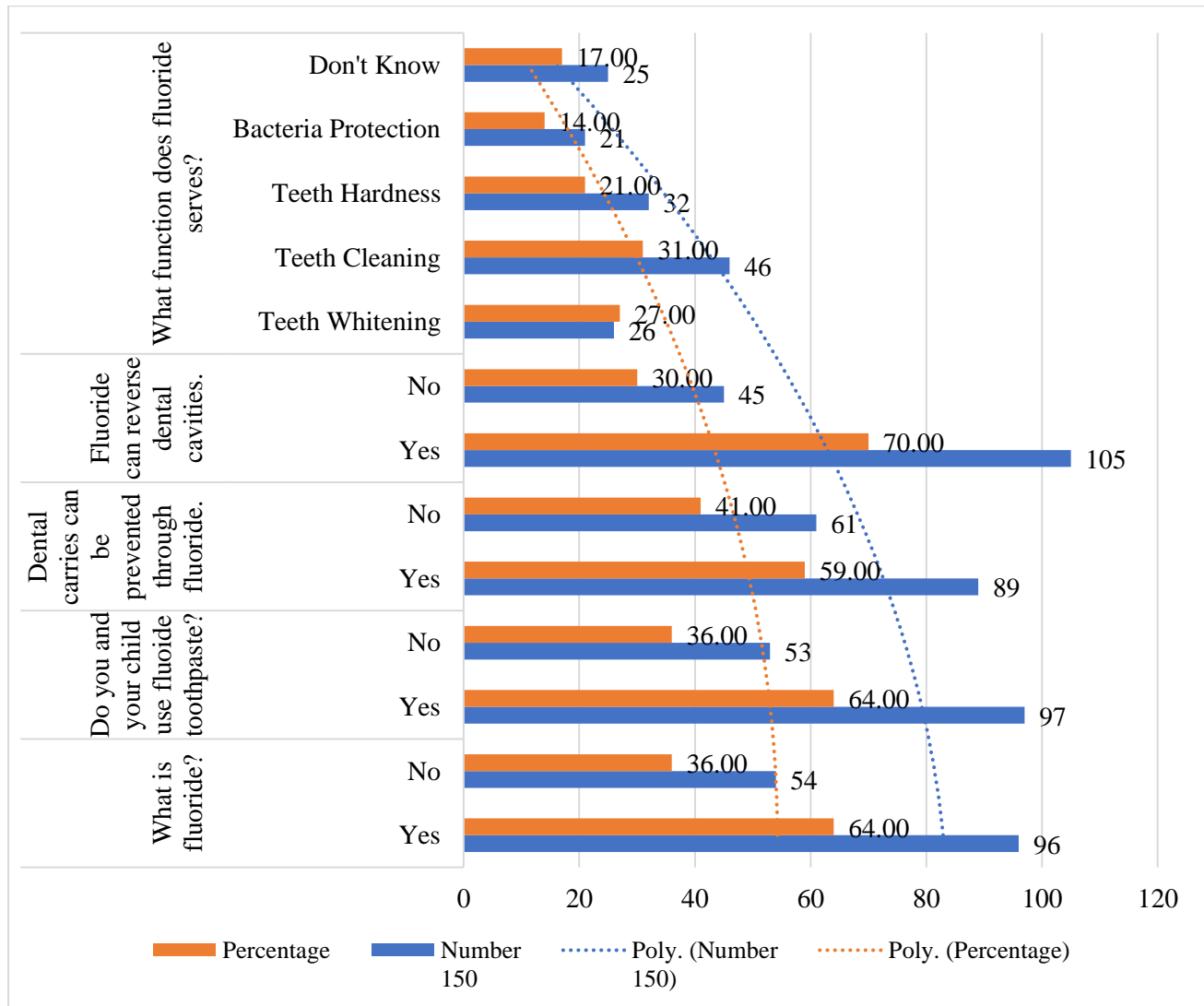
Table – V: Demographic Stratification

Variables		Univariate	OR (CI, 95%)	P-Value	Multivariate	OR (CI, 95%)	P-Value
Sex	Boy	0.55	27 - 1.12	0.1	0.4	.11 - .84	0.027
	Girls	1	-		1	-	
Age	12 Years	1	-	0.94	-	-	NS
	13 Years	1.04	.30 - 3.58		-	-	
	14 Years	2.22	.62 - 7.9		-	-	
	15 Years	2	.61 - 6.55		-	-	
Father's Education	Under Matric	1	-	0.12	-	-	
	Intermediate	1.98	.84 - 4.7		-	-	
	Above Intermediate	2.43	.90 - 6.53		-	-	
Mother's Education	Under Matric	1	-	0.23	1	-	0.028
	Intermediate	1.59	.74 - 3.40		1.8	-	
	Above Intermediate	0.94	.30 - 2.91		3.34	1.90 - 7.89	
Father's Income	< 15,000	1	-	0.64	-	-	NS
	> 15,000	1.19	.56 - 2.52		-	-	
Mouth Rinsing after meals	Sometimes	1	-	0.03	-	-	
	Always	0.442	.21 - .90		-	-	
Fluoride Toothpaste use	Yes	1	-	0.006	1	-	0.009
	No	3.31	1.40 - 7.82		2.97	1.39 - 7.9	
Fluoride prevents carries	Yes	1	-	0.034	1	-	0.28
	No	2.3	1.06 - 4.92		1.82	1.05 - 5.02	

DISCUSSION:

The mean DMFT score of national health survey Pakistan was 1.6 [12] whereas our research had a smaller score of 1.4. Our study had the percentage of dental cavities prevalence as 70% which was greater than the NHSP. (50%) [12], but almost similar to the study report in Kenya [17]. Boys and girls had same habits of eating between and after meals, our results were similar to that of the study report on the children going to school in U.A.E [8] The children of parents with high incomes had greater odds of incidence of dental disease if they were unaware of knowledge of oral hygiene. The illiteracy and high income of parents pose as a new risk factor which has to be further dug out. Similar conditions are observed in the report of Abu Dhabi where the students of high-income background carried higher odds of dental cavities [8]. The research in Japan shows statistics similar to that of ours that there were discrepancies of oral health knowledge amongst boys and girls [8]. Even though the girls were more

conscious about oral health and more knowledgeable than the boys, their mean DMFT score was higher than that of boys. This might be because of socio-economic status, and the families of the girls supported gender equality regarding the education of boys and girls. Hungary's survey of national health suggested indicated the difference in gender in experiences of dental cavities and its increase with the increase in age, similar to our study [19]. The increase of parental education from lower to intermediate caused an increase in the DMFT score, but after higher education, the DMFT score decreased. As compared to groups of lower and intermediate education, the DMFT score was less with mothers possessing higher education. The DMFT score was also similar in previous studies [20]. On the contrary, the results of high income and DMFT score association were opposite. Children with high-income families had a greater DMFT score, which also associated with more decayed and missing teeth and astoundingly greater number of

teeth fillings. Increase in income results in more consumption of cariogenic food and sugar which causes more incidence of decay, resultantly, more treatments and visits to the dentists. We couldn't observe the relation of socio-demographic characteristics of parents and the children' mean DMFT. The participants of the study were less and the power of rejecting the null hypothesis was less. The high income allowed the incidence of disease and made possible the reparative treatment, thus poverty didn't become the factor for the incidence. The studies at the USA contradict with these results [21]. The response of the question of fluoride by parents was that it cleans and whitens the teeth. The studies at KSA also depict the results with wrong perceptions of a similar kind [22]. This study, despite having the very low sample size, is very much possessing the ability to be a pilot study [23] in Pakistan's future researches. The studies in schools at Faisalabad regarding oral health program can get a great deal of help from this research. The parents tended to visit the dentist only in dire need i.e. a toothache. Some preferred to visit the physicians instead of dentists. Since 2004 there has been no major survey in Pakistan regarding dental health [12]. No study on this topic has got published in national or international journals either. This study, being the very first of its kind, can prove to be a baseline to conduct studies further in Pakistan.

CONCLUSION:

This research concludes that the DMFT of the girls was greater in as compared to boys. The knowledge of parents about fluoride was of mediocre level which had effects on the oral health of their children. The measures of prevention of dental caries included using fluoridated toothpaste and rinsing mouth after every meal.

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