

Impact of dental fear on oral health-related quality of life among school going and non-school going children in Udaipur city: A cross-sectional study

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Abstract

Aim: To assess the impact of dental fear on different domains of oral health-related quality of life (OHRQoL) among school going and non-school going children in the Indian scenario. **Materials and Methods:** The study sample consisted of 279 school children and 257 non-school going children thus making a total sample of 536 children. The sampling frame comprised of 12-15-year-old children attending two upper primary public schools and non-school going children working at shops or not working in Udaipur city, India. Information on dental fear and OHRQoL was obtained by personal interviews by a single trained and calibrated examiner through a structured questionnaire. Intercooled STATA version 9.2 was employed to perform statistical analysis. The level of significance was set at 5%. **Results:** Mean dental fear scores among school going (35.41 [11.79]) and non-school going (47.59 [3.80]) children revealed that dental fear was significantly ($P \leq 0.05$) higher among non-school going than among school going children. In school going children, the likelihood of having poor oral symptoms, functional limitation and poorer social and emotional well being were significantly ($P \leq 0.05$) lesser as compared with non-school going children. **Conclusions:** Fear has a significant impact on different domains of OHRQoL, except emotional well being, among non-school going children.

Keywords: Dental fear, non-school going, oral health-related quality of life, school going

Introduction

For successful implementation and evaluation of oral health care services for children, dental fear holds a significant concern as it interferes both with the provision and with the acceptance of oral health care services and ultimately affects the oral health-related quality of life (OHRQoL). Data exploring these issues are scanty in the Indian scenario and

hence there is an urgent need to consider the impact of dental fear on the functional, emotional and psychosocial dimensions of oral health in children.

Despite a sea change in dental procedures, paraphernalia and anesthetic technology to reduce dental fear among children, the prevalence of dental fear remains almost the same in different parts of the world.^[1] This could be attributed to the fact that dental fear is a complex phenomenon, precisely because numerous factors are involved in its prevalence, causes and maintenance.

If a child does not cooperate or is upset during dental treatment, it becomes important for the dentist to look upon the possible reasons for the uncooperative behavior as a child's behavior in later sessions will be influenced by his experience in earlier ones.^[2]

Fear is described as an apprehensive and uncomfortable feeling.^[3] Dental fear refers to the fear of dentistry. It is not unusual to detect dental fear among patients, which represents a barrier for seeking dental care.^[4,5] This leads to avoidance of dental treatment, which may lead to severe general health problems such as fever, septicemia, skin problems, joint and heart problems, facial osteo-myelitis and many more. Failing dental and general health may become a serious source of diffidence and declining self-respect, which negatively affect the OHRQoL in terms of its different dimensions, such as phonetics, chewing efficiency, appearance and, subsequently, social interaction.^[6]

Dental fear may affect quality of life. Research revealed that adults suffering from dental fear more often have poorer quality of life than those who do not have dental fear.^[7,8]

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The United States Surgeon General's report on oral health defines OHRQoL as "a multidimensional construct that reflects (among other things) people's comfort when eating, sleeping, and engaging in social interaction; their self-esteem; and their satisfaction with respect to their oral health".^[9]

Socioeconomic inequalities without fail affect most of the indicators of oral health.^[10] Street children (non-school going) represent subjects who are lowest in the social gradient as compared with their counterparts who are school going.^[11] Poorer dental health has been seen in lower socioeconomic groups than in higher socioeconomic groups. Similarly, it was found that consistent education and income gradients in both clinical and subjective oral health status have an impact, which are similar to the respective social gradients in general health.^[12]

Low socioeconomic status coupled with high dental fear in the non-school going children may lead to dental avoidance, which can critically impede and hamper the very fabric of life and ultimately OHRQoL. Early research on OHRQoL focused on adults, largely because of their better communicative abilities. Studies have shown that adults with dental anxiety/fear suffer from impaired OHRQoL.^[13]

As understanding and bewildering of children is difficult because of their developing mental skills and functions; hence, children's assessment is slow to materialize and there is a severe dearth of information that could discover interaction of education (school), dental fear and OHRQoL in children at the international and Indian levels. Hence, the aim of the present study was directed toward investigating the impact of dental fear on OHRQoL between the school going and non-school going children in Udaipur city and other factors influencing the OHRQoL.

Materials and Methods

A cross-sectional descriptive study was conducted in Udaipur city by permission from the Darshan Dental College and Hospital, Udaipur. Ethical clearance was obtained from the Ethical Review Committee of the Institutional Review Board. Udaipur city was divided into five parts: North, south, west, east and central. From each part, two schools - one private and one government - were randomly selected and from them students were selected by simple random sampling. For non-school going children, a convenience sampling strategy was applied and they were singled out from the streets or working at shops from the same area.

The study sample consisted of 207 school children and 193 non-school going children, thereby making a total sample of 400 children who were in the age group of 12–15 years.

Members of the research team had made preliminary contact with the authorities in the targeted school, shopkeepers and

families of non-school going children and were explained about the purpose and nature of the study, including the children over there. Permission to carry out the survey was obtained from school authorities, families and shopkeepers. Written informed consent was obtained from all the participating children taking due care to maintain the confidential integrity. All the children present on the days of the survey were included and those unwilling to participate were excluded. Data on OHRQoL were collected by personal interviews, which were conducted by a single trained and calibrated investigator. The study was carried out from January to April 2012, and the investigator visited the school and shops everyday to collect data. Additionally, age, gender and dental visiting habits and socioeconomic status (Kuppuswamy scale of Socio economic status) of each subject were recorded.

Dental fear instrument

The questionnaire for assessing dental fear is the Children's Fear Survey Schedule - Dental Subscale (CFSS-DS)^[14] introduced by Scherer and Nakamura,^[15] the Fear Survey Schedule for Children (FSSFC) as an inventory for assessment for fear in children. Cuthbert and Melamed^[14] used this instrument in their research and modified it to assess dental fear. The instrument has been translated into several languages.^[16-23] It has good internal and test-retest reliability in English and several other languages.

The criterion validity of the CFSS-DS has been assessed in several ways, including observing a child's behavior during dental treatment,^[17,22] comparing chart records of behavioral problems^[24,25] and asking the dentist to rate the child's fear.^[20,24,26] In these studies, children with higher CFSS-DS scores have been found to display more disruptive and fearful behavior during dental treatment and also were more likely to have histories of disruptive treatment. Children rate their level of fear on a five-point scale, ranging from "not at all afraid" to "very afraid." Examples of the items are "dentist drilling 'injections'" and "people in white uniforms." The dental items are summed to create an index of child's dental fear that ranges from 15 to 75.

OHRQoL instrument

The OHRQoL instrument proposed by Jokovic^[27] was used, which consists of four domains: Oral symptoms, functional limitations, emotional well-being and social well-being, and, as with other quality of life measures, assesses the frequency and impact of oral health problems in these domains. Oral symptoms was the first domain that consisted of five questions, such as whether in the last 3 months children had pain in the mouth or bad breath, bleeding gums and mouth sores, etc., The second domain had eight questions about functional limitations, which included questions about difficult in chewing firm foods, in eating/drinking hot/cold food, restricted diet, etc., The third domain was about emotional well being, which had seven questions about feeling shy/embarassed, anxious/fearful and irritated/frustrated. The

fourth domain was about social well being. The responses ranged from 5, “never,” 4 “once or twice,” 3 “sometimes,” 2 “often,” 1 “everyday or almost every day.” Thus, altogether, the least score recorded would be 31 and the highest score recorded would be 155.

Statistical analysis

The data were entered into MS Excel (MS Office version 2007 developed by Microsoft, Redmond, WA, USA) and Intercooled STATA version 9.2 (StataCorp, Lakeway Dr, College Station, TX 77845, USA) was employed to perform statistical analysis. The level of significance was set at 5%.

Mean scores for dental fear among school going children and non-school going children were determined by applying the Chi-square test. The same test was applied for determining the association between dental fear and domains of OHRQoL. A binary logistic regression model was performed to explore the impact of various independent variables taking the OHRQoL as the dependent variable among school going and non-school going children.

Results

The mean dental fear scores among school going and non-school going children state that dental fear is significantly ($P \leq 0.05$) higher among non-school going than among school going children [Table 1].

In relation to oral symptoms, school going children recorded significantly higher mean scores for all the items; however, an insignificant difference was observed for question related to food stuck to the roof of the mouth and mouth sores. Non-school going children reported significantly poorer functional status than the comparison group [Table 2a].

For questions about emotional well being, significant differences in the mean scores were observed for items like “felt irritated,” “worried about being different from other people” and “having fewer friends,” which were 4.27, 4.40 and 4.46 for school going children and 3.68, 4.12 and 4.12 for the other group, respectively. In questions related to social well being, mean scores for items like avoided smiling around other children and not wanted/unable to take part in activities were significantly higher among school going than among non-school going children [Table 2b].

There is a significant association ($P \leq 0.05$) between all domains of OHRQoL and dental fear among school going and non-school going children [Table 3].

Binary logistic regression has revealed that there is a significant ($P \leq 0.05$) impact of dental fear on all domains oral health quality of life except emotional well being in non-school going children [Table 4a].

Table 1: Mean scores for dental fear among school going children and non-school going children

Group	Mean (SD)	95% CI	Sig.
Fear of a dentist			
School going children	1.79 (1.06)	1.64-1.93	0.000*
Non-school going children	3.16 (1.26)	2.98-3.33	
Fear of a doctor			
School going children	2.06 (1.24)	1.89-2.22	0.000*
Non-school going children	3.18 (1.16)	3.01-3.34	
Scare of an injection			
School going children	2.77 (1.64)	2.54-2.99	0.000*
Non-school going children	3.40 (1.16)	3.23-3.56	
Feeling when a stranger touches you			
School going children	2.14 (1.27)	1.96-2.31	0.000*
Non-school going children	2.90 (1.15)	2.73-3.06	
Feeling on going to the hospital			
School going children	2.09 (1.20)	1.92-2.25	0.000*
Non-school going children	3.08 (1.19)	2.91-3.24	
Feeling on seeing people in white clothes			
School going children	1.99 (1.34)	1.80-2.17	0.000*
Non-school going children	3.17 (0.97)	3.03-3.30	
Feeling when nurse cleans your mouth			
School going children	2.06 (1.23)	1.89-2.22	0.000*
Non-school going children	3.21 (1.14)	3.04-3.37	
Feeling when dentist asks you to open your mouth			
School going children	2.19 (1.24)	2.02-2.35	0.000*
Non-school going children	2.93 (1.35)	2.73-3.12	
Feeling when dentist examines your mouth			
School going children	2.32 (1.36)	2.13-2.50	0.000*
Non-school going children	3.30 (1.23)	3.12-3.47	
Feeling when dentist puts instrument in your mouth			
School going children	2.83 (1.58)	2.61-3.04	0.008*
Non-school going children	3.20 (1.18)	3.03-3.36	
Feeling when you hear the noise of a dentist drilling			
School going children	2.45 (1.42)	2.25-2.64	0.000*
Non-school going children	3.04 (1.24)	2.86-3.21	
Feeling when you see dentist drilling			
School going children	2.40 (1.38)	2.21-2.58	0.000*
Non-school going children	3.08 (1.11)	2.91-3.24	
Feeling when dentist drills in your mouth			
School going children	3.08 (1.55)	2.86-3.29	0.000*

contd...

Table 1: Contd...

Group	Mean (SD)	95% CI	Sig.
Non-school going children	3.71 (1.23)	3.53-3.88	
Feeling when somebody looks at you			
School going children	2.40 (1.35)	2.21-2.58	0.000*
Non-school going children	2.96 (1.08)	2.80-3.11	
Feeling when you are choked			
School going children	2.94 (1.43)	2.74-3.13	0.010*
Non-school going children	3.28 (1.19)	3.11-3.44	
F Total			
School going children	35.41 (11.79)	33.80-37.01	0.000*
Non-school going children	47.59 (3.80)	47.05-48.12	

*means $P \leq 0.05$, SD: Standard deviation; CI: Confidence interval

Table 2a: Mean scores for OHRQoL (domain oral symptoms and functional limitation) among school going children and non-school going children

Oral symptoms	Mean (SD)	95% CI	Significance
Food caught between teeth			
School going children	3.69 (0.89)	3.56-3.81	0.056
Non-school going children	3.49 (1.22)	3.31-3.66	
Pain in teeth/mouth			
School going children	4.26 (0.85)	4.14-4.37	0.000*
Non-school going children	3.51 (1.09)	3.35-3.66	
Bad breath			
School going children	4.36 (0.81)	4.24-4.47	0.004*
Non-school going children	4.11 (0.91)	3.98-4.23	
Bleeding gums			
School going children	4.35 (0.88)	4.23-4.46	0.000*
Non-school going children	3.46 (1.08)	3.30-3.61	
Mouth sores			
School going children	3.96 (1.01)	3.82-4.09	0.145
Non-school going children	3.83 (0.78)	3.71-3.94	
Food stuck to roof of the mouth			
School going children	4.20 (0.97)	4.06-4.33	0.104
Non-school going children	4.34 (0.70)	4.24-4.43	
Functional limitations			
Difficulty in chewing firm food			
School going children	4.22 (0.94)	4.09-4.34	0.000*
Non-school going children	3.70 (1.10)	3.54-3.85	
Unclear speech			
School going children	4.15 (1.07)	4.00-4.29	0.002*
Non-school going children	4.46 (0.81)	4.33-4.56	
Difficulty in drinking/eating hot/cold food			
School going children	4.26 (0.93)	4.13-4.38	0.000*
Non-school going children	3.61 (1.23)	3.43-3.78	

contd...

Table 2a: Contd..

Oral symptoms	Mean (SD)	95% CI	Significance
Slow eating			
School going children	4.31 (0.90)	4.18-4.43	0.003*
Non-school going children	4.56 (0.83)	4.44-4.67	
Breathing through mouth			
School going children	3.93 (1.06)	3.78-4.07	0.000*
Non-school going children	4.79 (0.55)	4.71-4.86	
Restricted diet			
School going children	4.30 (0.87)	4.18-4.41	0.820
Non-school going children	4.33 (1.07)	4.17-4.48	
Trouble sleeping			
School going children	4.36 (0.97)	4.22-4.49	0.000*
Non-school going children	3.59 (1.13)	3.43-3.74	
Difficulty in eating foods you would like to eat			
School going children	4.30 (1.07)	4.15-4.44	0.000*
Non-school going children	3.49 (1.13)	3.33-3.64	

*means $P \leq 0.05$, SD: Standard deviation; CI: Confidence interval; OHRQoL: Oral health-related quality of life

Table 2b: Mean scores for OHRQL (domain emotional and social well being) among school going children and non-school going children

Emotional well being	Mean (SD)	95% CI	Significance
Felt irritated/frustrated			
School going children	4.27 (0.98)	4.13-4.40	0.000*
Non-school going children	3.68 (1.15)	3.51-3.84	
Felt worried about being less attractive than others			
School going children	4.15 (1.03)	4.00-4.29	0.022
Non-school going children	4.37 (0.84)	4.25-4.48	
Felt shy/embarrassed			
School going children	4.35 (1.00)	4.21-4.48	0.026
Non-school going children	5.18 (5.24)	4.44-5.91	
Felt anxious/fearful			
School going children	4.22 (0.92)	4.09-4.34	0.445
Non-school going children	4.14 (1.10)	3.98-4.29	
Worried about being different from other people			
School going children	4.40 (0.82)	4.28-4.51	0.000*
Non-school going children	4.12 (0.73)	4.01-4.22	
Worried about having fewer friends			
School going children	4.46 (0.96)	4.32-4.59	0.000*
Non-school going children	4.12 (0.87)	3.99-4.24	
Was upset			
School going children	4.40 (0.97)	4.26-4.53	0.000*
Non-school going children	3.19 (1.33)	3.00-3.37	

contd...

Table 2b: Contd...

Emotional well being	Mean (SD)	95% CI	Significance
Social well being			
Teased/called names by other children			
School going children	3.85 (1.21)	3.68-4.01	0.250
Non-school going children	3.96 (0.66)	3.86-4.05	
Avoided smiling around other children			
School going children	4.48 (0.84)	4.36-4.59	0.003*
Non-school going children	4.24 (0.81)	4.12-4.35	
Have been asked by other children about the condition			
School going children	4.51 (0.90)	4.38-4.63	0.587
Non-school going children	4.47 (0.56)	4.39-4.54	
Not wanted to talk to other children			
School going children	4.40 (1.05)	4.25-4.54	0.546
Non-school going children	4.34 (0.90)	4.21-4.46	
Left out by other children			
School going children	4.39 (0.93)	4.26-4.51	0.007*
Non-school going children	4.60 (0.61)	4.51-4.68	
Not wanted/unable to be with other children			
School going children	4.27 (1.07)	4.12-4.41	0.714
Non-school going children	4.23 (0.96)	4.09-4.36	
Not wanted/unable to take part in activities			
School going children	4.55 (0.93)	4.42-4.67	0.000*

*means $P \leq 0.05$, SD: Standard deviation; CI: Confidence interval; OHRQoL: Oral health-related quality of life

In school going children, age has a significant ($P \leq 0.05$) impact on functional limitation and emotional well being. Dental visit has also shown a significant impact on emotional well being [Table 4b].

Discussion

Dental fear among children, whether school going or non-school going, has all the potential to disrupt OHRQoL. In the Indian scenario, this is the first study that explores the various issues related to impact of dental fear on OHRQoL among school going or non-school going children.

In the present study, the mean dental fear scores were significantly higher among non-school going children as compared with their counterparts. The reason for this finding could be assigned to the fact that certain misconceptions regarding dental treatments run among these low socioeconomic group people, which leads to less exposure to dental treatments; the situation is further complicated by less awareness toward dental procedures, which leads to

Table 3: Association between dental fear and various domains of oral health-related quality of life among school going and non-school going children

Dental fear	Oral health-related quality of life																							
	School going children						Non-school going children																	
	Low OS	High OS	Total OS	Low FL	High FL	Total FL	Low EW	High EW	Total EW	Low SW	High SW	Total SW												
Low %	121	34	155	104	51	155	111	44	155	118	37	155	46	19	46	27	14	24	10	24	10	24		
	58.6	16.4	75	50.2	24.8	75	53.5	21.5	75	57.3	17.7	75	24	15	24	46	29	15	9	24	15	9	24	
High %	9	43	52	14	38	52	14	38	52	14	38	52	147	49	98	147	49	98	147	43	98	147	43	98
	4.2	20.8	25	6.7	18.3	25	6.7	18.3	25	6.7	18.3	25	147	25.3	50.7	147	25.3	50.7	147	22.2	53.8	76	22.2	53.8
Total %	130	77	207	118	89	207	125	82	207	132	75	207	193	78	115	193	78	115	193	70	115	193	70	115
	62.8	37.2	100	56.9	43.1	100	60.2	39.8	100	64	36	100	100	40.3	59.7	100	40.3	59.7	100	36.2	63.8	100	36.2	63.8
P value	0.000*						0.000*						0.000*											

* $P \leq 0.05$, OS: Oral symptoms; FL: Functional limitations; EW: Emotional wellbeing; SW: Social wellbeing

Table 4a: Binary logistic regression model to show impact of various independent variables taking OHRQoL as the dependent variable in non-school going children

	Oral symptoms			Functional limitation			Emotional wellbeing			Social wellbeing		
	Sig.	Exp (B)	95% CI	Sig.	Exp (B)	95% CI	Sig.	Exp (B)	95% CI	Sig.	Exp (B)	95% CI
F total (high)	0.002*	0.294	134-0.645	0.001*	0.274	0.127-0.591	0.053	0.491	0.239-1.008	0.000*	0.237	0.110-0.513
Age	0.990	1.002	0.725-1.385	0.568	1.101	0.792-1.532	0.336	1.173	0.847-1.624	0.204	1.268	0.879-1.830
Gender (female)	0.194	1.619	0.783-3.347	0.041	2.239	1.034-4.848	0.868	0.942	0.465-1.909	0.314	1.520	0.673-3.435
Dental visit (within 2-3 years)	0.039	1.0		0.031	1.0		0.031	1.0		0.003	1.0	
Dental visit (within 12 months)	0.394	1.334	0.688-2.586	0.595	0.833	0.425-1.633	0.700	1.140	0.585-2.222	0.443	0.748	0.356-1.571
Dental visit (never)	0.024	0.222	0.060-0.824	0.008	0.220	0.071-0.678	0.012	0.239	0.078-0.732	0.001	0.148	0.049-0.444
SES (upper)	0.892	1.0		0.948	1.0		0.784	1.0		0.274	1.0	
SES (upper middle)	0.866	0.935	0.430-2.036	0.932	1.035	0.470-2.280	0.599	0.809	0.367-1.782	0.625	0.801	0.329-1.948
SES (lower middle)	0.638	0.735	0.204-2.645	0.753	1.228	0.341-4.429	0.507	0.652	0.185-2.305	0.257	2.520	0.510-12.449

$P \leq 0.05$, SES: Socioeconomic status; CI: Confidence interval *means $P \leq 0.05$, OHRQoL: Oral health-related quality of life

Table 4b: Binary logistic regression model to show impact of various independent variables taking OHRQoL as the dependent variable in school going children

	Oral symptoms			Functional limitation			Emotional wellbeing			Social wellbeing		
	Sig.	Exp (B)	95% CI	Sig.	Exp (B)	95% CI	Sig.	Exp (B)	95% CI	Sig.	Exp (B)	95% CI
F Total (high)	0.420	0.757	0.411-1.497	0.298	0.710	0.372-1.354	0.637	0.849	0.431-1.674	0.196	1.522	0.805-2.878
Age	0.794	0.948	0.385-1.490	0.008*	0.581	0.390-0.866	0.000*	0.469	0.307-0.717	0.440	0.862	0.592-1.257
Gender (female)	0.186	0.656	0.634-1.418	0.673	0.879	0.484-1.598	0.086	0.579	0.310-1.081	0.726	1.109	0.620-1.985
Dental visit (never)	0.462	0.785	0.350-1.226	0.337	1.350	0.731-2.493	0.010*	2.331	1.222-4.445	0.823	1.071	0.588-1.950
SES (upper middle)	0.852	1.0		0.669	1.0		0.994	1.0		0.214		
SES (lower middle)	0.919	0.895	0.106-7.567	0.736	1.409	0.192-10.331	0.962	1.054	0.121-9.220	0.100	7.074	0.690-7.576
SES (upper lower)	0.564	0.580	0.091-3.697	0.746	1.261	0.310-5.125	0.792	1.212	0.291-5.048	0.317	1.985	0.518-7.601
SES (lower)	0.643	0.626	0.086-4.536	0.233	1.700	0.711-4.060	0.947	1.031	0.423-2.511	0.080	2.113	0.915-4.879

*means $P \leq 0.05$, SES: Socioeconomic status; CI: Confidence interval; OHRQoL: Oral health-related quality of life

less utilization. A similar study was carried out by Anni Luoto *et al.*,^[28] revealing poorer OHRQoL in children with cleft lip and palate having dental fear than their counterparts who went to school and had no dental fear.

In the present study, all the domains of OHRQoL were significantly associated with dental fear among school going and non-school going children, but contrasting results have been found in the study done by Anni Luoto *et al.*,^[28] in which associations between Child Perceptions Questionnaire and dental fear were not statistically significant. This may be due to the fact that non-school going children are mainly street children, and among them there is a false impression that dentistry is mainly involved with extraction and is a painful procedure that may be further complicated by wide range of health problems, including malnutrition, communicable and infectious disease, poor oral health, cognitive disorders and learning difficulties.^[29] Among school going children, a significant association of dental fear with OHRQoL may be attributed to general fear of dental treatment or unpleasant dental experience in the past.

A higher socioeconomic status in the present study reflected a higher level of education, a higher social status in terms of parental occupation and better living standards in terms of better household conditions. Mean oral symptoms scores of OHRQoL were significantly better in children with higher socioeconomic status. Similar were the observations of Nurelhuda *et al.*,^[30] This may be due to their better knowledge, improved accessibility and awareness of superior opportunities for oral health care, which may account for their demand for a better OHRQoL.

In the present study, on applying a logistic regression model, a strong and significant modifying effect of dental fear was seen on all domains of OHRQoL among non-school going children as compared with the study by Anni Luoto *et al.*,^[28] in which a rather strong - although not statistically significant - modifying effect was also observed.

However, this study should be viewed in the light of few limitations, as the role of peers in aggravating or reducing dental fear is not being investigated in the study. Although

the sample size is large enough and the findings can be generalized, still, the convenience sampling procedure can be questioned. The present study used self-report questionnaires; the data therefore may be subjected to report bias. Thus, to reduce self-report bias, participants were ensured that all survey responses would be entirely anonymous and would be kept confidential to protect their privacy. Nonetheless, the present study provides an interesting platform for future research to unearth the association between certain multi-factorial concepts. As this study is a new initiative toward understanding of the impact of dental fear on OHRQoL, further multi-centric research will be required to explore this arena and thereby provide a better understanding.

Conclusion

From this study, we conclude that impact of dental fear on OHRQoL was significantly higher among non-school going than school going children due to low socioeconomic status and lack of awareness toward oral health and lack of dental visit. In the future, more research is needed to determine various other factors affecting the impact of dental fear on OHRQoL.

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REFERENCES

- Schuller AA, Willumsen T, Holst D. Are there differences in oral health and oral health behavior between individuals with high and low dental fear? *Community Dent Oral Epidemiol* 2003;31:116-21.
- Versloot J, Veerkamp JS, Hoogstraten J. Children's self-reported pain at the dentist. *Pain* 2008;137:389-94.
- Smith TA, Heaton LJ. Fear of dental care: Are we making any progress? *J Am Dent Assoc* 2003;134:1101-8.
- Pohjola V, Lahti S, Suominen-Taipale L, Hausen H. Dental fear and subjective oral impacts among adults in Finland. *Eur J Oral Sci* 2009;117:268-72.
- Yoshida T, Milgrom P, Mori Y, Nakai Y, Kaji M, Shimono T, *et al.* Reliability and cross-cultural validity of a Japanese version of the Dental Fear Survey. *BMC Oral Health* 2009;9:17.
- Locker D. Measuring oral health: A conceptual framework. *Community Dent Health* 1988;5:3-18.
- McGrath C, Bedi R. The association between dental anxiety and oral health-related quality of life in Britain. *Community Dent Oral Epidemiol* 2004;32:67-72.
- Mehrstedt M, John MT, Tönnies S, Micheelis W. Oral health-related quality of life in patients with dental anxiety. *Community Dent Oral Epidemiol* 2007;35:357-63.
- Al Shamrany M. Oral health-related quality of life: A broader perspective. *East Mediterr Health J* 2006;12:894-901.
- Donaldson AN, Everitt B, Newton T, Steele J, Sherriff M, Bower E. The effects of social class and dental attendance on oral health. *J Dent Res* 2008;87:60-4.
- Lin YL, Yen YY, Chen HS, Liu YC, Chang CS, Chen CM, *et al.* Child dental fear in low-income and non-low-income families: A school-based survey study. *J Dent Sci* 2013;13:1-7. The correction done by you is correct, we are confirming this.
- Sabbah W, Tsakos G, Chandola T, Sheiham A, Watt RG. Social gradients in oral and general health. *J Dent Res* 2007;86:992-6.
- Ng SK, Leung WK. A community study on the relationship of dental anxiety with oral health status and oral health-related quality of life. *Community Dent Oral Epidemiol* 2008;36:347-56.
- Cuthbert MI, Melamed BG. A screening device: Children at risk for dental fears and management problems. *ASDC J Dent Child* 1982;49:432-6.
- Scherer MW, Nakamura CY. A fear survey schedule for children (FSS-FC): A factor analytic comparison with manifest anxiety (CMAS). *Behav Res Ther* 1968;6:173-82.
- Chellappah NK, Vignehsa H, Milgrom P, Lam LG. Prevalence of dental anxiety and fear in children in Singapore. *Community Dent Oral Epidemiol* 1990;18:269-71.
- Milgrom P, Jie Z, Yang Z, Tay KM. Cross-cultural validity of a parent's version of the Dental Fear Survey Schedule for children in Chinese. *Behav Res Ther* 1994;32:131-5.
- Klingberg G, Berggren U, Norén JG. Dental fear in an urban Swedish child population: Prevalence and concomitant factors. *Community Dent Health* 1994;11:208-14.
- Milgrom P, Mancl L, King B, Weinstein P. Origins of childhood dental fear. *Behav Res Ther* 1995;33:313-9.
- Ten Berge M, Veerkamp JS, Hoogstraten J, Prins PJ. Childhood dental fear in the Netherlands: Prevalence and normative data. *Community Dent Oral Epidemiol* 2002;30:101-7.
- Alvesalo I, Murtomaa H, Milgrom P, Honkanen A, Karjalainen M, Tay KM. The Dental Fear Survey Schedule: A study with Finnish children. *Int J Paediatr Dent* 1993;3:193-8.
- Klingberg G. Reliability and validity of the Swedish version of the Dental Subscale of the Children's Fear Survey Schedule, CFSS-DS. *Acta Odontol Scand* 1994;52:255-6.
- Ten Berge M, Hoogstraten J, Veerkamp JS, Prins PJ. The Dental Subscale of the Children's Fear Survey Schedule: A factor analytic study in the Netherlands. *Community Dent Oral Epidemiol* 1998;26:340-3.
- Ten Berge M, Veerkamp JS, Hoogstraten J. The etiology of childhood dental fear: The role of dental and conditioning experiences. *J Anxiety Disord* 2002;16:321-9.
- Wogelius P, Poulsen S, Sørensen HT. Prevalence of dental anxiety and behavior management problems among six to eight years old Danish children. *Acta Odontol Scand* 2003;61:178-83.
- Ten Berge M, Veerkamp JS, Hoogstraten J, Prins PJ. The Dental Subscale of the Children's Fear Survey Schedule: Predictive value and clinical usefulness. *J Psychopathol Behav Assess* 2002;24:115-8.
- Jokovic A, Locker D, Stephens M, Kenny D, Tompson B, Guyatt G. Validity and reliability of a questionnaire for measuring child oral-health-related quality of life. *J Dent Res* 2002;81:459-63.
- Luoto A, Lahti S, Nevanperä T, Tolvanen M, Locker D. Oral-health-related quality of life among children with and without dental fear. [HYPERLINK "http://www.ncbi.nlm.nih.gov/pubmed/19250394"](http://www.ncbi.nlm.nih.gov/pubmed/19250394) \o "International journal of paediatric dentistry/the British Paedodontic Society and] the International Association of Dentistry for Children." *Int J Paediatr Dent* 2009;19:115-20.
- Reading J. The crisis of chronic disease among Aboriginal Peoples: A challenge for public health, population health and social policy. Victoria, BC: University of Victoria, Centre for Aboriginal Health Research; 2009.
- Nurelhuda NM, Ahmed MF, Trovik TA, Åström AN. Evaluation of oral health-related quality of life among Sudanese schoolchildren using Child-OIDP inventory. *Health Qual Life Outcomes* 2010;8:152.

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