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ORIGINAL RESEARCH

Evaluation of Oral Health Related Quality in Children with Dental flourosis

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ABSTRACT:

Background: Dental flourosis is a dental dysplasia due to chronic fluoride intoxication. The present study was conducted to assess oral health-related quality of life in school children with dental flourosis. **Materials & Methods:** The present study was conducted on 184 school children age ranged 7-14 years of both genders. A careful oral examination was done with trained dental surgeon. Assessment of dental flourosis was done following Dean's flourosis index. The quality of life was calculated using Child Perception Questionnaire composed of 48 items. **Results:** Out of 184 patients, males were 94 and females were 90. Dean's flourosis index was normal among 2 males and 4 females, Questionable in 12 males and 18 females, very mild in 36 males and 52 females, mild in 20 males and 6 females, moderate in 10 males and 4 females and severe in 14 males and 10 females. The difference was significant ($p < 0.05$). Overall score in patients with normal index was 78.3, questionable was 72.6, very mild was 78.6, mild was 81.3, moderate was 74.3 and severe was 0. The difference was significant ($p < 0.05$). **Conclusion:** Dental flourosis was prevalent among school children. Dental flourosis has a greater effect on the OHRQoL in school children.

Key words: Dental flourosis, Dean index, Oral health.

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INTRODUCTION

The use of fluorides in the prophylaxis of carious diseases is a common practice. However, their ingestion in excessive doses poses the problem of their long-term toxicity. Indeed, under these conditions, fluorides can be responsible for many chronic diseases of the teeth or skeleton. Dental flourosis is a dental dysplasia due to chronic fluoride intoxication that occurred during the mineralization period of the enamel and most often affect permanent teeth.¹

Drinking water, dentifrices, mouth rinses, dietary supplements, and professional products are used to deliver fluoride to the public. Exposures to these multiple sources of fluoride have led to notable improvements in the oral health of some segments of the US population but also to an increase in enamel flourosis.²

The field of oral health-related quality of life (OHRQOL) relates to the subject that oral anomalies disrupt the natural function of the individual. To understand the patients' needs in the field of oral and dental health, evaluating the OHRQOL along with clinical examinations has been developed. The oral impact on daily performance (OIDP) index is one of the important indices in evaluating OHRQOL.³

OHRQOL has become the focus of interest to estimate the impact of oral situation on the QOL and health and also the effectiveness of clinical health care outcomes. Although the incidence of dental flourosis increased in recent years, a few studies on the relation between this disease and QOL exist. Discoloration in flourotic enamel and deformation of tooth may have a negative effect on OHRQOL.⁴ The

present study was conducted to assess oral health-related quality of life in school children with dental flourosis.

MATERIALS & METHODS

The present study comprised of 184 school children age ranged 7-14 years of both genders. Ethical approval was obtained from institute prior to the study. All were informed regarding the study. General information such as name, age, gender etc. was recorded. A careful oral examination was done with trained dental surgeon. Assessment of dental flourosis was done following Dean’s flourosis index.

The quality of life was calculated using Child Perception Questionnaire composed of 48 items distributed among 5 domains: self-assessment (11 questions), oral symptoms (14 questions), functional limitations (10 questions), social well-being (4 questions), and spare time activity (8 questions). A 5-point Likert scale was used with the following options: “never” = 0, “once/twice” = 1, “sometimes” = 2, “often” = 3, and “very often” =4. Method of estimation of fluoride content of water was done by ion selective electrode. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 184		
Gender	Males	Females
Number	94	90

Table I shows that out of 184 patients, males were 94 and females were 90.

Table II Dean’s flourosis index for patients

Index	Males	Females	P value
Normal	2	4	0.01
Questionable	12	18	
Very mild	36	52	
Mild	20	6	
Moderate	10	4	
Severe	14	10	

Table II, graph I shows that Dean’s flourosis index was normal among 2 males and 4 females, Questionable in 12 males and 18 females, very mild in 36 males and 52 females, mild in 20 males and 6 females, moderate in 10 males and 4 females and severe in 14 males and 10 females. The difference was significant (p< 0.05).

Graph I Dean’s flourosis index

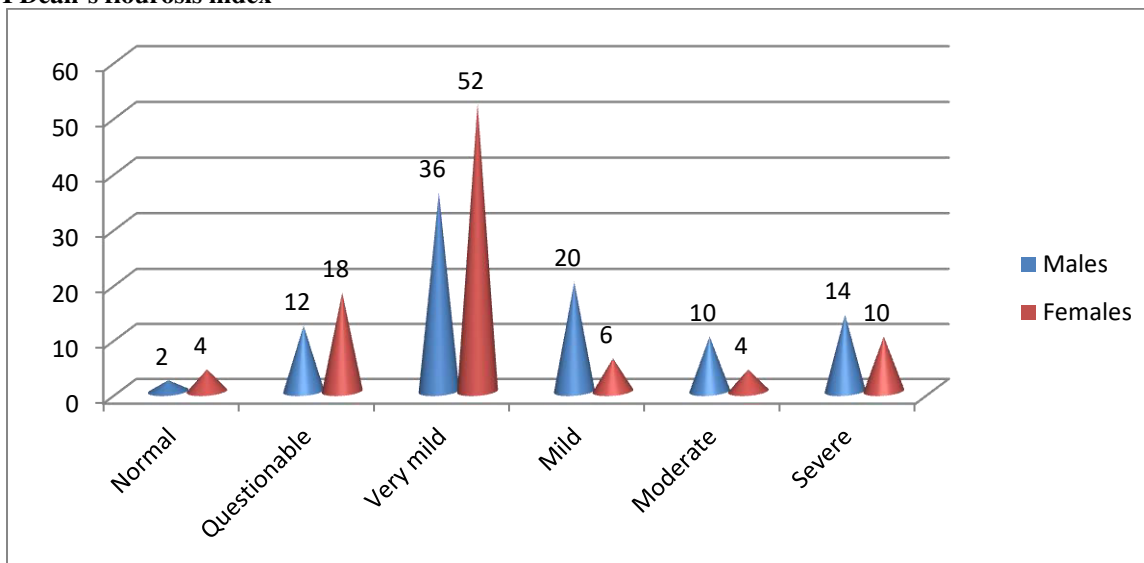


Table III Mean scores for oral health-related quality of life based on dental flourosis status

Index	Self assessment	Oral symptoms	Functional limitation	Social well being	Spare time activity	Overall
Normal	18.2	24.3	16.2	6.4	13.2	78.3
Questionable	14.8	23.1	14.3	5.7	14.7	72.6
Very mild	18.5	22.8	15.8	6.1	15.4	78.6
Mild	18.9	24.9	16.9	4.2	16.4	81.3
Moderate	17.6	22.1	15.2	6.8	12.6	74.3
Severe	0	0	0	0	0	0
P value	0.01	0.04	0.02	0.18	0.05	0.006

Table III shows that overall score in patients with normal index was 78.3, questionable was 72.6, very mild was 78.6, mild was 81.3, moderate was 74.3 and severe was 0. The difference was significant ($p < 0.05$).

DISCUSSION

Oral health-related quality of life (OHRQoL) is defined as a “self-report specifically pertaining to oral health capturing both the functional, social, and psychological impacts of oral disease.” Quality of life aspects of general and oral health have also recently received more attention, and several specific tools for assessment of OHRQoL have been developed.⁵ Attractive appearances of a person are assumed to possess more socially desirable personalities and are happier and more successful than others who are less attractive. Oral cavity is an important area for the appearance of a person, so the dental diseases could not only affect the physical health of patients but also influence the psychological health, which could impact their day-to-day living or life quality in turn. Social and emotional well-being is an important component of overall health.⁶ The present study was conducted to assess oral health-related quality of life in school children with dental flourosis.

We found that out of 184 patients, males were 94 and females were 90. Dean’s flourosis index was normal among 2 males and 4 females, Questionable in 12 males and 18 females, very mild in 36 males and 52 females, mild in 20 males and 6 females, moderate in 10 males and 4 females and severe in 14 males and 10 females. Prabu and Saravanan⁷ based on the Dean’s index reported very mild and severe dental flourosis, respectively, as the highest prevalence of dental flourosis.

We observed that overall score in patients with normal index was 78.3, questionable was 72.6, very mild was 78.6, mild was 81.3, moderate was 74.3 and severe was 0. A cross-sectional survey was done by Michel-Crosato et al⁸ with the sample of 220 children aged 12–15 years. Dental flourosis was measured using Dean’s flourosis index-modified and quality of life of children was assessed with the help of child’s perception questionnaire. The mean overall OHRQoL score for children with questionable flourosis was 73.9 ± 7.51 and with very mild flourosis was 81.9 ± 6.88 . Statistically significant difference was found across self-assessment ($P = 0.012$), oral symptoms,

functional limitation, and spare time activity ($P = 0.007$) based on dental flourosis status.

Vargas-Ferreira et al⁹ evaluated the effect of dental flourosis on the QOL of female high school and precollege students. One hundred 15–18-year-old female students with dental flourosis were selected. Dental flourosis was measured clinically using Dean’s index after analyzing the drinking water of the affected district. The effect of dental flourosis on the QOL was then evaluated through a questionnaire. The mean values of age and the QOL regarding appearance were 16.5 years and 61.5 ± 20.8 from 100, respectively. Spearman’s correlation showed a positive correlation between CS-OIDP total score and the severity of flourosis ($P = 0.0001$, $r = 0.342$). Spearman’s correlation also showed a negative correlation between the QOL and the severity of flourosis ($P < 0.001$, $r = -0.496$) so that by increasing the severity of flourosis, the QOL was decreasing.

There is a need for the further epidemiological study with a wide range of study participants. Suitable measures of health education along with preventive measures should be taken to reduce the risk of fluoride exposure. Parents should be encouraged to use ready-to-feed formulas or use nonfluoride-containing bottled water to dilute formula concentrate. Dental public health professionals can interact with children in a mutually beneficial manner.^{10,11}

CONCLUSION

Authors found that dental flourosis was prevalent among school children. Dental flourosis has a greater effect on the OHRQoL in school children.

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