Research Article

Evaluation of Dental Status and Its Association with Oral Health-Related Quality of Life in Preschool Children in Zahedan City, Iran: A Cross-Sectional Study

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Abstract

Background: Several factors can affect the oral health-related quality of life in children.

Objectives: The aim of this study was to evaluate the dental status and its relationship with the oral health-related quality of life in preschool children in Zahedan City, Iran.

Methods: In this descriptive-analytical cross-sectional study, 200 preschool children (5 - 6 years old) were randomly selected from different areas of Zahedan city. Dental health status of children was investigated using the decayed, missing and filled teeth (DMFT) questionnaire. Oral-health-related quality of life of the children and their parents was measured using the Farsi version of the early childhood oral health impact scale (F- ECOHIS index). Data were analyzed using SPSS version 20, statistical t-test and Pearson correlation coefficient at the significant level of 0.05.

Results: The mean scores of F- ECOHIS and DMFT for all studied children were 10.94 ± 7.67 and 5.05 ± 4.48, respectively. No significant relationship was found between the DMFT and F- ECOHIS indices in children ($r = 0.26$, $P = 0.563$) and their parents ($r = 0.16$, $P = 0.217$).

Conclusions: Under the limitations of the present study, there is no significant relationship between the DMFT index and the index of oral health-related quality of life. Further studies are recommended.

Keywords: Dental Health Status, Quality of Life, Oral Health, Children

1. Background

In recent years, many researchers have studied the effects of oral health and dental treatment on quality of life of their patients (1-3). Oral health is one of the factors that usually affect the quality of life. Difficulties in talking, laughing, eating, tasting and other physical and mental disorders are the result of poor oral health (4, 5). Assessment of the impact of oral health on quality of life, especially in young children is very important.

Severe caries reduce the quality of life of children, because these children experience pain, discomfort, bad appearance, acute and chronic infections, increasing the need for hospitalization, high treatment costs, staying away from school and lessons and therefore a decrease in learning ability (6).

A limited number of questionnaires were drawn up to assess oral health-related quality of life (OHRQoL) of preschool children. One of them is the index of the early

childhood oral health impact scale (ECOHIS) (4), which is an appropriate and successful questionnaire in this field (7-9).

Jabarifar et al. examined the validity of Farsi- ECOHIS and concluded that this index is valid and reliable for assessing OHRQoL in Persian-speaking parents of preschool children with 2 - 5 years old (9).

Chen et al. investigated the relationship between the decayed, missing, and filled teeth (DMFT) index and OHRQoL of individuals in New Zealand. According to their study, the number of missing, decayed and restored teeth showed a significant relationship with masticatory performance, the individual's health and the quality of life (10). In a study conducted by Border et al. on the minority of African-American adolescents, edentulous, periodontal diseases and increased dental caries had no significant relationship with health-related quality of life (11). In Iran, khadem et al. in a descriptive study, oral health status mea-

sured by the decayed, missing, and filled teeth (DMFT) and community periodontal index of treatment needs (CPITN) according to world health organization (WHO). Also, quality of life in regard to oral health was measured by the dental impact of daily living (DIDL) index. Their study showed that there was a significant relation between DMFT, CPITN, and socio-economic factors and the quality of life (12).

Given that, so far, the F- ECOHIS index has not been used in Iran for evaluation of dental status in preschool children and its association with OHRQoL has not been investigated.

2. Objectives

This study was performed to evaluate the dental status of the preschool children and investigate its relationship with the children's quality of life using the F- ECOHIS index.

3. Methods

This cross-sectional, descriptive-analytical study was conducted on 200 preschool children (100 males and 100 females) with an age range of 5 - 6 years selected from among 10 kindergartens in Zahedan city using the stratified random sampling method in 2013 - 2014 school years. This study was approved by Ethics Committee of Zahedan University of Medical Sciences. Then a physical examination was performed after obtaining informed consent from the parents, distribution of the questionnaire among them, filling out and returning of the questionnaires. Exclusion criteria included children with physical and mental problems, children whose parents are not willing to cooperate, children whose parents are illiterate, children who do not cooperate in the examinations and children with medical problems or long-term medication.

The F-ECOHIS questionnaire was used to assess the OHRQoL and the DMFT index was used to determine the dental status. One experienced practitioner evaluated and scored DMFT for all children.

The decayed, missing, and filled teeth index measures the prevalence of dental teeth and its components are: D component: used to describe decayed teeth, M component: used to describe missing teeth due to caries and F component: used to describe filled teeth due to caries. It is calculated for 32 teeth and from the sum of the three components with maximum rate of 32 and minimum 0 (13).

The ECOHIS questionnaire consisted of thirteen questions focusing on two main areas of "the impacts on children" and "the impacts on families". Area of the impacts on children had 4 components: Symptoms (1 question), the performance of children (4 questions), psychology (2 questions), and self-esteem of children and social interactions

(2 questions). Area of the impacts on families also included areas of major concern of parents (2 questions), and family functioning (2 questions). Answers were measured by the Likert scale: 0 = never, 1 = rarely, 2 = just a few times, 3 = several times, 4 = often, 5 = do not know. The scores were summed to determine the overall score. According to the questionnaire designer, those individuals who answered more than one question with the answer of "do not know" were excluded. The total score had a range of 0 to 36 and 0 to 16 in the areas of the impacts on children, and the impacts on the family, respectively. Higher scores indicated more impacts or more oral health problems and poorer OHRQoL (14). Jabarifar at el. showed that the Persian version of the F-ECOHIS questionnaire was valid and reliable for assessing the oral health-related quality of life OHRQoL of preschool children of Farsi-speaking parents (9). Examination of each child on a chair with head light was performed by a trained dentist using a disposable dental mirror and a probe. In this study, examination of permanent teeth was ignored when they were present in the mouth. The WHO definition was used for the detection of caries. Demographic data of the children including gender and socioeconomic status were collected. To assess the socioeconomic status of the families, the information about the family income (low, moderate and high) and educational level of parents (illiterate, elementary, highschool, diploma and university) was collected.

Collected data were entered into SPSS 20 software and analyzed using the Pearson correlation test to determine the relationship between tooth status and the quality of life of preschool children. The t-test was also used to compare the two genders. P value < 0.05 was considered as the significant level.

4. Results

All questionnaires were filled out by the mothers and the answer of "do not know" was not found in any of the questionnaires. Table 1 provides a description of statistical population and their quality of life. The average quality of life was 10.94 ± 7.67 in children and 8.37 ± 5.9 in parents and the DMFT average was 5.05 ± 4.48 in children, as well. Dental caries with an average of 4.81 ± 4.41 (41.21%) had the highest frequency. There was no caries-free kid. Also, comparing the DMFT index among children in terms of gender (Table 1) showed that there was no significant difference between the two groups (P > 0.05).

Pearson correlation test was used to determine the relationship between dental status (DMFT) and quality of life of preschool children and parents (Table 2). The test results showed that there was no significant difference between the two variables in children and parents (P > 0.05).

Table 1. Comparison of the Quality of Life Components and Decayed, Missing and Filled Teeth Index Between Male and Female Subject

Variables	Components	Male (n = 100), Mean (SD)	Female (n = 100), Mean (SD)	P Value
Quality of life	Children	10.66 (8.01)	11.22 (7.25)	0.52
	Parents	8.43 (6.21)	8.32 (5.59)	0.68
DMFT index	Decayed teeth	4.37 (4.2)	5.25 (4.6)	0.138
	Missed teeth	0.12 (0.4)	0.11 (0.34)	
	Filled teeth	0.09 (0.35)	0.16 (0.59)	
	Total	4.58 (4.23)	5.52 (4.69)	

Abbreviation: DMFT, decayed, missing and filled teeth.

Table 2. Correlation Between the Quality of Life Components and the Decayed, Missing and Filled Teeth Index

Variables	DMFT index			
	Decayed teeth, r (P value)	Missed teeth, r (P value)	Filled teeth, r (P value)	Total, r (P value)
Quality of life				
Children	0.33 (0.651)	0.12 (0.122)	0.34 (0.654)	0.26 (0.563)
Parents	0.11 (0.12)	0.14 (0.152)	0.25 (0.445)	0.16 (0.217)

Abbreviation: DMFT, decayed, missing and filled teeth.

5. Discussion

Because of the high prevalence, dental caries in children are considered as a public health problem and understanding the physical, social and psychological effects of caries in relation to the daily life of children is very important, this study was designed to assess the possible relationship between this index and the DMFT index, in addition to examine the oral-health-related quality of life of the young children in Zahedan.

The mean DMFT of children in this study was 5.05 ± 4.48, the maximum value of which was associated with tooth caries (41.21%), which indicated a better condition compared with similar studies conducted on this age group. In the study conducted by Hashim et al. [14] the prevalence of dental caries in preschool children of United Arab Emirates was about 76.1%. In a similar study conducted in Uganda [15], it was 62%, and in a study conducted by Nanayakkara et al. in Sri Lanka, the prevalence of dental caries in preschool children was equal to 72% [16]. In this study, the mean quality of life for children was obtained as equal to 10.94 ± 7.67, which was lower compared with similar studies.

Lower rate of caries and better quality of life in the present study can be explained in these words that in the population participated in the study, those parents with a high education level and moderate to high socioeconomic status bring their child to kindergarten and these families care more about the oral health status of their children. However, in our study, the relationship between socioeconomic status of the family and the quality of life and the DMFT index was not significant. In Golkari et al. study in Shiraz city, a direct relationship was found between the socioeconomic level of family and OHRQOL [17]. Also, in the study conducted by Nanayakkara et al. there was a direct relationship between low family income and low education of parents with increased dental caries [16]. Edelstein et al. reported that children whose parents have less than a high school education level have experienced more dental caries compared with children whose parents have higher education [18].

In the present study, no significant difference was found between two genders in terms of the mean DMFT, which is consistent with some of the studies conducted in Iran on DMFT [17, 19, 20].

Also, no significant difference was found between the genders in terms of OHRQoL which is consistent with the studies conducted by Golkari et al. [17]. However, in the study conducted by Jabarifar et al., and the study conducted by Macintyre et al. female participants had higher scores than males [9, 21]. The reason for this difference was the type of questionnaire and the age group of participants. It is clear that young children do not pay much attention to the aesthetic aspects of oral health; but usually with increasing age, individuals, especially females, pay more attention to their beauty and oral health. This leads

to a greater impact of oral health on their quality of life compared to males. Health models have shown that the health and quality of life are of the products of the interaction between health conditions and environmental and personal factors and they are not an answer to the current clinical status (22). In this study, the DMFT score had no significant relationship with OHRQOL of the children and their families. These results are contrary to the results of the study conducted by Kramer et al. (23)

The reasons for the lack of relationship between the DMFT and OHRQOL can be stated as follows:

1. Most people do not pay enough attention to primary teeth and feel that they will soon be lost and are replaced by permanent teeth.

In a qualitative study, the evaluation of cultural factors and oral health care for children in the United States, the parents stated that the deciduous teeth will eventually be exfoliated, and emphasizing on the theme that preventive cares are prioritized for the deciduous teeth is not important. According to the old beliefs, general health and oral health are separate from each other and they should be considered when an obvious problem is raised (24).

2. In our study, the number of decayed teeth was more than the extracted teeth. Even a small cavity that does not provide any discomfort for the children was considered in the DMFT level; and thus the high value of DMFT was not able to influence OHRQOL.

3. Another reason may be the cross-sectional nature of the study. People usually remember events that happened to them recently, so in this study, such an information bias can exist.

5.1. Conclusions

In general, results of this study showed that there is no significant difference between males and females in terms of the quality of life, and both gender have the same level of quality.

Also, in the current study, there is no significant statistical relationship between the dental status (DMFT) and quality of life of children.

Further studies are recommended to be conducted in this field to determine the discriminated validity of groups with different levels of oral problems as well as to design control and case groups for doing similar studies.

Meanwhile, the use of the DMFT index in longitudinal studies with larger sample sizes to examine the interventions related to oral health problems and evaluation of its results are recommended.

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