
RELATIONSHIP BETWEEN SOCIOECONOMIC STATUS AND QUALITY OF LIFE AFFECTED BY ORAL HEALTH IN PRESCHOOL CHILDREN IN KERMAN, IRAN, DURING 2016-2017

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Abstract. Background and Objectives: Studies have shown that different factors affect oral health-related quality of life (OHRQoL) in children. Considering the limited number of studies focusing on 5-year-old children, we aimed to determine the relationship between household socioeconomic status and OHRQoL in preschool children in Kerman, Iran. **Materials and Methods:** In this cross-sectional study, 280 parents of 5-year-old children living in four districts in Kerman were asked to fill out the Farsi version of Early Childhood Oral Health Impact Scale (F-ECOHIS). To assess the socioeconomic status of the families, we gathered information regarding household income, parents' educational level, and the number of children in the family, as well as demographic data. To analyze the data, independent t-test, ANOVA, and Pearson correlation coefficient were performed in SPSS, version 19. **Results:** The mean score of OHRQoL as indicated by F-ECOHIS was 21.89 ± 7.86 , and the average self-assessment score was 5.28 ± 1.58 . The OHRQoL scores were higher in districts 1 and 4 than the other districts. The level of OHRQoL was directly associated with household income level, while father's educational level showed an indirect relationship with OHRQoL. **Conclusion:** OHRQoL among 5-year-old children in Kerman is associated with the socioeconomic indicators of family, such as the urban district of residence and income level, and it is negatively associated with increased number of children in the family and father's level of education.

Keywords: Education, Income, Oral health, Quality of life, Socioeconomic status

Introduction. Oral diseases are one of the most common chronic diseases, and they are considered important with regard to public health, social prevalence, their impact on individuals, and treatment costs. Oral diseases affect public health and quality of life (QoL), as well as public mortality rate. Oral and dental treatment procedures are often costly, especially for those with low income; accordingly, many individuals cannot afford the costs (1-3).

In addition to the oral cavity, lack of oral health can impose a negative impact on children's physical and mental status, growth, life satisfaction, appearance, speaking, chewing, tasting, socialization, and social satisfaction. Severe caries undermine the QoL among children, as these children suffer from pain, discomfort, inappropriate appearance, acute and chronic infections, increased hospitalization requirements, high costs of treatment, school absenteeism, and reduced learning ability (4). Dental caries also affect nutrition and growth status. Dental pain and infections influence nutrition and sleep pattern due to the type of food intake and metabolic processes. Disturbed sleep, in turn, impairs the QoL among children in various ways, such as reduced glucocorticoid, red blood cell, and hemoglobin production (5, 6). The evolving and complex body system of children makes a seemingly insignificant illness effective in their QoL. Dental Health systems are changed and require particular attention during the first years of life (7). Many children experience orodental problems before the age of five, which form a significant part of their possible diseases. Children suffering from poor oral health show 12 times lower daily activity than healthy ones. More than 50 million school learning hours per year are lost due to oral health problems that can affect children's performance at school and their future success (8-10). In Iran, general quantitative studies have been conducted to determine the relationship between socioeconomic status and the QoL associated with oral health (11). However, this is a new issue in Iran, and in other countries research on this topic is focused on higher age groups (12-17). It seems that the difficulty of examining the oral health-related quality of life (OHRQoL) in young children has led researchers in Iran to focus less attention on this issue; thus, there are limited studies evaluating the association of socioeconomic status of families with OHRQoL (18). So far, no studies have been conducted on OHRQoL among preschool children in Kerman, Iran. Further, there is a scarcity of studies examining the relationship of this variable with socioeconomic issues such as parents' educational level, household income, and the

place of residence of children in Kerman, Iran. Accordingly, we aimed to assess the relationship between OHRQoL and socioeconomic status among preschool children in Kerman, Iran.

Patients and Methods

Patients

In this analytical cross-sectional study, parents of 5-year-old children were invited to participate. The sample size was calculated at 250 cases, and the children were within the age range of 60-71 months. The children whose parents were unwilling to participate, those who did not return the questionnaire, children who lived in Kerman for less than a year, or those who left some sections of the questionnaire unanswered were excluded from the study.

After providing the necessary explanations, the questionnaires were distributed among the participants, and on the following day, we contacted the parents to ensure if they consented to participate in the study. The parents were asked to complete the questionnaire carefully and return it to school within a maximum of one week. In this study, the Farsi version of Early Childhood Oral Health Impact Scale (F-ECOHIS) was used. The validity and reliability of this questionnaire were approved by Jabbarifar et al. (18). In addition, two questions were added in the F-ECOHIS questionnaire. The study was approved by the Ethics Committee of Kerman University of Medical Sciences (Code No.: IR.KMU.REC.1394.291).

Methods

Data were extracted from the questionnaires and analyzed statistically. This questionnaire included a demographic form including the child's age, gender, and the parent-child relationship. Also, several items were added to the end of the questionnaire such as the address of residence, the level of parents' education, household income, and the number of children.

Data were analyzed by using SPSS, version 19. The items 1-13 in the F-ECOHIS questionnaire were rated based on a 5-point Likert scale ranging from 1 (*never*) to 5 (*mostly*). The questions 14 and 15 were scored from 1 (very low or very bad) to 4 (very much or very good). Thus, in the multi-section part of the questionnaire (questions 1-13), the higher scores indicated lower OHRQoL, but in the general questions part (14 and 15), higher scores signified higher OHRQoL. Based on the authors' recommendation for F-ECOHIS questionnaire, the average total score of the items 1-13 was assigned to *I do not know* and unanswered items.

Data analysis

To analyze the data, Chi-squared test, Pearson correlation coefficient, and One-way ANOVA were used in SPSS, version 19 (IBM, Texas, USA).

Ethical considerations

The necessary approvals were obtained from Kerman University of Medical Sciences, Kerman General Directorate and Administration Education Offices, and Kerman Welfare Office. The objectives and study procedure were explained to the parents both verbally and in writing. The parents were given the opportunity to decide on whether or not to participate in this study and to consult with their spouses. The parents were assured of the confidentiality of their data. It was also emphasized that they could withdraw from the study at any time.

Findings

The mean score of OHRQoL in children was 21.89 ± 7.86 , which was obtained from the F-ECOHIS questionnaire. The mean score of self-assessment was 5.28 ± 1.58 . There was no significant difference in OHRQoL and self-assessment between male and female subjects ($P=0.533$; Table 1).

There was a significant difference between families with single offspring and three offspring regarding mean scores of OHRQoL ($P=0.003$) and self-assessment ($P=0.001$). With an increase in the number of children to three, OHRQoL score increased from 20.77 to 25.05 ($P=0.001$; Table 1).

Table 1. Parents' answers to F-ECOHIS questionnaire

Quality of life	Never	Rarely	Just sometimes	Several times	Frequently	I do not know
Mouth or jaw pain	62 (21.1%)	67(23.9%)	104 (37.1%)	42 (15%)	5 (1.8%)	-
Drinking hot or cold liquids	138(49.3%)	94(33.6%)	31(11.1%)	7(2.5%)	4(1.4%)	6(2.1%)
Eating	91(91%)	117(41%)	52(18.6%)	15(5.4%)	3(1.1%)	2(0.07%)
Pronunciation	192(68.6%)	58(20.7%)	9(3.2%)	3(1.1%)	-	18(6.4%)
Absence from kindergarten	209(74.6%)	56(20%)	9(3.2%)	1(0.4%)	-	5(1.8%)

Disturbed sleep pattern	122(43.6%)	99(35.4%)	40(16.46%)	2(1.1%)	4(1.4%)	3(1.1%)
Restlessness or turmoil	95(35.4%)	102(36.4%)	55(19.6%)	15(5.4%)	4(1.4%)	5(1.8%)
Smile	199(71.1%)	43(15.4%)	7(2.5%)	4(1.4%)	2(0.7%)	25(8.9%)
Talking	214(76.4%)	33(11.8%)	10(3.6%)	-	5(0.7%)	18(6.4%)
Concerned family members	120(42.9%)	78(27.9%)	44(15.7%)	28(10%)	10(3.6%)	-
Feeling guilt by family members	155(55.4%)	71(25.4%)	25 (8.9%)	20(7.1%)	7(2.5%)	2(0.7%)
Leaving the work	179(63.9%)	69(24.6%)	20(7.1%)	11(3.9%)	1(0.4%)	-
Economic pressure on family	148(52.8%)	62(22.1%)	43(15.4%)	19(6.8%)	6(2.1%)	2(0.7%)
Self-assessment	very low	low	much	Very much	I don't know	
Parental satisfaction from the child's mouth	25(8.9%)	113(40.4%)	90(35.4%)	39(13.9%)	4(1.4%)	

OHRQoL score did not differ significantly between children, either mother or father of the child completed the questionnaire (P=0.954). Fathers' education significantly affected the means of OHRQoL (P=0.002) and self-assessment (P=0.000; Diagram 1).

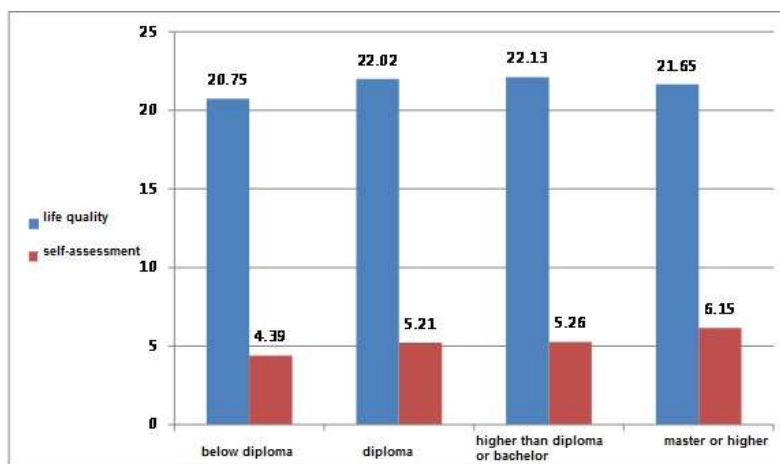


Diagram 1. Mean of F-ECOHIS index and self-assessment based on father's educational level

However, there were significant differences between self-assessment of mothers with under diploma degree and those with higher than diploma education (P=0.05), mothers' with bachelor's degree and those with a higher degree (P=0.003), those with master's degree and lower than diploma (P=0.003), and between those with masters' degree and diploma (P=0.001; Table 2).

Table 2. Distribution of samples based on demographic characteristics and socioeconomic status

Variable		No.(%)
Gender	Male	154 (55%)
	Female	125 (44.6%)
Income level	<125 \$	23 (8.2%)
	125-250 \$	105 (37.5%)
	250-500 \$	98 (35%)
	500> \$	54 (19.3%)
Level of	Parents	father mother

education	Below diploma	28(10%)	22(7.9%)
	Diploma	36(37.9%)	112(40%)
	Bachelor's degree	108(38.6%)	115(41.1%)
	Master's degree and higher	38(13.6%)	31(11.1%)
Person who filled the questionnaire	Mother	216(77.1%)	
	Father	61(21.8%)	
	Parents together	1(0.4%)	
	Other	2(0.7%)	
Number of children	One	70(25%)	
	Two	109(38.9%)	
	Three	58(20.7%)	
	Four and more	43(15%)	

OHRQoL and self-assessment were significantly different among income level groups ($P=0.000$). There was a significant relationship between OHRQoL and income groups of 125-250 USD/month, 250-500 USD ($P=0.003$), and higher than 500 USD ($P=0.006$). In addition, a significant difference was observed in OHRQoL between higher than 500 USD income group and below the 125 USD group (Diagram 2).

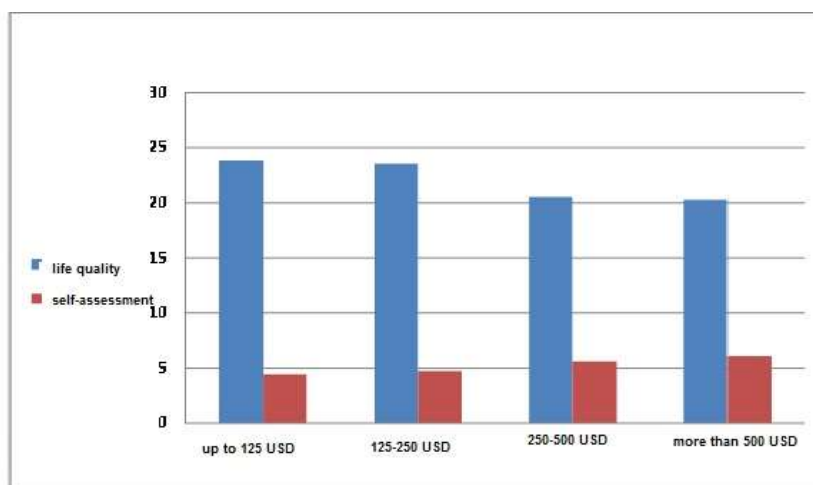


Diagram 2. The mean of F-ECOHIS index and self-assessment based on family income level

In terms of urban district, 79 (26.8%) people lived in District 1, 109 (28.2%) in District 2, 58 (25.4%) in District 3, and 43 (19.6%) in District 4 of Kerman, Iran. OHRQoL ($P=0.000$) and self-assessment ($P=0.017$) were significantly different among urban areas. The OHRQoL score was greater in districts 1 and 4 (With a better socioeconomic status), and self-assessment scores were higher in District 2 (City Center) (Diagram 3).

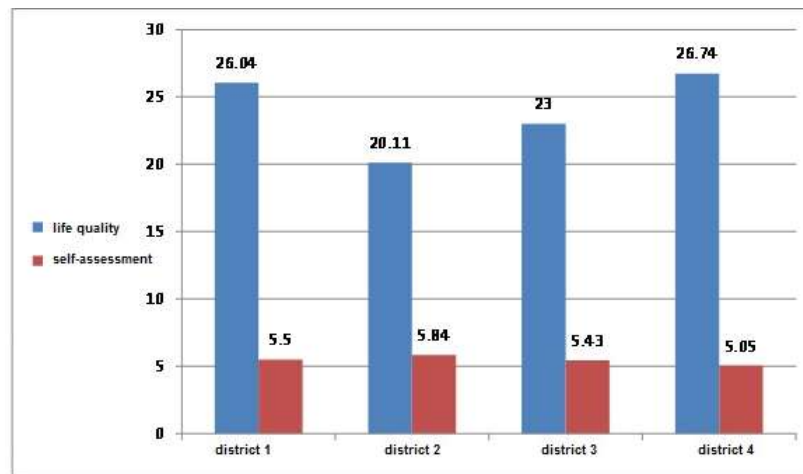


Diagram 3. The mean of F-ECOHIS index and self-assessment based on urban district location

Discussion

We found a relationship between socioeconomic status and OHRQoL in 5-year-old children in Kerman during 2016-2017. The average score of OHRQoL was 21.98%. In a study conducted by Golkari et al. (2014), the average score was obtained 20.07, which is similar to our finding (19). In a study performed in Sri Lanka, the mean score of ECOHIS was 2.12, and in another study in Saudi Arabia, this score was 5.5 (20, 21); however, this score was reported 2.95 in a study conducted in Brazil (22).

In this study, the mean score of parents' self-assessment of OHRQoL did not show a significant relationship with gender, which was consistent with the findings of Golkari et al. (19). This may be due to the fact that the children in the present study were at the age of 5 and they were emotionally affected by their parents, and their gender does not affect their aesthetic perception. Inconsistently, Macintyre et al. reported that the oral and dental health status exerted a greater impact on QoL in girls compared to boys (23).

The ECOHIS score did not differ significantly when the father or mother completed the questionnaire; Sharat et al. (2013) in Saudi Arabia did not show any significant difference in this regard; however, fathers' scores were higher than those of mothers (24). One part of the questionnaire used in this study focused on parents' self-assessment of the role of dental aesthetics in QoL. Several studies have shown the role of dental and facial aesthetics in social relationships and mental health (25, 26). Data analysis showed that the place of residence had a significant impact on OHRQoL. It suggests that vulnerable social groups with unfavorable socioeconomic conditions experience inequalities and more health risks compared to groups with a favorable socioeconomic status (27, 28).

The assessment of the association between OHRQoL and household income showed that higher income was linked with more favorable OHRQoL in children. This finding was in alignment with the results of Golkari et al. (19), which could be attributed to better oral care among families with higher income, which leads to higher QoL among children (29). Similarly, several studies have reported the socioeconomic status as a reason for the difference in the prevalence of oral health problems among different people (30, 31). The literature indicates that children from families with lower socioeconomic levels were more likely to complain from oral and dental health (32-34).

Further, we noted that the mean score of OHRQoL of children increases with higher paternal education level, that is, father's higher level of education is associated with higher OHRQoL. Unlike our findings, Paula et al. (2012) in Brazil showed the remarkable impact of maternal education on children's OHRQoL (35).

Additionally, we examined the relationship between the number of children and OHRQoL and found that a child's OHRQoL was significantly associated with the number of children in the family, which is in accordance with the findings of Paula et al. (35-37). It can be inferred that with low income, parents do not pay enough attention to their children's oral health as they cannot pay for the costs of oral health services.

Conclusion. OHRQoL among 5-year-old children in Kerman was associated with socioeconomic indicators such as the urban district of residence and household income, and it had a reverse relationship with increased number of children and father's level of education. This means that the higher the level of education and income, the higher is the attitude towards oral health of children.

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