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ORIGINAL ARTICLE

Oral Health-Related Quality of Life among Children Aged 11-14 Years Old with and without Parental Care in South-East of Iran

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ABSTRACT

Objective: To measure the Oral Health-Related Quality of Life (OHRQoL) and compare children with and without parental care. **Material and Methods:** This cross-sectional study was conducted on 160 schoolchildren with parental care and 100 orphans in Kerman, Iran. After fulfilling the questionnaire voluntarily, a clinical examination was performed, and indices such as decayed, missing, and filled teeth (DMFT), molar-incisor hypoplasia (MIH), modified gingival index (MGI), traumatic dental injury (TDI), and malocclusion were recorded. Data were statistically analyzed using SPSS version 25 via the ANOVA, Pearson's correlation coefficient test, Chi-Square test, and descriptive statistics. **Results:** Children without parents scored poorly for OHQRoL items compared to those with parents ($p<0.001$). DMFT was not significantly related to OHRQoL; however, missing teeth were correlated with the CPQ_{11-14} overall. Also, the TDI index had a significant relationship with CPQ mean score ($p=0.02$). Moreover, the difference in the mean CPQ_{11-14} score in children with TDI in the two groups was significant regarding the quality of life (0.031). **Conclusion:** OHRQoL differed significantly between children in the two groups, which can be influenced by gender and habits. Due to the vulnerability of welfare-supported children without parental care, these findings emphasize the value of preventive and health-promoting measures for this group of children.

Keywords: Quality of Life; Oral Health; Child; Child Welfare.

Introduction

One of the most critical aspects of public health assessment is examining individuals' oral health status and its effect on their quality of life. Oral health includes a healthy mouth and related tissues preparing a person for eating, talking, and favorable social interactions without having any active illness, discomfort, and feeling malaise [1,2]. Oral conditions are considered an influential factor in quality of life, so numerous papers have been published about oral health-related quality of life [3,4].

In this regard, oral health-related quality of life (OHRQoL) has been introduced as a multidimensional concept involving physical, social, and mental dimensions, which has become increasingly important so far [5]. The OHRQoL index is a valuable tool in assessing treatment needs and setting planning priorities for oral health [6].

OHRQoL is also very important in children because oral diseases are prevalent. The problems caused by such conditions, especially toothaches or physical issues, adversely affect their current and future quality of life, affecting their daily activities, such as playing, sleeping, feeding, social participation, and academic performance [7,8].

Besides, numerous studies have evaluated the relationship between OHRQoL and other variables. Researchers have found that factors such as parents' educational level and family's economic aspects affect young people's mental perception of health [9-14]. Also, the results of other studies indicated the strong effect of family on the knowledge and attitude of children and juveniles about oral health [15,17]. Khadem et al. [18] investigated the quality of life-related to health using this index on an Iranian population survey, and it showed a significant relationship between children's feelings about their oral health with CPQ score, oral symptoms, the limited function of the tooth, and mental and social well-being. This study indicated the validity of the CPQ_{11-14} questionnaire based on its structural scale and convergence of dental health. The results showed that the Persian translation of CPQ_{11-14} has an acceptable psychometric characteristic [18].

Kumar et al. [19] recently found in a systematic review that reaching a consensus on the results of studies on the impact of parental socioeconomic status and family environmental characteristics on OHRQoL is not an easy task due to differences in the study population, parents' characteristics, collected variables, methods and statistical tests which were used. In addition, the authors confirmed that most studies were cross-sectional.

Considering there is not enough evidence about OHRQoL in Iranian children aged 11-14 years old and to the best of our knowledge, so far, OHRQoL has not been assessed in orphan children affiliated with welfare organizations compared with that of children supported by family, the present study was done to compare OHRQoL between children aged 11-14 years old without parental care who were affiliated with welfare organization and were in high-risk groups (whether in terms of socioeconomic status and physical problems) and children supported by family and having parental care in the same age.

Material and Methods

Study Design

The present descriptive-analytical cross-sectional study was performed on unattended and poorly supervised children aged 11-14 affiliated with welfare organizations and family-supported children in 2020. According to the information obtained from the welfare organization of Kerman City (Kerman Province, Iran), 160 children aged 11-14 were in this organization's centers, so two equal groups of children (160 people in each group) were included in the study. Sampling was performed by census sampling method in the children without

parental care supported by welfare organization, and it was performed by cluster sampling method in the children with parental care supported by family.

Data Collection

After acquiring written authorization from the welfare organization and making the necessary arrangements with the centers, all 11-14-year-old children without parental care were considered for this study. Children enrolled in this study received a thorough explanation and were then asked to complete the questionnaire freely and voluntarily. In total, 100 children agreed to complete the questionnaire, perform a clinical examination, and enter the study.

After getting written permission from the Education Department to select the schools, Kerman City was divided into five regions: north, south, east, west, and center, and one school was randomly selected from each district. The necessary coordination was made with the school's principals and parents of children from five selected schools.

According to the calculation of sample size by a statistician, 160 students from fifth, sixth, and seventh-grade classes with the age range of 11-14 years old who were physically healthy and had the necessary cooperation in completing the questionnaire were selected and were asked to complete the questionnaire freely and voluntarily.

Measurement Instruments

In this study, the CPQ questionnaire was completed, the validity and reliability of which have been assessed, and it has been localized with respect to the Iranian culture by Khadem et al. [18]. This questionnaire comprises 49 questions in four domains: oral symptoms, functional impairments, and emotional and social well-being. There are five options for each response that is scored on a scale ranging from never to every day (from 0 to 4), and the answers are rated using a Likert scale (0: Never, 1: Once or Twice, 2: Sometimes, 3: Often, 4: Everyday). The CPQ_{11-14} score will be obtained by summing the questionnaire's answer codes, and since the questionnaire has 49 questions, the final score can be between 0-196. A higher score indicates a higher degree of oral condition's effect on quality of life. The questionnaire was distributed in the classrooms in a quiet environment among school students and the study hall of the welfare dormitory among students affiliated with welfare organizations. An ample opportunity was given to the subjects to complete the questionnaire, and the researcher was present when completing the questionnaire and answered any questions asked by the students.

After completing the CPQ questionnaire, the questionnaires were coded, and the researcher performed a clinical examination. The examination was conducted under natural ambient light using a mouth mirror and an explorer instrument. Decayed, missing, and filled teeth (DMFT), molar-incisor hypoplasia (MIH), modified gingival index (MGI), traumatic dental injury (TDI), and malocclusion indices were evaluated by a dentist who was thoroughly familiar with the indices.

Then, a checklist consisting of four parts was completed for each person: 1) Demographic information including sex and age of the subjects, 2) Evaluation of frequency of brushing and flossing on a 5-point scale up to twice a day, 3) Determining the type of visit to a dentist according to which children were asked to identify the predominant method of their dentist visits in two cases: a) scheduled and b) unexpected associated with pain and problem, and 4) Self-assessment of the children's oral health status in three modes (poor, moderate, and good).

Data Analysis

All the information obtained from the examination, questionnaire, and checklists were entered in SPSS software, version 25 (IBM Corp., Armonk, NY, USA). Then, they were analyzed by analysis of variance (ANOVA) test, Pearson's correlation coefficient test, Chi-Square test, and descriptive statistics, such as frequency, mean, and standard deviation.

Ethical Permissions

Ethical approval for the research was obtained from the ethical committee of Kerman University of Medical Sciences (IR.KMU.REC.1396.1050).

Results

In the group of children living in welfare centers, 100 individuals expressed their consent about completing the questionnaire and performing a clinical examination; the main reason for those not participating in the study was their unwillingness to be examined. Among the participants, 48% were female, 52% were male, and their average age was equal to 11.7 years old. The second group was 160 children with parental care supported by the family, including 81 (50.6%) girls and 79 (49.4%) boys with a mean age of 12.5 years old. The questionnaire's mean total score was 25.72 in the children with parental care and 55.77 in the children without parental care ($p<0.001$). There was no significant difference between girls and boys in the two groups, except in oral symptoms, where boys were better than girls ($p<0.05$) (Table 1).

Table 1. Comparison of the mean distribution of various domains of quality of life in the children with and without parental care.

Domains	With Parental Care Mean (SD)	Without Parental Care Mean (SD)	p-value
Oral Symptoms	5.03 ± 3.917	9.47 ± 4.800	<0.001
Functional Impairments	6.06 ± 4.194	14.60 ± 6.893	<0.001
Social Well-Being	5.90 ± 5.696	18.60 ± 7.903	<0.001
Emotional Well-Being	7.58 ± 5.652	13.10 ± 5.699	<0.001
Total	25.72 ± 16.365	55.77 ± 20.680	<0.001

Regarding the oral symptoms, 6.7% of children with parental care and only 1% without parental care did not report any oral symptoms, such as toothache or pain in the mouth, burning mouth, etc. ($p=0.033$). Regarding oral function, 9.9% of children with parental care had no symptoms, including difficulty eating due to oral and dental problems or difficulty in saying some words and letters. In contrast, all the children without parental care had functional impairments ($p=0.01$). Concerning social well-being, 18.5% of children with parental care and 3% without parental care did not have communication and social problems with their friends and classmates ($p>0.001$).

Regarding emotional well-being, 95.3% and 99% of the children with and without parental care reported discomfort, restlessness, agitation, or anxiety due to oral problems, respectively. In the self-assessment evaluation reported by children, about 30% of children without parental care rated their oral health as poor, and 23% rated it as good. On the contrary, only 5% of children with parental care had poor oral health, and 39% had a good appraisal of their oral health (Figure 1).

Overall, 63.1% and 76% of children with and without parental care brushed their teeth less than once daily, respectively. Regarding flossing, 88% of children with parental care and 98% without parental care used

flossing less than once a day. None of the children without parental care brushed their teeth more than once a day (Table 2).

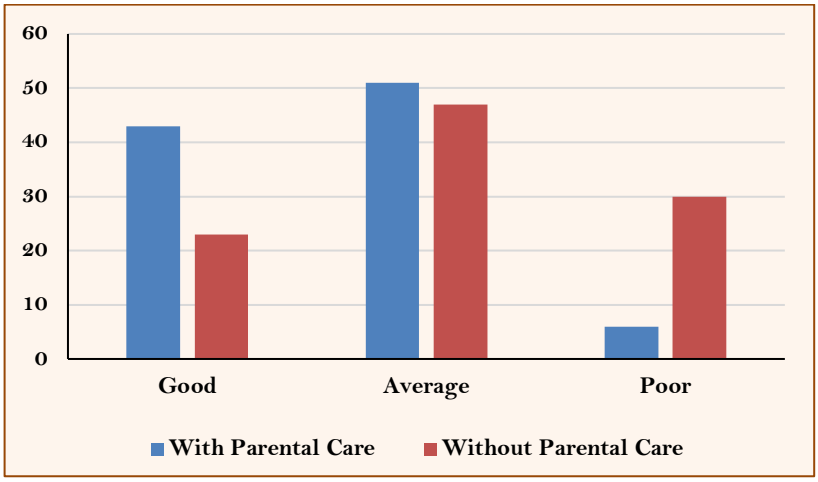

Figure 1. Self-assessment reported by children.

Table 2. Comparison of regular dental check-ups in children with and without parental care.

Groups	Regular Dental Check-Up				
	Never	More than 12 months ago	Less than 12 months ago	Planned	Unplanned
	%	%	%	%	%
With Parental Care	23.8	43.1	33.1	40.9	59.1
Without Parental Care	11.0	56.0	33.0	42.0	58.0

DMFT was not significantly related to OHRQoL; however, missing teeth were correlated with the CPQ_{11-14} overall (Table 3).

Table 3. Pearsons correlation coefficient Test: Correlation coefficient of mean CPQ score and its domains with the DMFT index in children with and without parental care.

Domains	Group	D	M	F	DMFT
Oral Symptoms	Without Parental Care	0.047	0.128	0.130	0.062
	With Parental Care	0.162	0.098	0.068	0.213*
Functional Impairments	Without Parental Care	0.048	0.252*	0.13	0.168
	With Parental Care	0.082	0.122	0.022	0.100
Social Health	Without Parental Care	0.068	0.197*	0.067	0.183
	With Parental Care	0.114	0.125	0.125	0.016
Emotional Health	Without Parental Care	0.147	0.083	0.042	0.152
	With Parental Care	0.046	0.138	0.020	0.094
Total	Without Parental Care	0.093	0.212*	0.020	0.182
	With Parental Care	0.020	0.256*	0.126	0.146

*: High correlation coefficient.

The relationship between CPQ mean score with MIH, TDI, MGI, and malocclusion indices was also evaluated in this study. The results showed that the TDI index had a significant relationship with CPQ mean score (p=0.02). There was a considerable difference in the mean score of CPQ_{11-14} in children with TDI in the two groups regarding quality of life (0.031) (Table 4). At the same time, there was a relationship between MIH, MGI, and malocclusion indices, which was insignificant (p<0.05).

Table 4. Comparison of mean CPQ score in children with and without TDI in children with and without parental care.

Groups	TDI Index	Mean score of CPQ (± SD)	p-value
With Parental Care	With TDI	29.87 ± 21.13	0.037
	Without TDI	21.32 ± 15.92	
Without Parental Care	With TDI	58.35 ± 23.52	0.029
	Without TDI	51.43 ± 19.13	

Discussion

This study showed that the CPQ_{11-14} score was significantly associated with OHRQoL in both groups in the field of oral symptoms, functional limitation, social well-being, and emotional well-being.

The mean score of CPQ_{11-14} among children with family support was 25.72 and 55.77 in children without parental care. It was significantly different between the two groups, similar to the results of the study by Kumar et al. [19] in India, which can be due to social, environmental, cultural, and separate clinical profiles in these two studies [20]. Also, the negligence and lack of proper supervision over these students' nutrition and health and insufficient awareness of caregivers can be some of the reasons, among others. In addition, it has been revealed that other psychosocial presentations, such as self-regard, social dignity, and feeling of solidarity, are associated with behaviors and oral clinical changes [21-24].

In this study, OHRQoL significantly differed between the two groups regarding oral symptoms, oral function, and social well-being. Much less emotional and social well-being has been reported in children without parental care. They are weaker in communicating with others and often have feelings of unhappiness, restlessness, confusion, and anxiety more than their peers with parental care.

However, there was no significant difference in the frequency of brushing and flossing between the two groups, which may be due to the fact that children without parental care support had to brush their teeth every night under supervision in the welfare center. Also, there was no significant difference in the last time of referral (less or more than 12 months ago) to the dentist between the two groups. Still, the number of children who had never been referred to the dentist was more significant in children without parental care. Also, the reason for the two groups' last referral (planned or unexpected) did not show a significant difference.

In this study, the boys' OHRQoL was better than the girls. However, the mean score of functional impairments and their emotional and social well-being did not differ significantly, which was similar to the results of the studies by Kumar et al. [19] in India and Locker [25] in Canada.

There was a significant difference in the mean TDI index between the two groups. Also, a significant relationship was found in both groups between the TDI index and the mean score of CPQ_{11-14}, which was conversely with the studies by Bendo et al. [26] and De Stefani et al. [22]; furthermore, the mean score of CPQ_{11-14} was significant in children with TDI (both groups). Its value was higher in children without parental care supported by welfare, which was consistent with the study by Piovesan et al. [23].

Also, the mean of MGI and MIH indices was not significantly different between the two groups and did not have a significant association with the mean score of CPQ_{11-14} as reported in two similar groups of the study by Khadem et al. [18], Bekes et al. [24], also did not find a significant difference in the mean score of CPQ_{11-14} in German children with and without plaque accumulation.

The mean of the malocclusion index in the present study was not significantly related to the CPQ score between the two groups, which was in line with the study by Kolawole et al. [27].

In the present study, similar to the studies by Khadem et al. [18] on the Iranian students and Foster Page and Thomson [28], and unlike the study by Paula et al. [20], there was no significant relationship between

the CPQ_{11-14} score of each group with DMFT index, however, in the group with parental care, the mean score of oral symptoms had a significant relationship with DMFT index. Also, the mean score of functional limitations and social well-being in the group without parental care had a significant relationship with the extracted teeth.

In the present study, the mean score of CPQ_{11-14} in both groups had a significant relationship with the extracted teeth, which can be considered a more substantial effect of the extracted teeth on OHRQoL in children in this age group. Limitations of the study were strictness for entering, examining, and filling out questionnaires in welfare centers.

Conclusion

As a result, the OHRQoL significantly differs between children with and without parental care. In addition, gender and habits influence the OHRQoL. Thus, it is suggested to conduct further studies with a larger sample size to show a better image of the issue. These findings underscore the importance of preventive and health-promoting measures for children, especially welfare-supported children without parental care because this group is more vulnerable. These findings can be used to plan health-promoting interventions for this age group to increase their OHRQoL.

Authors' Contributions

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All authors declare that they contributed to a critical review of intellectual content and approval of the final version to be published.

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Conflict of Interest

The authors declare no conflicts of interest.

Data Availability

The data used to support the findings of this study can be made available upon request to the corresponding author.

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