

Assessment of effect of Gingivitis on Children's Oral Health-Related Quality of Life

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ABSTRACT

Background: The present study was conducted for assessing the link between for Child Oral Health-Related Quality of Life (COHRQoL) and gingivitis.

Materials and Methods- A comprehensive cross-sectional survey was conducted targeting school-aged children between 10 to 15 years old, comprising a robust and representative sample of 200 students drawn from various schools. By utilizing the validated index, researchers were able to meticulously evaluate the gingival condition of the participants, thereby providing valuable insights into their overall oral health. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis using SPSS software.

Results- Mean age of the subjects was 11.7 years. Mean oral symptom score, functional score, emotional score and social score was 3.26, 4.19, 6.24 and 8.68 respectively. 88.5 percent of the subjects had almost unaffected health status. Severe gingivitis was seen in 12 percent of the subjects while 47.5 percent of the subjects had moderate gingivitis. Significant results were obtained while correlating the oral health related quality of life and gingivitis.

Conclusion- The severity of gingivitis could potentially impact how children view their overall oral health and its influence on their daily activities.

Keywords- Gingivitis, periodontitis, health

INTRODUCTION

Gingivitis is an inflammation affecting the gingival tissue, primarily triggered by bacterial infection. Unlike periodontitis, it doesn't involve attachment loss or migration of the junctional epithelium. This condition is confined to the soft-tissue area of the gingival epithelium and connective tissue¹. Among all periodontal diseases, gingivitis stands out as the most prevalent. It manifests in various forms based on clinical presentation, infection duration, severity, and causative factors. However, the chronic type of gingivitis, resulting from plaque buildup, is the most commonly encountered variant. Clinically, the gingival tissues exhibit swelling, redness, sensitivity, a glossy appearance, and bleeding upon gentle probing. Spontaneous bleeding is rare, and gingivitis typically lacks pain, leading many patients to overlook the condition and delay seeking treatment.²⁻⁴

Gingivitis arises from the buildup of microbial plaque in or near the gingival sulcus. Microorganisms particularly implicated in its development encompass species such as

Streptococcus, Fusobacterium, Actinomyces, Veillonella, and Treponema. Additionally, Bacteroides, Capnocytophaga, and Eikenella are potentially associated with the disease's etiology. Furthermore, there could be other local or systemic factors that exacerbate plaque accumulation or render the tissue more susceptible to microbial assault.³⁻⁵

COHRQoL refers to the impact of oral health conditions and their treatment on a child's daily functioning, well-being, and overall quality of life. This concept encompasses various aspects such as physical functioning, psychological well-being, social interactions, and emotional aspects related to oral health. Assessing COHRQoL helps healthcare providers understand the broader implications of oral health conditions on children and tailor interventions accordingly to improve their overall quality of life.⁶ Hence; the present study was conducted for assessing the link between for Child Oral Health-Related Quality of Life (COHRQoL) and gingivitis.

MATERIALS AND METHODS

A comprehensive cross-sectional survey was conducted in Sri Ganganagar targeting school-aged children between 10 to 15 years old, comprising a robust and representative sample of 200 students drawn from various schools. The primary objective of this survey was to delve deeply into the multifaceted realm of oral health-related quality of life (OHRQoL) within this demographic. To achieve this, a meticulously designed questionnaire, CPQ11-14, was employed. This questionnaire was meticulously crafted to capture not only demographic details but also to explore a wide array of aspects related to oral health, including symptoms, functional limitations, and emotional and social well-being. In addition to the questionnaire, an integral component of the study was the assessment of gingival health status using the renowned Gingival Index. By utilizing this validated index, researchers were able to meticulously evaluate the gingival condition of the participants, thereby providing valuable insights into their overall oral health. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis using SPSS software.

RESULTS

Mean age of the subjects was 11.7 years. Mean oral symptom score, functional score, emotional score and social score was 3.26, 4.19, 6.24 and 8.68 respectively. 88.5 percent of the subjects had almost unaffected health status. Severe gingivitis was seen in 12 percent of the subjects while 47.5 percent of the subjects had moderate gingivitis. Significant results were obtained while correlating the oral health related quality of life and gingivitis.

Table 1: Dimension-wise quality of life status

| Quality of life dimension | Mean | SD |
|---------------------------|------|------|
| Oral symptom score | 3.26 | 2.12 |
| Functional score | 4.19 | 4.86 |
| Emotional score | 6.24 | 5.12 |
| Social score | 8.68 | 7.92 |

Table 2: Distribution of subjects according to health status

| Children's QoL | Number | Percentage |
|---------------------|--------|------------|
| Almost unaffected | 177 | 88.5 |
| Moderately affected | 4 | 2 |
| Slightly affected | 19 | 9.5 |
| Total | 200 | 100 |

Table 3: Distribution of subjects according to gingival health status

| Gingival health status | Number | Percentage |
|------------------------|--------|------------|
| No gingivitis | 1 | 0.5 |
| Mild gingivitis | 80 | 40 |
| Moderate gingivitis | 95 | 47.5 |
| Severe gingivitis | 24 | 12 |
| Total | 200 | 100 |

Table 4: Correlation of oral health related quality of life and gingivitis

| Gingival health status | QoL | | | |
|------------------------|----------------------|-------------------|---------------------|-------|
| | Almost unaffected | Slightly affected | Moderately affected | Total |
| No gingivitis | 1 | 0 | 0 | 1 |
| Mild gingivitis | 80 | 0 | 0 | 80 |
| Moderate gingivitis | 91 | 4 | 0 | 95 |
| Severe gingivitis | 5 | 15 | 4 | 24 |
| Total | 177 | 19 | 4 | 200 |
| p-value | 0.0001 (Significant) | | | |

DISCUSSION

Quality of life (QoL) refers to a person's position in life "within the context of the culture and value systems in which they live and for their objectives, expectations, standards, and concerns". Quality of Life is a valid criterion for evaluating patients in many physical and mental healthcare areas, including dental health. The subjective assessment of OHRQoL "reflects people's comfort while eating, sleeping, and participating in social interaction; their sense of self-worth; and their satisfaction with their oral health". The OHRQoL is the outcome of a complex interaction between and among oral health problems, social and contextual attributes, and the rest of one's body.⁶⁻⁹ Hence; the present study was conducted for assessing the link between for Child Oral Health-Related Quality of Life (COHRQoL) and gingivitis.

Mean age of the subjects was 11.7 years. Mean oral symptom score, functional score, emotional score and social score was 3.26, 4.19, 6.24 and 8.68 respectively. 88.5 percent of the subjects had almost unaffected health status. Severe gingivitis was seen in 12 percent of the subjects while 47.5 percent of the subjects had moderate gingivitis. Significant results were obtained while correlating the oral health related quality of life and gingivitis. Tomazoni F et al assessed the association between gingival bleeding and how a child perceives its OHRQoL. Participants were examined for gingival bleeding according to the community periodontal index criteria, a full-mouth clinical examination of six sites per tooth. COHRQoL was assessed by the Brazilian version of the Child Perceptions Questionnaire for 11- to 14-Year-Old Children (CPQ11-14), and data on socioeconomic status were collected. In general, children with bleeding in $\geq 15\%$ of sites had higher total CPQ11-14 scores and domain-specific scores than their counterparts. This association persisted after adjustment for other potential confounders. The presence and extent of gingival bleeding was associated mainly with emotional limitation domains of the CPQ11-14; those with extended levels of gingivitis had a 1.20 times higher mean score than those with low-level/no gingival bleeding. The presence of extensive levels of gingivitis might be negatively associated with how children perceive their oral health and their daily life.¹⁰

Balseca Ibarra MC et al evaluated 998 school children using the Community Periodontal Index for gingival bleeding and calculus. OHRQoL was assessed with the Child Perceptions Questionnaire 11-14 (CPQ11-14) questionnaire. Of the 998 schoolchildren, 93% had gingival bleeding and 73% had dental calculus. Schoolchildren with more than one sextant with

gingival bleeding had 1.18 times higher mean CPQ11-14 than those with none or just one affected sextant. Male schoolchildren presented a 15% lower mean Child Perceptions Questionnaire (CPQ). Children whose parents had incomplete secondary education had a 15% lower mean CPQ. Bleeding in more than one sextant was significantly associated with worse quality of life in the emotional well-being and social well-being domains. Gingival bleeding negatively impacted the OHRQoL of 12-year-old Ecuadorian schoolchildren living in Quito.¹¹ Ortiz FR et al evaluated the impact of gingivitis on OHRQoL in adolescents. Clinical, socioeconomic and OHRQoL data were collected. OHRQoL was assessed by the short Brazilian version of the Child Perceptions Questionnaire 11-14 (CPQ11-14), and gingival bleeding through Community Periodontal Index. Gingivitis was considered with the presence of 15% or more bleeding sites. Poisson regression models were used to evaluate the association between gingivitis and overall and domain-specific CPQ11-14 scores. Gingivitis at baseline was associated with higher overall CPQ 11-14 score, and emotional well-being, independently of other oral conditions and socioeconomic variables. The findings indicated that gingivitis negatively impacts the adolescents' OHRQoL. Moreover, gender, maternal schooling and household income were also associated with OHRQoL.¹²

CONCLUSION

The severity of gingivitis could potentially impact how children view their overall oral health and its influence on their daily activities.

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