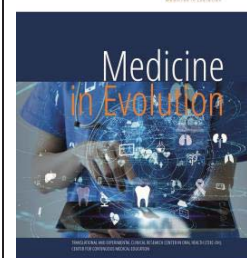


The Influence of Oral Health on Quality of Life in Young Adults: A Public Health Perspective

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Abstract

1. Background/Objectives: Oral health plays an increasingly vital role in overall health and well-being. **2. Methods:** This cross-sectional design evaluated the impact of oral health on quality of life in adolescents and young adults. The study was conducted using a validated psychometric tool – the Oral Impact on Daily Performance (OIDP) questionnaire – which captures the self-perceived effect of oral conditions on various daily functions. Participants were recruited from a general adolescent and young adult population via online distribution channels. The target demographic included individuals aged approximately 14–25 years, either attending secondary school or university. The survey was administered using Google Forms platform, ensuring accessibility across various devices. Participants were informed about the purpose of the study and anonymity was guaranteed. Submission of the completed form was considered an expression of informed consent, in accordance with ethical research standards. Collected data were processed using Microsoft Excel. Descriptive statistics determined central tendency (mean, median), dispersion (standard deviation, range), and item-specific frequency distributions. **3. Results:** The study included a total of 76 participants, aged between 14 and 25 years. All participants completed the Oral Impact on Daily Performance (OIDP) questionnaire. Each respondent rated the frequency of 15 oral health-related impacts on a 0–4 scale. The mean OIDP Score among the group was 11.37, with scores ranging from 1 to 30, indicating a moderate burden of oral health on daily life activities across the sample. The difference between the psychosocial and appearance domains was the only one reaching statistical significance, suggesting that aesthetic and emotional concerns may affect participants differently and deserve further study in a larger sample. **4. Conclusion:** the findings from this study emphasize the importance of viewing oral health through a biopsychosocial lens, especially in adolescent and young adult populations.

Keywords: oral health, quality of life, adolescents, young adults, self-perceived health

INTRODUCTION

Oral health plays an increasingly vital role in overall health and well-being. While previously considered separately, the oral cavity is now recognized as interconnected with systemic health through intricate biological and behavioral pathways. A well-maintained mouth is not only crucial for basic functions like chewing, speaking, and social interactions but also for ensuring overall physiological equilibrium. Research conducted over the last twenty years has highlighted strong links between oral health and various systemic conditions. For instance, studies have shown associations between poor oral health and conditions such as cardiovascular disease, diabetes mellitus, respiratory infections, and specific neurodegenerative disorders. These findings underscore the importance of oral hygiene in maintaining overall health and preventing potential complications. [1-3]

The pathophysiological mechanisms connecting oral diseases to systemic illnesses are deeply rooted in the body's inflammatory response. For instance, when individuals suffer from periodontal disease, a condition characterized by inflammation and infection of the gums and surrounding tissues, it can lead to chronic low-grade systemic inflammation. This persistent inflammation not only affects the oral cavity but also has far-reaching consequences for overall health.

One significant impact is the potential contribution of periodontal disease to insulin resistance, a condition where cells fail to respond effectively to insulin, leading to elevated blood sugar levels. Moreover, the inflammatory processes associated with periodontal disease have been linked to the development of atherosclerosis, a condition characterized by the buildup of plaque in the arteries, increasing the risk of heart disease and stroke.

It is crucial to recognize that oral pathogens and their by-products have the ability to enter the bloodstream, acting as triggers for immune reactions that can influence distant organs. This phenomenon highlights the interconnected nature of the body's systems, where oral health can serve as a reflection of systemic well-being. Consequently, a paradigm shift has occurred in the understanding of oral health, moving beyond its traditional association with dental care to being recognized as a vital indicator of systemic risk. This shift underscores the importance of holistic health approaches that consider the impact of oral health on overall well-being.[4].

Adolescents and young adults are a demographic group that faces heightened risks attributed to various behavioral, environmental, and social factors. This population undergoes a significant transition from adolescence to adulthood, characterized by a decrease in parental supervision, an increase in autonomy, and a propensity to adopt lifestyle choices that can compromise oral health. For instance, the prevalence of tobacco use, alcohol consumption, body piercings, and the consumption of sugary foods is notably high among this age cohort. These behaviors directly impact the oral environment, leading to detrimental consequences.

When these detrimental habits are coupled with inconsistent oral hygiene practices, they create an environment conducive to the onset of dental issues such as cavities, gum disease, and inflammation of the soft tissues. The lack of regular brushing and flossing, combined with the consumption of cavity-causing sugary snacks and beverages, can result in the erosion of tooth enamel and the formation of cavities. Additionally, the use of tobacco products and excessive alcohol intake can exacerbate gum disease, leading to bleeding gums, bad breath, and potential tooth loss. [5]

The ramifications of inadequate oral health during adolescence extend far beyond mere clinical manifestations. In addition to dental caries and periodontal disease, young individuals may grapple with halitosis, heightened tooth sensitivity, enamel degradation, or

aesthetic concerns – all of which can profoundly affect their psychosocial development, academic achievements, and self-worth. These oral health issues, often dismissed as trivial, may harbor more profound social and emotional ramifications, particularly in environments sensitive to peer perception. Consequently, the impact of oral health transcends biomedical outcomes, permeating the domain of overall quality of life. [6-8]

Among the most common conditions associated with poor oral hygiene are:

- Dental caries, which arise from bacterial plaque accumulation and may result in pain, functional impairment, or tooth loss if untreated.
- Gingivitis and periodontitis, both of which may remain undiagnosed in early stages but can progress to irreversible bone loss and systemic effects.
- Halitosis, often underestimated, which can undermine confidence and social functioning.
- Tooth sensitivity, enamel wear, and mucosal irritation – discomforts that are frequently ignored but significantly affect daily life.

Within this broader construct, the term health-related quality of life (HRQoL) refers specifically to the impact of health conditions and their treatment on daily functioning and life satisfaction. In dentistry, a related construct—oral health-related quality of life (OHRQoL), has emerged to capture the subjective burden of oral conditions on an individual's day-to-day life. OHRQoL includes aspects such as pain, discomfort, ability to eat and speak, self-confidence, social interaction, and emotional well-being. It reflects both the functional and psychosocial consequences of oral diseases, which may not always be visible or measurable through clinical examination alone. [9,10]

The integration of OHRQoL into clinical and public health contexts recognizes that two individuals with similar oral pathologies may report very different impacts on their lives, depending on their psychological resilience, social support, aesthetic expectations, or occupational needs. In this way, OHRQoL serves as a bridge between clinical outcomes and patient experience, guiding treatment planning, preventive strategies, and healthcare policy. [11-13]

These issues highlight the need for early prevention, public awareness, and targeted interventions for young adults, particularly in societies where routine dental care is inconsistently accessed.

Aim and objectives

The purpose of this study is to investigate the multifaceted relationship between oral health and quality of life in young adults. By examining both clinical indicators and behavioral factors, this research aims to assess how oral hygiene habits, dietary choices, and harmful practices contribute to oral diseases, and in turn, how these diseases affect individuals' physical, emotional, and social well-being. The study further explores how oral health may act as a predictor or modifier of systemic risk, particularly in relation to chronic diseases. Ultimately, the findings aim to support public health initiatives, improve preventive strategies, and underscore the role of oral health as a cornerstone of general health and quality of life.

MATERIAL AND METHODS

This research employed a cross-sectional observational design aimed at evaluating the impact of oral health on quality of life in adolescents and young adults. The study was conducted using a validated psychometric tool – the Oral Impact on Daily Performance (OIDP) questionnaire – which captures the self-perceived effect of oral conditions on various daily functions.

Participants were recruited from a general adolescent and young adult population via online distribution channels. The target demographic included individuals aged approximately 14–25 years, either attending secondary school or university. The survey was administered using Google Forms platform, ensuring accessibility across various devices. Participants were informed about the purpose of the study and anonymity was guaranteed. Submission of the completed form was considered an expression of informed consent, in accordance with ethical research standards.

A total of 19 participants were included in the final analysis. Inclusion criteria were individuals aged between 14 and 25 years; Ability to read and understand the questionnaire independently; Voluntary participation with consent (parental consent assumed if under 18) and history of at least one oral health symptom or dental concern in the previous 6 months. Exclusion Criteria were represented by the presence of systemic conditions with known impact on oral function (e.g., autoimmune diseases, congenital syndromes), or recent major dental interventions (oral surgery or orthodontic appliance placement) within the last 3 months.

The main data collection tool was the OIDP questionnaire, consisting of 15 items reflecting the frequency of difficulties encountered in specific daily activities due to oral problems. These activities include eating, speaking, sleeping, emotional expression, social interaction, academic performance, and personal comfort. Responses were captured on a 5-point Likert scale: 0 = Never, 1 = Rarely, 2 = Sometimes, 3 = Often, 4 = Always. For analytical purposes, responses were numerically coded from 0 to 4, corresponding directly to the original Likert scale. Higher scores indicated greater frequency of interference in daily performance due to oral health problems. Individual scores were summed to calculate a total OIDP score per participant, with a maximum possible value of 60. The questionnaire covered a six-month recall period and was fully anonymous. Responses were automatically exported from the Google Forms platform into Excel format for analysis.

Collected data were processed using Microsoft Excel. For each participant, individual item scores were analyzed and the total OIDP score was calculated. Descriptive statistics were applied to determine central tendency (mean, median), dispersion (standard deviation, range), and item-specific frequency distributions.

RESULTS

The study included a total of 76 adolescents and young adults, aged between 14 and 25 years. All participants completed the Oral Impact on Daily Performance (OIDP) questionnaire. Each respondent rated the frequency of 15 oral health-related impacts on a 0–4 scale, where 0 represented “never” and 4 represented “always.” The mean OIDP Total Score among the group was 11.37, with scores ranging from 1 to 30, indicating a moderate burden of oral health on daily life activities across the sample.

Figure 1 presents the complete list of items included in the OIDP questionnaire, labeled with corresponding codes (Q1–Q15). Each question targets a specific aspect of how oral health may interfere with daily functioning, ranging from eating and speaking to self-esteem and participation in social or physical activities. These items collectively assess the multidimensional impact of oral health status on the quality of life of adolescents and young adults.

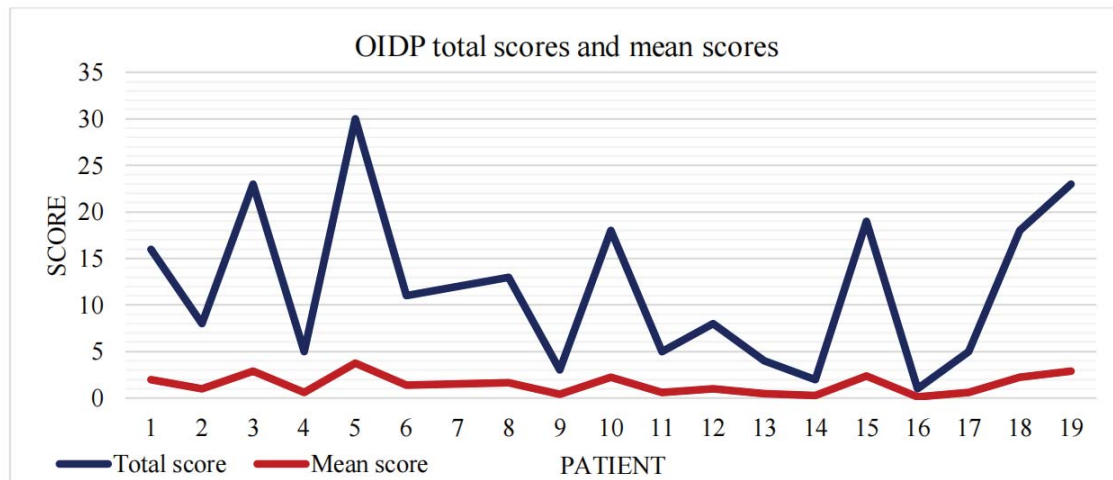


Figure 1. Distribution of OIDP total and mean scores across the sample

The chart shows that there is high inter-individual variability in perceived oral health impact. The highest burden, showed a total score of 30 and mean of 2.00. The lowest score was 1, mean 0.07, indicating minimal interference from oral symptoms. Several other patients reported substantial impacts, while others reported very limited disturbance. This variability indicates heterogeneous perceptions of oral health-related quality of life, even within a demographically narrow population.

To enhance interpretability, the 15 OIDP items were grouped into three conceptual domains: Functional Limitations (Q1, Q2, Q6, Q7, Q8, Q9, Q10), Psychosocial Impact (Q3, Q4, Q12, Q15), and Aesthetic and Somatic Concerns (Q5, Q11, Q13, Q14).

The items in the first domain assess the extent to which oral health affects essential daily functions such as eating, speaking, concentration, hygiene maintenance, and participation in activities. The third domain focuses on self-perception, emotional well-being, and social confidence in relation to oral health and the third evaluates the presence of pain, discomfort, and esthetic concerns that may interfere with taste, appearance, and physical activities.

Table 1. Mean scores for all domains

Functional Limitations							Psychosocial Impact				Aesthetic and Somatic Concerns			
Q1	Q2	Q6	Q7	Q8	Q9	Q10	Q3	Q4	Q12	Q15	Q5	Q11	Q13	Q14
0.89	0.52	0.31	0.52	0.73	0.42	0.84	0.21	1.26	1.31	0.84	1	1.42	0.84	0.63

For each participant, individual domain scores were calculated by summing the responses to grouped items corresponding to functional limitations, psychosocial impact, and aesthetic or somatic concerns, as seen in Table 1. This approach allowed a more nuanced analysis of the areas most affected by oral health issues. The functional domain yielded the lowest average score (0.56 ± 0.25), suggesting that basic oral functions such as eating, chewing, or maintaining oral hygiene were relatively less impaired among the study population. The appearance domain, encompassing concerns related to dental aesthetics and physical discomfort, showed a moderately higher impact, with a mean score of 0.82 ± 0.18 . The psychosocial domain recorded the highest average score (1.21 ± 0.25), indicating that emotional well-being and social interaction were the most adversely affected by oral health

problems. This distribution highlights that, for adolescents and young adults, the psychosocial consequences of oral disease may outweigh purely functional limitations.

To assess whether the differences between domain scores were statistically significant, Mann-Whitney U tests were applied between all domain pairs. This non-parametric test was selected due to the small sample size and non-normal distribution of scores (Table 2).

Table 1. Mann-Whitney U test

	Functional	Psychosocial	Appearance
Functional	-	159.5	218
Psychosocial	159.5	-	237.5*
Appearance	218	237.5*	-

* $p < 0.05$

The difference between the psychosocial and appearance domains was the only one reaching statistical significance, suggesting that aesthetic and emotional concerns may affect participants differently and deserve further study in a larger sample.

DISCUSSIONS

The present study aimed to explore the self-perceived impact of oral health on quality of life in a sample of adolescents and young adults using the validated Oral Impact on Daily Performance (OIDP) questionnaire. The findings contribute to a growing body of evidence demonstrating that oral health extends far beyond clinical symptomatology, encompassing psychosocial dimensions that deeply affect daily functioning, emotional well-being, and social confidence, particularly in younger populations.

The results of this study provide valuable insight into how oral health conditions influence the day-to-day lives of adolescents and young adults. The statistical analysis, supported by graphical representation, reveals meaningful trends in how participants perceive and report the burden of oral health-related issues on their quality of life. The findings are best understood not solely in terms of numerical differences between domains, but through the lens of lived experiences, where psychological and social dimensions often outweigh physical symptoms in perceived severity.

A prominent result of this study is the marked impact of psychosocial consequences, as reflected in the highest average scores within this domain (mean: 1.21 ± 0.25). Items such as self-consciousness about smiling (Q3), diminished self-esteem (Q4), and concern about dental appearance (Q12) were consistently scored higher than functional items. This trend suggests that for young individuals, the visibility of oral issues and their perceived esthetic implications may carry more emotional weight than pain or functional limitations. Adolescence and early adulthood are formative stages where peer perception and self-image are particularly salient, which may explain the elevated sensitivity to esthetic and emotional disturbances.

Consistent with prior research, the psychosocial domain emerged as the most affected area, with high average scores in questions related to self-esteem, appearance, and confidence. These results align with findings from studies conducted in similar age cohorts, such as the work by Masood et al. [12], who reported that adolescents place a high value on smile esthetics and social acceptance, often rating these concerns above pain or functional limitations. In another study conducted in Romania by Chisnoiu et al. (2022) [13], dental appearance and peer perception were found to be major drivers of dental anxiety and avoidance behavior, reinforcing the relevance of psychosocial burdens in youth oral health [12,13].

In contrast, functional limitations, such as difficulty chewing (Q9), speaking clearly (Q2), or maintaining oral hygiene (Q10), were perceived as relatively minor in this sample, as indicated by the lowest mean domain score (0.56 ± 0.25). While these functions are undeniably essential for physical well-being, their lower scores may reflect a combination of adaptive behaviors (e.g., avoiding problematic foods) and underreporting due to the absence of acute symptoms. Importantly, even when oral disease exists clinically, its interference with function may not yet have reached a threshold that prompts subjective concern in younger populations. This discrepancy supports the notion that subjective burden may not always reflect clinical severity, a phenomenon previously described in oral health-related quality of life (OHRQoL) literature [13]. For example, an individual with mild gingivitis may report high emotional distress if esthetic areas are affected, while another with advanced caries may underreport their burden due to low perceived impact on daily activities.

Another observation is the substantial inter-individual variability in both total and mean OIDP scores, visualized effectively in Figure 1. This graph juxtaposes each participant's total OIDP score (blue line) with their mean per-question score (red line), revealing striking differences among individuals. Such variability underscores the personalized nature of oral health burden. It supports the notion that two individuals with similar clinical findings may experience and report vastly different impacts on their emotional and social functioning, depending on factors such as personality, coping strategies, and social context. These differences could stem from a range of contextual variables including socioeconomic background, dental care access, health literacy, cultural norms, and individual resilience or coping mechanisms. The OIDP tool, while limited to standardized items, successfully captures this variability and highlights the need for individualized assessment in dental care planning.

From a statistical perspective, the analysis of domain differences through Mann-Whitney U testing further clarifies the relationships between the three grouped domains. Although not all comparisons reached statistical significance at the conventional $p < 0.05$ level, the significant result between the psychosocial and appearance domains ($U = 237.5$, $p = 0.02$) points toward a meaningful trend. This suggests that while esthetic/somatic concerns, such as pain (Q5), discomfort (Q15), or dry mouth (Q13), are notable, their emotional repercussions may weigh even more heavily on perceived quality of life. The lack of significance in comparison with the functional domain ($p = 0.54$ and $p = 0.27$, respectively) indicates that, in this sample, pure physical interference was less dominant in shaping daily experience.

Taken together, these results highlight the multifactorial nature of oral health's impact on young individuals. Beyond biological symptoms, it is the subjective experience of appearance, confidence, and social comfort that most often drives perceived burden. This finding is clinically important, as it signals that early-stage conditions—such as mild malocclusions, plaque, or gingivitis—may have disproportionate effects on well-being, even when they are not functionally debilitating. Furthermore, these insights argue strongly for the inclusion of patient-reported outcome measures (PROMs) like the OIDP in both routine dental care and public health monitoring, particularly in age groups undergoing major social and psychological development.

Several methodological limitations should be acknowledged. First, the cross-sectional design precludes conclusions about causality or temporal relationships. Second, data collection via self-administered online questionnaires may introduce reporting bias—participants may underestimate or overstate their symptoms depending on social desirability, recall accuracy, or comprehension of the items. Additionally, while the OIDP questionnaire has been validated internationally, cultural nuances may influence how individuals interpret and respond to subjective impact questions. This may affect score comparability across

populations. Another limitation is the lack of objective clinical data. Although the OIDP captures perceived burden effectively, correlating it with actual dental status (e.g., DMFT scores, periodontal indices) would provide a more holistic view of the oral health landscape. Moreover, demographic variables such as gender, income level, and prior dental history were not captured in this study, limiting our ability to stratify risk or identify vulnerable subgroups.

Despite these limitations, this study offers meaningful insights. It confirms that young people's oral health concerns are not merely clinical; they are deeply personal, social, and psychological. It also validates the OIDP as a feasible and informative instrument for public health screening in adolescent and student populations. By identifying which domains of life are most impacted, dental practitioners and policymakers can design more targeted preventive, esthetic, and psychosocial interventions.

Looking ahead, the integration of oral health-related quality of life (OHRQoL) measures into clinical practice could become a cornerstone of patient-centered dentistry. In educational settings, oral health promotion strategies should not only stress brushing technique or sugar intake but should also emphasize the psychological and social importance of a healthy, esthetic, and functional dentition. Universities and health services should collaborate to implement screening and counseling programs that are sensitive to the emotional dimensions of oral health.

Finally, this study adds to the growing consensus that dental care must be reframed – not just as a reactive intervention to disease, but as an essential part of holistic well-being that spans appearance, emotion, confidence, and functionality.

CONCLUSIONS

In conclusion, the findings from this study emphasize the importance of viewing oral health through a biopsychosocial lens, especially in adolescent and young adult populations. Traditional clinical indices alone may fail to capture the breadth of oral health's impact on life quality. Integrating subjective assessments like OIDP provides a more holistic understanding and supports the development of tailored interventions that address both clinical and psychosocial needs.

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