ORIGINAL ARTICLE

CONTENTS

Psychological and social aspects of the life of patients with periodontal and maxillofacial diseases

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ABSTRACT

Aim: To analyze the impact of concurrent periodontal and maxillofacial diseases on the mental state and quality of life of patients aged 18–60 years for future comprehensive rehabilitation.

Materials and Methods: A total of 61 patients (aged 28-60 years) with periodontal diseases and concomitant maxillofacial disorders were studied. All patients had a dental examination, accompanied by assessments of anxiety, depression, and self-esteem with the Hospital Anxiety and Depression Scale (HADS), the Dembo-Rubinstein self-assessment method, and the Chaban Quality of Life Scale (CQLS).

Results: The analysis of the HADS A score revealed that 31.1% of patients had a clinical level of anxiety, whereas 41% of patients had a subclinical level of anxiety. Based on the HADS D score, 21.3% of patients had a clinical level of depression, whereas 50.8% had a subclinical level of depression. The aspects of appearance, health, and confidence are highly correlated with patients' mental well-being. The quality of life assessment indicates that the majority of patients with concurrent periodontal and maxillofacial diseases experience a low or moderate quality of life.

Conclusions: Patients with periodontal and maxillofacial diseases require not only dental care but also comprehensive rehabilitation, since appearance and physical health have a major impact on their quality of life.

KEY WORDS: Generalized periodontitis, diseases of the maxillofacial region, emotional state, quality of life, social adaptation, self-perception

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INTRODUCTION

Oral health, being an integral component of overall health, undoubtedly influences an individual's well-being and quality of life [1]. The correlation between periodontitis and oral health-related quality of life (OHQoL) has been shown. D. Kutsal et al. (2021) investigated the impact of periodontitis on OHQoL using the Oral and Dental Health-Related Quality of Life Scale in the UK (OHRQoL-UK). All four indicators were reduced in patients with periodontitis compared to healthy individuals [2]. The relationship between self-reported periodontitis assessed with the newly created modified periodontal screening scale (mPESS) and OHRQol was studied. mPESS ≥5 demonstrates the highest specificity (79.5%) and sensitivity (71.3%) for the identification of individuals with severe periodontitis. OHRQoL was assessed using the Oral Health Impact Profile (OHIP-14). The association between mPESS ≥5 and deteriorating OHRQoL was validated. Furthermore, mPESS ≥5 was independently correlated with a 3.4-fold increase in the probability of deteriorating OHRQoL [3].

The OHIP-14 is one of the most widely-used OHRQoL assessment questionnaires [4]. It is a shortened version of the OHIP-49 that assesses how various aspects of oral health affect a person's physical, mental, and social well-being [5]. The OHIP-14 measures functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, and social disability using 14 self-report items grouped into 7 domains. The cumulative OHIP-14 score ranges from 0 (best OHRQoL) to 56 (worst OHRQoL) and is calculated by summing the values of the 14 items. Higher OHIP-14 scores indicate worse OHRQol, whereas lower OHIP-14 scores suggest better OHRQol [3]. Researchers have demonstrated a significant relationship between OHRQoL, the stage of periodontitis, and symptoms such as bleeding gums, gum pain, gum swelling, bad breath, and loose teeth [6].

Maxillofacial injuries have garnered the attention of the global medical community due to their increasing incidence and variety of associated injuries, as well as their correlation with appearance, loss of function, economic consequences,

and postoperative quality of life issues. These problems can negatively impact a person's overall well-being, and if not detected and treated, they can persist for a long time. There are several methods for measuring patients' well-being and QOL. P. S. Klonoff et al. developed the Profile of the Impact of the Disease [7]. K. A. Atchison and T. A. Dolan presented the General Oral Health Assessment Index [8]. C. R. Webb et al. described the Life Satisfaction Index [9]. M. Findler et al. constructed the Short Form 36 (SF-36) [10].

The WHOQOL-100 test and its shortened version, WHOQOL-BREF, which may be used in a variety of situations, are the most commonly used tests. The WHOQOL-BREF comprises 26 items, each rated on a five-point scale. The WHOQOL-BREF combines dimensions 1 and 3 as well as 2 and 6 of the WHOQOL-100 to develop an instrument for assessing: (1) physical health, (2) mental issues, (3) social relationships, and (4) the environment. The WHOQOL-BREF is popular because it is brief, reducing patient burden and making it easier to use together with other measures [11].

Research indicates that oral maxillofacial disorders and malocclusion can result in numerous mental health issues, including increased social anxiety and social avoidance, along with a decline in quality of life. This necessitates the implementation of standardized and reliable psychological and clinical methods for assessing treatment outcomes [12]. In addition to other methodological issues, they emphasize the inconsistency of psychometric scales and the constructs employed, the inadequate validity and reliability of many scales, the limited sample size, and the absence of a subcategory for abnormalities [13].

The Derriford Appearance Scale [14] and the Psychological Impact Assessment of Dental Esthetics Questionnaire (PIDAQ) [15] are justified for use in patients with craniofacial abnormalities since they were specifically designed to assess psychological adaptability in people with apparent changes in appearance. The Pain DETECT Questionnaire (PD-Q) was used in the screening phase to measure the relationship between pain, mood disorders (anxiety, depression, and sleep disorders), and quality of life in order to better understand the most relevant predictors of pain perception [16].

L. Piedra-Hernández et al. (2023) examined the incidence of dental anxiety (DA) and OHRQOL before and after nonsurgical periodontal therapy (NSPT) and found a relationship between the two indicators. The use of specific questionnaires for DA and OHRQoL may be more appropriate for demonstrating psychological and quality of life differences caused by periodontitis and NSPT [17].

AIM

The aim of the study was to analyze the impact of concurrent periodontal and maxillofacial diseases on the mental state and quality of life of patients aged 18–60 years for future comprehensive rehabilitation.

MATERIALS AND METHODS

A total of 61 patients (aged 28-60 years) with concurrent periodontal and maxillofacial diseases participated in the study: 36 men and 25 women. All patients had a dental examination that included thorough periodontal probing and radiographic assessment. The patients were tested for anxiety, depression, and self-esteem with modern techniques, namely the Hospital Anxiety and Depression Scale (HADS), the Dembo-Rubinstein self-assessment method, and the Chaban Quality of Life Scale (CQLS). The findings will help determine key aspects of psychological rehabilitation, including self-esteem, anxiety, depression, and patients' social adaptation. The HADS technique facilitates the assessment of anxiety levels (HADS A) and depression levels (HADS D). This is crucial for patients with concurrent periodontal and maxillofacial diseases, as they frequently endure psychological pressure caused by their appearance, physical limitations, and challenges in social interactions.

Data were analyzed with the statistical package IBM SPSS Statistics Base (version 22) and EZR. All results were considered statistically significant at a value of $p<0.05$.

RESULTS

A wide range of clinical conditions influenced the research group's complaints. The most common responses were about refusing to smile because they were embarrassed about the swelling of the gums' mucous membrane, its cyanoticity, visible dental deposits that were difficult to remove due to pain during dental hygiene, visible gum bleeding, or, for example, numerous gum recessions. Patients reported difficulty eating, chewing, and biting solid foods, as well as controlling their distance when communicating, due to bad breath, which might have been induced by therapy-related factors such as splinting in certain cases. Patients with generalized periodontitis II B and inflammatory maxillofacial pathology had a different set of symptoms than those with periodontal disease associated with secondary occlusive trauma, bite collapse, an incomplete number of opposing tooth pairs, or a combination of maxillofacial trauma and temporary external defects in the maxillofacial region. According to the HADS A score analysis, 31.1% of patients had clinical anxiety (severe anxiety requiring therapy), 41% had subclinical anxiety (mild or moderate anxiety that may require some medical attention), and 27.9% had no anxiety. According to the HADS D score analysis, 21.3% of patients had clinical depression (treatment required), 50.8% had subclinical depression (moderate symptoms that might exacerbate the overall state), and 27.9% did not have de-

Table 1. Statistical analysis of anxiety/depression severity by gender

Method	Gender (%)		Statistical probability
	m	f	(Chi-square test)
HADS A			0.482
No reliable signs of anxiety	33.3%	20.0%	
Subclinical level of anxiety	36.1%	48.0%	
Clinical level of anxiety	30.6%	32.0%	
HADS D			0.398
No reliable signs of depression	33.3%	20.0%	
Subclinical level of depression	50.0%	52.0%	
Clinical level of depression	16.7%	28.0%	

pression. More than 30% of patients had clinical anxiety, and more than 20% had clinical depression, demonstrating the significant psychological impact of concurrent generalized periodontal and maxillofacial diseases. There is no statistically significant difference between men and women ($p > 0.1$). The findings indicate that both men and women need psychological assistance to overcome anxiety and depressive disorders (Table 1).

The Dembo-Rubinstein self-assessment method is used to measure various parameters, including personal characteristics, health, confidence, abilities, physical appearance, and interpersonal interactions with family and surroundings.

Self-assessment surveys showed that patients had lower rates in the relevant domains. The average health score for women was 5.28, while for men it was 4.67, suggesting that patients have a poor perception of their health. The personal characteristics score was 5.72 for men and 6.72 for women, indicating that women evaluate their personality traits more positively.

Self-assessment of beauty and appearance is an essential factor. The average score for men was 6.14, while for women it was 5.92, suggesting that patients of both sexes do not perceive their physical appearance as ideal, but the difference in rating between men and women is negligible. Self-assessment results suggest that low self-esteem in periodontitis and maxillofacial diseases impacts patients' overall quality of life. It is also crucial to note that factors of appearance, health, and confidence have a substantial correlation (0.40) with patients' mental well-being. This report highlights the need to work on patients' self-esteem throughout rehabilitation.

The Chaban Quality of Life Scale was used to determine patients' overall level of life satisfaction. According to the findings, 1.6% of patients had a very low quality of life because they were unemployed, lacked friends and support, communicated poorly, and felt socially isolated. 54.1% reported a low quality of life, which might be attributed to communication issues that prevent full involvement in social activities. 29.5% reported a moderate quality of life, with 14.8% rating it as high.

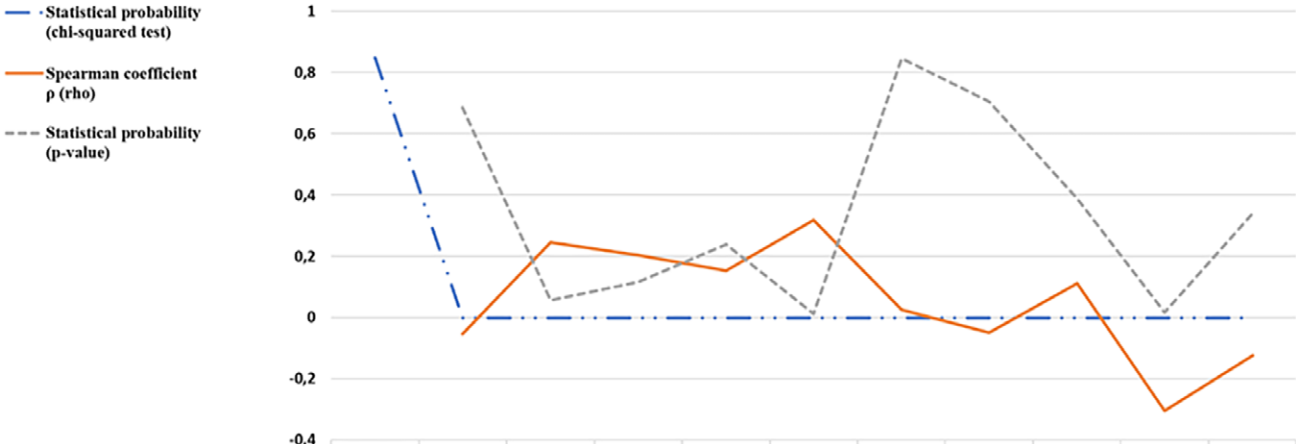
According to the data, the majority of patients with concomitant periodontal and maxillofacial diseases have a low or moderate quality of life. This is due to physical limitations, dental and speech issues, and social challenges. To actively socialize patients with periodontal and maxillofacial diseases and improve their quality of life, physical and psychological rehabilitation must be integrated.

Spearman's correlation coefficient (Fig. 1) was used to examine the relationship between self-esteem, anxiety, depression, and quality of life.

RESULTS OF CORRELATION ANALYSIS

The Dembo-Rubinstein self-assessment scale includes several dimensions, including health, beauty, confidence, relationships, and more factors. The correlation between quality of life levels, as measured by the Chaban scale, indicates the degree to which patients' self-assessment influences their overall quality of life. Individuals who assess their health more positively typically experience a higher quality of life. This implies that physical health significantly influences the perception of overall well-being. Despite almost reaching statistical significance ($p = 0.057$), this indicator substantiates that patients having better overall health often exhibit a superior quality of life (Fig. 1).

Individuals who rate their appearance favourably have a better perception of quality of life. A statistically significant correlation (Spearman's correlation coefficient: 0.319, weak but closer to a moderate correlation; p-value: 0.012, statistically significant correlation) suggests that the self-esteem and overall well-being of patients with periodontal and maxillofacial diseases heavily depend on their appearance. This indicates the need to work with patients on their attitude toward their appearance during psychological rehabilitation.



	Quality of life assessment scale	Nature	Health	Confidence in yourself	Abilities	Beauty, appearance	Relations in the family	Relationships with peers	The level of self-esteem	HADS A	HADS D
Statistical probability (chi-squared test)	0,849										
Spearman coefficient ρ (rho)		-0,053	0,245	0,204	0,153	0,319	0,026	-0,049	0,112	-0,305	-0,125
Statistical probability (p-value)		0,686	0,057	0,115	0,238	0,012	0,845	0,706	0,389	0,017	0,339

Fig. 1. Correlation according to Dembo-Rubinshtein scale; the level of anxiety and depression (HADS) with the level of quality of life according to the quality of life assessment scale (O. Chaban).

There is a weak correlation between confidence and quality of life. It suggests that patients who are more confident may have a slightly better perception of their quality of life, but the difference is not statistically significant enough to make firm conclusions. Patients' data show a statistically significant negative correlation between anxiety level and quality of life (Spearman's correlation coefficient: -0.305, weak negative correlation; p-value: 0.017, statistically significant correlation). It indicates that patients with high levels of anxiety tend to have worse quality of life scores. The correlation is relevant because treating anxiety with psychotherapy can significantly improve a patients' reported quality of life. The scale indicates that personal characteristics have no significant impact on quality of life, as evidenced by the very weak and insignificant correlations (Spearman's correlation coefficient: 0.204, weak correlation; p-value: 0.115, statistically insignificant correlation).

The correlation analysis of patients' self-assessment reveals that appearance and physical health have the biggest influence on their quality of life. This demonstrates the significance of focusing on the perception of one's own appearance and physical condition during rehabilitation. Anxiety also has a big impact on patients' assessments of their quality of life. Therefore, reducing it with psychotherapy treatment can improve patients' emotional states. The findings emphasize the significance of addressing both the physical health and mental health aspects of anxiety in patients with generalized periodontitis and maxillofacial disease.

The study examined gender differences in terms of quality of life and mental health among patients, suggesting the need for differentiated therapeutic techniques for men and women to facilitate a more customized rehabilitation process. We conducted a comparative study using the Dembo-Rubinstein self-assessment method, revealing the factors that could influence the overall self-perception of both men and women. The study identified notable differences between them. Women assessed their personal characteristics more positively than men, with this difference almost reaching statistical significance ($p = 0.056$). This may suggest that women have a more favourable perception of their personal characteristics in comparison to men.

The analysis of the findings indicates that women with periodontitis and maxilofacial diseases assess their health somewhat more positively than men; even so, the difference is not statistically significant. The mean score for men is 4.67. The mean score for women is 5.28. Welch ANOVA statistical probability p-value is 0.243. This could indicate that men tend to be more critical of their physical condition, potentially due to societal norms or stereotypes about male endurance.

The difference in confidence between men and women is negligible and statistically insignificant. The Welch ANOVA statistical probability p-value is 0.833. This suggests that both groups have a comparable level of confidence.

Men with periodontal and maxillofacial diseases evaluate their appearance somewhat more positively than women; nevertheless, the difference is negligible and is not statistically significant. The mean score for males is 6.14. The mean score for women is 5.92. The Welch ANOVA statistical probability p-value is 0.707. This

Table 2. Statistical analysis of the quality of life assessment scale by gender

Method	Group, %		Statistical probability
	m	f	(Chi-square test)
The Chaban Quality of Life Scale			0.849
very low	2.8%	0.0%	
low	52.8%	56.0%	
moderate	30.6%	28.0%	
high	13.9%	16.0%	

may indicate that men are less critical regarding their appearance or prioritize it to a lesser extent.

Analysis of anxiety and depression (HADS A) reveals some gender differences. Women with periodontal and maxillofacial diseases have a bit higher anxiety levels compared to men; however, this difference is not statistically significant. The mean score for men is 8.78. The mean score for women is 9.68. The Welch ANOVA statistical probability p-value is 0.253. This may indicate that women are more predisposed to anxiety, perhaps due to increased emotional sensitivity and a need for external validation, making them more susceptible to stress.

According to the HADS D, women with periodontal and maxillofacial diseases exhibit higher depression levels compared to men; nevertheless, the difference is not statistically significant. The mean score for men is 8.64. The mean score for women is 9.68. The Welch ANOVA statistical probability p-value is 0.175. This may result from women's propensity to express their emotions and focus on internal issues.

The Chaban Quality of Life Scale was administered to both groups. The mean score for men is 12.83. The mean score for women is 12.72. The Welch ANOVA statistical probability p-value is 0.914. The study indicates that the quality of life for both men and women exhibits negligible differences, as evidenced by a significantly high p-value ($p = 0.914$). This suggests that the impact of concurrent periodontitis and maxillofacial diseases on overall quality of life is similarly assessed by both men and women. Patients of both genders have comparable challenges in everyday life, encompassing physical limitations, social barriers, and mental health issues (Table 2).

The analysis of the impact of gender differences on the quality of life of patients revealed that women with periodontal and maxillofacial diseases report higher self-assessments of personal characteristics and health. However, assessments of appearance and confidence are nearly identical between men and women. The women exhibit a somewhat higher level of anxiety and depression compared to the men, albeit without statistical significance. This may suggest that women are more susceptible to anxiety and depressive disorders. Nevertheless, these findings do not significantly impact the overall picture. The quality of life for both men and women is nearly the same, suggesting that both cohorts have comparable challenges associated with their disease.

These findings suggest that the rehabilitation program for patients with periodontal and maxillofacial diseases should acknowledge slight gender differences, particularly in self-assessment and anxiety reduction. However, it is crucial to tailor the therapy strategy universally to meet the overall needs of each gender.

DISCUSSION

V. P. Singh and T. P. Moss assessed patients with craniofacial anomalies using a set of questionnaires, including versions of the DAS and PIDAQ, rated on a Likert scale. There was a significant difference in PIDAQ and DAS59 scores between patients (n=102) and the control group, indicating that patients experienced a more pronounced negative psychological effect on their quality of life regarding appearance (PIDAQ) and greater appearance-related distress (DAS) than the control group [18].

Severe dental anxiety frequently results in poor oral health-related quality of life (OHRQoL). S. D. A. A. Khan et al. (2021) evaluated OHRQoL using a shortened version of the Oral Health Impact Profile (OHIP-14). Researchers found a correlation between dental anxiety, fear, and poor oral hygiene [19].

C. D. Llewellyn and S. Warnakulasuriya aimed to determine the predictive capacity of OHRQoL for anxiety or depression, as well as to investigate the relationship between clinical diagnoses, OHR-QoL, and anxiety or depression. Individuals with dental problems were interviewed face-to-face and assessed using the OHIP-14 for OHRQoL, the Hospital Anxiety and Depression Scale (HADS), and the Visual Analogue Scale for self-reported overall health. Anxiety was observed in 55% of patients, whereas functional limitations and social instability were noted in 54%, according to the OHRQoL domains. Participants had significantly worse OHRQoL scores than the general population across all domains [20].

P. Wiriyakijja et al. (2020) investigated the prevalence of moderate to high levels of comorbid anxiety, depression,

distress, and stress as measured by the HADS and PSS-10 cutoff scores. The HADS and PSS-10 are regarded as reliable measures of psychological distress and stress in patients with aphthous stomatitis [21].

C. Yang et al. (2018) assessed the mental health of patients suffering from oral mucosal diseases such as recurrent canker sores, lichen planus, and burning mouth syndrome using the HADS scale. The OHIP-14 scale was used to assess OHRQoL. That is, the HADS and OHIP-14 scores were employed to examine the relationship between mental health issues and quality of life in these patients. The OHIP-14 and HADS scores were both higher in the study group than in the control group. The OHIP-14 score in recurrent aphthae was the highest among the three patient groups, whereas the OHRQoL was the lowest [22].

Anxiety over anesthesia and surgery is frequent, and many patients perceive it as the worst part of the surgical procedure. L. Eberhart et al. (2020) assessed anxiety with the Amsterdam Preoperative Anxiety and Information Scale (APAIS, range 4-20). The research involved 3,087 patients. 40.5% of patients reported experiencing high levels of anxiety (APAIS >10) [23]. There were statistically significant differences between time points for VAS pain scores, HADS depression scores, SFMP pain scores, and OHIP-14 total scores [24]. The DAI is one of the most comprehensive instruments for assessing the psychometric spectrum of dental anxiety. Although it is believed that patients with the same level of dental anxiety may perceive questionnaire questions differently, the statements formulated in the questionnaire have the same meaning for all patients, regardless of gender, education, or age [25].

CONCLUSIONS

1. According to studies, the majority of patients with periodontal and maxillofacial diseases have clinical and subclinical levels of anxiety and depression due to a variety of complaints such as gingival mucosal swelling, dental deposits, bleeding gums, multiple gingival recessions, secondary occlusal trauma, bite collapse, and an incomplete number of pairs of antagonistic teeth, among others. Periodontitis and maxillofacial diseases have a similar impact on overall quality of life, according to both men and women. Patients of both sexes face comparable everyday challenges, such as physical limitations, social barriers, and mental health concerns.
2. Patients with periodontal and maxillofacial diseases require not only dental care but also comprehensive rehabilitation, since appearance and physical health have a major impact on their quality of life. A high level of anxiety and depression has a substantial effect on the perception of quality of life, necessitating psychotherapeutic support from mental health specialists on one's own appearance and physical condition, which will help stabilize the emotional state, significantly improve patients' quality of life, and promote social integration.

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CONFLICT OF INTEREST

The Authors declare no conflict of interest

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