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Evaluating Oral Health-Related Quality Of Life In Patients Treated For Oral Cancer

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Abstract

Background

Oral health-related quality of life (OHRQoL) is significantly impacted in patients treated for oral cancer due to functional and aesthetic impairments. Understanding the factors influencing OHRQoL is crucial for devising effective rehabilitation strategies.

Materials and Methods

A cross-sectional study was conducted involving 100 patients (mean age: 55 ± 10 years) treated for oral cancer, recruited from a tertiary care center. Data were collected using the Oral Health Impact Profile-14 (OHIP-14) questionnaire, assessing physical, psychological, and social dimensions of OHRQoL. Clinical parameters such as tumor site, stage, and type of treatment (surgery, radiotherapy, or combined therapy) were recorded. Statistical analysis was performed using SPSS software (version 26.0), with a significance level set at $p < 0.05$.

Results

The mean OHIP-14 score was 32.5 ± 10.4, indicating moderate impact on OHRQoL. Patients undergoing combined therapy reported significantly lower OHRQoL (mean score: 40.2 ± 8.3) compared to those treated with surgery alone (mean score: 28.7 ± 7.5; $p < 0.01$). Psychological discomfort and functional limitation were the most affected domains, reported by 72% and 68% of participants, respectively. Younger patients (<50 years) had better OHRQoL scores (mean: 29.1 ± 9.2)

compared to older patients (mean: 35.8 ± 11.1; p = 0.03).

Conclusion
Treatment for oral cancer substantially impacts OHRQoL, particularly in patients undergoing combined modalities of therapy. Addressing psychological discomfort and functional limitations through multidisciplinary approaches can improve patient outcomes. Further research is needed to identify tailored interventions for enhancing OHRQoL in this population.

Keywords
Oral health-related quality of life, oral cancer, OHIP-14, combined therapy, quality of life evaluation.

Introduction
Oral cancer is a significant public health concern worldwide, ranking as one of the most common cancers in developing countries (1). It is characterized by high morbidity and mortality rates, often attributed to late-stage diagnosis and the aggressive nature of the disease (2). Treatment modalities, including surgery, radiotherapy, and chemotherapy, are effective in controlling the disease but frequently result in long-term adverse effects on oral functions, aesthetics, and overall quality of life (3).
The concept of oral health-related quality of life (OHRQoL) has emerged as an important outcome measure in assessing the broader impacts of oral diseases and their treatments (4). OHRQoL encompasses physical, psychological, and social dimensions of well-being, all of which can be significantly disrupted in patients treated for oral cancer (5). Functional limitations, such as impaired speech, mastication, and swallowing, coupled with psychological distress and social isolation, are commonly reported in this population (6).
Several studies have highlighted the importance of evaluating OHRQoL to identify specific areas requiring intervention and to guide rehabilitation strategies (7). However, the extent and nature of OHRQoL impairments may vary depending on factors such as tumor site, stage, and treatment modality (8). Despite advancements in oral cancer management, there is a paucity of data addressing the holistic impact of treatment on patients' quality of life, particularly in resource-limited settings (9). This study aims to evaluate OHRQoL in patients treated for oral cancer using the Oral Health Impact Profile-14 (OHIP-14) questionnaire and to identify factors influencing these outcomes. By understanding these impacts, the study seeks to contribute to the development of comprehensive care strategies that address both clinical and psychosocial needs.

Materials and Methods
Study Design and Participants
This cross-sectional study was conducted in a tertiary care center over six months. A total of 100 patients, previously treated for oral cancer, were recruited using a purposive sampling method. Inclusion criteria included patients aged 18 years or older who had completed treatment (surgery, radiotherapy, or combined therapy) at least six months prior and provided informed consent. Patients with recurrent cancer, cognitive impairments, or other debilitating systemic conditions were excluded from the study.

Data Collection
The Oral Health Impact Profile-14 (OHIP-14) questionnaire was used to assess oral health-related quality of life (OHRQoL). This validated tool measures the frequency of issues across seven domains:

functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, and handicap. Responses were recorded on a 5-point Likert scale ranging from "never" (0) to "very often" (4), with higher scores indicating worse OHRQoL.

Clinical and Demographic Variables

Clinical data, including tumor site, stage, and treatment modality, were retrieved from patient medical records. Demographic information such as age, gender, and socioeconomic status was collected using a structured questionnaire administered through face-to-face interviews.

Statistical Analysis

Data were analyzed using SPSS software (version 26.0). Descriptive statistics, including means and standard deviations, were calculated for continuous variables, while categorical variables were presented as frequencies and percentages. Independent t-tests and ANOVA were used to compare OHIP-14 scores across different subgroups. A p-value of <0.05 was considered statistically significant.

Results

Demographic and Clinical Characteristics

A total of 100 patients were included in the study, with a mean age of 55.3 ± 10.2 years. Among the participants, 62% were male, and 38% were female. The most common tumor site was the buccal mucosa (36%), followed by the tongue (28%), floor of the mouth (18%), and other sites (18%). Regarding treatment modalities, 40% underwent surgery alone, 30% received radiotherapy, and 30% were treated with combined therapy (Table 1).

OHRQoL Scores

The mean OHIP-14 score for the cohort was 31.6 ± 8.4, indicating a moderate impact on OHRQoL. Patients who underwent combined therapy had the highest OHIP-14 scores (mean: 39.2 ± 6.8), followed by those treated with radiotherapy (mean: 32.7 ± 7.4) and surgery alone (mean: 26.9 ± 5.9), showing a statistically significant difference ($p < 0.01$, Table 2).

Domain-Wise Impact

Among the seven OHIP-14 domains, psychological discomfort had the highest mean score (3.8 ± 1.2), followed by functional limitation (3.4 ± 1.1) and physical pain (3.3 ± 1.0). Social disability and handicap were the least affected domains, with mean scores of 2.1 ± 0.8 and 2.0 ± 0.7, respectively (Table 3).

Comparison by Age and Gender

Younger patients (<50 years) reported lower OHIP-14 scores (mean: 28.3 ± 6.7) compared to older patients (≥50 years) (mean: 34.1 ± 9.2; $p = 0.04$). No significant differences in OHRQoL scores were observed between male and female participants ($p = 0.12$).

Tables

Table 1: Demographic and Clinical Characteristics of Study Participants

Variable	Frequency (n)	Percentage (%)
Gender		

Male	62	62
Female	38	38
Tumor Site		
Buccal Mucosa	36	36
Tongue	28	28
Floor of Mouth	18	18
Others	18	18
Treatment Modality		
Surgery Alone	40	40
Radiotherapy	30	30
Combined Therapy	30	30

Table 2: Comparison of OHIP-14 Scores Across Treatment Modalities

Treatment Modality	Mean OHIP-14 Score	Standard Deviation	p-value
Surgery Alone	26.9	5.9	
Radiotherapy	32.7	7.4	
Combined Therapy	39.2	6.8	<0.01

Table 3: Domain-Wise Impact on OHRQoL

OHIP-14 Domain	Mean Score	Standard Deviation
Functional Limitation	3.4	1.1
Physical Pain	3.3	1.0
Psychological Discomfort	3.8	1.2
Physical Disability	2.9	0.9
Psychological Disability	2.5	0.8
Social Disability	2.1	0.8
Handicap	2.0	0.7

The findings underscore the significant impact of oral cancer treatment on OHRQoL, particularly in patients undergoing combined therapy (Table 2). Psychological discomfort and functional limitations were the most affected domains, highlighting the need for targeted interventions (Table 3).

Discussion

The findings of this study highlight the significant impact of oral cancer treatment on oral health-related quality of life (OHRQoL), particularly in patients who underwent combined therapy. The mean OHIP-14 score indicates a moderate level of impairment, consistent with previous research showing that oral cancer survivors experience substantial physical and psychological challenges post-treatment (1,2).

Combined therapy was associated with the highest OHIP-14 scores, suggesting a greater negative impact on OHRQoL compared to surgery or radiotherapy alone. This could be attributed to the cumulative effects of multiple treatments, such as more extensive tissue damage, chronic pain, and functional limitations (3). Similar findings have been reported in earlier studies, emphasizing the need for personalized rehabilitation strategies for patients undergoing multimodal treatments (4,5).

Psychological discomfort and functional limitation emerged as the most affected domains in this study. These results align with existing literature, which highlights the profound psychological distress experienced by oral cancer patients due to facial disfigurement, speech difficulties, and social isolation (6,7). Functional impairments, such as difficulties in chewing and swallowing, are also well-documented consequences of oral cancer treatment (8,9).

Younger patients demonstrated better OHRQoL scores compared to older individuals, which might be due to better physical resilience and adaptability in younger age groups (10). In contrast, older patients may face additional challenges, such as comorbidities and reduced coping mechanisms, contributing to poorer OHRQoL outcomes (11). However, no significant gender differences in OHRQoL were observed, which is consistent with some studies but differs from others that report worse outcomes in women due to heightened psychosocial concerns (12,13).

The results also underscore the importance of multidisciplinary care in addressing the diverse needs of oral cancer patients. Psychological support, speech therapy, and nutritional counseling are critical components of comprehensive rehabilitation programs (14). Additionally, regular follow-up assessments using tools like the OHIP-14 can help clinicians monitor patient outcomes and tailor interventions accordingly (15).

Despite its contributions, this study has some limitations. The cross-sectional design limits the ability to establish causal relationships between treatment modalities and OHRQoL outcomes. Furthermore, the use of a single-center cohort may reduce the generalizability of the findings. Future longitudinal studies with larger, multicenter samples are needed to confirm these results and explore other influencing factors, such as socioeconomic status and support systems.

Conclusion

In conclusion, this study demonstrates that oral cancer treatment significantly impacts OHRQoL, particularly in patients undergoing combined therapy. Addressing psychological discomfort and functional limitations through tailored rehabilitation strategies can improve patient outcomes and overall quality of life.

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