

Original Research Article

Evaluating the quality of life in patients with oral cancer: a central Indian cross-sectional study

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ABSTRACT

Background: Oral cancer significantly impacts patients' quality of life (QoL) due to its associated physical, emotional, and social challenges. This study aimed to assess the QoL of oral cancer patients in Central India.

Method: A cross-sectional study was conducted in 210 oral cancer patients from various healthcare institutions in Central India. Participants completed the UW-QOL questionnaire, which evaluates multiple domains, including pain, appearance, chewing, swallowing, speech, anxiety, mood, taste, activity, saliva, recreation, and shoulder function. Descriptive statistics were used to analyze QoL scores and identify the prevalence of significant issues across domains.

Results: The findings revealed that shoulder function had the highest mean score (96.71), with 91.9% of participants achieving optimal scores. Saliva function followed (mean score: 83.62), with 56.2% of subjects at the best score. However, pain (mean score: 59.40) was the most significant issue, reported by 55.71% of patients, alongside notable concerns in appearance (32.38%) and anxiety (23.8%). Other domains, including mood and activity, exhibited low mean scores, with fewer than 15% of subjects reporting optimal scores.

Conclusions: This study highlights the disparity in QoL among oral cancer patients in Central India, with pain and chewing emerging as significant challenges. The results underscore the need for targeted interventions to address both the physical and psychosocial aspects of care, enhancing the overall QoL for these patients.

Keywords: Oral cancer, QoL, UW-QOL, Cross-sectional study, Central India, Patient outcomes

INTRODUCTION

Oral cavity cancers (OCC) are malignant tumours affecting the upper digestive tract, which includes the lip, oral tongue, floor of mouth, buccal mucosa, upper and lower gum, retromolar trigone and hard palate. OCC account for over 377,713 new cases globally, making up approximately 2% of all cancer cases worldwide. The age-standardized incidence rate (ASIR) is 4.1 per 100,000 people, with a higher burden in low- and middle-income countries. Global mortality stands at 177,757 deaths, with a 5-year prevalence of 1,028,871 cases.^{1,2}

High incidence (ASIR 5.4) is observed in regions with higher consumption of tobacco, alcohol, and betel nut, especially in South and Southeast Asia, but in developing nations like India, they account for roughly 10.2% of cancer cases.³ In India, Lip and OCCs are observed in about 15.6% of males and 5% of females.⁴ In Maharashtra, oral cancer is a significant public health concern, reflecting trends seen across India. It is estimated that oral cancer accounts for 40% of all cancers in men in the state. Maharashtra has a high prevalence of smokeless tobacco use, particularly in rural areas, leading to elevated morbidity and mortality.^{1,5}

The impact of OCC on QOL requires more thorough examination using patient self-reported scales. Previous research in this area has been limited in value due to small sample sizes and the use of varied assessment tools. Notably, no study has utilized the latest version of the UW-QOL questionnaire specifically for head and neck cancer patients.⁶ Reporting QOL is an excellent method for monitoring clinical practices, understanding the reasons for diagnostic and treatment delays, and improving overall QOL.

QOL scales can aid oral cancer patients in effectively communicating their issues to clinicians, particularly in busy practices. These scales highlight the severity of patients' problems, allowing clinicians to focus on key concerns and prioritize treatment accordingly. Oral cancer patients often face numerous interrelated psychosocial and physical issues, and QOL measures can capture a broad spectrum of these issues, helping to identify and address the most pressing problems.⁷ These scales can also clarify patients' preferred outcomes or treatment goals and monitor their responses to treatment. Without this understanding, treatment might not align with patients' expectations, potentially affecting adherence and overall satisfaction with care. Additionally, QOL measures can uncover information that might not seem clinically relevant but could provide insight into disease severity or coping mechanisms, such as response shift (changes in internal standards over time). Patients may find it easier to express psychological and social concerns through QOL scales rather than in face-to-face interactions with caregivers. Utilizing QOL data can also train staff to be more attuned to patient needs and concerns, helping to prioritize aspects of life that patients value most, such as family relationships or leisure activities, which may differ from the clinician's focus on symptom severity.^{8,9}

Oral cancer significantly impacts patients' QoL due to its associated physical, emotional, and social challenges. Hence the present study was carried out to assess the quality of life in diagnosed patients of oral cancer in central India.

METHODS

This cross sectional study was conducted in 210 patients with oral cancer in a tertiary care center run by the state government of Maharashtra in Nagpur city and the regional cancer hospital (Rashtra Sant Tukdoji Maharaj regional cancer hospital, Nagpur) run by a charitable trust. This study was carried out from January 2023 to July 2024.

Inclusion and exclusion criteria

In the present study newly diagnosed oral cancer patients were enrolled as study participants to assess the QoL. The patients with histopathologically (biopsy) confirmed report of malignancy in the oral cavity and registered for

subsequent treatment at the institute were included in the study. OCC patients who were seriously ill and not able to talk, or who do not give consent were excluded from the study.

Study tools

Data was collected using a predesigned and pretested questionnaire by face to face interview technique after getting written informed consent from the subject. Their socio-demographic details were recorded and QoL was assessed by using university of Washington QoL scale (UW-QOL V 4.0).

Data collection

Data was collected by visiting OPD of Department of Radiation oncology and Oncology department in the regional cancer hospital. Convenience sampling method was used for enrolment of study subjects.

Statistical analysis

Data was entered in Microsoft excel. Continuous variable summarized as mean with standard deviation and Categorical variable summarized as proportion and percentage.

Ethical considerations

Approval from the institutional ethics committee was obtained. Permission from concerned authority from regional cancer hospital and tertiary care centre was obtained. Written informed consent of individual study subjects was obtained in their vernacular language after explaining them the nature and the purpose of the study.

RESULTS

Table 1 shows the study subject's demographic and background characteristics. One-third (30%) of the total participants belonged between 40 to 49 years of age while only 0.95% of total participants were between 18-30. A male preponderance was seen in the present study forming 71.43% (n=150) of the total participants. Most participants were Hindu by religion and married, comprising 87.1% (183). The most common primary cancer site in the study was the buccal mucosa (46.2%), followed by the anterior two-thirds of the tongue (22.9%), with the posterior two-thirds being the least affected (1%). At diagnosis, most study subjects were in stage III (44.8%) and stage IV (28.6%) of oral cancer, with 22.9% in stage II and 3.8% in stage I. At the time of the interview, 33.8% were in stage IV, 33.3% in stage III, and 15.2% in stage II, while 2.4% remained in stage I. Additionally, 15.2% had undergone surgery and were in the postoperative category.

The distribution of study subjects' QOL scores across various domains of the UW-QOL scale is detailed in

Figure 1 shows shoulder function had the highest mean score of 96.71, with 91.9% of participants achieving the optimal score. Saliva function followed, with a mean score of 83.62 and 56.2% of subjects reaching the best score. Taste and swallowing had mean scores of 73.86 and 75.52, with 43.3% and 27.6% of participants reporting optimal scores, respectively. The speech had a mean score of 72.52, with 26.2% achieving the best result. Other domains such as recreation, chewing, activity, and appearance showed lower mean scores of 68.1, 60, 67, and 65.8, with less than 30% of participants reporting the best scores. Anxiety, mood, and pain had the lowest mean scores (63.9, 64.76, and 59.40, respectively), with fewer than 15% of subjects achieving the optimal score in these domains. Overall, shoulder and saliva functions were rated highly, while pain and mood showed the lowest scores.

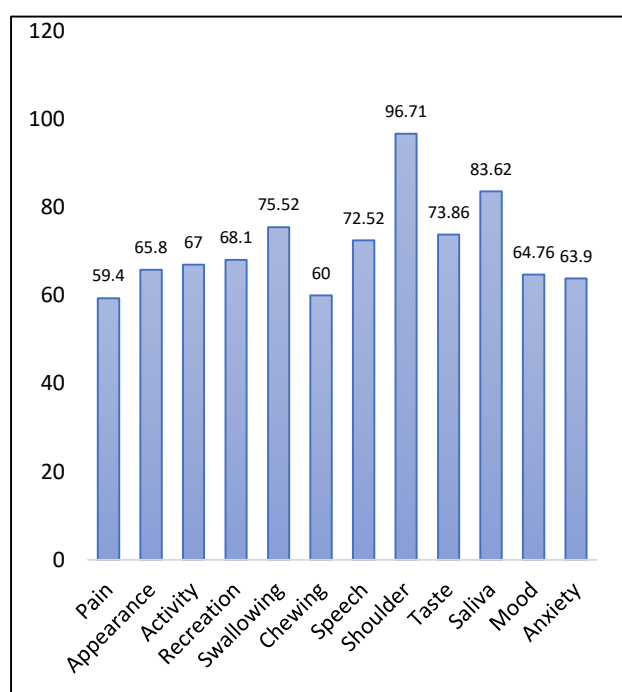


Figure 1: Mean quality of life scores of different domains in all patients.

Figure 2 shows the distribution of study subjects experiencing significant problems across various UW-QOL domains reveals that pain was the most commonly reported issue by the patients, with 117 (55.71%) facing significant problems in this area. Appearance was the next most affected domain, with 68 (32.38%) reporting issues. Anxiety was a significant problem for 50 (23.8%), followed by speech, with 28 (13.33%) experiencing difficulties. Issues with swallowing were reported by 13 (6.19%), while 12 (5.71%) had problems with taste.

Mood affected 10 (4.76%), and activity was a concern for 8 (3.8%). Problems with chewing and saliva were less frequent, affecting 2 patients each (0.95%). Recreation was reported as a significant issue by only 1 (0.4%), and

no patients reported problems with shoulder function (0%).

Figure 3 illustrates the prioritized importance ratings of various UW-QOL domains as reported by study participants. Pain emerged as the most critical concern, identified by 173 patients (82.38%). Appearance was the second most important domain, selected by 89 patients (42.38%). Chewing and swallowing were equally prioritized, with 78 patients (37.14%) each, ranking third and fourth, respectively. Speech was important for 70 patients (33.33%), placing it fifth. Anxiety was identified by 47 patients (22.38%), ranking sixth, followed by mood (17 patients, 8.09%) in seventh. Taste was considered important by 15 patients (7.14%), ranking eighth. Lower importance was given to activity (10 patients, 4.76%), saliva (2 patients, 0.95%), and recreation (1 patient, 0.47%), while no patients prioritized shoulder function (0%).

This distribution underscores pain and appearance as dominant concerns, with functional domains such as chewing, swallowing, and speech also receiving significant attention.

Table 2 gives the distribution of study subjects regarding their health-related QoL (HRQoL) compared to the month before being diagnosed with cancer reveals a largely negative impact. No subjects reported feeling "much better," while only 1 patient (0.48%) indicated they felt "somewhat better." A significant portion, 39 patients (18.57%), felt their QoL was "about the same." However, the majority, 150 patients (71.43%), reported feeling "somewhat worse," and 20 patients (9.52%) stated they felt "much worse."

Table 3 assesses HRQoL over the past seven days revealed that no patients reported feeling "outstanding" or "very good." Only 6.67% (14 patients) rated their QoL as "good." A notable 41.43% (87 patients) considered their QoL to be "fair," while 50% (105 patients) described it as "poor." Additionally, 1.90% (4 patients) reported a "very poor" QoL. These findings emphasize a significant decline in well-being among the majority of the study participants during the evaluated period.

Table 4 give the assessment of the overall QoL of participants during the past seven days was assessed, covering domains such as physical and mental health, relationships, spirituality, and leisure activities. Notably, no patients reported their QoL as "outstanding" or "very good." The largest group, comprising 47.14% (99 patients), rated their QoL as "poor." A significant proportion, 44.29% (93 patients), considered their QoL "fair." Only 6.19% (13 patients) described their QoL as "good," while a minority, 1.90% (4 patients), rated it as "very poor."

This distribution highlights a predominance of lower QoL ratings among the patient population.

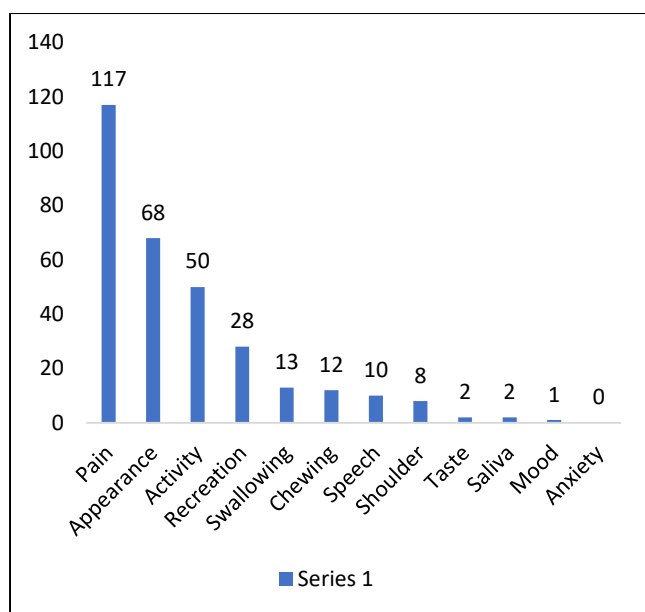


Figure 2: The distribution of study subjects experiencing significant problems across various UW-QOL domains.

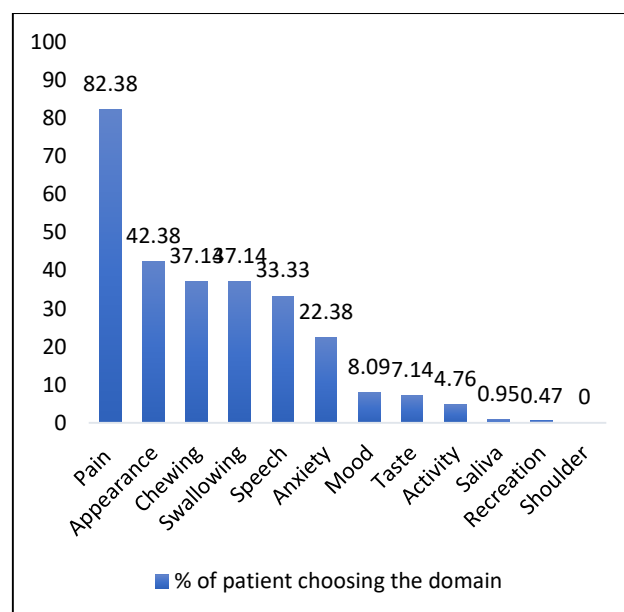


Figure 3: The distribution of the study subjects prioritized importance rating of the various UW-QOL domains.

Table 1: Distribution of study subjects according to their demographic and background characteristics.

Variables	N	Percentage (%)
Age (in years)		
18-29	2	0.95
30-39	48	22.86
40-49	63	30
50-59	51	24.29
60-69	29	13.81
>70	17	8.1
Gender		
Male	150	71.43
Female	60	28.57
Religion		
Hindu	172	81.90
Buddhist	30	14.29
Muslim	7	3.33
Other	1	0.48
Marital status		
Married	183	87.1
Unmarried	7	3.3
Divorced/widow/widower	20	9.5
Smokeless tobacco used		
Current user	193	91.90
Former user	7	3.33
Lifetime abstainer	10	4.76
Smoking		
Current user	26	12.38
Former user	4	1.90
Lifetime abstainer	180	85.71
Alcohol		
Current user	68	32.38
Former user	9	4.28
Lifetime abstainer	133	63.33

Continued.

Variables	N	Percentage (%)
Primary site of the cancer		
Buccal mucosa	97	46.2
Tongue ant.2/3	48	22.9
Alveolus	21	10
Gingivo-buccal sulcus	20	9.5
Hard palate	8	3.8
Lip	8	3.8
Floor of the mouth	3	1.4
Tongue post.1/3	2	1
Other	3	1.5
Stage of oral cancer at the time of diagnosis		
Stage I	8	3.8
Stage II	48	22.9
Stage III	94	44.8
Stage IV	60	28.6
Operated	0	0
Current stage of oral cancer		
Stage I	5	2.4
Stage II	32	15.2
Stage III	70	33.3
Stage IV	71	33.8
Operated	32	15.2

Table 2: Health-related quality of life compared to the month before cancer

Health-related quality of life	N	Percentage (%)
Much better	0	0.00
Somewhat better	1	0.48
About the same	39	18.57
Somewhat worse	150	71.43
Much worse	20	9.52

Table 3: Health-related quality of life during the past 7 days.

Health-related quality of life	N	Percentage (%)
Outstanding	0	0.00
Very good	0	0.00
Good	14	6.67
Fair	87	41.43
Poor	105	50.00
Very poor	4	1.90

Table 4: Overall quality of life in oral cancer patients.

Health-related quality of life	N	Percentage (%)
Outstanding	0	0.00
Very good	0	0.00
Good	13	6.19
Fair	93	44.29
Poor	99	47.14
Very poor	4	1.90

DISCUSSION

Oral cancer remains a significant public health concern globally, with its incidence and mortality rates varying across different populations. This study utilized the UW-QOL scale to assess patient-reported outcomes, revealing significant impairments across multiple domains.

The general QoL questions from UW-QOL scale showed that none of the subjects achieved the best possible score (100%) across all three categories: HRQoL compared to the month before being diagnosed with cancer, HRQoL during past 7 days, and overall QoL during past 7 days.

QoL assessments revealed that pain had the lowest mean score (59.40), indicating significant distress among patients. This finding aligns with other studies that have reported pain as one of the most debilitating symptoms affecting QoL in oral cancer patients.

For instance, Abbas et al evaluated QoL in oral cancer patients using the same UW-QOL scale and found that domains such as pain, appearance, and anxiety were severely impacted.¹⁰

Current study found that pain was the most affected domain, with over 82% of patients reporting significant discomfort. This is similar to findings by Mili et al who noted that nearly 45% of patients required regular pain medications.¹¹

In present study, 50% participants stated that they have poor quality of life. Which was not similar to the study

done by Kazi et al which stated that 43.7% participants had very good quality of life followed by good (28.1%) QoL.¹²

Study done by Nizar et al had similar findings of QoL in patients of Oral cancer, where 34.3% participants had poor QoL followed by 51.4% had fair QoL.¹³

Limitations

The present study has inherent limitations of a cross-sectional study and that the study relied on self-reported knowledge and practices, which may introduce recall or social desirability bias.

CONCLUSION

This cross-sectional study highlights the significant impact of oral cancer on various aspects of QoL among patients in Central India. While domains such as shoulder function and saliva showed relatively high scores, pain, appearance, and anxiety were identified as major concerns affecting a substantial portion of the patients.

The low scores in mood and activity further emphasize the psychosocial burden associated with oral cancer. These findings underscore the importance of comprehensive, multidisciplinary approaches to patient care, focusing not only on physical rehabilitation but also on addressing emotional and psychological needs.

Implementing targeted interventions that alleviate pain, improve physical function, and offer mental health support could significantly enhance the overall QoL for patients suffering from oral cancer.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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