Original Article

Exploring the Aftermath: The Impact of Oral Cancer Treatment on Quality of Life

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ABSTRACT

OBJECTIVE: To examine the complex complications resulting in survivors of oral squamous cell carcinoma (OSCC) in Pakistan and their subsequent effects on the Quality of Life (QoL).

METHODOLOGY: A descriptive cross-sectional study was conducted over six months involving 290 OSCC survivors at NIMRA Cancer Hospital and LUMHS Hospital. Data were collected via structured questionnaires and analyzed using SPSS version 26.0.

RESULTS: The results indicate a high post-treatment morbidity. The cohort was highly socioeconomically unstable, with 76.6% of survivors unemployed. Physical symptoms were ubiquitous: 52.1% had a problem with biting, 46.2% always had a dry mouth, and 81.0% of them were not in control of food and saliva. Moreover, 51.4% reported occasional bleeding. The psychological burden was heavy; 67.6% of survivors had anxiety, and 74.8% survivors regularly exhibited irritability. It is noteworthy that 40.3% experienced the psychological trauma of lifelong facial defects. In behavioral terms, a worrying 53.4% of the patients stopped tobacco and areca nut use after the treatment, which is an important step though; however, a very alarming 43.3% of the patients resumed the use of their high-risk practice.

CONCLUSION: Survival is only the beginning of the recovery journey. The findings underscore an urgent need for holistic survivorship programs that integrate medical rehabilitation, psychological counseling, and vocational support to improve long-term QoL.

KEYWORDS: Oral cancer, Quality of life, Oral scaled cell melanoma, Survivorship, scaled cell melanoma of head and neck, Mouth tumors.

INTRODUCTION

Of all the different malignancies characterized in the head and neck, oral cancer is the eighth most prevalent malignancy in the world today, 90% of OSCC in the world[1]. Oral carcinoma represents the second most prevalent neoplastic disease in Pakistan among both male and female patients. Yet, it holds the distinction of being the most frequently diagnosed malignancy in male individuals. The incidence of OSCC is increasing by the day. The primary cause of cancer-related death is OSCC [2]. Survivors exhibit a spectrum of diminished quality of life across multiple dimensions, including functional, physical, psychological, emotional, and social domains aspects[3]. Post-radiotherapy and surgical intervention can lead to long-term complications such as difficulty swallowing, opening the mouth, breathing, disfigurement, altered taste, and dryness of the oral cavity. The other issues are professional limitations, crises, economic crises, and disruptions of family life.

For patients burdened with oral carcinoma, maneuvering these impaired functionalities comprises a daily challenge, which is often unacknowledged by individuals in good health. The tongue was the most frequently identified site of malignancy and served as the principal focus of intervention treatment[4]. Resection of the lingo leads to significant impairment in speech, mastication, deglutition, and respiration, thereby severely affecting the quality of life of affected cases and impeding their overall communicative function[5]. The inability to perform proper mastication may precipitate malnutrition, prompting people to exercise selectivity in their salutary choices[6]. Radiotherapy tailored to the head and neck region is correlated with persistent consequences, including confined oral orifice and oral depression[7]. The cumulative repercussions of these factors lead to considerably impaired speech and swallowing capabilities, eventually resulting in inadequate nutritional status and hindering the ability to revert to a fully functional way of life. An elevated position of psychological torture among distinctiveness who have accomplished treatment for oral cancer is determined with constraints in eating, apprehension regarding complaint rush, and fatigue; again, youngish cases reliant on feeding tubes and passing fresh comorbid conditions report heightened situations of torture due to solitariness and employment conclusion torture[8]. There is a critical need to understand the functional impairments endured by cases as a consequence of the complaint line and the preceding treatment interventions (intervention 9). Being well aware of the complications and difficulties a post-treated OSCC

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goes through is crucial to working on this aspect of improving the QOL of such patients. This study evaluates the physical, psychological, and socioeconomic burdens among OSCC survivors in Pakistan.

METHODOLOGY

This descriptive cross-sectional study was conducted over six months at NIMRA Cancer Hospital, Jamshoro, and the OMFS Department at LUMHS Hospital, Hyderabad. Approved by the LUMHS Ethical Review Committee, the study used convenience sampling to enrol 290 OSCC survivors aged 15 to 70. The sample size was determined using a 95% confidence level and a 5% margin of error. Data collection focused on post-treatment complications, excluding individuals with antisocial personality disorders or those unwilling to participate. Statistical analysis was performed using SPSS version 22.0, employing chi-square tests to evaluate associations between demographic variables and quality-of-life outcomes, with statistical significance established at $p \leq 0.05$. The research strictly adhered to the principles of the Declaration of Helsinki.

RESULTS

Table I: This demographic analysis of 290 patients reveals a significant male predominance (74.8%) and a concentration within the young adult cohort (20–59 years, 85.9%). Socially, the vast majority were married (92.8%), yet a critical socioeconomic challenge emerged: 76.6% of participants were unemployed. These findings characterize the study population as primarily young, married, and socioeconomically vulnerable men. Such high unemployment rates, alongside the relative underrepresentation of women and older people, highlight potential epidemiological trends or disparities in healthcare access. Overall, these results emphasize the need of integrate socioeconomic support into health interventions, as the demographic profile suggests that economic instability may significantly influence the health outcomes and recovery trajectories of this population.

Table I: Demographic Variables

Variables	Frequency (n)	Percentage (%)
Gender of Patients		
Male	217	74.8
Female	73	25.2
Age Groups		
Young Adults (20-59 years)	249	85.9
Older Adults (59+ years)	41	14.1
Marital Status of Patient		
Married	269	92.8
Unmarried	21	7.2
Occupation of Patient		
Employed	68	23.4
Unemployed	222	76.6

Table II highlights a significant burden of post-treatment physical complications among OSCC survivors, particularly regarding oral function and general systemic health. Functional impairments were highly prevalent, with 52.1% almost always experiencing mastication difficulties and 46.2% suffering from chronic xerostomia. Speech and sensory issues were also marked; 90.3% reported some level of difficulty pronouncing words, while 89% noted a worsened sense of taste. Systemic effects were equally severe, as 94.1% experienced weakness and 91% reported weight loss at least occasionally. Furthermore, radiation-related effects like skin damage (86.9%) and mouth opening restrictions (87.2%) were widespread. Although acute issues like bleeding were largely intermittent, the cumulative frequency of these symptoms, including fatigue, painful speech, and swallowing difficulties, reveals a cohort facing multifaceted physical deterioration. These findings emphasize the necessity for comprehensive, long-term multidisciplinary care to manage the extensive morbidity associated with oral cancer recovery.

Table II: Physical Health Assessment

Variable	Never (%)	Some times (%)	Almost (%)
Trouble pronouncing words	9.7	55.5	34.8
Sore spots/painful aching in the mouth	20.3	59.0	20.7
Worsened sense of taste	11.0	45.5	43.4
Difficulty in mastication	5.5	42.4	52.1
Saliva/food spilling from the mouth	8.3	81.0	10.7
Mouth dryness	5.5	48.3	46.2
Mouth swelling	24.8	57.6	17.6
Painful speech	23.1	59.3	17.6
Skin burn/damage	13.1	79.3	7.6
Weight loss	9.0	61.7	29.3
Weakness	5.9	49.7	44.5
Headaches	39.3	51.4	9.3
Skin color changes	14.5	77.2	8.3
Fatigue/cramps	23.1	64.5	12.4
Difficulty swallowing	14.1	50.3	35.5
Bleeding	47.6	51.4	1.0
Mouth opening issues	12.8	72.4	14.8
Teeth Loss	51.0	40.7	8.3
Weight loss	9.0	61.7	29.3
Weakness	5.9	49.7	44.5
Headaches	39.3	51.4	9.3

Table III reveals significant psychological distress: 84.8% of survivors experience tension, and 89.3% report irritability at least sometimes. Notably, facial disfigurement poses a severe, constant burden for 40.3%.

Table III: To Assess Psychological/Social Impact

Variable	Never (%)	Some times (%)	Almost (%)
Felt tense	15.2	67.6	17.2
Facial disfigurement	33.8	25.9	40.3
Felt irritable	10.7	74.8	14.5

Table IV Treatment shows positive behavioral changes in stimulant users, with 43.3% nearly always avoiding habits post-treatment, though further intervention is needed for permanent results.

Table IV: To Assess Treatment-Related Outcomes

Variable	Never (%)	Some times (%)	Almost (%)
Eat Guttka, Chalia, Pan, & smoking	15.2	31.4	53.4
Avoid some habits after treatment	5.2	51.4	43.3

DISCUSSION

This study evaluates the physical, psychological, and socioeconomic burdens among OSCC survivors in Pakistan. Among demographic variables, the study included a total of 290 patients. However, the above findings highlight key demographic trends, such as the predominance of young, married, unemployed males in the study. The high unemployment rate could also suggest the need to explore economic factors related to the health issue being studied. Overall findings suggest a population facing multiple persistent physical health challenges, regarding oral function and general well-being, where stress and irritability are common but intermittent issues, and facial disfigurement poses a more consistent psychological or social burden for the population. Meanwhile, Chandu et al. [10] and several researchers have documented the exacerbation of challenges associated with speech, alimentation, and deglutition, particularly during the initial month following intervention surgery. The dominance of functional deficits, like swallowing problems and oral spillage, highlights the physical effects of treatment. In contrast, psychosocial problems, such as tension and work-related issues, illustrate the overall socioeconomic and psychological effects. Although the use of tobacco/betel nut is common, most patients changed their behavior after treatment, showing the effectiveness of behavioral approaches in improving their lifestyle. However, the continued practice of these behaviors among patients suggests the need for continued support. The findings also show the psychological effect of facial disfigurement (40.3% of patients affected almost always), underlining the need for psychological support for OSCC patients. The rate of recurrence of 6.6%, although low, demands continued monitoring and patient education. Patients with multiple ongoing physical health problems, especially concerning oral function and overall well-being. The issue of recurrence of the tumor was reflected by significant shortening during the follow-up period, the most significant functional restriction being detected after the surgery. Either way, according to the previous studies by Rinaldi I et al., the fear of cancer recurrence was shown to be a critical issue in the mind of the participants diagnosed with malignancies, and more so during the treatment process[11]. Psychological and social impacts with disparate frequencies across variables; these outcomes imply that stress and irritability are common but discontinuous issues, whereas facial disfigurement causes a more consistent psychological impact for the population. However, Moore KA et al. [12] analytical approach may also fail to capture the genuine clinical ramifications of hemorrhaging and alterations in skin pigmentation, as these phenomena typically present with low incidence but considerable effects on QoL. Treatment-related outcomes reveal that almost always consuming stimulants like *Guttka, Chalia, pan, or tobacco*. Post-treatment behavior showed improvement, with almost always avoiding harmful habits and doing so sometimes, while just 5.2% never made changes. However, Bansal D et al. [13,14] Patient-reported outcomes (PROs) yield invaluable insights into daily-life difficulties and the subjective assessment of psychological and physical well-being from the perspective of the patient. Whenever, Jehn P et al. [15] The postoperative timeframe is contingent upon the temporal distance since surgery. While Borggreven PA et al. [16] report that therapy-related impairments, such as xerostomia, were found to be relevant. As in the present study, chronic mouth dryness was reported by 48.3% sometimes and 46.2% almost always, contrasting with just 5.5% never affected, which emerged with the passage of time following surgical procedures. Similarly, a degree of mobility restrictions in the tongue and cervical region has been reported by patients; however, these restrictions did not exhibit significant variation throughout the postoperative phase of follow-up [10,16]. Functional oral problems were notably frequent, with chewing difficulties affecting 42.4% sometimes and 52.1% almost always, despite 5.5% never experiencing them. Stress and irritability are common psychological or social burdens for the population; however, felt irritability was present in 74.8% of cases. Whenever Speksnijder CM et al. [17] The incidence of both impairments has been identified as pertinent to individuals who have oral cancer, and the facilitation of supportive management for therapy-induced psychological distress has emerged as a pivotal component of cancer care treatment[18]. Whenever Hammerlid E et al. [19], the most oral cancer-specific concerns may worsen post-treatment but subsequently revert to pre-treatment levels, with the exception of sensory functions, oral aperture, and the experience of viscous saliva, which remain compromised over the long term [20]. However, the

present study shows that mouth-opening problems were frequent, affecting almost always; sensory impairment appeared substantial, evidenced by having sometimes encountered this issue; and saliva or food spillage had occurred. However, de Graeff A et al. [21] have reported that the impact of tumor site on patients with oral cavity malignancies has been reported to have heightened pain levels. In contrast, individuals with T3–T4 tumors have expressed greater difficulties in mouth opening and an increased sense of discomfort ill[22]. Moreover, with reporting sore spots or mouth pain compared to experiencing it sometimes. During our study, symptoms such as difficulty in mastication, mouth dryness, and worsened taste were prevalent among treated patients and showed minimal change in frequency during the postoperative phase. Moreover, Derks W et al. [23,] the disrupted coping mechanisms related to the disease and heightened anxiety have been recognized as additional significant challenges for cancer survivors, resulting in diminished QoL[24]. According to the present study, speech difficulties were common; participants experienced trouble pronouncing words. However, Colangelo LA et al. [25] found that patients diagnosed with oral cavity tumours (compared with those with oropharyngeal tumours) and individuals with T3–T4 tumours (as opposed to those with T2 tumours) demonstrated inferior scores in terms of speech and oral functionality, which aligns with findings from earlier studies. However, Kotz T et al. [26] the symptom-related findings always impaired were those already widely reported in the published literature.

Despite the benefit of a substantial cohort of patients, certain limitations are inherent in the current investigation. Firstly, the data were evaluated retrospectively using standardized questionnaires completed by patients reporting their physical and psychological impairments, as well as their quality of life (QoL), at a single postoperative time point. Medical practitioners or healthcare professionals did not subsequently verify the specific disorders reported. Secondly, the findings of this investigation are exclusively relevant to patients who underwent surgical intervention. Individuals who received primary radiotherapy, chemotherapy, or a combination of both were incorporated into the evaluation of oral cancer treatment outcomes.

The results of this research study have shown that although there may be some impairment in the increase and decrease of certain conditions post-surgical cancer treatment, the overall QoL remains stable. Future research studies should also consider the implications of cancer staging preoperatively and postoperatively. Future studies on this topic will help to provide a better understanding of the therapeutic implications of surgical procedures and how the QoL of cancer patients can be maintained based on the original site of the disease. Follow-up visits, the administration of certain medications to counteract post-surgical complications, a well-balanced diet, and spiritual care are all critical aspects of patient management.

CONCLUSION

Survivors of OSCC in Pakistan have to cope with considerable physical, psychological and socioeconomic constraints after the completion of treatment. These problems will need to be addressed with interdisciplinary approaches, improvements in policies for access to rehabilitation, and culturally specific interventions that improve coping and functional recovery. Physicians need to focus on survivorship care plans that go beyond oncologic remission to promote comprehensive recovery in this population at risk.

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AUTHOR CONTRIBUTION

Raika SR: Conceptualization of methodology, design of results and charts, interpretation of data, and drafting of the manuscript.

Kumar M: Management of references and citations, formatting of the manuscript, and design of visual elements.

Memon SM: Supervised the overall research process, ensured methodological rigour in data analyses, and oversaw ethical compliance throughout the study.

Zaman MY: Managed data collection procedures and coordinated fieldwork.

Rabari H: Conducted SPSS data entry and technical support, and ensured accuracy of the data.

Kumar A: Assisted with literature review and manuscript editing.

Menghwar R: Contributed to statistical analysis and validation of datasets.

All authors have read and approved the final version of the manuscript.

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