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Assessing the Psychological Impact of Oral Potentially Malignant Disorders Among Patients

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ABSTRACT

Although potential exists for patient-reported outcome measures to assess disease impact, Quality of life evaluation is not widely used in clinical settings. Limited literature exists on the patients' life quality with oral potentially malignant diseases. **Objectives:** To evaluate how Oral Potentially Malignant Disorders (OPMDs) affect different realms of quality-of-life QoL, potentially shedding light on variations in QoL depending on the seriousness of the disease. **Methods:** This cross-sectional study included 70 patients through convenience sampling with potentially malignant disorders: 20 Oral sub mucous fibrosis, 20 Oral lichen planus, 20 Leukoplakia and 5 Actinic keratosis and 5 Erythroplakia. All participants were recruited from Abbasi Shaheed Hospital and Ziauddin University Hospital. The diagnosis of OPMD was made through clinical examination and confirmed by histopathological assessment conducted by oral surgeons. Informed written consent was obtained from all participants, and the SF-12v2 health survey was used for assessment. **Results:** The oral potentially malignant disorder showed highest occurrence in females than in males in oral submucous fibrosis, leukoplakia and oral lichen planus.The OPMD patients reported impairements in emotional well being and experienced significant pain and functional limitations ($p < 0.05$). **Conclusions:** The assessment of oral premalignant diseased patients provides valuable insights and understanding of impact of these conditions on their lives. Therefore, this study suggest that OPMD QoL should be routinely checked to enhance patients' wellbeing and quality of life.

INTRODUCTION

Recently, there is an increased interest in assessing the health necessities of patients with oral diseases. The investigation of how oral health impacts the quality of life has emerged as a crucial method for evaluating treatment outcomes.The World Health Organization describes quality of life (QoL) as, "an individual's perception of their position in life, influenced by their cultural surrounding, beliefs, desires, and concerns".A healthy mouth environment enables people to carry out their everyday tasks more successfully, but oral disorders can disturb normal processes, harming confidence, social relationships, and general quality of life.Periodontal disease and tooth loss have been demonstrated to have a substantial influence on quality of life, whereas oral cancer can damage patients physically, functionally, and mentally . As a result, QoL assessments are crucial in the treatment of cancers. Although OPMDs are not immediately life-threatening, they can affect oral function, cause discomfort, and lead to psychological distress due to the fear of cancer. These patients often face specific health challenges that significantly influence their quality of life . In South East Asia oral sub mucous fibrosis is highly prevalent, characterized by burning mouth sensation, stiffness and limited mouth opening, significantly compromising the

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individuals QoL. It is evident that oral sub mucous fibrosis produces detrimental effect and its advance stages are associated with worsening of Qol . Oral lichen planus affects about 1% to 2% of the world's population and is more frequent in middle-aged women . It causes discomfort and burning sensations in the oral mucosa. Persistent painful sensations and trouble swallowing and speaking have a detrimental influence on quality of life . Oral leukoplakia accounts for approximately 1% with increased prevalence seen in adult population. Clinically it is classified as homogenous and non-homogenous subtypes. Few studies have been done, evaluating QoL in Oral leukoplakia patients . Although the use of patient reported measures to assess the impact of disease is encouraged, still QoL assessment is limited in clinical practice . Scarce literature available on QoL in OPMD patients. However, few instruments have been used in the past to assess QoL .

Oral Potentially Malignant Disorders (OPMDs) pose significant threats to patients' psychological and functional well-being due to their potential for malignant transformation and chronic symptomatic burden, yet Quality of Life (QoL) assessment remains largely underutilized in clinical practice. Despite growing recognition of the psychosocial impact of OPMDs, literature on QoL across different OPMD subtypes remains scarce and methodologically inconsistent. This study therefore aimed to evaluate how OPMDs — including oral submucous fibrosis, oral lichen planus, leukoplakia, actinic keratosis, and erythroplakia — differentially affect domains of QoL such as emotional well-being, physical health, pain, and functional limitations, with the goal of identifying disease-specific disparities to guide more holistic patient management

METHODS

This cross-sectional study comprised of 70 patients of oral potentially malignant disorder(20 Oral submucous fibrosis, 20 oral lichen, 20 leukoplakia, 5 actinic keratosis and 5 erythroplakia) through convenience sampling technique. The estimated sample size was calculated by open epi through formula $n=Z^2P(1-P)/d^2$, where n is the sample size, Z is the level of confidence which was set at 95% confidence interval, P is the expected prevalence which was assumed to be in between 4% to 10%, which we took 4%, resulting in a minimum sample size of 60 to 139. The duration of the study was from June 2021 to August 2022, after the approval from ethical review committee Ziauddin University with Reference Code: 2941220ZAPAT. Whereas data analysis, interpretation of results and manuscript preparation was carried out after the data collection. All the samples were recruited from Abassi Shaheed hospital (Ref no: DIRS/ASH/ESTT/3145/2020) and Ziauddin university hospital. The OPMD patients were diagnosed on the basis of clinical examination and histopathological assessment by expert clinical surgeon. Inclusion criteria were patients with oral premalignant disorders diagnosed through clinical and histopathological assessment. Patients with coexisting systemic diseases were excluded. A written informed consent was obtained from all the participants and a questionnaire-based SF-12v2 survey form was filled by the patients, consisting of 12 items assessing 8 health domains including Physical health, physical activities, pain, overall health status, functional limitation, emotional health, energy and anxiety. The data were analyzed using STATA version 17.0. For categorical variables, chi square was applied. To check the normality of the data, shapiro wilk test was applied. As the data was not normally distributed, non-parametric tests were applied at 95% confidence interval. To compare the Qol domains Kruskal Wallis was applied and for correlation between the variables spearman's correlation test was applied. P value of <0.05 was considered statistically significant.

RESULTS

Table 1 depicts the frequency distribution of oral potentially malignant disorders in male and females with highest frequency of oral sub mucous fibrosis, oral lichen planus and leukoplakia patients. Out of total 70 OPMD participants, 71.4% were females and 28.6% were males, indicating that females were more frequently affected by OPMDs than males.

Table 1: Frequency Distribution of Oral Potentially Malignant Disorders

OPMD	Gender		p-value
	Male N (%)	Female N (%)	
Leukoplakia	5(7.1)	15(21)	0.311
Oral Lichen Planus	8(11.4)	12(17.1)	
Oral Sub mucous Fibrosis	6(8.5)	14(20)	
Actinic Keratosis	0(0)	5(7.1)	
Erythroplakia	1(1.4)	4(5.7)	

Chi square test was applied. P-value of <0.05 is considered statistically significant

To compare the Qol scores of OPMDs in groups Kruskal-Wallis test was applied. The domains were grouped in to 4 categories (performing routine activities, physical health, emotional problems, pain and functional limitations).Out of these 4 categories, emotional problems and pain and functional limitation showed significant association with oral potentially malignant disorders (p-value 0.03 and p-value 0.04 respectively)as shown in table 2.

Table 2: Disease group-specific scores of Oral Potentially Malignant disorders QOL Questionnaire

QoL Domains	Observations	Rank sum	p-value
Performing Routine Activities			
Leukoplakia	20	700.50	0.398

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Oral Lichen Planus	20	700.50	
Oral Sub mucous Fibrosis	20	700.50	
Actinic Keratosis	5	255	
Erythroplakia	5	148	
Physical Health			
Leukoplakia	20	725	0.450
Oral Lichen Planus	20	689	
Oral Sub mucous Fibrosis	20	54	
Actinic Keratosis	5	234	
Erythroplakia	5	128	
Emotional Problems			
Leukoplakia	20	745	0.030
Oral Lichen Planus	20	719	
Oral Sub mucous Fibrosis	20	657	
Actinic Keratosis	5	251	
Erythroplakia	5	152	
Pain and Functional Limitations			
Leukoplakia	20	713	0.040
Oral Lichen Planus	20	700	
Oral Sub mucous Fibrosis	20	681	
Actinic Keratosis	5	245	
Erythroplakia	5	160	

Kruskal–Wallis test applied. P-value of <0.05 considered statistically significant

Oral potentially malignant disorders were compared with health status and limited activities in patients. On comparing with the health status, patients with oral submucous fibrosis and erythroplakia showed poor health status (Table 3). This suggests that these patients suffer more possibly due to progressive fibrosis and chronic nature of the disease.

Table 3: Comparison of Oral Potentially Malignant Disorders with Health Status

Health Status	OSF	Leukoplakia	Lichen Planus	Actinic Keratosis	Erythroplakia
Very Good	6	4	4	2	7
Good	5	6	10	1	3
Fair	2	3	4	2	3
Poor	10	2	1	1	8

Table 4 Represents the limitations of performing daily activities in OPMD patients and showed that most of the patients suffering from OSF, Leukoplakia and Lichen planus faced problems in perfoming their routine activities most of the time.

Table 4: Comparison of Oral Potentially Malignant Disorders with Limitation of Activities

Limited Activities	OSF	Leukoplakia	Lichen Planus	Actinic Keratosis	Erythroplakia
Most of Time	7	8	10	4	2
Little of Time	2	3	1	1	0
None	0	0	0	0	0
All of Time	10	9	9	1	4
Some of Time	4	0	0	0	0

DISCUSSION

Patients with oral potentially malignant disorders suffer with severe adverse health outcomes because of their ability to develop into cancer [14]. Studies indicated that there is an increased frequency of malignant transformation of leukoplakia, lichen planus, and oral submucous fibrosis consisting of 3.5%, 1.1%, and 7%-13%, respectively [15-17]. These findings emphasize the necessity for continuous clinical monitoring to detect early malignant changes and improve patient outcomes. Individuals with OPMDs experience serious health challenges that impact their quality of life, often leading to psychological distress due to the fear of developing cancer. Moreover, numerous patients experience social and emotional issues [8, 18]. This study observed that OPMDs significantly impacts patients' QoL, affecting their comfort, ability to function, social and emotional health, and daily activity performance.Specifically patients with erythroplakia suffers poor mental health outcomes, indicating increased risk of psychological disorders in these patients . Liewellyn and Warnakulasuriya assessed oral health problems such as aphthous ulcers, oral lichen planus, oral candidiasis, xerostomia and temporomandibular joint disorders by oral health impact profile [14]. They reported that chronic diseases of the oral mucosa significantly reduced oral health-related quality of life [19]. A study discovered a connection between increased pain levels and decreased quality of life in patients with oral lichen planus. [21]. In this research, we observed that the main reason for reduced quality of life was mostly due to a decrease in social and emotional well-being, particularly in how patients viewed their own health. Moreover, a notable difference in the prevalence of Oral Potentially Malignant Disorders was observed between males and females, revealing that females were more frequently affected by these disorders. It may be due to the fact that females are more likely to seek medical attention and visit oral health clinics, leading to a higher reported prevalence. These findings highlight the importance of these factors as they greatly affect the prevention and management of these disorders. Furthermore, we believe that providing thorough information, counseling patients, and reassuring them about the effectiveness of treatment can prevent further decrease in quality of life in individuals with low social and emotional well-being. A recent research has also indicated that oral health issues can lead to pain and hinder daily activities [22, 23]. Therefore, it is crucial to address pain and limitations in functionality in order to improve quality of life.Tabolli et al. stressed the importance of utilizing both general and specialized questionnaires to

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gain a comprehensive understanding of the impact of oral issues, particularly in clinical settings where time for follow-up is limited [24]. The use of a questionnaire to assess quality of life may assist to concentrate the limited time available during follow-up sessions.

This study is limited by its small convenience sample of 70 patients, absence of a healthy control group, and cross-sectional design, which restricts causal inference and generalizability of findings. Additionally, the reliance on a single hospital setting and self-reported data may introduce selection and response bias. Future research should employ larger, multi-center, longitudinal study designs with matched control groups to better understand the evolving impact of OPMDs on QoL over time. Incorporating both disease-specific and generic QoL instruments, alongside psychological screening tools, would provide a more comprehensive assessment and support the development of targeted psychosocial interventions for OPMD patients.This study is limited by its small convenience sample of 70 patients, absence of a healthy control group, and cross-sectional design, which restricts causal inference and generalizability of findings. Additionally, the reliance on a single hospital setting and self-reported data may introduce selection and response bias. Future research should employ larger, multi-center, longitudinal study designs with matched control groups to better understand the evolving impact of OPMDs on QoL over time. Incorporating both disease-specific and generic QoL instruments, alongside psychological screening tools, would provide a more comprehensive assessment and support the development of targeted psychosocial interventions for OPMD patients.

CONCLUSIONS

Assessing Quality of Life in patients with Oral Potentially Malignant Disorders is essential for understanding their psychological and functional challenges, utlimately enhancing interaction between healthcare providers and patients. This study highlights that social and emotional well being was significantly affected in OPMD patients and pateints suffers with limitation in their routine activities . With the lack of extensive research on Quality of Life in OPMDs, further studies are necessary for a clearer understanding of the issue. Yet, this study is limited by being conducted on a convenience sample and lacking a control group.

Authors' Contribution

Conceptualization: SZA
Methodology: HA, ML, DS
Formal analysis: SZA, SK, HA
Writing and Drafting: SK, JA, HA, ML, DS
Review and Editing: SK, JA, HA, ML, DS

All authors approved the final manuscript and take responsibility for the integrity of the work

Conflicts of Interest

There was no conflict of interest.

Source of Funding

It was a self-funded study.

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