Artigo Original

v. 7 n. 4 (2026)
ISSN: 2675-8008
Revista Multidisciplinar em Saúde

ACESSO ABERTO

Data de Recebimento:
09/07/2026

Data de Aceite:
25/09/2026

Data de Publicação:
24/11/2026

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Citação:
SANTOS, I.B; SCHUSSEL, J.L; Fear of cancer recurrence in oral cancer patients: an integrative review. **Revista Multidisciplinar em Saúde**, v. 7, n. 4, 2026. https://doiorg/10.51161/integrar/rems/4915

DOI: 10.51161/integrar/rems/4915
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FEAR OF CANCER RECURRENCE IN ORAL CANCER PATIENTS: AN INTEGRATIVE REVIEW

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ABSTRACT

Fear of cancer recurrence (FCR) is defined as the worry or apprehension that the disease may return or progress. In patients with oral and oropharyngeal cancer, the functional and aesthetic changes resulting from treatment heighten psychological distress, making FCR one of the most prevalent unmet needs in this population. The aim of this integrative review was to analyze the scientific literature on fear of recurrence in patients with oral or oropharyngeal cancer, identifying associated factors and impacts on quality of life. The PubMed, LILACS, Web of Science, Scopus, Dentistry & Oral Science Source, and CINAHL databases were systematically searched to identify original articles in English or Portuguese, with no date restrictions, focusing on fear of cancer recurrence among patients undergoing or who had completed treatment for oral cancer. Sixteen original articles addressing FCR in the context of oral or oropharyngeal cancer treatment were included. The studies, conducted in five countries (United Kingdom, Germany, China, USA, and Australia), revealed that FCR prevalence is substantial, frequently exceeding 70%. Higher levels of fear were consistently associated with female sex, younger age, and financial difficulties. Clinical factors, such as the presence of persistent physical symptoms, act as triggers for increased FCR. FCR correlated positively with anxiety and depression and negatively with overall quality of life. Considerable heterogeneity was identified in the measurement instruments used. FCR is a subjective and persistent phenomenon that dominates survivors' daily lives, regardless of actual clinical remission. FCR remains underdiagnosed in clinical practice, reinforcing the need for systematic screening and targeted interventions to manage this distress.

Key-words: oral cancer, psychological distress, worry of cancer, oral neoplasms.

RESUMO

O medo da recorrência do câncer (MRC) é definido como a preocupação ou apreensão de que a doença possa retornar ou progredir. Em pacientes com câncer de cavidade oral e orofaringe, as alterações funcionais e estéticas decorrentes do tratamento intensificam o sofrimento psicológico, tornando o MRC uma das necessidades não atendidas mais prevalentes nessa população. O objetivo desta revisão integrativa foi analisar a literatura científica sobre o medo da recorrência em pacientes com câncer de cavidade oral ou orofaringe, identificando fatores associados e impactos na qualidade de vida. Foram realizadas buscas sistemáticas nas bases de dados PubMed, LILACS, Web of Science, Scopus, Dentistry & Oral Science Source e CINAHL para identificar artigos originais publicados em inglês ou português, sem restrição de data, com foco no medo da recorrência do câncer entre pacientes durante ou após o tratamento para câncer de cavidade oral. Foram incluídos 16 artigos originais que abordaram o MRC no contexto do tratamento do câncer de cavidade oral ou orofaringe. Os estudos, realizados em cinco países (Reino Unido, Alemanha, China, Estados Unidos e Austrália), demonstraram que a prevalência do MRC é substancial, frequentemente ultrapassando 70%. Níveis mais elevados de medo foram consistentemente associados ao sexo feminino, à menor idade e a dificuldades financeiras. Fatores clínicos, como a presença de sintomas físicos persistentes, atuam como gatilhos para o aumento do MRC. O MRC apresentou correlação positiva com ansiedade e depressão e correlação negativa com a qualidade de vida geral. Foi identificada considerável heterogeneidade nos instrumentos utilizados para sua mensuração. O MRC é um fenômeno subjetivo e persistente que domina o cotidiano dos sobreviventes, independentemente da remissão clínica efetiva e permanece subdiagnosticado na prática clínica, reforçando a necessidade de intervenções direcionadas para o manejo desse sofrimento.

Palavras-chave: câncer oral; sofrimento psicológico, recidiva local de neoplasia, neoplasias bucais

INTRODUCTION

Head and neck cancer encompasses a range of diseases that occur in four main anatomical sites: the oral cavity, sinonasal region, larynx, and pharynx. Due to its location, treatment for this type of cancer can lead to drastic changes in patients' appearance and functional abilities (1). Patients with head and neck cancer experience higher levels of psychological distress than individuals with most other cancer types, and this prolonged distress may lead to additional psychological problems, such as post-traumatic stress disorder, major depression, and fear of cancer recurrence (2,3).

Fear of cancer recurrence (FCR) is defined as "fear, worry, or concern relating to the possibility that cancer will come back or progress" (4) and is recognized as one of the most commonly reported problems and one of the areas with the highest prevalence of unmet needs among cancer survivors (5). It is understandable, natural, and even necessary for patients to experience a certain level of fear of cancer recurrence, as this may promote appropriate vigilance and the adoption of health-enhancing behaviors (5,6). However, elevated levels of FCR tend to result in limited future planning, body checking, intrusive thoughts, distress, and impaired daily functioning, as well as increased death-related thoughts and the belief that cancer will return (4,7,8). High levels of FCR are characterized by frequent rumination about cancer and its potential recurrence, stress-response symptoms, excessive efforts to monitor for signs of recurrence, and/or attempts to avoid triggers that remind patients of their cancer experience (9).

Research on head and neck cancer has generally focused on demographic, functional, and clinical

characteristics associated with survival rates and quality of life. However, psychosocial factors—particularly depression and anxiety—despite being strongly associated with poorer quality of life, remain less well understood and less extensively studied (10).

OBJECTIVES

The aim of this study is to examine what the scientific literature reports regarding fear of cancer recurrence among patients who have been diagnosed with and treated for oral cancer.

METHODOLOGY

This study is an integrative narrative literature review guided by the following research question: "What evidence does the scientific literature provide regarding fear of cancer recurrence among patients with oral cancer, considering associated factors and its impact on patients' quality of life?"

The literature search was conducted between April and May 2026 in the PubMed, LILACS, Web of Science, Scopus, Dentistry & Oral Science Source, and CINAHL databases, with no restrictions on publication date. Data collection was carried out in two stages. First, searches were performed in the selected databases, and all retrieved records were imported for duplicate removal. Subsequently, titles and abstracts were screened, and the eligibility criteria were applied, resulting in the selection of 19 articles. In the second stage, exclusion criteria were applied, and a total of 16 studies were included for full-text review.

Inclusion Criteria

The literature search included original experimental and observational studies. Eligible articles were published in English or Portuguese.

Population

Studies involving patients diagnosed with oral or oropharyngeal cancer were included.

Concept

Studies that investigated fear of cancer recurrence or fear of disease progression, including concerns about the development of metastases and/or the reappearance of a tumor at the site of the primary tumor, were included.

Context

Studies addressing fear of oral cancer recurrence during treatment or after treatment completion were included.

The exclusion criteria were as follows: studies that did not specifically address oral cancer; studies involving other types of head and neck cancer without separate analyses for oral cancer; editorials, letters to the editor, and short communications; and studies for which the full text was unavailable. These criteria were adopted to improve the comprehensiveness and relevance of the literature identified.

The search strategy was adapted for each database using Medical Subject Headings (MeSH) descriptors and free-text terms combined with Boolean operators (AND, OR). The PubMed search strategy served as the basis and was subsequently adapted for the other databases.

("oral cancer" OR "mouth cancer" OR "mouth neoplasms" OR "oral squamous cell carcinoma" OR "OSSC" OR "orofacial cancer" OR "oropharyngeal cancer") AND ("fear of cancer recurrence" OR "FCR" OR "fear of progression" OR "cancer recurrence anxiety" OR "recurrence worry" OR "cancer worry" OR "worry about recurrence" OR "cancer related worry" OR "fear of recurrence").

The review was conducted following these steps: selection of the topic and identification of the guiding research question; establishment of article inclusion and exclusion criteria; database searches; initial assessment of the studies identified through the search process; full-text reading and analysis of the included articles; and interpretation of the findings.

The extracted data were organized into three tables. The first table summarized the methodological and sociodemographic characteristics of each included study, including author and year of publication, country, study design, type of cancer, sample size, sex distribution, age range, socioeconomic status, and race or ethnicity of the participants. The second table synthesizes the use of validated instruments for assessing or measuring fear of cancer recurrence. The third table synthesized the main findings related to fear of cancer recurrence, including prevalence and severity, patients' psycho-emotional profile, factors associated with FCR, its impacts, and other relevant findings or conclusions reported by the authors.

The information synthesized in these tables served as the basis for the narrative analysis and interpretation of the evidence identified in the reviewed studies.

RESULTS

A total of 35 articles were identified after the removal of duplicates across databases. Following title and abstract screening, 19 articles were selected for full-text review. Of these, three studies addressed other types of head and neck cancer without providing separate analyses for oral or oropharyngeal cancer and were therefore excluded from the review.

Study Characteristics

The 16 studies included in this review were published between 2003 and 2026. Eight of these studies were published within the last five years, and three were published between five and ten years ago. The studies were conducted in five different countries: the United Kingdom (n = 6), Germany (n = 5), China (n = 2), the United States of America (n = 2), and Australia (n = 1).

As summarized in Table 1, the included studies were predominantly cross-sectional and varied substantially in sample size, ranging from 73 to 1,652 participants. Most studies included predominantly male participants, whereas socioeconomic status and race/ethnicity were infrequently reported. This heterogeneity in study populations should be considered when interpreting the prevalence and associated factors of FCR across studies. Among the studies that reported participants' mean age, values ranged from 58.3 to 66 years. Among studies reporting sex distribution, only one study reported a sample in which females represented more than half of the participants (13).

Regarding study design, 10 studies were cross-sectional, 2 were prospective, 3 were retrospective, and 1 was an observational study with a mixed design (cross-sectional and prospective).

Socioeconomic status was reported in four studies, with participant profiles varying across investigations. Race or ethnicity was addressed in only two studies, and in both cases more than 85% of participants identified as white.

FCR Assessment Instruments

The studies employed a wide variety of instruments of different natures to collect data on fear of cancer recurrence (FCR) (Table 2). Ten studies used validated psychometric instruments, with the Patient Concerns Inventory (PCI) being the most frequently applied, followed by the Cancer Worry Scale (CARS) and the Fear of Cancer Recurrence Inventory (FCRI/FCRI-SF). The remaining six studies used researcher-

developed questionnaires or single-item measures. Among these, three employed a 5-point Likert scale to standardize participant responses.

Study Findings

The synthesis presented in Table 3 indicates that FCR is a multidimensional phenomenon, with findings converging across four major domains: prevalence and severity, psycho-emotional status, clinical and sociodemographic factors, and consequences for quality of life.

The prevalence of FCR in this population showed considerable variation, ranging from 21% to 85.1%. In countries such as China, Germany, and Australia, prevalence rates consistently exceeded 70%. Regarding severity, although some studies reported relatively low levels of FCR (mean score of 2.91 on a scale ranging from 0 to 7), approximately 40% of survivors reported high levels of overall fear.

The findings indicate a strong presence of emotional disturbances associated with FCR. Anxiety was reported by up to 80% of female patients in certain contexts. Fear of recurrence was positively correlated with symptoms of depression, mood disturbances, and maladaptive coping strategies, such as denial and avoidance. In one study, more than 90% of patients reported negative changes in mood, physical well-being, and lifestyle due to fear of the disease returning.

There was general agreement that female sex and younger age (particularly between 18 and 60 years) were predictors of higher levels of fear. In contrast, patients older than 70 years tended to report lower levels of concern. Financial difficulties, lower income, and lower educational attainment were also associated with greater anxiety regarding disease progression.

The presence of physical symptoms, including pain, swelling, shoulder mobility limitations, and swallowing difficulties, was strongly associated with increased FCR. Furthermore, disease stage influenced patients' perception of fear: in early-stage disease, FCR tended to be the predominant concern, whereas in advanced-stage disease it became one among several issues of comparable importance.

The findings also demonstrate that higher levels of FCR are directly associated with poorer quality of life (QoL) and lower satisfaction with survivorship care. A particularly relevant finding concerns clinical communication: 86% of patients expressed a desire to discuss fear of recurrence with their oncologists. However, a significant informational gap was identified, as 23% of patients who were clinically disease-free were either unaware of or did not believe their disease-free status.

DISCUSSION

This integrative review demonstrates that Fear of Cancer Recurrence (FCR) is a prevalent and pervasive concern throughout the trajectory of oral and oropharyngeal cancer survivors. The findings indicate that FCR acts as a dominant factor in patients' daily lives, frequently manifesting as a subjective variable that often disregards the clinical reality of tumor remission. Discussion of its true magnitude is complex due to the heterogeneity of measurement instruments used. More than an isolated symptom, FCR must be understood as a multidimensional phenomenon intrinsically linked to quality of life, psychosocial functioning, and the organization of healthcare.

In the studies analyzed where data were available, FCR prevalence was expressive, exceeding 70% in samples from countries such as Germany, the United States, China, and Australia (13,23,24,25). Even in studies where FCR severity was considered low, high levels of global fear were still reported (23), demonstrating that individual experience of the disease and psychological response are varied and

multifaceted (27).

This geographic variation in prevalence should not be read solely as a population difference. Cultural factors, including the stigma associated with cancer, the physician–patient relationship, and the availability of psychosocial support integrated into oncology services, may influence both actual FCR levels and patients' willingness to report them. In contexts where cancer carries greater stigma or emotional support is less accessible, FCR is expected to be more intense and less clinically addressed. This calls for caution when generalizing the findings of this review to other settings, including lower-income healthcare systems.

Regarding sociodemographic risk factors, younger patients (13,23) are consistently associated with higher FCR levels; conversely, individuals over 70 years of age tend to report lower levels (13,23). Studies show that younger patients are more vulnerable to fear of recurrence, which may be attributed to the unexpected presentation of cancer at this stage of life, as well as to factors such as lower psychoemotional resilience and greater financial and family caregiving responsibilities (2,28,29).

In addition to younger individuals, female patients also showed a stronger association with FCR (13,17,23). These findings reinforce evidence from prior studies demonstrating a strong association between sex and FCR, explained through multiple factors: social inequalities such as the gender pay gap, and the tendency of women to express their fears more openly and to seek help (30).

Among studies that collected data on socioeconomic and financial status, patients experiencing financial hardship were more likely to develop FCR (23). Low income can restrict access to psychosocial resources, intensify anxiety about disease progression, and impair coping capacity (14,31). Furthermore, financial well-being is a core dimension of quality of life, and patients with better quality of life show a lower likelihood of developing FCR (13).

Regarding the mental health status of individuals, a general prevalence of some level of psychoemotional disturbance was observed, even when severity was moderate or low. FCR was positively associated with depression, anxiety, and mood disturbances, and was also linked to negative coping strategies such as denial and avoidance (11,13,14,16,17,23,24,25). These findings strengthen existing evidence in the literature linking negative coping behaviors in oral cancer with depressive symptoms (31).

There is consensus across studies that higher FCR is associated with lower quality of life (QoL) (13,18,24), corroborating the hypothesis that FCR contributes to the deterioration of psychological well-being, impairing various aspects of functioning and QoL (Andreis et al., 2025). However, it is important to go beyond this general finding and understand in which specific domains this deterioration manifests.

In the social domain, FCR tends to promote progressive isolation: patients report avoiding situations, conversations, and environments that remind them of the disease, compromising affective bonds and participation in daily activities. In the functional domain, persistent physical symptoms, such as pain, swallowing difficulties, and aesthetic changes resulting from treatment, act as recurring triggers for FCR, creating a feedback loop in which physical suffering amplifies fear and fear, in turn, worsens symptom perception. Data from the analyzed studies indicate that more than 90% of patients reported negative changes in mood, physical condition, and lifestyle attributable to fear of disease recurrence, reflecting the true magnitude of this multidimensional impact.

In the existential sphere, FCR manifests as uncertainty about the future, limited long-term life planning, intrusive thoughts about death, and disruptions to personal identity following diagnosis. This dimension is particularly relevant in oral cancer patients, whose functional and aesthetic sequelae, changes

in speech, swallowing, and appearance, keep the cancer visible and present in everyday life, making it difficult to achieve psychological distance from the disease experience. Understanding FCR across these multiple dimensions is essential for clinical interventions to be appropriately targeted.

Patients who underwent surgery alone may identify FCR as their primary concern, while those who received adjuvant radiotherapy may have other concurrent concerns, although fear remains presente (21). Prior treatment experiences also elevate FCR (13). This can be explained by the fact that patients' concerns span numerous aspects of life, and each individual's focus may shift according to the psychological impact of treatment and expectations regarding future treatments.

A strong correlation was observed between the presence of physical symptoms, pain, shoulder mobility problems, swelling, and swallowing difficulties, and FCR (21). These symptoms may be perceived by patients as possible signs of disease progression or recurrence; moreover, the persistence of symptoms keeps the cancer "present" in patients' daily lives, heightening concern about a potential recurrence (5,33).

FCR tends to be the dominant concern in early-stage tumors, while in advanced stages it becomes just one among several concerns of similar relevance (20). This corroborates the hypothesis that some patients with advanced cancer shift their focus away from the possibility of recurrence and begin to cope with the present reality of the disease, while early-stage cancer survivors frequently live with greater uncertainty about a possible cure (34).

One of the most significant findings of this review concerns the gap between FCR prevalence and its clinical management. Although 86% of patients express a desire to discuss fear of recurrence with their oncologists (24), this conversation rarely occurs in a systematic manner, it takes place Only when a trigger arises during the consultation (20,21,26). This asymmetry characterizes FCR as a major clinical unmet need: a demand that is present, recognized by the patient themselves, yet finds no structured response within routine oncological care.

The practical consequences of this gap are significant. Patients with high FCR tend to seek more unscheduled appointments and additional tests in response to their fear, behaviors that burden healthcare services without necessarily resulting in clinical benefit. Furthermore, a serious informational failure was identified: a significant proportion of patients who were clinically tumor- free were unaware of this fact (25). This highlights that medical communication regarding tumor status and prognosis remains inadequate, and that more active and structured patient information protocols are needed.

From a service organization standpoint, the data point to the need to incorporate systematic FCR screening into oncological follow-up workflows. Brief validated instruments, such as the Fear of Cancer Recurrence Inventory – Short Form (FCRI-SF, 9 items), have already demonstrated feasibility in clinical settings and could be integrated into follow-up consultations without significant impact on consultation time. Early screening would enable identification of patients with clinical FCR, those whose fear compromises daily functioning, and their referral to specialized psychosocial support before distress becomes chronic.

With respect to interventions, the analyzed studies focus predominantly on identifying and quantifying FCR, with few investigations into specific management strategies for oral cancer. The standard approach of providing basic information about diagnosis and treatment has proven insufficient (32). The broader oncological literature points to interventions with promising evidence, such as cognitive-behavioral therapy (CBT)-based programs, the ConquerFear protocol, and mindfulness-based approaches, that have already shown results in other cancer types. Adapting these interventions to the specificities of oral cancer,

taking into account the functional and aesthetic sequelae that amplify FCR in this population, represents a priority research agenda.

The analyzed studies employ a wide variety of FCR measurement instruments with distinct purposes, sensitivities, and focuses which compromises the comparability of results. The prevalence variation between 21% and 85.1% across studies reflects, in part, genuine methodological differences rather than purely population differences. Studies using a single question tend to capture only the most overt FCR, while multidimensional instruments such as the FCRI identify more subtle componentes of the phenomenon. This heterogeneity hinders the development of evidence-based clinical guidelines and may be underestimating or overestimating the problem in specific contexts.

In light of this, standardization of FCR measurement instruments in future research is recommended. The FCRI-SF emerges as a viable candidate for a reference instrument, given its cross-cultural validation, multidimensional structure, and clinical applicability, characteristics that distinguish it from the PCI, whose frequent use in this review reflects its popularity but not necessarily its adequacy for capturing FCR as a psychological construct.

Finally, it is worth noting that most included studies were conducted in high-income countries with predominantly White populations. The absence of studies from Latin American, African, or low-income Asian contexts limits the generalizability of the findings and reinforces the need for research that considers diverse sociocultural and economic settings, including healthcare systems with more limited psychosocial oncology infrastructure.

CONCLUSION

Fear of cancer recurrence is a frequent concern among oral cancer patients and is associated with multiple sociodemographic, emotional, and clinical factors. The analyzed studies demonstrate greater vulnerability among younger individuals, women, patients facing financial hardship, those with poorer quality of life, and those experiencing persistent symptoms, alongside a strong relationship with anxiety, depression, and psychological distress.

Beyond its impact on emotional well-being, FCR drives a pattern of hypervigilance toward bodily sensations and disease-related cues, leading patients to interpret ordinary symptoms as potential signs of recurrence. This hypervigilance translates into tangible consequences for clinical practice, as it prompts more frequent and often unscheduled visits to health professionals, additional diagnostic testing, and increased utilization of healthcare services that may not correspond to an actual change in disease status.

Despite its significant impact on well-being, quality of life, and the demand placed on healthcare services, FCR remains frequently underdiagnosed and insufficiently addressed in clinical practice. Systematic screening for this phenomenon, combined with the development of targeted interventions for its prevention and management, may help reduce unnecessary healthcare utilization driven by hypervigilance while contributing to more comprehensive, patient-centered oncological care.

Disclosure Statement

The authors report there are no competing interests to declare.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

Table 1. Study Characteristics

S.No.	Author and Year of publication	Country	Study Design	Type of Cancer	Sample Size	Age (years)	Gender (%)	Socioeconomic status (as reported in study)	Race or Ethnic group
1	Manne et al. 2025 (11)	USA	Crosssectional	Oral and Oropharyngeal cancer	593	62.14±10.63	M = 71.7 F = 28.3	< $30,000 = 11.3% $30,000–74,999 = 25.8% $75,000–139,999 = 28.8% ≥$140,000 = 32.9%) Unknown = 1.2%	White = 85.2% Black = 5.6% Asian = 3.5% Multiple = 3.4% Other/unknown = 2.4%
2	Bissinger et al. 2017 (12)	Germany	Prospective	Oral Squamous Cell Carcinoma (OSSC)	100	Surgical Therapy group = 57.5 Adjuvant radiochemotherapy group = 58	M = 65 F = 35	NR [a]	NR
3	Yu et al. 2026 (13)	China	Crosssectional	Oral and maxillofacial cancer	281	1860 = 61.2% ≥60 = 38.8%	M = 49.1 F = 50.9	<¥2000 = 70.1%	NR
4	Zhang et al. 2025 (14)	China	Crosssectional	Oral cancer	255	61.07 ± 11.58	M = 55.69 F = 44.31	<¥2000 = 17.65%	NR
5	Humphris et al. 2003 (15) (sample 1)	UK	Prospective	Orofacial cancer	87	58.3 ± 11.3	M = 70.1 F = 29.9	NR	NR
5	Humphris et al. 2003 (15) (sample 2)	UK	Crosssectional with follow up	Orofacial cancer	100	58.3±11.4	M = 68 F = 32	NR	NR
6	Handschel et al. 2012 (16)	Germany	Crosssectional	Oral cancer	1652	NR	NR	NR	NR
7	Jehn et al. 2022 (17)	Germany	Crosssectional	Oral Squamous Cell Carcinoma (OSSC)	1234	045 = 8.1% 4660 = 45.7% 61100 = 42.6%	M = 75.2 F = 24.8	NR	NR
8	Allen et al. 2017 (18)	UK	Crosssectional	Oral cancer	87	<55 = 19.54% 5564 = 39.08% 6574 = 20.69% ≥75 = 20.69%	M = 57.47 F = 42.53	NR	NR

Table 1. Study Characteristics (Continued)

S.No.	Author and Year of publication	Country	Study Desing	Type of Cancer	Sample Size	Age (Years)	Gender (%)	Socioeconomic status (as reported in study)	Race or Ethnic Group
9	Humphris; Rogers. 2004 (19)	UK	Prospective	Oral and Oropharyngeal cancer	73	55.33±11.33	M= 70 F= 30	NR	NR
10	Kanatas et al. 2012 (20)	UK	Crosssectional	Oral and Oropharyngeal cancer	317	Oral cancer early stage = 67 Oral cancer late stage = 68 Oropharyngeal cancer early stage = 62 Oropharyngeal cancer late stage = 62	M = 66.25 F =33.75	NR	NR
11	Sen et al. 2026 (21)	UK	Crosssectional	Oral and Oropharyngeal cancer	242	66±11.2	M = 61 F = 39	NR	NR
12	Jehn et al. 2022 (22)	Germany	Retrospective	Oral Squamous Cell Carcinoma (OSSC)	1359	045 = 8% 4660 = 46% 61100 = 42.5%	M = 75.9 F = 24.1	NR	NR
13	Manne et al. 2025 (23)	USA	Crosssectional	Oral and Oropharyngeal cancer	389	62.5±10.5	M = 70.7 F = 29.3	Adequate finances to meet daily needs Yes = 90.9% No = 8.6% Missing data = 0.4%	White = 85.8% Black = 5.2% Asian = 1.7% American Indian/ Alaska native = 0.43% Multiple = 6% Missing data 0.9%
14	McDowell et al. 2023 (24)	Australia	Crosssectional	Human Papillomavirus Associated Oropharyngeal Cancer (HPVOPC)	85	80	M = 86 F = 14	NR	NR
15	Krüskemper; Handschel, 2012 (25)	Germany	Retrospective	Oral Squamous Cell Carcinoma (OSSC)	1652	5170 = 67%	M = 75 F = 25	NR	NR

S.No.	Author and Year of publication	Country	Study Desing	Type of Cancer	Sample Size	Age (Years)	Gender (%)	Socioeconomic status (as reported in study)	Race or Ethnic Group
16	Rogers et al. 2018 (26)	UK	Retrospective	Oral and Oropharyngeal cancer	386	63	M = 58% F = 43%	NR	NR

NR [a] = not reported.

Table 2. Use of Validated Instruments

Validated Instrument	***n***
Patient Concerns Inventory (PCI)	4
The Global Fear Scale of the Concerns about Recurrence Scale (CARS)	2
Fear of Cancer Recurrence Inventory (FCRI)	1
Fear of Cancer Recurrence InventoryShort Form (FCRISF)	1
Fear of Progression QuestionnaireShort Form	1
Worry of Cancer Scale	1

Table 3. Study Findings

S.No.	**FCR Assessment Instrument**	**FCR Prevalence**	**FCR Severity**	**Mental Health Status**	**Impacts of FCR**	**FCRAssociated Factors**	**Additional Observations**
1 (11)	The Global Fear Scale of the Concerns about Recurrence Scale (CARS)	NR	Relatively low 2.91±1.44 (Scale 07)	Depression range: No to mild 63.5% Mild 22.8% Moderate 8.3% Moderately severe 3.2% Severe 2.2%	Less preparedness for survivalship care.	Cancer symptoms; Depression; Information needs.	Comparisons with studies of other cancer survivor populations using the same measure indicate the current sample reported higher general fear than survivors of mixed types of cancer.

S.No.	FCR Assessment Instrument	FCR Prevalence	FCR Severity	Mental Health Status	Impacts of FCR	FCRAssociated Factors	Additional Observations
2 (12)	Questionnaire. "Are you afraid of a new onset/ recurrence of the tumour?"	60%	NR	Anxiety occured in 80% of all female patients.	Fear of recurrence is a dominant factor impacting the daily lives of OSCC survivors.	Nonworking cohort had more FCR. Patients over 70 years old trend to report being less fearful of tumour recurrence.	70% of the patients reported that cancer was a strain on them and that even they think about tumour aftership care (TAC) between the TAC appointments. 10% gave the moderate answer.
3 (13)	Fear of Cancer Recurrence InventoryShort Form (FCRISF)	85.1%	17.38±4.73 (Scale 036)	While some participants experienced significant emotional and social challenges, others reported relatively better emotional wellbeing.	Poorer Quality of Life score is closely linked to heightened recurrencerelated fears.	Age (1860 years old); Female sex; Participants with previous treatment experience;	Limited education, low income, and caregiving burdens among older or retired patients can restrict access to psychosocial resources, intensify anxiety about disease progression, and hinder adaptive coping.
4 (14)	Fear of Progression QuestionnaireShort Form (FOPQSF)	NR	32.55±9.77 (Scale 160)	As long as their fear is controlled, many patients are able to develop a greater appreciation of life and find new meanings for their existence.	More fearful patients tend to seek less social support or proactive solutions.	FCR is positively correlated with negative coping strategies, such as avoidance and denial.	FCR is negatively associated with posttraumatic growth in patients with oral cancer.
5 (15) (sample 1)	Questionnaire. "Over the past month, how often have you worried about the possibility that cancer might come back?"	3 months after surgery = 83% 7 months after surgery = 72%	NR	Anxiety 3 months after surgery = 37% Anxiety 7 months after surgery = 31% Depression 3 months after surgery = 28% Depression 7 months after surgery = 23% Women were more anxious than men.	NR	Associations between recurrence fears and anxiety or depression were significant. Patients aged 65 or above were less concerned about recurrence.	Recurrence fears were found to be more closely associated with general anxiety rather than depression, although in the early stages of recovery fears of recurrence and depression were strongly related.

Table 3. Study Findings (continued)

S.No.	FCR Assessment Instrument	FCR Prevalence	FCR Severity	Mental Health Status	Impacts of FCR	FCR Associated Factors	Additional Observations
5 (15) (sample 2)	Questionnaire. "Over the past month, how often have you worried about thepossibility that cancer might come back?"	Baseline = 58% 2 years follow up = 64%	NR	Anxiety at baseline = 18% Depression at baseline = 13%.	NR	Significant associations between recurrence fears and anxiety.	There was a trend in the reduction of fears over time since initial treatment.
6 (16)	147 items questionnaire.	80%	No FOR = 20% Minor FOR = 30% Higher FOR = 50%	> 90% of patients reported changes in mood, general anxiety, physical state and lifestyle and see their future in a depressiveness way.	The higher the fear of recurrence is, the lower the quality of life.	Pain, poor shoulderarm mobility, swelling and problems in eating and swallowing in particular increase FOR. Patients' depressive attitude toward ilness are significantly correlated to FOR.	Patient behaviour are correlated closely with FOR. Patients with a high degree of FOR tended to perceive that they had not been adequately or carefully informed by their doctors.
7 (17)	Patients were questioned about their fear of tumor recurrence using a fivepoint Likert scale (score range = 0–4)	NR (no/weak were on the same category).	No/weak = 48.6% Moderate = 28.2% Very strong = 22%.	Women had significantly higher levels of depression and anxiety than men.	Fear is known to affect Quality of Life (QoL) assessment.	Fatalistic attitudes influence positively fear of tumour recurrence. Female sex had significantly higher levels of fear of tumor recurrence than men.	Despite significantly lower fear of tumor recurrence in this study, men had significantly more impairments than women.
8 (18)	Patient Concerns Inventory (PCI)	43%	NR	12.64% reported some anxiety dysfunction.	NR	Problems with anxiety or mood seems to be a significant predictor of fear of recurrence.	Interventions to address fear of recurrence concerns could benefit a large proportion of patients, potentially leading to improvements in quality of life.
9 (19)	Worry of Cancer Scale	NR	3 months: Smokers 11.90 ± 8 Nonsmokers 10.32 ± 7.15 15 months: Smokers 7.80 ± 7.58 Nonsmokers 7.72 ±	Patients who smoked heavily trend to show higher psychological distress. This study strongly implicates smoking behaviour with anxiety and depression in oral facial cancer patients.	There is some evidence to support the view that patients' fears of recurrence may be reflected on their smoking status, but the effect appears to be weak.	Although fears of recurrence appeared higher in the smokers than nonsmokers, it was not significant. Quitters were significantly less fearful than smokers and relapsers.	This study raises the question of whether smoking behavior simply generates concerns about illness or whether fears of recurrence actually promote reflection and the active abandonment of the smoking habit.

Table 3. Study Findings (continued)

10 (20)	Patient Concerns Inventory (PCI)	37.48%	NR	Patients experience significant psychological distress and unmet needs, particularly regarding appearance and intimacy. Impairments in oral aesthetics and function exert a profound impact on body image, selfesteem, and social interaction.	The most prevalent concern that patients wanted to discuss in clinic were fear of the cancer coming back, and if these go undetected there could be an adverse effect on patient satisfaction and HRQOL.	Fear of recurrence concerns were the dominant concerns of patients with early stage tumours.	For late stage patients fear of recurrence was just one of many concerns of similar prevalence.
11 (21)	Patient Concerns Inventory (PCI)	21%	NR	All patient groups achieved a score of 3 (good) on thehealthrelated quality of life index.	NR	Resection or surgery patients reported fear of recurrence as their primary and second most important concern, respectively. Surgery and radiotherapy patients reported fear of recurrence far less frequently among their main concerns.	Oral cancer patients reported fear of cancer coming back as the third most frequent concern.
12 (22)	Patients were questioned about their fear of tumor recurrence using a fivepoint Likert scale (score range = 0–4)	NR	NR	Depression and worse prospects increased almost continuously from the time since surgery and reached the highest levels > 5 years after treatment.	NR	The intensity of the worry about tumor recurrence tends to decrease with increasing postperative time and the highest impairment was detected during the first year after surgery.	This study provides insights into fear of cancer recurrence as a major concern among cancer patients, particularly during the first years following treatment.

Table 3. Study Findings (continued)

S.No.	FCR Assessment Instrument	FCR Prevalence	FCR Severity	Mental Health Status	Impacts of FCR	FCR Associated Factors	Additional Observations
13 (23)	Concerns about Recurrence Scale (CARS)	8082.3%	M = 2.91, SD = 1.45, range = 1–6 (relatively low) About 40% reported elevated levels of global FoR.	Depression Range (%) no to mild = 60.3 mild = 22.4 moderate = 9.9 moderately severe = 3.9 severe = 3.4	The fear of recurrence may trigger and influence other types of concerns.	Younger age; Female sexMore cancer symptoms and side effects; Higher depressive symptoms; Financial Hardships.	Many of the fear of cancer recurrence risk factors are modificable factors. FoR is an adverse psychological effect of cancer but has received relatively little empirical attention.
14 (24)	Fear of Cancer Recurrence Inventory (FCRI)	77.65%	Almost half patients reported moderatetosevere FCR 12 months after RT/CRT.	NR	NR	Lower resilience, lower HRQoL, higher emotional distress and higher symptom severity are associated with higher FCR severity scores 12 months after RT/CRT.	86% of the patients who reported FCR as a problem indicated that they would like to discuss it with their oncologist.
15 (25)	Patients were questioned about their concern regarding a newtumour recurrence using a fivepoint scale.	80.4%	No concern at all = 19.6% Little concern = 30% Moderate concern = 28.1% Strong concern = 16% Very strong concern = 6.3%	The mental state of the patients is impacted by a significant burden of subjective psychological distress and a health perception that is frequently more negative than the clinical reality presented by doctors.	NR	Neither tumour size or smoking status serve as statistical predictors for the level of fear of recurrence reported by patients.	94% of patients were clinically free of tumours, but only 77% were aware of or believed this to be the case. The study reflects upon the subjective psychological nature of the fear of cancer recurrence.
16 (26)	Patient Concerns Inventory (PCI)	33%	NR	According to the UWQOL questionnaire, 20% of patients presented important problems related to anxiety, while 17% reported important problems with mood.	Items most frequently selected by patients in the PCI, including the fear of recurrence, are directly linked to significant healthrelated quality of life problems.	NR	Fear of recurrence was the second most common concern reported by patients through the PCI.

NR [a] = not reported.

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