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JOSEFINA MARTÍNEZ RAMÍREZ

BARREIRAS PARA DETECÇÃO PRECOCE E TRATAMENTO DO CÂNCER ORAL NA AMÉRICA LATINA E CARIBE

BARRIERS TO EARLY DIAGNOSIS AND MANAGEMENT OF ORAL CANCER IN LATIN AMERICA AND THE CARIBBEAN

Piracicaba

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Dissertação apresentada à Faculdade de Odontologia de Piracicaba da Universidade Estadual de Campinas como parte dos requisitos exigidos para a obtenção do título de Mestra em Estomatopatologia, na Área de Estomatologia.

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Orientador: Prof. Dr. Alan Roger dos Santos Silva

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RESUMO

Objetivo: A presente dissertação apresenta evidências acerca de dois objetivos principais: 1) explorar as barreiras percebidas no diagnóstico precoce e tratamento do câncer oral, bem como as potenciais vias para a melhoria na América Latina e no Caribe (ALC), e 2) comunicar as discrepâncias nas notificações do câncer oral na ALC. **Métodos:** 1) Para o estudo, os autores desenvolveram uma pesquisa transversal utilizando um questionário online desenhado na plataforma Research Electronic Data Capture, disponível em espanhol e inglês. A amostragem proposital foi utilizada para selecionar especialistas em Medicina Oral, Patologia Oral, Cirurgia Bucomaxilofacial, bem como Cirurgiões-dentistas com experiência clínica e académica substancial em desordens orais potencialmente malignos (DOPM) e câncer oral. Os dados foram sistematicamente organizados usando o Microsoft Excel e analisados através de estatísticas descritivas. 2) Para a carta ao editor, os autores leram e analisaram o código recentemente publicado pela IARC/OMS, intitulado "Código Latino-Americano e Caribenho contra o Câncer". Adicionalmente, analizaram as estimativas de incidência do câncer oral segundo o GLOBOCAN para a ALC e o Instituto Nacional de Câncer José Alencar Gomes da Silva (INCA) para o Brasil, em 2020. **Resultados:** 1) Um total de 23 profissionais de 21 países da ALC participaram da pesquisa. As principais barreiras percebidas incluíram a implementação limitada de planos de controle de DOPM e câncer oral (17,4%), baixa notificação compulsória para DOPM (8,7%) e câncer oral (34,8%), vias de encaminhamento pouco claras para DOPM (34,8%) e câncer oral (43,5%), e um número limitado de profissionais treinados (8,7%). Os participantes concordaram com a utilidade da educação online (100%) e da telemedicina/teleodontologia (91,3%). 2) De acordo com o GLOBOCAN, em 2020, o número estimado de novos casos de câncer do lábio e da cavidade oral foi de 17.888. Apesar desse número preocupante, ele representa uma subestimação. Para efeito de comparação, somente no Brasil, segundo o INCA, mais de 15.000 casos foram diagnosticados com câncer oral no mesmo ano. **Conclusões:** 1) Os resultados do estudo indicam as principais barreiras percebidas para o diagnóstico precoce e o manejo dos DOPM e câncer oral, bem como as potenciais vias de melhoria na ALC; 2) Na ALC existe uma preocupante subnotificação do câncer oral que dificulta a disponibilidade de dados precisos para o planejamento eficaz e medição do sucesso dos programas de controle do câncer oral na região.

Palavras-chave: Câncer oral; Desordens orais potencialmente malignas; Detecção precoce; América Latina; Medicina oral; Registos de câncer.

ABSTRACT

Purpose: The present study aim to accomplish two main objectives: 1) to explore perceived barriers to early diagnosis and management of oral cancer, as well as potential avenues for improvement in Latin America and the Caribbean (LAC), and 2) to communicate discrepancies in oral cancer reporting in LAC. **Methods:** 1) For the primary study, the authors conducted a cross-sectional survey using an online questionnaire designed on the Research Electronic Data Capture platform, available in Spanish and English. Purposive sampling was used to select professionals trained in Oral Medicine, Oral Pathology, and Oral and Maxillofacial Surgery, as well as Dentists. All with substantial clinical and academic experience in oral potentially malignant disorders (OPMD) and oral cancer. The data was systematically organized using Microsoft Excel and analyzed using descriptive statistics. 2) For the letter to the editor, the authors studied the recently published IARC/WHO code entitled "Latin America and the Caribbean Code Against Cancer", and the oral cancer incidence estimates according to GLOBOCAN for LAC and the José Alencar Gomes da Silva National Cancer Institute (INCA) for Brazil in 2020. **Results:** 1) A total of 23 professionals from 21 LAC countries took part in the survey. The main perceived barriers included limited implementation of PMOD and oral cancer control plans (17.4%), low compulsory notification for PMOD (8.7%) and oral cancer (34.8%), unclear referral pathways for PMOD (34.8%) and oral cancer (43.5%), and a limited number of trained professionals (8.7%). Participants agreed on the usefulness of online education (100%) and telemedicine/teledentistry (91.3%). 2) According to GLOBOCAN, the estimated number of new cases of lip and oral cavity cancer in 2020 was 17,888. Despite this concerning figure, it represents an underestimation. For comparison, in Brazil alone, according to INCA, more than 15,000 cases of oral cancer were diagnosed in the same year. **Conclusions:** 1) The results study indicated the main perceived barriers to early diagnosis and management of PMOD and oral cancer, as well as potential avenues for improvement in LAC; 2) There is a concerning underreporting of oral cancer in LAC, making it difficult the availability of accurate data for effective planning and measurement of the success of oral cancer control programs in the region.

Keywords: Oral cancer; Oral Potentially Malignant Disorders; Early detection; Latin America; Oral Medicine; Cancer registries.

SUMMÁRIO

1 INTRODUÇÃO

O câncer oral, definido como o câncer de lábio e cavidade oral (códigos C00-C06 da CID-O) (*ICD-10*; Rivera, 2015), ocupa a 16ª posição mundial em incidência de câncer, registrando cerca de 377.713 novos casos e 177.757 mortes anualmente (Global Cancer Observatory: Cancer Tomorrow). Observa-se uma variação significativa na incidência e mortalidade por câncer oral entre diferentes regiões e países (Perdomo et al., 2016). De acordo com o Global Cancer Observatory (GLOBOCAN), em 2020, na América Latina e no Caribe (ALC), foram estimados 17.888 casos, com uma mortalidade de 7.527, havendo projeções de aumento progressivo nas taxas de incidência e mortalidade (Global Cancer Observatory: Cancer Today). Notavelmente, Cuba, Brasil e Uruguai apresentam as maiores taxas de incidência, (Global Cancer Observatory: Cancer Today), com o Brasil destacando-se ao posicionar o câncer oral como o quinto mais comum entre os homens (*INCA,* 2023).

O carcinoma espinocelular (CEC) é o subtipo histopatológico mais comum, associado a cerca de 90% das neoplasias malignas na cavidade oral (Warnakulasuriya e Kerr, 2021; Gilligan et al., 2023). Apesar da facilidade de identificação visual, devido a sua localização acessível à inspeção visual (Warnakulasuriya e Kerr, 2021), mais de 50% dos pacientes são diagnosticados em estágios avançados (Curado et al., 2016; Zavarez et al., 2020, Kowalski LP et al., 2020; Louredo BV et al., 2022), especialmente em contextos com recursos limitados e em populações vulneráveis (Curado et al., 2016). O intervalo entre o encaminhamento para um centro de atenção médica especializado, a confirmação da malignidade e o início do tratamento é influenciado por diversas variáveis, incluído características do paciente, do tumor e da assistência professional (Schoonbeek et al., 2021). A conscientização professional sobre o câncer oral desempenha um papel crucial no intervalo diagnóstico (Fernández-Martínez et al., 2023), sendo apontadas lacunas de conhecimento, atitude e nas práticas em várias regiões, incluindo países subdesenvolvidos (Fernández-Martínez et al., 2023). Portanto, o diagnóstico tardio está associado a diversos fatores relacionados aos pacientes, aos profissionais de saúde e ao sistema de saúde (Varela-Centelles et al., 2018; da Conceição et al., 2021).

O diagnóstico tardio impacta significativamente as taxas de mortalidade pela doença (Seoane et al., 2016; Sake-Herrán et al., 2021; Fernández-Martínez et al., 2023), uma vez que o prognóstico do câncer oral está diretamente relacionado ao estádio da doença no

momento do diagnóstico (Saka-Herrán et al., 2021). As consequências do atraso ou da inacessibilidade aos cuidados oncológicos incluem uma menor probabilidade de sobrevivência (Fernández-Martínez et al., 2023), uma morbidade mais elevada durante o tratamento e custos significativos com os cuidados (Ribeiro-Rotta et al., 2022). Na ALC, diversidades socioeconómicas, demográficas, e prioridades nacionais resultam em uma variada exposição aos fatores de risco do câncer oral (tabaco e álcool), bem como desigualdades no acesso aos sistema de saúde e aos programas de prevenção (Herrera-Serna et al., 2019; Freire et al., 2021; Affonso et al., 2022). Registos de câncer, que coletam dados de qualidade, desempenham papel crucial na compreensão da incidência do câncer e no planeamento de medidas eficazes de controle (Piñeros et al., 2021), incluindo o diagnóstico precoce e o tratamento do câncer oral.

A prevenção secundária do câncer oral engloba métodos que visam a detecção e melhoraria de condições pré-malignas ou identificação do câncer oral em estágios iniciais, quando o tratamento tem maior probabilidade de sucesso (*IARC,* 2023). As estratégias fundamentais incluem o rastreamento (do inglês *screening*) e o diagnóstico precoce (*IARC*, 2023, Louredo BV et al., 2023). O diagnóstico precoce é mais frequentemente alcançado por meio da conscientização do público e profissionais de saúde sobre sinais e sintomas precoces do câncer oral (Bouvard et al., 2022), facilitando a detecção antes da doença atingir estágios avançados (*IARC*, 2023). A deteção de desordens orais potencialmente malignas (DOPM) é uma estratégia preventiva rotineiramente implementada para reduzir o atraso no diagnóstico do CEC (Abati et al., 2020). As DOPM, associadas ao aumento do risco de desenvolvimento de câncer oral (Warnakulasuriya et al., 2021), incluem onze condições com taxas variáveis de transformação maligna, sendo a leucoplasia a mais comum (Iocca et al., 2020; Warnakulasuriya et al., 2021; Gilligan et al., 2023). No entanto, é importante observar que um subconjunto de CEC se desenvolve sem lesões anteriores, emergindo de novo (Warnakulasuriya et al., 2021; Gilligan et al., 2023).

O tratamento do câncer oral em estágios iniciais melhora o prognóstico, as taxas de sobrevivência e a qualidade de vida (Seoane et al., 2016). O rastreamento clínico profissional demonstrou oferecer uma oportunidade para a detecção de indivíduos assintomáticos por meio de exames orais visuais de rotina (Lingen et al., 2017; Warnakulasuriya e Kerr, 2021). O exame clínico oral, compreendendo avaliação visual com luz branca e palpação da cavidade oral, regiões externas da face e do pescoço (Lingen

et al., 2017), é a abordagem principal para identificação do câncer oral e DOPM. Pacientes com achados anormais na mucosa oral, suspeitos de câncer oral ou de DOPM, devem ser encaminhados para uma avaliação mais aprofundada com o especialista (Warnakulasuriya, 2020).

Na Ásia, um estudo conduzido em seis países membros da Rede Asiática de Câncer Oral no Pacífico [do inglês *Asia Pacific Oral Cancer Network* (*APOCNET*)] destacou a ausência de estratégias nacionais de controle e registros de câncer, juntamente com a disponibilidade limitada de profissionais de saúde treinados, como barreiras para a detecção precoce e tratamento do câncer oral nessa região (Ng et al., 2022).

No entanto, no contexto da ALC, onde diversos fatores e condições socioeconômicas e demográficas impõem desafios, há ausência de evidências que abordem as barreiras enfrentadas na região para a detecção precoce e tratamento do câncer oral. Diante dessa lacuna, a presente dissertação se estrutura em dois capítulos, visando alcançar os seguintes objetivos principais: 1) Explorar as barreiras percebidas ao diagnóstico precoce e ao tratamento do câncer oral, bem como as potenciais vias de melhoria na ALC, e 2) comunicar as discrepâncias nas notificações do câncer oral na ALC.

2 ARTIGOS

2.1 Artigo: Barriers to Early Diagnosis and Management of Oral Cancer in Latin America and the Caribbean: Results from a Multi-national Survey.

Artigo aceito para publicação na Oral Diseases (**Anexo 3**)

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Abstract

Objective: This study aimed to explore perceived barriers to early diagnosis and management of oral cancer, as well as potential pathways for improvement in Latin America and the Caribbean (LAC). **Methods:** This cross-sectional study used a self-administered online questionnaire created via the Research Electronic Data Capture platform. The survey was distributed to health professionals trained in Oral Medicine, Oral Pathology, Oral and Maxillofacial Surgery, and Dentists with clinical and academic expertise in oral potentially malignant disorder (OPMD) and oral cancer. Data obtained were systematically organized and analyzed descriptively using Microsoft Excel. **Results:** Twenty-three professionals from 21 LAC countries participated. Major barriers included the limited implementation of OPMD and oral cancer control plans (17.4%), low compulsory reporting for OPMD (8.7%) and oral cancer (34.8%), unclear referral pathways for OPMD (34.8%) and oral cancer (43.5%), and a shortage of trained professionals (8.7%). Participants endorsed the utility of online education (100%) and telemedicine (91.3%). **Conclusion:** The survey highlights major perceived barriers to early diagnosis and management of OPMD and oral cancer in LAC, as well as potential avenues for improvement.

Keywords: Oral Cancer; Oral Potentially Malignant Disorders; Early Detection; Latin America; Oral Medicine; Cancer Registries.

Introduction

Oral cancer comprises malignant tumors arising in the lip and oral cavity,[1] with squamous cell carcinoma being the predominant type, accounting for over 90% of cases.[2] In 2020, it ranked 16th globally in both incidence and mortality.[3] Recent data exposes concerning trends, showing a consistent increase in age-standardized oral cancer incidence rates in most countries from 1990 to 2019.[4] Due to different factors related to interval time on the oral cancer care pathways[5,6] most cases of oral cancer are being diagnosed in advanced staging for almost two decades[4], which in addition to compromising patient survival, with mortality rates persistently high, evidence reveals substantial and underestimated economic burden.[7] In addition, the literature suggests flaws in policies aimed at promoting preventive measures or strategies for early diagnosis, which represents a substantial public health concern.[7,8]

Latin America and the Caribbean (LAC) exhibit alarmingly high oral cancer incidence rates, with Brazil, Cuba, Uruguay, and Puerto Rico leading the statistics.[9] Among these nations, Cuba and Brazil also report the highest regional mortality rates linked to this disease.[9] According to GLOBOCAN 2020, the region LAC recorded an estimated 17,800 new cases for both sexes, resulting in 7,530 deaths, and projections for 2040 suggest a rise in both incidence and mortality.[10] The WHO Global Action Plan for the Prevention and Control of Non-Communicable Diseases 2013–2020 and the World Health Assembly Cancer Resolution call on all nations to establish and enhance disease registries, including cancer registries, to gain insights into regional needs.[11] Cancer registries that collate good quality data play a crucial role in understanding the cancer burden, planning effective public policies, fostering regional collaboration, and supporting research.[12]

Oral cancer could be preceded by oral potentially malignant disorders (OPMD), early indicators detectable through visual inspection.[2] South American and Caribbean populations have exhibited the highest prevalence rates of OPMD among adults in LAC.[13] Recognizing the paramount importance of early detection, clinical oral examination emerges as a well-established

screening method for identifying OPMD and oral cancer.[3,14,15] Opportunistic oral cancer screening in dental practices is recommended by the American Dental Association (ADA) and the American Academy of Oral Medicine (AAOM) for opportunistic screening, especially among high-risk individuals with a history of chronic tobacco or alcohol use.[16,17]

LAC region exhibits substantial disparities in both geographical and socio-economic dimensions, impacting access to healthcare services.[12,18–20] These disparities have resulted in a significant portion of the population lacking full healthcare access or experiencing prolonged waiting times for specialist examinations, contributing to delays in oral cancer diagnoses.[12,18,19]

Based on the above panorama, this study aimed to explore perceived barriers to early diagnosis and management of oral cancer and to recommend the potential pathways for improving health inequalities in LAC countries, by exploring national cancer control policies, training programs for health professionals, innovative approaches, and the internet facilities of health professionals.

Methods

Study design and sampling method

This cross-sectional study was carried out using an online self-administered questionnaire to collect data from senior healthcare professionals in each LAC country. The list of LAC countries is provided in **Supplemental Material 1**. We employed a non-probabilistic purposive sampling method to recruit potential participants recognized as leaders in Oral Medicine, and Oral Pathology with a background in diagnosis, education, and research in OPMD and oral cancer employed in LAC reference centers. In instances where professionals with these specialties were not available, eligibility was extended to include Oral and Maxillofacial Surgeons or Dentists who had a track record in OPMD and oral cancer diagnosis, education, and research in their respective countries. Purposive sampling allowed researchers to choose participants based on their expertise, ensuring that they provided specific information related to the topic under investigation.[21] In countries with more than one respondent, answers were merged to achieve a consensus.

Data collection

We contacted professionals by writing to national and international Oral Medicine, and Oral Pathology organizations (see **Supplementary Material 2**) or by contacting specialists recognized for their leadership in prestigious national universities and public hospitals in their respective countries. We extended formal invitations to twenty-nine potential participants (in 22 countries in the Region) via email, followed by a consecutive reminder email three weeks later to enhance recruitment. Twenty-three participants (79.3%) who accepted to participate received the link https://redcap.fop.unicamp.br/redcap/surveys/?s=7RCTCDC4D9YJPD3H. The link redirected them to the informed consent form and a questionnaire. All participants (100%) completed and returned the questionnaire within three weeks of receiving the link. The data collection period was between June 14th to November 11th, 2022.

Ethical considerations

The study complied with the Declaration of Helsinki and received approval from the Research Ethics Committee CAAE: 58068822.1.0000.5418). All participants provided informed consent before completing the questionnaire.

Variables and measures

A 43-item validated questionnaire, structured based on a previous version published by Ng et al., 2022,[22] was adapted for the regional context to suit our study purpose. To standardize our instrument and ensure broad participant engagement, we administered the survey in both English and Spanish. The questionnaires underwent translation and back-translation processes to validate them in different languages. Although we were aware of one participant from Brazil, whose primary language is Portuguese, we anticipated that the Spanish translation would sufficiently cover the audience of our potential participants, including the Brazilian participant. The questionnaire was structured in 5 sections: 1) sociodemographic characteristic (age, gender, country where they currently work, level of training obtained); 2) national cancer control policies

(cancer control plan, cancer registry and reporting, OPMD and oral cancer referral pathways, oral cancer programs); 3) training of health care practitioners (training, management of oral cancer, eLearning); 4) innovations in early detection of cancer; and 5) professionals' internet facilities. A 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree) was used for 35 questions in the sections of national cancer control policies, training of health care practitioners, and innovations in early detection of cancer. The online questionnaire administration was conducted using The Research Electronic Data Capture (REDCap) platform (version 13.8.1, Vanderbilt University, Nashville, Tennessee, USA).(42) The questions used in our study are included in **Supplementary Appendix 1**.

Statistical Analysis

Information obtained from the survey was exported and systematically organized using Microsoft Excel® application software (Microsoft 365®, version 2308, Microsoft Corporation, Washington, USA). Descriptive statistics were used to report the data recorded in all the sections of the questionnaire, utilizing metrics such as mean values, absolute numbers, and percentages. The five-point Likert scale responses were categorized into agree, neutral, and disagree for narrative descriptive synthesis convenience. The category agree was created by combining the options strongly agree and agree, while the option of disagree and strongly disagree were combined to create disagree category.

Results

A total of 23 participants from 21 countries (Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Dominican Republic, Uruguay, Venezuela) in LAC region responded to all the questions (see **Supplementary Material 1**). Among the participants, 13 (56.5%) were male and 10 (43.5%) were female, with a mean age of 41.0 years. Sixteen (69.6%) had training in Oral Pathology, 9 (39.1%) in Oral Medicine, 3 (13.0%) in Oral and Maxillofacial

Surgery. Additionally, 3 (13.0%) reported having no formal postgraduate training, but more than 10 years of professional practice in the targeted clinical fields (**Table I**).

National cancer control policies

Among participants, 12 (52.2%) agreed that there is a cancer control plan in their countries. However, only 4 (17.4%) participants agreed that there is an OPMD and oral cancer control plan, and 8 (34.8%) agreed that oral cancer is a priority within the public health plan in their country. When questioned about the cancer registries or reporting, 14 (60.9%) of participants reported that cancer incidence data is collected systematically through a national cancer registry. However, only 2 and 8 participants agreed that compulsory reporting of OPMD (8.7%) and oral cancer (34.8%) to the government, respectively, are implemented in their countries. Similarly, 9 participants (39.1%) agreed that national cancer registries enable to assess program success and identify additional cancer prevention and control needs in their countries.

Regarding referral pathways, only 8 participants (34.8%) and 10 participants (43.5%) agree that a clear referral pathway is established for patients with suspicious lesions of OPMD and oral cancer, respectively, from primary health care to specialist centers in their respective countries. When we asked if the network of public hospitals is sufficient to meet the treatment needs of patients with oral cancer in their countries, only 5 (27.1%) participants agreed. In terms of oral cancer programs, only one-third of participants agreed that there are implemented screening programs (8, 34.8%), and oral cancer awareness programs for health practitioners in their countries (9, 39.1%) (**Table II**).

Training of health care practitioners

When we asked about training on OPMD and oral cancer, 13 (56.5%) participants agreed that dental students are trained to perform an up-to-date patient history and routine inspection and palpation of the head and neck on all patients receiving dental care and 17 (73.9%) agreed that dental students are trained to recognize oral conditions, including OPMDs in their countries. Not

surprisingly, only 4 (17.4%) participants agreed that primary healthcare workers are trained to detect oral cancer. Regarding the question that routine training on recognizing OPMD and oral cancer in their countries, 6 (26.1%) participants agreed, and only 2 (8.7%) agreed that there are enough trained specialists to treat OPMD and oral cancer patients. The majority (22, 95.7%) agreed that online eLearning tools could be used to train healthcare practitioners to recognize oral conditions including OPMD and oral cancer. All the participants (100%) agreed that online eLearning tools are useful for continuing medical education (CME) among healthcare practitioners who have already been trained to recognize OPMD and oral cancer. However, only 10 (43.5%) participants agreed that there is development of online eLearning tools to train health professionals in their countries (**Table III**).

Innovations in early detection of oral cancer

Most participants (20, 87.0%) agreed regarding the wide use of mobile messaging in their country, and that they had used mobile phones for sharing and discussing anonymized images when arriving at a diagnosis on OPMD or oral cancer (21, 91.3%). Similarly, the majority (21, 91.3%) agreed that telemedicine could increase access to specialists and facilitate early detection of oral cancer. When we asked if a mobile phone app that enables the documentation of lesions and discussion of cases with an off-site specialist would be useful to facilitate the management of oral lesions, all the participants (23, 100%) agreed. Regarding the implementation of any mobile phone app in their country, the majority (22, 95.7%) agreed (**Table IV**).

Internet facilities

When asked about their internet coverage, 12 (52.2%) professionals reported complete internet coverage, 7 (30.4%) high internet coverage, and 4 (17.4%) low internet coverage. Regarding a restriction in storing anonymized clinical images outside the country, 12 (52,2%) reported no restriction, 10 (43.5%) did not know, and 1 (4.5%) reported restricted access. When questioned about access to a server to host a web application, 15 (65.2%) reported to have access, 5 (21.7%) did not know, and 3 (13.0%) did not have access (**Table V**).

Discussion

Summary of main findings

Our results reveal an overview of national cancer control policies, training programs, and health infrastructures related to OPMD and oral cancer in the countries of LAC. Nevertheless, survey responses indicate that perceived barriers include weak national oral cancer control strategies, low compulsory reporting for OPMD and oral cancer, unclear referral pathways, limitations in digital health technologies and a shortage of trained professionals, as principal barriers to early diagnosis and management of OPMD and oral cancer in participants countries. Similar findings were reported in a previous study conducted in the Asia-Pacific region, where barriers such as a lack of national cancer control strategies, limited cancer registries, and the limited availability of trained health care professionals were identified.[22]

In addition, our survey reveals the participants' acceptance of the usefulness of online eLearning tools for training healthcare practitioners in OPMD and oral cancer recognition, as well as telemedicine for increasing access to specialists. To our knowledge, this is the first study to explore perceived barriers and potential avenues for improving OPMD and oral cancer detection and management in LAC.

Context with other literature

LAC has been characterized by both geographical and socio-economic disparities, leading to inequities in healthcare access, which represents a regional challenge and likely contributes to delays in oral cancer diagnosis.[12,18] Nevertheless, each country, and even within different regions of a single country, there are different challenges faced by patients, professionals, and health services contributing to achieve early diagnosis of oral cancer.[12,24,25]

The Global Initiative for Cancer Registry Development has been actively involved in organizing workshops to assist low- and middle-income countries (LMICs) in establishing and enhancing their cancer registries. The leadership from National Cancer Institutes has played a

significant role in collaboration with these initiatives.[26] In 2014, the IARC Regional Hub for Cancer Registry Development in Latin America (the LA Hub) was established, leading to substantial advances in cancer registration across the region.[26] The 20 Spanish and Portuguese speaking countries supported by the LA Hub have different levels of development in cancer registration.[26] Nevertheless, the proportion of the population covered by high-quality registries remains low compared with the Western countries (USA, Canada, Europa, Oceania).[12,26]

Among our respondents, 34.8% agreed that compulsory reporting of oral cancer to the government is implemented, and 39.1% reported having access to medical records to assess the success of the program in their countries. By 2020, LAC had 86 population-based cancer registries (PBCRs), covering 23.3% of the population, signifying progress in cancer registry development.[26] It is crucial to note that sustainable results necessitate a long-term commitment from all local stakeholders, coupled with the global coordination efforts by the Global Initiative for Cancer Registries.[26] Cancer registries play a crucial role in understanding the cancer burden and planning effective control measures,[12] including early diagnosis and management of oral cancer. Piñeros M, et al.,[26] discusses progress, challenges and long-term sustainability of PBCRs in LAC.

Moreover, 82.6% of participants agree that there is limited availability of specialists to treat OPMD and oral cancer in their respective countries. In health care system, general dentists serve as frontline workers in the diagnostic pathway, so appropriate skills obtained by training and clinical experience are vital to detect oral diseases,[27] starting by properly discriminating the lesion's nature (benign, potentially malignant or malignant).[28–30] Seeking an early specialist opinion is the key to improve prognosis.[31]

Studies conducted in Brazil, Mexico, Dominican Republic have reported a weakness in knowledge on oral cancer among dentists.[32–34] The low self-perceived efficacy in diagnosing and managing oral conditions through clinical oral examinations,[35] contributes to an overload of patients to specialized dentists, leading to delays in the referral, diagnosis, and treatment of oral cancer.[28] Lack of training in oral medicine and oral pathology during undergraduate coursework

could explain the dentists' low self-efficacy [32] A recent study conducted in Mexico identified a shortage of OPMD and oral cancer-related topics in over half of the country's dental education programs.[36]

In our study, over 50% of participants agreed that dental students in their countries are trained to conduct up-to-date patient histories, head and neck examinations, and recognize variations in oral mucosa during clinical consultation. Nevertheless, it's essential to consider when these concepts are presented in the undergraduate curriculum, the time dedicated to them, and the importance of constant practice, as knowledge of these topics may gradually diminish after the course completion.[37] A recent study from Argentina demonstrated an improvement in early-stage diagnosis by reducing professional delays through training dental professionals as part of an intervention program.[25] Similarly, a study conducted in Brazil indicates that CME activities encourage primary healthcare dentists to regularly perform oral mucosal examinations, enhancing their self-efficacy in managing oral lesions and detecting oral cancer.[38]

A systematic review suggested that implementation e-learning in medical education in LMICs has the potential to address the critical shortage of healthcare workers and provide cost-effective access to high-quality medical training.[39] In our study, all participants (100%) agreed on the effectiveness of online education for recognizing oral conditions, including OPMD and oral cancer, while highlighting the need for more widespread access and development in certain regions, only 43.5% agreed that there is eLearning tools development their countries.

In our study, the majority of participants agreed that telemedicine could increase access to specialists and facilitate early detection of oral cancer. While this innovative approach does not replace a face-to-face traditional clinical oral examination, it enables general dentists to rapidly refer patients with suspicious lesions of OPMD and oral cancer for a expediated initial consultation.[28,40,41] The rapid transfer of photographs among health professionals provides the possibility to seek a specialist's expert opinion, increase access to care for patients who normally

lack access to specialist. Additionally, this approach reduces waiting time for specialists consultations and enable the rational use of healthcare resources.[28,40,41]

The COVID- 19 pandemic emphasized the impact of teledentistry in enhancing accessibility to oral healthcare services, especially for marginalized groups or for remote/rural communities.[40,42] Brazil, Chile, and Mexico have reported the implementation of teledentistry at local or national levels as a pilot or informal projects.[28,42] A Brazilian study demonstrated that telediagnosis for oral lesions is not only feasible but also has the potential to improve the quality of primary health care.[28] It's important to note, however, that telemedicine may encounter barriers such as limited internet facilities.[28] Despite some professionals in our study registering a certain level of internet coverage, professionals in different locations or even patients may face access restrictions or lack familiarity with mobile phone apps.

The routine use of teledentistry and its integration into national healthcare systems may represent significant goals to improve diagnosis, referral, and treatment of patients with OPMD and oral cancer.[42] El Tantawi M, et al., [42] reported on policies and strategies related to teledentistry practice, as well as barriers and facilitators for its implementation in 19 countries across the globe.

Strengths and limitations

This study successfully engaged the participation of experienced health professionals, including clinicians and academics, with long-standing backgrounds across 21 countries in the LAC region. This representation is encouraging and adds substantial value to the research by providing valuable insights into the challenges faced within the context of oral cancer in their respective countries. The input from these experts significantly contributes to achieving the research objectives, as it helps to explore perceived barriers and potential avenues for improvement.

However, the results should be interpreted with caution, as the study has some limitations. First, limited geographic coverage of 21 out of 33 countries in LAC. Additionally, the study relies on a small group of selected experts to gather perceptions and views, which may not fully represent

each country and contribute to bias in reporting. Despite not achieving comprehensive coverage of all LAC countries, it is important to note that the countries where specialists could not be found to participate in the study are mainly small Caribbean islands. All the most populous countries in the LAC were included in this study.

Second, we did not follow a random selection process of experts, as this was not considered feasible. Instead, a purposive sampling approach was used to ensure representation from the LAC region. To move forward, there is a need to validate this research and gain a deeper comprehensive understanding of this issue. Future research should expand its coverage and include a larger and more diverse sample within each country.

Conclusion

The survey findings indicate that perceived major barriers include weaknesses in national oral cancer control strategies, low compulsory reporting for OPMD and oral cancer, unclear referral pathways, and lack of sufficiently trained professionals. While some encouraging developments and innovations are evident, there are also noticeable areas where enhancements could be made. These avenues to improvement include the creation of online educational resources for continuous education, promoting opportunistic oral cancer screening and development of oral cancer screening programs, implementation of telemedicine/teledentistry, the reinforcement to develop well-defined referral systems for patients with OPMD and oral cancer, enhancing data registries, and reinforcing existing strategies. Addressing challenges related to data collection and storage is crucial for promoting effective regional collaboration and data exchange within the OPMD and oral cancer research, diagnosis, and management community. This will facilitate further research to better understand how to optimize the utilization of available resources.

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Legends

Supplementary Material 1. List of Latin America and the Caribbean countries (n=33) and countries participating in this study.

Supplementary Material 2. Country, name, acronym, and social networks of the Associations/Federations/Societies.

Supplemental Appendix S1. Questionnaire in English and Spanish.

Table I. Demographic characteristics of participants (n=23).

Table II. Survey responses (n = 23) to questions regarding national cancer control policies.

Table III. Survey responses (n = 23) to questions regarding training of health care practitioners.

Table IV. Survey responses (n = 23) to questions regarding innovations in early detection of cancer.

Table V. Survey responses (n = 23) to questions regarding professionals' internet facilities

Table I. Demographic characteristics of participants (n=23).

Characteristics	n (%)
Age	
Mean	41 years
Range	29 – 81 years
Gender	
Male	13 (56.5%)
Female	10 (43.5%)
Level of training obtained	
Specialist	10 (43.5%)
Master's Degree	11 (47.8%)
Doctorate	9 (39.1%)
I did not obtain formal postgraduate preparation in the field, but I have developed experience through years of professional practice	3 (13.0%)
Specialist	
Oral Pathology	7 (30.4%)
Oral Medicine	3 (13.0%)
Oral and Maxillofacial Surgery	3 (13.0%)
Master's Degree	
Oral Pathology	6 (26.1%)
Oral Medicine	6 (26.1%)
Other*	2 (8.7%)
Doctorate Degree	
Oral Pathology	7 (30.4%)
Oral Medicine	0 (0.0%)
Other	0 (0.0%)

*Master in scientific research methodologies, and master in congenital facial clefts.

Table II. Survey responses (n = 23) to questions regarding national cancer control policies.

Question	Disagree n (%)	Neither agree nor disagree n (%)	Agree n (%)
Cancer control plan			
1. There is a cancer control plan in your country	5 (21.7%)	6 (26.1%)	12 (52.2%)
2. There is a cancer control plan for oral cancer in your country	15 (65.2%)	4 (17.4%)	4 (17.4%)
3. You believe that oral cancer is a priority within the public health plan in your country	14 (60.9%)	1 (4.3%)	8 (34.8%)
4. Oral health services are covered by free health systems in your country	9 (39.1%)	3 (13.0%)	11 (47.8%)
5. There are education and awareness programs for the general population, including young people, about the risk habits for oral cancer such as tobacco and alcohol consumption	12 (52.2%)	3 (13.0%)	8 (34.8%)
6. In your country, early intervention strategies are implemented to reduce tobacco and alcohol consumption, such as taxes, age limits and availability restrictions	6 (26.1%)	2 (8.7%)	15 (65.2%)
Cancer registry and reporting			
7. Cancer incidence data is collected systematically through a national cancer registry	8 (34.8%)	1 (4.3%)	14 (60.9%)
8. You consider recorded data on public on private cancer services to be reliable	8 (34.8%)	6 (26.1%)	9 (39.1%)
9. Compulsory reporting of oral potentially malignant disorders to the government is implemented in your country	21 (91.3%)	0 (0.0%)	2 (8.7%)
10. Compulsory reporting of oral cancer to the government is implemented in your country	13 (56.5%)	2 (8.7%)	8 (34.8%)
11. Electronic medical data collection methods are an accessible tool for health services in your country	9 (39.1%)	8 (34.8%)	6 (26.1%)
12. National cancer registries enable researchers, physicians, public health professionals and community members to monitor the cancer burden, assess programs success and identify additional needs for cancer prevention and control	9 (39.1%)	5 (21.7%)	9 (39.1%)
Oral potentially malignant disorders and oral cancer referral pathways			

13. From primary health care, a clear referral pathway is established for patients with suspicious lesions of oral potentially malignant disorders in your country	13 (56.5%)	2 (8.7%)	8 (34.8%)
14. From primary health care, a clear referral pathway is established for patients with suspicious lesions of oral cancer in your country	9 (39.1%)	4 (17.4%)	10 (43.5%)
15. From primary health care, a clear treatment pathway is established for patients with suspicious lesions od oral potentially malignant disorders in your country	18 (78.3%)	2 (8.7%)	3 (13.0%)
16. From primary health care, a clear treatment pathway is established for patients with oral cancer in your country	9 (39.1%)	5 (21.7%)	9 (39.1%)
17. Is realistic to achieve proper adherence to diagnostic and treatment established pathways for oral potentially malignant disorders and oral cancer patients in clinical practice in your country	10 (43.5%)	6 (26.1%)	7 (30.4%)
18. In your country, the existing network of public hospitals is enough to meet the treatment needs of patients with oral cancer	16 (69.6%)	2 (8.7%)	5 (21.7%)
Oral cancer programs			
19. Oral cancer awareness programs are implemented to health practitioners in your country	10 (43.5%)	4 (17.4%)	9 (39.1%)
20. Oral cancer screening programs are implemented in your country	12 (52.2%)	3 (13.0%)	8 (34.8%)

Table III. Survey responses (n = 23) to questions regarding training of health care practitioners.

Question	Disagree n (%)	Neither agree nor disagree n (%)	Agree n (%)
Training			
1. Dental students are trained to perform an up-to-date medical, social, and dental history, as well as routine inspection and palpation of head and neck on all patients	2 (8.7%)	8 (34.8%)	13 (56.5%)
2. Dental students are trained to recognize oral lesions, including oral potentially malignant disorders, as part of the dental undergraduate program	2 (8.7%)	4 (17.4%)	17 (73.9%)
3. In your country, primary healthcare workers are trained to detect oral cancer	13 (56.5%)	6 (26.1%)	4 (17.4%)
4. Training for early detection of oral potentially malignant disorders and oral cancer is taught by oral and maxillofacial pathologists or stomatologists in your country	6 (26.1%)	3 (13.0%)	14 (60.9%)
5. Workshops and training on recognizing oral potentially malignant disorders and oral cancer are routinely conducted in your country	14 (60.9%)	3 (13.0%)	6 (26.1%)
Management of oral cancer			
6. There are enough properly trained specialists to meet your country's needs in terms of treating oral potentially malignant disorders and oral cancer patients	19 (82.6%)	2 (8.7%)	2 (8.7%)
7. Oral cancer is managed through a multidisciplinary team discussion in your country	8 (34.8%)	3 (13.0%)	12 (52.2%)
eLearning			
8. Online eLearning tools containing can be used to train health care practitioners to recognize oral lesions including oral potentially malignant disorders and oral cancer	0 (0.0%)	1 (4.3%)	22 (95.7%)
9. Online eLearning tools are useful for continuing medical education (CME) among health care practitioners who have already been trained to recognize oral potentially malignant disorders and oral cancer	0 (0.0%)	0 (0.0%)	23 (100%)
10. Online eLearning tools to train health professionals recognize oral potentially malignant disorders and oral cancer are developed in your country	8 (34.8%)	5 (21.7%)	10 (43.5%)

Table IV. Survey responses (n = 23) to questions regarding innovations in early detection of cancer.

Question	Disagree n (%)	Neither agree nor disagree n (%)	Agree n (%)
1. Whatsapp, WeChat, Telegram, and other similar mobile messaging apps are widely used in your country	2 (8.7%)	1 (4.3%)	20 (87.0%)
2. You have shared and discussed anonymized images about oral potentially malignant disorders or oral cancer cases using your mobile phone	1 (4.3%)	1 (4.3%)	21 (91.3%)
3. Telemedicine could be an avenue to increase massive access to specialists and facilitate early detection of oral cancer	0 (0.0%)	2 (8.7%)	21 (91.3%)
4. A mobile phone app that enables the documentation of lesions and discussion of cases with an off-site specialist would be useful to facilitate the management of oral lesions	0 (0.0%)	0 (0.0%)	23 (100%)
5. If such a mobile phone app is available, you would like to implement this in your country	0 (0.0%)	1 (4.3%)	22 (95.7%)

Table V. Survey responses (n = 23) to questions regarding professionals' internet facilities

Question		**n (%)**
1.	What is the internet network coverage at the site you would most likely use the mobile phone app?	
	No internet coverage	0 (0.0%)
	Low internet coverage	4 (17.4%)
	High internet coverage	7 (30.4%)
	Complete internet coverage	12 (52.2%)
2.	Is there a restriction in storing anonymized clinical images outside your country?	
	I don't know	10 (43.5%)
	No	12 (52.2%)
	Yes	1 (4.3%)
3.	Do you have access to a server to host a web application?	
	I don't know	5 (21.7%)
	No	3 (13.0%)
	Yes	15 (65.2%)
4.	Do you have the expertise in maintaining this server?	
	I don't know	6 (26.1%)
	No	13 (56.5%)
	Yes	4 (17.4%)

Supplementary Material 1. List of Latin America and the Caribbean countries (n=33) and countries participating in this study.

#	Country	Participation
	Caribbean	
1	Antigua and Barbuda	NP
2	Bahamas	NP
3	Barbados	NP
4	Cuba	P
5	Dominican Republic	P
6	Dominica	NP
7	Grenada	NP
8	Haiti	NP
9	Jamaica	P
10	Saint Lucia	NP
11	Trinidad and Tobago	NP
12	Saint Kitts and Nevis	NP
13	Saint Vincent and Grenadines	NP
	Central America	
14	Belize	P
15	Costa Rica	P
16	El Salvador	P
17	Guatemala**	P
18	Honduras	P
19	Mexico	P
20	Nicaragua	P
21	Panama	P
	South America	
22	Argentina	P
23	Bolivia, Plurinational State of	P
24	Brazil	P
25	Chile**	P
26	Colombia	P
27	Ecuador	P
28	Guyana	NP
29	Paraguay	P
30	Peru	P
31	Suriname	NP
32	Uruguay	P
33	Venezuela, Bolivarian Republic of	P

**: In cases with more than one respondent, answers were merged to achieve a consensus.

Abbreviation: P: Participant; NP: No participation

Source: World Bank Data https://data.worldbank.org/indicator/SH.ALC.PCAP.LI.

Supplementary Material 2. Country, name, acronym, and social networks of the Associations/Federations/Societies.

COUNTRY	NAME	ACRONYM	CONTACT / SOCIAL MEDIA
Brazil	Brazilian Society of Stomatology and Oral and Maxillofacial Pathology	SOBEP	estomatologia@sobep.com.br "@sobep"
Colombia	Colombian Academy of Oral Pathology	ACPO	patologiaoralcolombia@gmail.com patologos_orales_acpo
Chile	Chilean Society of Bucomaxillofacial Pathology	SPBMFCH	contacto@patologiaoraldhile.cl patologia.oral.de.chile
Mexico	Mexican Association of Pathology and Oral Medicine	AMPMB	ampmbcolegio@gmail.com
Nicaragua	International Oral Medicine Society	SMOI	sociedademedicinaoral@gmail.com
Paraguay	Paraguayan Society of Pathology and Oral Medicine	SPPMB	Sppmb@secretaria@gmail.com
Peru	Peruvian Association of Pathology and Oral and Maxillofacial Medicine	APPSMED	wilson.delgado@upch.pe
Uruguay	Uruguayan Society of Stomatological Pathology	SUPE	svcelhay@adinet.com.uy
Venezuela	Venezuelan Society of Oral Medicine	SVPB	@svmedicinabucal

Supplemental Appendix S1. Questionnaire in English and Spanish.

Note: Responses to questions 1 and 4 were not analyzed in this study.

QUESTIONNAIRE IN ENGLISH

SECTION 1: DEMOGRAPHIC ASPECTS

1. **Date of birth:_____**
2. **Age:_____** years
3. **Gender:_____**
4. **Country of birth: _____**
5. **Country where you currently work in: _____**
6. **Last level of training obtained:**

( ) Specialist
( ) Oral Pathology ( ) Stomatology/Oral Medicine ( ) Other: _____
( ) Master's Degree
( ) Oral Pathology ( ) Stomatology/Oral Medicine ( ) Other: _____
( ) Doctorate
( ) Oral Pathology ( ) Stomatology/Oral Medicine ( ) Other: _____
( ) I did not obtain formal post-grade preparation on the field, but I have developed experience through years of professional practice.
Years:____

SECTION 2: NATIONAL CANCER CONTROL POLICES

Cancer control plan

1. **There is a cancer control plan in your country.**
( ) Strongly disagree
( ) Disagree
( ) Neither agree nor disagree
( ) Agree
( ) Strongly agree

2. **There is a cancer control plan for oral cancer in your country.**
( ) Strongly disagree
( ) Disagree
( ) Neither agree nor disagree
( ) Agree
( ) Strongly agree

3. **You believe that oral cancer is a priority within the public health plan in your country.**
( ) Strongly disagree
( ) Disagree

( ) Neither agree nor disagree
( ) Agree
( ) Strongly agree

4. **Oral health services are covered by free health systems in your country.**
( ) Strongly disagree
( ) Disagree
( ) Neither agree nor disagree
( ) Agree
( ) Strongly agree

5. **There are education and awareness programs for the general population, including young people, about the risk habits for oral cancer such as tobacco and alcohol consumption.**
( ) Strongly disagree
( ) Disagree
( ) Neither agree nor disagree
( ) Agree
( ) Strongly agree

6. **In your country, early intervention strategies are implemented to reduce tobacco and alcohol consumption, such as taxes, age, limits, and availability restrictions.**
( ) Strongly disagree
( ) Disagree
( ) Neither agree nor disagree
( ) Agree
( ) Strongly agree

Cancer registry and reporting

7. **Cancer incidence data is collected systematically through a national cancer registry.**
( ) Strongly disagree
( ) Disagree
( ) Neither agree nor disagree
( ) Agree
( ) Strongly agree

8. **You consider recorded data on public and private cancer services to be reliable.**
( ) Strongly disagree
( ) Disagree
( ) Neither agree nor disagree
( ) Agree
( ) Strongly agree

9. **Compulsory reporting of oral potentially malignant disorders to the government is implemented in your country.**
( ) Strongly disagree

( ) Disagree
( ) Neither agree nor disagree
( ) Agree
( ) Strongly agree

10. **Compulsory reporting of oral cancer to the government is implemented in your country.**
( ) Strongly disagree
( ) Disagree
( ) Neither agree nor disagree
( ) Agree
( ) Strongly agree

11. **Electronic medical data collection methods are an accessible tool for health services in your country.**
( ) Strongly disagree
( ) Disagree
( ) Neither agree nor disagree
( ) Agree
( ) Strongly agree

12. **National cancer registries enable researchers, physicians, public health professionals and community members to monitor the cancer burden, assess programs success, and identify additional needs for cancer prevention and control.**
( ) Strongly disagree
( ) Disagree
( ) Neither agree nor disagree
( ) Agree
( ) Strongly agree

Oral potentially malignant disorders and oral cancer referral pathways

13. **From primary health care, a clear referral pathway is established for patients with suspicious lesions of oral potentially malignant disorders in your country.**
( ) Strongly disagree
( ) Disagree
( ) Neither agree nor disagree
( ) Agree
( ) Strongly agree

14. **From primary health care, a clear referral pathway is established for patients with suspicious lesions of oral cancer in your country.**
( ) Strongly disagree
( ) Disagree
( ) Neither agree nor disagree
( ) Agree
( ) Strongly agree

15. **From primary health care, a clear treatment pathway is established for patients with suspicious lesions of oral potentially malignant disorders in your country.**
    ( ) Strongly disagree
    ( ) Disagree
    ( ) Neither agree nor disagree
    ( ) Agree
    ( ) Strongly agree

16. **From primary health care, a clear treatment pathway is established for patients with oral cancer in your country.**
    ( ) Strongly disagree
    ( ) Disagree
    ( ) Neither agree nor disagree
    ( ) Agree
    ( ) Strongly agree

17. **Is realistic to achieve proper adherence to diagnostic and treatment established pathways for oral potentially malignant disorders and oral cancer patients in clinical practice in your country.**
    ( ) Strongly disagree
    ( ) Disagree
    ( ) Neither agree nor disagree
    ( ) Agree
    ( ) Strongly agree

18. **In your country, the existing network of public hospitals in enough to meet the treatment needs of patients with oral cancer.**
    ( ) Strongly disagree
    ( ) Disagree
    ( ) Neither agree nor disagree
    ( ) Agree
    ( ) Strongly agree

Oral cancer programs

19. **Oral cancer awareness programs are implemented to health practitioners in your country.**
    ( ) Strongly disagree
    ( ) Disagree
    ( ) Neither agree nor disagree
    ( ) Agree
    ( ) Strongly agree

20. **Oral cancer screening programs are implemented in your country.**
    ( ) Strongly disagree

( ) Disagree
( ) Neither agree nor disagree
( ) Agree
( ) Strongly agree

SECTION 3: TRAINING OF HEALTH CARE PRACTITIONERS

Training

21. **Dental students are trained to perform an up-to-date medical, social and dental history, as well as routine inspection and palpation of the head and neck on all patients.**
    ( ) Strongly disagree
    ( ) Disagree
    ( ) Neither agree nor disagree
    ( ) Agree
    ( ) Strongly agree

22. **Dental students are trained to recognize oral lesions, including oral potentially malignant disorders, as part of the dental undergraduate program.**
    ( ) Strongly disagree
    ( ) Disagree
    ( ) Neither agree nor disagree
    ( ) Agree
    ( ) Strongly agree

23. **In your country, primary health care workers are trained to detect oral cancer.**
    ( ) Strongly disagree
    ( ) Disagree
    ( ) Neither agree nor disagree
    ( ) Agree
    ( ) Strongly agree

24. **Training for early detection of oral potentially malignant disorders and oral cancer is taught by oral and maxillofacial pathologists or estomatologist in your country.**
    ( ) Strongly disagree
    ( ) Disagree
    ( ) Neither agree nor disagree
    ( ) Agree
    ( ) Strongly agree

25. **Workshops and training on recognizing oral potentially malignant disorders and oral cancer are routinely conducted in your country.**
    ( ) Strongly disagree
    ( ) Disagree
    ( ) Neither agree nor disagree
    ( ) Agree
    ( ) Strongly agree

Management of oral cancer

26. There are enough properly trained specialists to meet your country's needs in terms of treating oral potentially malignant disorders and oral cancer patients.

( ) Strongly disagree
( ) Disagree
( ) Neither agree nor disagree
( ) Agree
( ) Strongly agree

27. Oral cancer is managed through a multidisciplinary team discussion in your country.

( ) Strongly disagree
( ) Disagree
( ) Neither agree nor disagree
( ) Agree
( ) Strongly agree

eLearning

28. Online eLearning tools containing can be used to train health care practitioners to recognize oral lesions including oral potentially malignant disorders and oral cancer.

( ) Strongly disagree
( ) Disagree
( ) Neither agree nor disagree
( ) Agree
( ) Strongly agree

29. Online eLearning tools are useful for continuing medical education (CME) among health care practitioners who have already been trained to recognize oral potentially malignant disorders and oral cancer.

( ) Strongly disagree
( ) Disagree
( ) Neither agree nor disagree
( ) Agree
( ) Strongly agree

30. Online eLearning tools to train health professionals recognize oral potentially malignant disorders and oral cancer are developed in your country.

( ) Strongly disagree
( ) Disagree
( ) Neither agree nor disagree
( ) Agree
( ) Strongly agree

SECTION 4: INNOVATIONS IN EARLY DETECTION OF ORAL CANCER

31. **Whatsaap, WeChat, Telegram and other similar mobile messaging apps are widely used in your country.**
    ( ) Strongly disagree
    ( ) Disagree
    ( ) Neither agree nor disagree
    ( ) Agree
    ( ) Strongly agree

32. **You have shared and discussed anonymized images about oral potentially malignant disorders or oral cancer cases using your mobile phone.**
    ( ) Strongly disagree
    ( ) Disagree
    ( ) Neither agree nor disagree
    ( ) Agree
    ( ) Strongly agree

33. **Telemedicine could be an avenue to increase massive access to specialists and facilitate early detection of oral cancer.**
    ( ) Strongly disagree
    ( ) Disagree
    ( ) Neither agree nor disagree
    ( ) Agree
    ( ) Strongly agree

34. **A mobile phone app that enables the documentation of lesions and discussion of cases with an off-site specialist would be useful to facilitate the management of oral lesions.**
    ( ) Strongly disagree
    ( ) Disagree
    ( ) Neither agree nor disagree
    ( ) Agree
    ( ) Strongly agree

35. **If such a mobile phone app is available, you would like to implement this in your country.**
    ( ) Strongly disagree
    ( ) Disagree
    ( ) Neither agree nor disagree
    ( ) Agree
    ( ) Strongly agree

SECTION 5: INTERNET FACILITIES

36. **What is the internet network coverage at the site you would most likely use the mobile phone app?**
    ( ) No internet coverage
    ( ) Low internet coverage
    ( ) High internet coverage

( ) Complete internet coverage

37. Is there a restriction in storing anonymized clinical images outside your country?

( ) I don't know
( ) No
( ) Yes

38. Do you have access to a server to host a web application?

( ) I don't know
( ) No
( ) Yes

39. Do you have the expertise in maintaining server?

( ) I don't know
( ) No
( ) Yes

CUESTIONARIO EN IDIOMA ESPAÑOL

SECCIÓN 1: ASPECTOS DEMOGRÁFICOS

1. **Fecha de nacimiento:_____**
2. **Edad:_____**en años.
3. **Género:**
4. **País de nacimiento:**
5. **País donde ejerce su profesión actualmente:**
6. **País donde ejerce su profesión actualmente:**
7. **Último nivel de formación obtenido:**

( ) Especialista
( ) Patología Oral ( ) Estomatología ( ) Otro: _____
( ) Maestría
( ) Patología Oral ( ) Estomatología ( ) Otro: _____
( ) Doctorado
( ) Patología Oral ( ) Estomatología ( ) Otro: _____
( ) No tengo una preparación formal de posgrado en el área, pero he desarrollado experiencia durante años de práctica profesional.
Años: _____

SECCIÓN 2: POLÍTICAS NACIONALES DE CONTROL DEL CÁNCER

Plan de control del cáncer

1. **Existe un plan de control del cáncer en su país.**
   ( ) Totalmente en desacuerdo
   ( ) En desacuerdo
   ( ) Ni de acuerdo ni en desacuerdo
   ( ) De acuerdo
   ( ) Totalmente de acuerdo

2. **Existe un plan de control del cáncer oral en su país.**
   ( ) Totalmente en desacuerdo
   ( ) En desacuerdo
   ( ) Ni de acuerdo ni en desacuerdo
   ( ) De acuerdo
   ( ) Totalmente de acuerdo

3. **Considera que el cáncer oral es una prioridad dentro del plan de salud pública en su país.**
   ( ) Totalmente en desacuerdo
   ( ) En desacuerdo
   ( ) Ni de acuerdo ni en desacuerdo
   ( ) De acuerdo
   ( ) Totalmente de acuerdo

4. **En su país los servicios de salud oral son incluidos en la cobertura de sistemas gratuitos de salud.**
   ( ) Totalmente en desacuerdo
   ( ) En desacuerdo
   ( ) Ni de acuerdo ni en desacuerdo
   ( ) De acuerdo
   ( ) Totalmente de acuerdo

5. **En su país existen programas de educación y concientización para la población, incluyendo a los jóvenes, sobre hábitos de riesgo para el cáncer oral como tabaco y alcohol.**
   ( ) Totalmente en desacuerdo
   ( ) En desacuerdo
   ( ) Ni de acuerdo ni en desacuerdo
   ( ) De acuerdo
   ( ) Totalmente de acuerdo

6. **En su país, son implementadas estrategias de intervención precoz para reducir el consumo de tabaco y alcohol en la población, tales como impuestos, límites de edad y restricciones de disponibilidad.**
   ( ) Totalmente en desacuerdo
   ( ) En desacuerdo
   ( ) Ni de acuerdo ni en desacuerdo
   ( ) De acuerdo
   ( ) Totalmente de acuerdo

Registro y notificación del cáncer

7. **En su país, los datos de incidencia de cáncer se recopilan sistemáticamente a través de un registro nacional de cáncer.**
   ( ) Totalmente en desacuerdo
   ( ) En desacuerdo
   ( ) Ni de acuerdo ni en desacuerdo
   ( ) De acuerdo
   ( ) Totalmente de acuerdo

8. **Considera confiables los datos registrados sobre cáncer en servicios públicos y privados de su país.**
   ( ) Totalmente en desacuerdo
   ( ) En desacuerdo
   ( ) Ni de acuerdo ni en desacuerdo
   ( ) De acuerdo
   ( ) Totalmente de acuerdo

9. **En su país, el diagnóstico de desórdenes oral potencialmente malignos es de notificación obligatoria al gobierno.**

( ) Totalmente en desacuerdo
( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo
( ) De acuerdo
( ) Totalmente de acuerdo

10. **En su país, el diagnóstico de cáncer oral es de notificación obligatoria al gobierno.**
( ) Totalmente en desacuerdo
( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo
( ) De acuerdo
( ) Totalmente de acuerdo

11. **En su país, los métodos electrónicos de recopilación de datos médicos son una herramienta accesible para los servicios de salud.**
( ) Totalmente en desacuerdo
( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo
( ) De acuerdo
( ) Totalmente de acuerdo

12. **Los registros nacionales de cáncer permiten que los investigadores, médicos, profesionales de salud pública y miembros de la comunidad monitoreen la carga de cáncer, evalúen el éxito de los programas implementados e identifiquen necesidades adicionales para esfuerzo de prevención y control del cáncer.**
( ) Totalmente en desacuerdo
( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo
( ) De acuerdo
( ) Totalmente de acuerdo

Vías de derivación de desórdenes orales potencialmente malignos y cáncer oral

13. **En su país se establece desde la atención primaria de salud una vía clara de <u>derivación</u> para pacientes con desórdenes orales potencialmente malignos.**
( ) Totalmente en desacuerdo
( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo
( ) De acuerdo
( ) Totalmente de acuerdo

14. **En su país se establece desde la atención primaria de salud una vía clara de <u>derivación</u> para paciente con cáncer oral.**
( ) Totalmente en desacuerdo
( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo

( ) De acuerdo
( ) Totalmente de acuerdo

15. **En su país se establece desde la atención primaria de salud una vía clara de <u>tratamiento</u> para pacientes con desordenes orales potencialmente malignos.**
( ) Totalmente en desacuerdo
( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo
( ) De acuerdo
( ) Totalmente de acuerdo

16. **En su país se establece desde la atención primaria de salud una vía clara de <u>tratamiento</u> para paciente con cáncer oral.**
( ) Totalmente en desacuerdo
( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo
( ) De acuerdo
( ) Totalmente de acuerdo

17. **En la realidad clínica de su país, es posible lograr la adherencia a vías de derivación y tratamiento para pacientes con desórdenes orales potencialmente malignos y cáncer oral.**
( ) Totalmente en desacuerdo
( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo
( ) De acuerdo
( ) Totalmente de acuerdo

18. **En su país, la red nacional de hospitales públicos es suficiente para atender las necesidades de tratamiento de paciente con cáncer oral.**
( ) Totalmente en desacuerdo
( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo
( ) De acuerdo
( ) Totalmente de acuerdo

19. **En su país se implementan programas de concientización sobre cáncer oral para profesionales de la salud.**
( ) Totalmente en desacuerdo
( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo
( ) De acuerdo
( ) Totalmente de acuerdo

20. **En su país se implementan programas de detección (screening) de cáncer oral.**
( ) Totalmente en desacuerdo

( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo
( ) De acuerdo
( ) Totalmente de acuerdo

SECCIÓN 3: FORMACIÓN DE PROFESIONALES DE LA SALUD

Capacitación

21. **Los estudiantes de odontología son capacitados para obtener un historial médico social y dental actualizado, así como para realizar inspección y palpación sistemática de cabeza y cuello de rutina en todos los pacientes.**
( ) Totalmente en desacuerdo
( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo
( ) De acuerdo
( ) Totalmente de acuerdo

22. **Los estudiantes de odontología son capacitados para reconocer lesiones orales, incluidos desórdenes orales potencialmente malignos, como parte del programa de pregrado.**
( ) Totalmente en desacuerdo
( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo
( ) De acuerdo
( ) Totalmente de acuerdo

23. **En su país, los trabajadores de la atención primaria de salud son capacitados para detectar cáncer oral.**
( ) Totalmente en desacuerdo
( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo
( ) De acuerdo
( ) Totalmente de acuerdo

24. **En su país, el entrenamiento para la detección precoz de cáncer oral y desórdenes orales potencialmente malignos es enseñado por estomatólogos y patólogos orales y maxilofaciales.**
( ) Totalmente en desacuerdo
( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo
( ) De acuerdo
( ) Totalmente de acuerdo

25. **Los talleres y capacitación sobre el reconocimiento de desórdenes orales potencialmente malignos y el cáncer oral se llevan a cabo de manera rutinaria en su país.**
    ( ) Totalmente en desacuerdo
    ( ) En desacuerdo
    ( ) Ni de acuerdo ni en desacuerdo
    ( ) De acuerdo
    ( ) Totalmente de acuerdo

Manejo del cáncer oral

26. **La cantidad de estomatólogos y patólogos orales y maxilofaciales debidamente capacitados para manejar desórdenes orales potencialmente malignos y cáncer oral es suficiente para cumplir las necesidades de su país.**
    ( ) Totalmente en desacuerdo
    ( ) En desacuerdo
    ( ) Ni de acuerdo ni en desacuerdo
    ( ) De acuerdo
    ( ) Totalmente de acuerdo

27. **En su país, el cáncer oral se maneja a través de una discusión de equipo multidisciplinario.**
    ( ) Totalmente en desacuerdo
    ( ) En desacuerdo
    ( ) Ni de acuerdo ni en desacuerdo
    ( ) De acuerdo
    ( ) Totalmente de acuerdo

Aprendizaje electrónico

28. **Las herramientas de aprendizaje online pueden usarse para capacitar a profesionales de la salud en el reconocimiento de lesiones orales, incluyendo desórdenes orales potencialmente malignos y cáncer oral.**
    ( ) Totalmente en desacuerdo
    ( ) En desacuerdo
    ( ) Ni de acuerdo ni en desacuerdo
    ( ) De acuerdo
    ( ) Totalmente de acuerdo

29. **Las herramientas de aprendizaje online son útiles para la educación médica continua (EMC) entre profesionales de la salud que ya han sido capacitados para reconocer DOPM y cáncer oral.**
    ( ) Totalmente en desacuerdo
    ( ) En desacuerdo
    ( ) Ni de acuerdo ni en desacuerdo

( ) De acuerdo
( ) Totalmente de acuerdo

30. **En su país son desarrolladas herramientas de aprendizaje online para entrenar profesionales de la salud en el reconocimiento de desórdenes orales potencialmente malignas y cáncer oral.**
( ) Totalmente en desacuerdo
( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo
( ) De acuerdo
( ) Totalmente de acuerdo

SECCIÓN 4: ENFOQUES INNOVADORES PARA LA DETECCIÓN TEMPRANA DE CÁNCER ORAL

31. **Whatsaap, WeChat, Telegram y otras aplicaciones de mensajería móvil similares son ampliamente utilizadas en su país.**
( ) Totalmente en desacuerdo
( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo
( ) De acuerdo
( ) Totalmente de acuerdo

32. **Ha compartido imágenes anonimizadas y discutido casos de desórdenes orales potencialmente malignos y cáncer oral usando el teléfono móvil.**
( ) Totalmente en desacuerdo
( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo
( ) De acuerdo
( ) Totalmente de acuerdo

33. **La telemedicina podría ser una vía para ampliar el acceso público a especialistas y facilitar la detección precoz del cáncer oral.**
( ) Totalmente en desacuerdo
( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo
( ) De acuerdo
( ) Totalmente de acuerdo

34. **Una aplicación de teléfono móvil que permita la documentación de lesiones y la discusión de casos con un especialista externo sería útil para facilitar el manejo de lesiones orales.**
( ) Totalmente en desacuerdo
( ) En desacuerdo
( ) Ni de acuerdo ni en desacuerdo
( ) De acuerdo

( ) Totalmente de acuerdo

35. **Si existe una aplicación de este tipo para teléfonos móviles, le gustaría implementarla en su país.**
    ( ) Totalmente en desacuerdo
    ( ) En desacuerdo
    ( ) Ni de acuerdo ni en desacuerdo
    ( ) De acuerdo
    ( ) Totalmente de acuerdo

SECCIÓN 5: INFRAESTRUCTURA DE INTERNET

36. **¿Cuál es la cobertura de la red de internet en el sitio donde probablemente usaría la aplicación de teléfono móvil?**
    ( ) Sin cobertura de internet
    ( ) A veces conectado
    ( ) La mayoría del tiempo conectado
    ( ) Siempre conectado

37. **¿Existe alguna restricción en el almacenamiento de imágenes clínicas anonimizadas fuera de su país?**
    ( ) No lo sé
    ( ) No
    ( ) Sí

38. **¿Tiene acceso a un servidor para alojar una aplicación web?**
    ( ) No lo sé
    ( ) No
    ( ) Sí

39. **¿Tiene experiencia en el mantenimiento de este servidor?**
    ( ) No lo sé
    ( ) No
    ( ) Sí

2.2 Artigo: Addressing Discrepancies in Oral Cancer Reporting: GLOBOCAN Estimates versus Ground Reality in Latin America and the Caribbean

Artigo aceito para publicação no Cancer Epidemiology Journal. **(Anexo 4**)

Santos-Silva AR, Martínez-Ramírez J, Lopes MA. Addressing discrepancies in oral cancer reporting: GLOBOCAN estimates versus ground reality in Latin America and the Caribbean. Cancer Epidemiol. 2024;88:102498. doi:10.1016/j.canep.2023.102498.

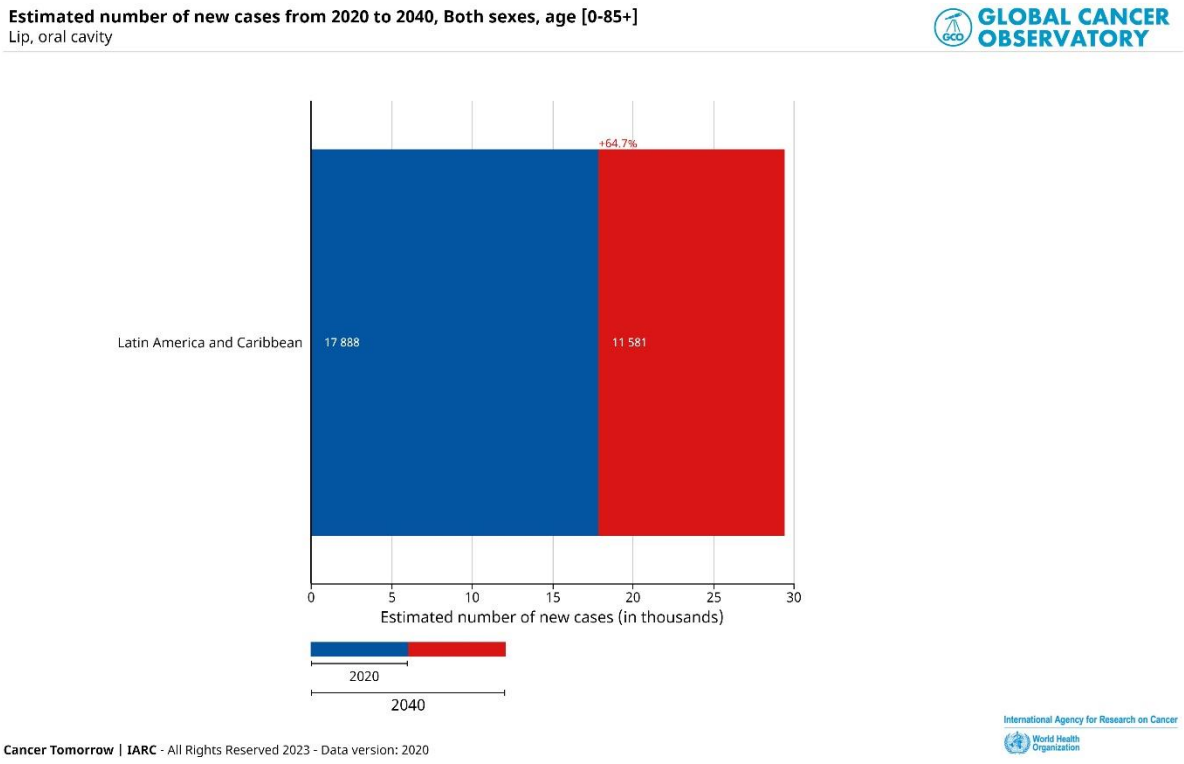
Dear Editor,

We read with great interest the special issue of Cancer Epidemiology [1] which included 8 peer-reviewed publications to mark the launch of the important initiative of the Pan American Health Organization (PAHO) in collaboration with the International Agency for Research on Cancer (IARC). This special collaboration has prepared the first edition of the Latin American and Caribbean Code against Cancer [2] as part of the IARC's World Code Against Cancer Framework, which aims to reduce the burden of cancer in the region by providing recommendations based on the latest scientific evidence.

This fabulous international initiative allows us to address an urgent issue related to the underreporting of oral cancer cases in Latin American and Caribbean (LAC) countries. In this scenario, the estimated number of new cases of lip and oral cavity cancers (ICD-10 codes C00-C06) for both sexes in the year 2020, using the "Cancer Tomorrow" tool from the Global Cancer Observatory (GLOBOCAN), an IARC web database, is 17,888 [3] (see Fig. 1). Although this figure is alarming, it represents an underestimate compared to the reality facing health systems. Just as a comparison, in Brazil alone, where only 30% of the region's population live, more than 15,000 cases of oral cancer are diagnosed every year, according to the Brazilian National Cancer Institute (INCA) [4]. The contrast between the GLOBOCAN estimates and the INCA data is

alarming and demands our immediate attention. The discrepancy between these figures highlights the critical issue concerning the underreporting of oral cancer cases in Latin America and Caribe. This underreporting has far-reaching consequences because without accurate data, it becomes difficult to allocate resources effectively, plan interventions and measure the success of cancer control programs [5]. It also hinders research efforts aimed at understanding the underlying causes and developing optimal treatments.

Fig 1. Estimated number of new cases from 2020 to 2040, Both sexes, age [0-85+] in Latin America and the Caribbean, 2020. *Source:* GLOBOCAN 2020.



The LAC region has a diversity of socioeconomic and demographic factors, leading to diverse exposure to risk factors attributable to cancer and inequalities in access to the healthcare system and prevention programs [6]. By improving our cancer registries, we can better understand the magnitude of the burden of incidence and mortality for the disease and provide care for the population at risk and those affected by oral cancer. This will ultimately contribute to the wider global effort to reduce the burden of this devastating disease. Therefore, the first step to resolving

this issue is to improve cancer registries in LAC countries. Health professionals, patients, policymakers, and researchers must initiate a collaborative endeavor to strengthen local and regional cancer registries, raise awareness about the importance of accurate reporting, and work together to reduce the burden of oral cancer in LAC. It is only through a collective effort that we can hope to make a significant impact on this urgent issue.

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Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work, the author(s) used ChatGPT to proofread and edit drafts. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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3 DISCUSSÃO

Esta dissertação abordou, pela primeira vez, as barreiras enfrentadas no diagnóstico precoce do câncer oral na ALC. Em concordância com as evidências disponíveis, estabelece recomendações como vias para aprimorar o contexto do atraso no diagnóstico na região. Adicionalmente, destaca a problemática crítica relacionada à subnotificação de casos de câncer oral na ALC, incentivando a necessidade de aprimorar os registros de câncer. Isso é fundamental para compreender melhor a magnitude da carga de incidência e mortalidade da doença, possibilitando uma alocação mais eficaz de recursos, o planejamento de intervenções e mensuração do sucesso dos programas de controle do câncer (Piñeros et al., 2021).

Os resultados obtidos proporcionam uma visão geral diversificada da implementação de políticas nacionais de controle do câncer, programas de treinamento e infraestruturas de saúde relacionadas aos DOPM e ao câncer oral nos países da ALC. Contudo, a implementação limitada de planos de controle, a baixa notificação compulsória, vias de encaminhamento pouco claras, e um número reduzido de profissionais treinados representam as principais barreiras percebidas na região. Essas barreiras não apenas existem em nossa região, Ng, et al. (2022) reportaram desafios semelhantes enfrentados na Região da Ásia-Pacífico, destacando a falta de estratégias nacionais de controle do câncer e de registros de câncer, bem como a disponibilidade limitada de profissionais de saúde treinados.

Para superar os desafios na região da ALC, onde os recursos são escassos, os professionais concordaram com novas abordagens para o treinamento profissional contínuo, incluindo a educação online (do inglês *e-Learning*). Adicionalmente, para enfrentar a escassez de profissionais de saúde treinados, os professionais concordaram com a implementação da abordagem inovadora de telemedicina/teleodontologia.

As abordagens educacionais online parecem ser viáveis para facilitar o ensino de profissionais de saúde primária na realização do exame clinico oral (Wee et al., 2016), podendo incentivar a realização regular de exames da mucosa oral (Braun et al., 2021). Isso contribui para aumentar a eficácia no manejo de condições orais e na detecção precoce do câncer oral (Braun et al., 2021; Morelatto et al., 2022), reduzindo, portanto, os atrasos no intervalo de tempo profissional por meio do treinamento de profissionais de

odontologia (Morelatto et al., 2022). Além disso, outros professionais da atenção primaria à saúde, como médicos e enfermeiras, podem ser treinados para realizar o exame clinico oral (Warnakulasuriya e Kerr, 2021). Há evidências de que em países com poucos recursos, os profissionais de saúde da comunidade podem ser treinados com sucesso para realizar o rastreamento do câncer oral (Warnakulasuriya e Kerr, 2021). Dado que os intervalos de tempo entre o encaminhamento para um centro de atenção médica com um especialista, a confirmação da doença maligna e o início do tratamento são influenciados tanto pelas características do paciente e do tumor quanto da assistência professional (Schoonbeek et al., 2021), fornecer aos professionais treinamento adequado, especialmente para câncer oral, pode permitir que achados anormais na mucosa oral que indiquem câncer oral ou DOPM sejam encaminhados para avaliação posterior (Warnakulasuriya, 2020). Em relação às vias de encaminhamento, estudar e compreender os caminhos para o diagnóstico e o tratamento em cada país é fundamental para o desenvolvimento de intervenções bem-sucedidas para o diagnóstico precoce do câncer oral (Fernández-Martínez et al., 2023).

Por outra lado, é notável que, durante a pandemia de COVID-19, houve um aumento substancial na troca de fotografias médicas, evidenciando o potencial da telemedicina para expandir o acesso à saúde, especialmente para indivíduos que normalmente não têm acesso a serviços especializados. Isso é especialmente relevante em áreas remotas com escassez de dentistas (Ojeda et al., 2020; Maret et al., 2021; Vigarios et al., 2022; El Tantawi et al., 2023; IARC, 2023). O uso da tecnologia móvel para capturar e enviar imagens clínicas de pacientes possibilita consultas rápidas com especialistas, podendo levar a resultados positivos no diagnóstico precoce do câncer oral (Warnakulasuriya e Kerr, 2021). A literatura aponta para oportunidades no desenvolvimento de programas de rastreamento do câncer oral, utilizando a base tecnológica da fotografia de telefones celulares (Walsh et al., 2021; IARC, 2023).

Em relação à subnotificação do câncer oral, de acordo com a literatura disponível, nos países da América do Sul, devido ao baixo número de registros de câncer de base populacional que são continuamente atualizados, espera-se que os números oficiais de incidência oficiais possam estar subestimados nessa grande área geográfica (Curado et al., 2016). Na ALC, no ano 2020, a região contava com 86 registros de câncer de base

populacional (PBCRs), cobrindo apenas o 23,3% da população, apesar de representar progresso, a ampliação da cobertura é necessária (Piñeros et al., 2021). O desenvolvimento e a melhoria dos bancos de dados nacionais de câncer são altamente desejáveis e necessários para entender melhor as características e a distribuição do câncer, pois melhorias poderiam posteriormente permitir o desenvolvimento de estratégias públicas mais eficazes para lidar com os cânceres (Curado et al., 2016), particularmente o câncer da cavidade oral. Dado que as opções de saúde pública para prevenir o câncer variam de um país para outro ou de um contexto para outro, e estão relacionadas com muitos fatores, incluindo as condições socioeconómicas e as prioridades nacionais (IARC, 2023), o fortalecimento das bases de dados nacionais permitirá aos pesquisadores, médicos, profissionais de saúde pública e membros da comunidade monitorar a carga do câncer oral, avaliar o sucesso dos programas e identificar necessidades adicionais para esforços de prevenção e controle do câncer oral, assim como promover a colaboração regional eficaz e o intercâmbio de dados dentro da comunidade de pesquisa, diagnóstico e tratamento do câncer bucal e DOPM.

Para avançar na compreensão das barreiras enfrentadas nos países da ALC, considerando o limitado número de participantes por pais no nosso estudo primário, e que cada país apresenta contextos diferentes, pesquisas futuras devem ser realizadas para expandir o tamanho da amostra e incluir uma população-alvo mais diversificada.

4 CONCLUSÕES

Em resumo, com base nos dois estudos apresentados nesta dissertação, podemos concluir que:

- Entre as principais barreiras percebidas para o diagnóstico precoce e tratamento do câncer oral destacam-se a implementação limitada de planos de controle para DOPM e câncer oral, a baixa notificação compulsória de casos de DOPM e câncer oral, as vias de encaminhamento pouco claras para pacientes com DOPM e câncer oral, e escassez de profissionais devidamente treinados.
- Observa-se uma preocupante subnotificação do câncer oral, o que dificulta a obtenção de dados precisos para o planejamento efetivo e avaliação do sucesso dos programas de controle do câncer oral na região.
- As potenciais estratégias para aprimorar o cenário na região incluem o acesso e desenvolvimento mais generalizados da aprendizagem electrónica contínua, utilização rotineira de telemedicina/telodontologia e sua integração nos sistemas nacionais de saúde, a implementação de programas de screening o estabelecimento de vias de encaminhamentos claras para pacientes com condições orais suspeitas de DOMP e câncer oral, o desenvolvimento e fortalecimento dos bancos de dados, e reforço das estratégias existentes.

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ANEXOS

Anexo 1. Comitê de Ética em Pesquisa.

UNICAMP - FACULDADE DE ODONTOLOGIA DE PIRACICABA DA UNIVERSIDADE DE CAMPINAS - FOP/UNICAMP

PARECER CONSUBSTANCIADO DO CEP

DADOS DO PROJETO DE PESQUISA

Título da Pesquisa: AVALIAÇÃO DAS BARREIRAS PARA DETECÇÃO PRECOCE E TRATAMENTO DO CÂNCER ORAL NA AMÉRICA LATINA E CARIBE: UMA PESQUISA DIGITAL INTERNACIONAL

Pesquisador: Josefina Martínez Ramírez

Área Temática:

Versão: 2

CAAE: 58068822.1.0000.5418

Instituição Proponente: Faculdade de Odontologia de Piracicaba - Unicamp

Patrocinador Principal: Financiamento Próprio

DADOS DO PARECER

Número do Parecer: 5.391.679

Apresentação do Projeto:

O parecer inicial é elaborado com base na transcrição editada do conteúdo do registro do protocolo na Plataforma Brasil e dos arquivos anexados à Plataforma Brasil. Os pareceres de retorno, emendas e notificações são elaborados a partir do último parecer e dos dados e arquivos da última versão apresentada. A EQUIPE DE PESQUISA citada na capa do projeto de pesquisa inclui JOSEFINA MARTÍNEZ RAMÍREZ (Cirurgiã-dentista, Mestranda no PPG em Estomatopatologia da FOP-UNICAMP, Pesquisadora responsável), CRISTINA SALDIVIA SIRACUSA (Cirurgiã-dentista; Mestranda no PPG em Estomatopatologia da FOP-UNICAMP), ANA CAROLINA PRADO RIBEIRO E SILVA (Cirurgiã-dentista; Estomatologista e Pesquisadora do Instituto do Câncer do Estado de São Paulo - ICESP), ALAN ROGER DOS SANTOS SILVA (Cirurgião-dentista, Professor da Área de Semiologia da FOP-UNICAMP), o que é confirmado na declaração dos pesquisadores e na PB.

DELINEAMENTO DA PESQUISA: Trata-se de estudo quantitativo de tipo transversal e observacional, internacional, baseado em questionário online autoaplicável (REDCap), que envolverá 66 especialistas em Patologia Oral ou Estomatologia, com faixa etária entre 30 e 70 anos, de 33

Endereço: Av.Limeira 901 Caixa Postal 52
Bairro: Areião **CEP:** 13.414-903
UF: SP **Município:** PIRACICABA
Telefone: (19)2106-5349 **Fax:** (19)2106-5349 **E-mail:** cep@fop.unicamp.br

Este parecer foi elaborado baseado nos documentos abaixo relacionados:

Tipo Documento	Arquivo	Postagem	Autor	Situação
Informações Básicas do Projeto	PB_INFORMAÇÕES_BÁSICAS_DO_PROJETO_1931341.pdf	05/05/2022 16:38:03		Aceito
Outros	carta_resposta_parecerCTimbre04_2018.pdf	05/05/2022 16:37:28	Josefina Martínez Ramírez	Aceito
Declaração de Instituição e Infraestrutura	DeclaraInstituicao.pdf	22/04/2022 11:05:24	Josefina Martínez Ramírez	Aceito
Declaração de Pesquisadores	DeclaraPesquisadores.pdf	22/04/2022 11:05:14	Josefina Martínez Ramírez	Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	TCLE_InglesEspanhol.pdf	22/04/2022 11:04:34	Josefina Martínez Ramírez	Aceito
Recurso Anexado pelo Pesquisador	61Anexo.pdf	22/04/2022 10:58:23	Josefina Martínez Ramírez	Aceito
Projeto Detalhado / Brochura Investigador	Projeto.pdf	22/04/2022 07:40:58	Josefina Martínez Ramírez	Aceito
Folha de Rosto	FolhaDeRosto.pdf	19/04/2022 14:22:45	Josefina Martínez Ramírez	Aceito

Situação do Parecer:
Aprovado

Necessita Apreciação da CONEP:
Não

PIRACICABA, 05 de Maio de 2022

Assinado por:
jacks jorge junior
(Coordenador(a))

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Anexo 2. Situação do Projeto na Plataforma Brasil (print)

DETALHAR PROJETO DE PESQUISA

DADOS DA VERSÃO DO PROJETO DE PESQUISA

Título da Pesquisa: AVALIAÇÃO DAS BARREIRAS PARA DETECÇÃO PRECOCE E TRATAMENTO DO CÂNCER ORAL NA AMÉRICA LATINA E CARIBE: UMA PESQUISA DIGITAL INTERNACIONAL
Pesquisador Responsável: Josefina Martínez Ramírez
Área Temática:
Versão: 2
CAAE: 58068822.1.0000.5418
Submetido em: 05/05/2022
Instituição Proponente: Faculdade de Odontologia de Piracicaba - Unicamp
Situação da Versão do Projeto: Aprovado
Localização atual da Versão do Projeto: Pesquisador Responsável
Patrocinador Principal: Financiamento Próprio

COORDENADOR

Comprovante de Recepção: PB_COMPROVANTE_RECEPCAO_1931341

DOCUMENTOS DO PROJETO DE PESQUISA

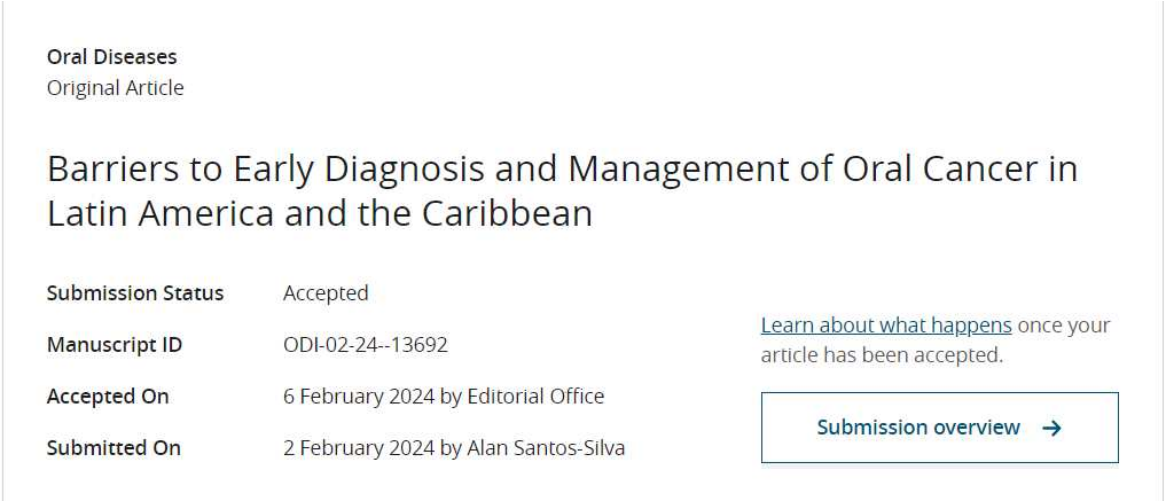
- Versão Atual Aprovada (PO) - Versão 2
  - Pendência de Parecer (PO) - Versão 2
    - Documentos do Projeto
      - Comprovante de Recepção - Submissã
      - Declaração de Instituição e Infraestrutu
      - Declaração de Pesquisadores - Submis
      - Folha de Rosto - Submissão 2
      - Informações Básicas do Projeto - Subm
      - Outros - Submissão 2
      - Projeto Detalhado / Brochura Investigac
      - Recurso Anexado pelo Pesquisador - S
      - TCLE / Termos de Assentimento / Justif
    - Apreciação 2 - Faculdade de Odontologia d
  - Projeto Original (PO) - Versão 1
    - Documentos do Projeto
      - Comprovante de Recepção - Submissã
      - Declaração de Instituição e Infraestrutu
      - Declaração de Pesquisadores - Submis
      - Folha de Rosto - Submissão 1
      - Informações Básicas do Projeto - Subm
      - Projeto Detalhado / Brochura Investigac
      - Recurso Anexado pelo Pesquisador - S
      - TCLE / Termos de Assentimento / Justif
    - Apreciação 1 - Faculdade de Odontologia d
- Projeto Completo

Tipo de Documento	Situação	Arquivo	Postagem	Ações

LISTA DE APRECIAÇÕES DO PROJETO

Apreciação	Pesquisador Responsável	Versão	Submissão	Modificação	Situação	Exclusiva do Centro Coord.	Ações
PO	Josefina Martínez Ramírez	2	05/05/2022	06/05/2022	Aprovado	Não	

Anexo 3. Documento de aceite do artigo (print do sistema online de submissão).



Oral Diseases
Original Article

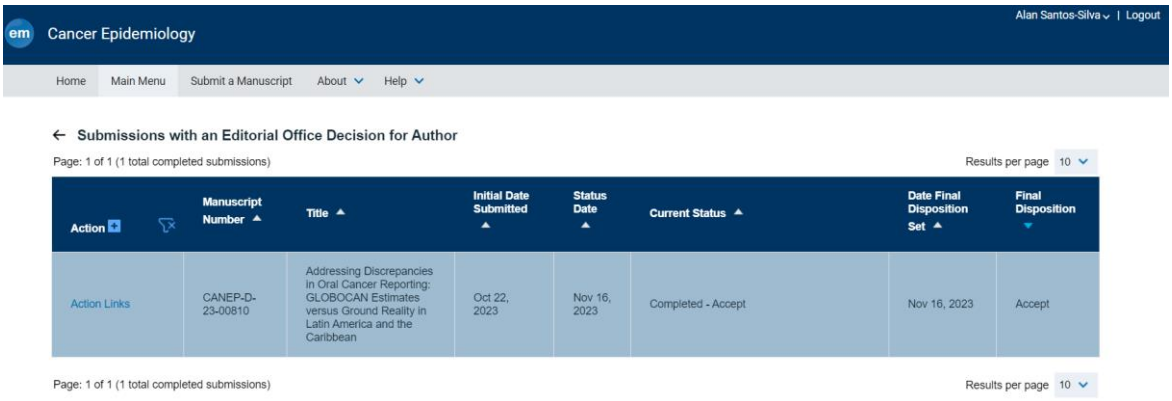
Barriers to Early Diagnosis and Management of Oral Cancer in Latin America and the Caribbean

Submission Status	Accepted
Manuscript ID	ODI-02-24--13692
Accepted On	6 February 2024 by Editorial Office
Submitted On	2 February 2024 by Alan Santos-Silva

Learn about what happens once your article has been accepted.

Submission overview →

Anexo 4. Documento de aceite do artigo (print do sistema online de submissão).



Cancer Epidemiology

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Page: 1 of 1 (1 total completed submissions)

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Action	Manuscript Number	Title	Initial Date Submitted	Status Date	Current Status	Date Final Disposition Set	Final Disposition
Action Links	CANEP-D-23-00810	Addressing Discrepancies in Oral Cancer Reporting: GLOBOCAN Estimates versus Ground Reality in Latin America and the Caribbean	Oct 22, 2023	Nov 16, 2023	Completed - Accept	Nov 16, 2023	Accept

Page: 1 of 1 (1 total completed submissions)

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Anexo 5. Relatório de similaridade da Plataforma Turnitin.

BARREIRAS PARA DETECÇÃO PRECOCE E TRATAMENTO DO CÂNCER ORAL NA AMÉRICA LATINA E CARIBE: RESULTADOS DE UMA PESQUISA MULTINACIONAL INTERNACIONAL.

ORIGINALITY REPORT

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SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

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★ Sin Wi Ng, Sharifah Nur Syamim Syed Mohd Sobri, Rosnah binti Zain, Thomas George Kallarakkal et al. "Barriers to early detection and management of oral cancer in the Asia Pacific region", Journal of Health Services Research & Policy, 2022

Publication

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