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REVIEW ARTICLE

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Ethnic disparities in patients with head and neck cancer undergoing palliative care and its impact on clinical outcomes: a systematic review

Abstract:

Objective: This study aimed to investigate ethnic disparities in patients with head and neck cancer undergoing palliative care and their impact on clinical outcomes. **Methods:** This review was conducted according to the Pre-ferred Reporting Items for Systematic Reviews and Meta-Analyses. Five electronic databases (Medline/PubMed, SCOPUS, EMBASE, Web of Science, and LILACS), in addition to the gray literature, were used. **Results:** Eleven studies (497,671 patients) were included in the qualitative analysis, all of which were based in the United States of America. A small portion of the total sample was in PC (5.7%). Most patients in PC were white/Caucasian (76.0%), however, 78.7% of the total sample of this systematic review were white patients. **Conclusion:** Based on the data available in the literature, it was not possible to conclude whether there is ethnic disparity in access to palliative care for patients with head and neck cancer, and whether there ethnicity influences clinical outcomes.

Keywords: Head and neck cancer; Palliative care; Healthcare disparities; Ethnicity; Systematic review.

INTRODUCTION

Head and neck cancer (HNC) is the seventh most common cancer in the world[1]. HNC interferes with important physiological functions, as well as being associated with pain, disfigurement, and psychosocial distress[2-4]. Curative treatments can increase disease-related morbidity[3]. Furthermore, approximately 40% of HNC patients are diagnosed at advanced stages[5]. Palliative care (PC) plays a vital role in improving the quality of life by addressing pain, physical, psychosocial, and spiritual issues through early identification and comprehensive management[6]. In this context, palliative care (PC) can be of great importance to this group of patients.

Statement of Clinical Significance
Head and neck cancers are often detected late, making many patients eligible for palliative care to enhance quality of life in key areas like eating, breathing, and speaking. Therefore, it is important to assess whether this care is received equally regardless of ethnicity, as ethnic disparities in health care for a variety of diseases and treatments are currently documented.

Ethnic disparities in health care are defined as differences in the presence of disease, health outcomes, quality of care, and access to care that negatively affect members of ethnic minority groups and other socially disadvantaged populations[7]. The Centers for Disease Control and Prevention (CDC) describes ethnic minority populations as Asian Americans, Black or African Americans, Hispanics or Latinos, Native Hawaiians and Other Pacific Islanders, American Indians, and Alaska Natives[7]. PC should be equally accessible and of similar quality, regardless of ethnicity. However, ethnic disparities in access to PC are documented for some malignancies[8]. In this context, it is important to assess whether PC is received by HNC patients equally, regardless of ethnicity. Therefore, this study aimed to carry out a systematic review (SR) of the literature to answer the following research question: “Is there a difference in utilization and clinical outcomes of palliative care for patients with head and neck cancer based on their ethnicity?”

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METHODS

Eligibility criteria

The acronym PECOS was developed to guide the focused review question and to determine the inclusion criteria, of which: P) Head and neck cancer patients; E) Ethnicity minority C) Ethnicity majority O) Utilization of palliative care and clinical outcomes; S) Observational studies (cross-sectional, cohort and case-control studies, case series).

The exclusion criteria were:

1. Studies lacking information on ethnicity;
2. Studies in which utilization data and clinical outcomes in palliative care in head and neck cancer patients were not available for data extraction due to clustering with curative treatments;
3. Studies in which utilization data and clinical outcomes in palliative care in head and neck cancer patients were not available for data extraction due to clustering with other malignancies;
4. Studies that assessed patients with malignant lesions at anatomical sites other than the head and neck;
5. Reviews, case reports, protocols, short communication, personal opinions, letter, conference abstracts and laboratory research;
6. Studies whose full texts were not available;
7. Studies published in other languages than English, Portuguese, and Spanish.

Information sources and search strategy

Individualized search strategies following the PECOS strategy were performed in March 2023 and updated on June 10, 2024, for each of the following databases: Pubmed, EMBASE, LILACS, Scopus, and Web of Science. Gray literature was also carried out on Google Scholar, ProQuest and OpenGray (Supplementary Table S1). Additionally, the references of included studies were manually screened for potential additional studies. The retrieved studies were imported into the reference manager Endnote Web (Endnote Web, Clarivate Analytics, Philadelphia, PA), where duplicated references were removed. No limits on publication date were applied to the search strategy.

Selection process

The study selection was accomplished in two phases and independently by two reviewers (AEOM and ESS). In the first phase, the titles and abstracts of the identified references were read on Rayyan®[9]. The studies which meet all inclusion criteria went to the second phase of the selection process, in which the full texts were read and the eligibility criteria were confirmed. In addition, the reference lists of all included studies in the second phase were hand-screened for potentially missing studies. A third author (ARSS) was consulted if disagreements between the 2 initial evaluators were not resolved.

Data collection process and data items

The choice of data to be extracted was made in agreement with the research team, to collect the data that best delineated the population, exposures, and outcomes. Therefore, the most important data from included studies were collected by one reviewer (AEOM) and cross checked by a second reviewer (ESS). Any divergences were resolved by discussion and mutual agreement between the authors. Extracted data included: publication information (reference, year, country, continent, study design), sample information (sample size, sex, age, ethnicity, histological tumor type, and anatomic topography, clinical stage, treatment utilized before decision for palliative care), palliative care (type of palliative care - palliative chemotherapy, palliative radiotherapy, palliative surgery, pain management), clinical outcomes (overall survival, location of death, management of clinical signs and symptoms), statistical data, and main conclusions of selected studies.

Risk of bias assessment

The risk of bias of individual studies was independently assessed by two authors (AEOM and ESS) using the Joanna Briggs Institute (JBI) Critical Appraisal Tools according to the design of each study included in the review[10]. Studies were characterized as having a high risk of bias when the "yes" response score was less than or equal to 49%, as having a moderate risk of bias when the score was between 50 and 69%, and as having a low risk of bias when the score was 70% or higher. Divergences were resolved by mutual agreement.

RESULTS

Study selection

The searches identified 4,425 records in databases and 119 additional studies in the gray literature, totalizing 4,544 studies that were managed and had duplicates removed. After this process, 3,365 references remained, with 3,267 coming from the main databases and 98 from the gray literature, and had their titles and abstracts read for initial screening. After confirming the eligibility criteria and discussing the divergences, 133 studies were selected for full-text reading. Finally, following eligibility criteria confirmation, 11 studies were selected for qualitative analysis. The study selection process is illustrated in Figure 1 and the reasons for the exclusion of each of the articles read in full are described in Supplementary Table S2.

Study characteristics

Publication information

All 11 included studies were published in the English language between 2015[11,12] to 2024[13] and performed in the United States of America (USA). The most included studies were retrospective cohort studies (n= 6)[3,5,11,13-15], followed by retrospective cross-sectional studies (n=2)[12,16], case-control study (n=1)[17], cases series (n=1)[18], and a pilot study (n=1)[19].

Sample information

The total sample size for this systematic review (SR) was 497,671 patients, ranging from 20[19] to 179,909[13] patients across the studies. Most of the patients were male (n=368,676; 74.1%), the sex of 1 patient in the study by Ramsey et al.[15], was not informed. White/Caucasian (n=390,254; 78.7%.) was the most prevalent ethnicity within the studies, data for 1873 patients was not described[13,15,16]. The average age of the patients was 61.0 years, this was not described by 3 studies (n=15,557)[3,11,14].

Most of the patients were diagnosed at AJCC (American Joint Committee on Cancer) stage III or IV (n= (297,507; 83.4%), however some studies did not report this data (n=140,747)[11,12,16-18] and Faber et al.[14], reported data from stages I to III grouped (n=161). The histological type of HNC was only described by 3 studies (n=165,481)[5,14,19], with squamous cell carcinoma being the most common (n=165,252; 99.9%). Concerning anatomical topographies, some studies grouped the data (n=154,361; 38.8%)[3,5,16,18], and within the non-grouped data, the larynx (n=120,841; 30.4%) oropharynx (n=113,550; 28.5%) and oral cavity (n=66,923; 16.8%) were the anatomical topographies most affected. Ramsey et al.[15] and Saravia et al.[17] did not report the site affected in 1 patient each.

Smoking habits were only described in 3 studies (n=345)[17-19], and 77.7% had a history of tobacco use. Data on alcohol consumption was only described by 2 studies (n=325)[17,18] and 35.1% of the patients had a history of alcohol consumption. The clinical-pathological characteristics of the total sample of this SR are summarized in Table 1.

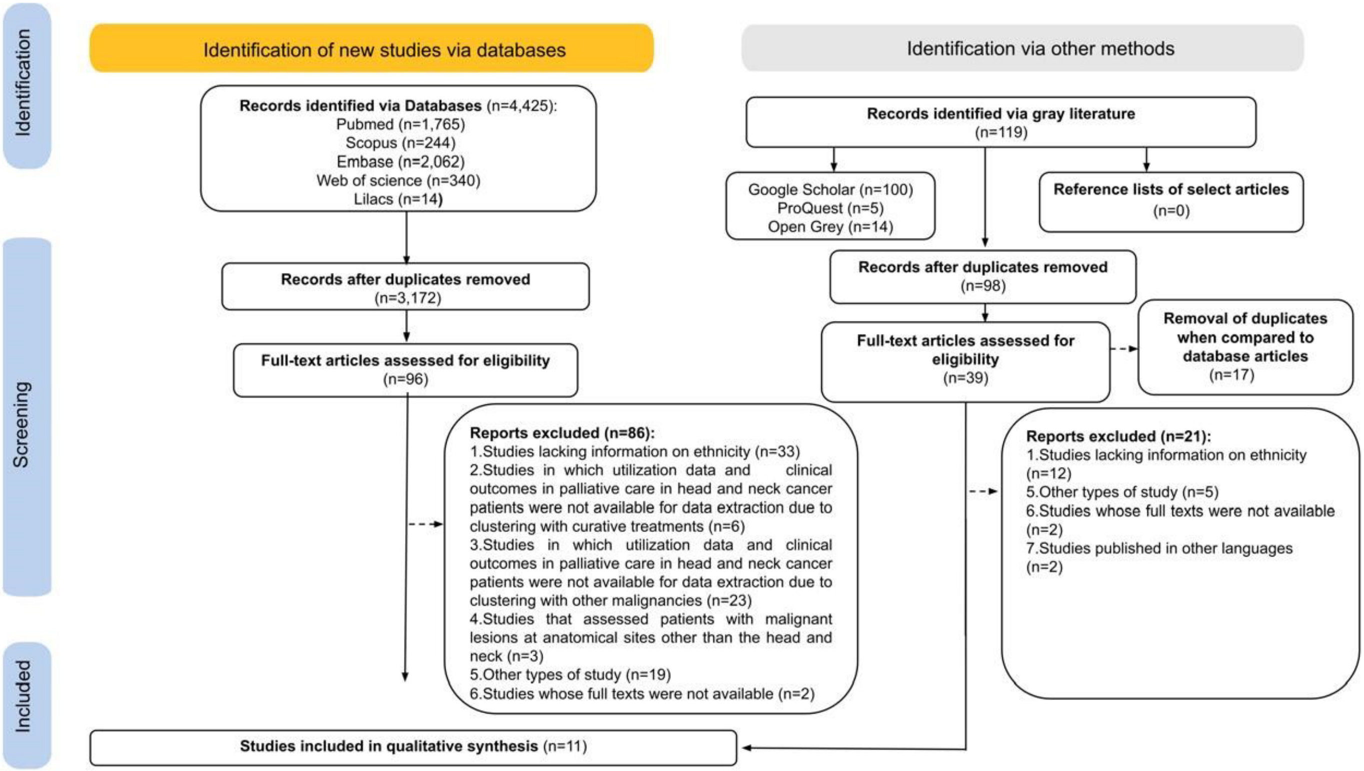

Figure 1. Flow diagram of the literature search and selection criteria according to PRISMA.

Palliative care information

A portion of the total sample was in PC (n=28,589; 5.7%). Most patients in PC were white/Caucasian (n=21,586; 76.0%), data for 173 patients was not described[13,15,16]. The majority of patients were male (n=18,646; 65.2%), the sex of 1 patient in the study by Ramsey et al.[15], was not informed. The patients, for the most part, received a combination of therapies in PC (surgery, chemotherapy and radiotherapy) (n=3869; 48.0%). However, the type of PC received was not described in 20,494 patients in the sample. In addition, 1343(16.6%) patients received concomitant curative therapy. The majority of patients were diagnosed in AJCC stages III and IV (n=16,530; 97.2%). The clinical and pathological characteristics of the sample under PC in this SR are summarized in Table 2. The clinical and demographic characteristics of the PC sample of each included study are detailed in Table 3.

Risk of study bias

Among the included studies, most were classified as having a low risk of bias (n=9; 90.0%), while 1 study (10.0%) were classified as having a moderate risk of bias. The study conducted by Bauman et al.[19] is a pilot study and has not had its risk of bias assessed. The main issue in the methods of the included studies was the failure to explain how data from PC patients was obtained and the inability to identify confounding factors. On the other hand, exposure and outcomes were reliably measured by most studies (7; 77.8%) and an adequate statistical analysis was performed by all studies. The risk of bias assessment is illustrated in Figure 2 and detailed in Supplementary Table S3, Supplementary Figure 1, Supplementary Figure 2 Supplementary Figure 3 and Supplementary Figure 4.

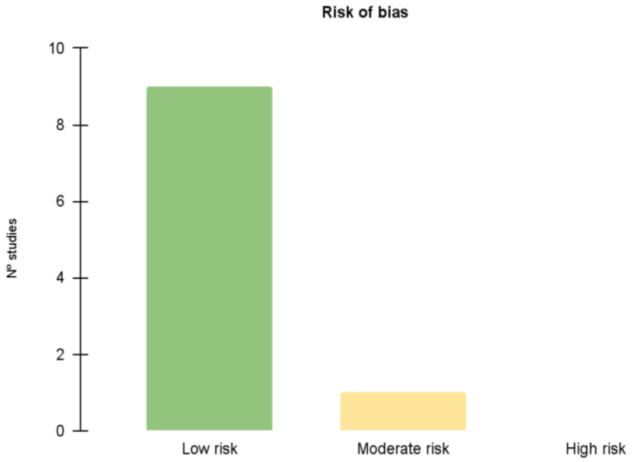

Figure 2. Risk of bias assessed by the Joanna Briggs Institute tool for use in JBI Systematic Reviews. The risk of bias was categorized as high when the study achieved up to 49% "yes" scores, moderate when the study achieved 50 to 69% "yes" scores, and low when the study achieved more than 70% "yes" scores.

Results of individual studies on palliative care information

Association of palliative care use and ethnicity

Four studies performed multivariate analysis including ethnicity to assess PC utilization[3,5,12,13]. The study conducted by Sullivan et al.[5] found that Blacks were more likely to receive PC (OR 1.22, 95%CI 1.09–1.36; p<.001)[5]. Fereydooni et al.[13] found that white and black ethnicity (adjusted odds ratio [aOR], 1.14; 95%CI, 1.07–1.22) were associated with lower PC use[13]. Other studies found that Black patients and patients of other minority ethnicities were less likely to receive PC compared to White patients; however, these results were not statistically significant[3,12].

Association between the type of palliative care received and ethnicity

Only Ramsey et al.[15] evaluated the influence of ethnicity on the type of palliative treatment received (pain palliation alone or cytoreductive palliation). The authors found no significant difference in the type of treatment received by the patients based on ethnicity[15].

Association of overall survival of patients using palliative care and ethnicity

Farber et al.[14] evaluated the association between overall survival and ethnicity, finding that 1-year overall survival was higher for Black patients (53.3%) than for White patients (41.7%), though the difference was not statistically significant[14].

In addition, Faber et al.[14] and Civantos et al.[3] carried out a multivariate analysis of the association between different variables and overall survival, including ethnicity[3,14]. In the Faber et al.[14] study, black patients (HR 0.995, 95%CI 0.677–1.464; p=0.982) and patients of other ethnicities (HR 0.738, 95%CI 0.416–1.31; p=0.3) were associated with lower survival, but without statistical significance[14]. Similarly, Civantos et al.[3] found that Asian ethnicity (HR 0.82, 95%CI 0.69–0.97, p=0.023) and other ethnicities (HR 0.89, 95%CI 0.75–1.06, p=0.193) were associated with lower overall survival and that African Americans were associated with higher overall survival (HR 1.06, 95%CI 0.99–1.14, p=0.086), however, the results were not statistically significant[3].

DISCUSSION

Ethnic disparities in access to palliative care (PC) are documented in the literature[8,20]. In patients with advanced head and neck cancer (HNC), access to PC is fundamental, given that antineoplastic treatment has a major functional and psychological impact[21]. This systematic review (SR) aimed to investigate ethnic disparities in patients with HNC undergoing PC and their impact on clinical outcomes.

Of the 497,671 patients in this review, only 5.7% received palliative care. Within the included studies, the percentage of patients in PC ranged from 1.7%[5] to 36.8%[11]. The majority of PC patients in this RS were in AJCC stages III and IV (95.4%), indicating advanced stages of the disease, in which PC is beneficial[5]. Thus, it is possible to observe that PC is not being widely used, even with the benefits such as improving patients' quality of life, already described in the literature[21].

In this sense, approximately 56.8 million people in the world currently need palliative care, according to the Worldwide Hospice Palliative Care Alliance (WHPCA)[22]. However, only around 14% of people who need palliative care receive it[23]. Thus, despite the great need for palliative care, it may not be not accessible to the majority of people in need, especially in low- and middle-income countries (LMIC)[22]. The general scenario is consistent with that found for patients with HNC.

Although all the studies included in this review presented a low risk of bias, they were all conducted in the USA. This, to some extent, characterizes this specific population. It is worth mentioning that studies on this topic have been carried out in other countries, but only those with available ethnicity data were included in this SR. According to the Global Atlas of Palliative Care, published in 2020, the USA is considered a level 4b country in the development of palliative care, a stage of advanced integration of palliative care, as are 19 other countries (15%). Within this scenario of palliative care development, what predominates are countries with isolated palliative care provision (33%) and no palliative care activity (24%)[22]. However, it is already possible to see an improvement, since in the Global Atlas of Palliative Care, published in 2014, 75% of countries had no palliative care activity[24]. It is therefore clear that progress has been made over the years in the increasing access to palliative care.

Most patients in PC were white/Caucasian (n=21,586; 76.0%), however, 78.7% of the total sample of this SR were white/Caucasian patients. Currently, the incidence of HNC in the USA is higher in white patients[25] and PC is a growing health field in the USA[26]. Thus, the result found is expected considering the population studied, as all the studies included in this SR were developed in the USA, as previously discussed. Since little information is described on this topic, there remains a need for more studies investigating PC, as it is a growing topic in which access is defined as generally insufficient regardless of ethnicity, according to the WHPCA[22]. In addition, data on ethnicity needs to be described by the studies to clarify this topic.

Multivariate analyses including ethnicity to assess access to PC were conducted in only 04 studies[3,5,12,13] and only Sullivan et al.[5] found that blacks were more likely to receive PC [5]. Nevertheless, Fereydooni et al.[13] found that white and black ethnicity were associated with lower PC use[13]. The authors attribute this result to cultural issues of coping with illness by black populations, lack of reporting of symptoms, and preference for aggressive forms of treatment. As for the finding of less access for white people, the authors attribute this to the large number of white immigrants in the USA[13].

The association between survival of patients with HNC and ethnicity has been evaluated by 2 studies[3,14]. Ethnicities other than white were associated with lower survival but without statistical significance. Some studies have already reported ethnic disparities in the survival of other conditions, such as B-cell lymphoma, in which African-American patients had worse survival[27]. Thus, there seems to be an ethnic disparity concerning survival, but with the data available in the literature it is not possible to say whether this disparity exists in patients with HNC in PC.

In summary, healthcare disparities encompass different dimensions, from access to quality of care to outcomes. In addition to the ethnic disparities associated with access to PC, ethnic disparities have also been found in access to preventive care, such as gynecological screenings, chronic disease management, postpartum care, and mental health services[7]. This reinforces the importance of new studies evaluating ethnic disparities in PC for patients with HNC.

Limitations

There are some limitations found in the included studies in this SR that should be highlighted. Firstly, the majority of the included studies have a retrospective design. Secondly, all the studies were carried out in a single country, the United States. In addition, including cancer therapy with curative intent versus palliative intent may reflect the opinions of the medical provider. Finally, the main objective of the included studies was not to assess ethnic disparity but rather to characterize the palliative care population.

CONCLUSION

Based on the data available in the literature, it was not possible to conclude whether there is an ethnic disparity in access to palliative care for patients with head and neck cancer, as well as the influence of ethnicity on clinical outcomes.

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AUTHOR CONTRIBUTIONS

AEOM: data curation, formal analysis, investigation, methodology, project administration. visualization, writing – original draft, writing – review & editing. JBE: validation, visualization, writing – review & editing. ARSS: conceptualization, methodology, project administration, project administration, resources, supervision, validation, visualization, writing – review and editing. ESS: conceptualization, data curation, formal analysis, investigation, methodology, project administration, supervision, visualization, writing – review and editing.

CONFLICT OF INTEREST STATEMENT

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Competing interests: Alan Roger Santos-Silva is the Editor-in-Chief of the Journal of Oral Diagnosis. The other 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.

Ethics approval: The methods of this SR were established before starting the review, and the resulting protocol was based on PRISMA-P (Preferred Reporting Items for Systematic Reviews and Meta-analyses)[28] which was registered at the International Prospective Register of Systematic Reviews (PROSPERO) database under registration number CRD 42023395183[29]. Additionally, the present SR was reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist[30].

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