International Health Trends and Perspectives

Head and neck cancer treatment and its sexual impact on quality of life: An integrative literature review

Review

Ricardo Souza Evangelista Sant'Ana[1], Ana Dulce Santana dos Santos[2], Felipe Santos da Silva[3], Rodrigo Almeida Bastos[3], Carmen Silvia Passos Lima[3], Christine Maheu[4], Egberto Ribeiro Turato[3], Simone Godoy[5]

[1]Fundamental Nursing Program at University of São Paulo at Ribeirão Preto College of Nursing. São Paulo, Brazil; [2]Faculty of Santa Casa da Bahia, Salvador, Bahia. Brazil; [3]Faculty of Medical Sciences of the State University of Campinas – FCM/UNICAMP. Campinas, São Paulo, Brazil; [4]School of Nursing, McGill University. Montreal, Quebec, Canada; [5]Department of General and Specialized Nursing at University of São Paulo at Ribeirão Preto College of Nursing. São Paulo, Brazil

Corresponding author: R.S.E. Sant'Ana (enf.rses@gmail.com)

ABSTRACT

Objective: To identify the impacts of head and neck cancer treatment on the sexual health of patients. **Methods**: An integrative literature review was carried out from May to October 2020 using PubMed, CINAHL, Web of Science, LILACS, and the SciELO portal. A total of 287 primary articles were identified. After assessing them, 6 articles met the eligibility criteria, which were: all articles published in the last ten years that addressed the sexual impact of HNC treatment on people's lives, without any language or age. **Results**: Patients with Head and Neck Cancer have to face aesthetic disfigurement challenges in post-treatment. This leads to a greater degree of suffering and social and sexual problems than is observed in other cancer patients. Health professionals do not feel safe to access the intimate and sexual demands of patients during the clinical treatment. **Conclusions**: Most of the studies included in this review focused on measuring the quality of life using only one or two variables related to sexuality. There is the need other research to explore how multiple factors, such as social, psychological, cultural, religious, ethnic, and ethical factors, affect sexuality. This promotes the creation of the paths for comprehensive care and management of patients.

KEYWORDS

Head and Neck Cancer; Nursing; Oncology; Quality of Life; Sexuality

INTRODUCTION

It is estimated that 780,000 new cases of Head and Neck Cancer (HNC) occur annually globally (Ferlay et al., 2019). In Brazil, 11,180 and 4,010 cases are estimated to occur in men and women, respectively, for the triennium of 2020-2022 (INCA, 2019). Among the types of HNC, 40%, 15%, 20%, and 20% occur in the oral cavity, pharynx, larynx, and the remaining sites, respectively (INCA, 2019).

HNC can be caused by several factors. The most common include chronic exposure to tobacco and alcohol carcinogens, infection with the Epstein Barr and Human Papillomavirus (HPV), and genetic factors. There are three therapeutic modalities for patients with HNC: surgery, radiotherapy, and chemotherapy (De Vita et al. 2015).

The beneficial effects of cancer treatment are unequivocal, but the acute and chronic side effects, as well as the emotional and social effects that the treatment and disease impose are severe. This is because patients undergoing HNC treatment have an aggravating factor for their health condition. This aggravating factor is related to greater physical exposure to this condition and evident limitation of body areas related to human relationships (Rhoten, 2016). Thus, aesthetic, and functional issues are

  ISSN 2563-9269

directly affected, leading to both physical suffering, inherent in the treatment of cancer, as well as emotional and social suffering. Thus, patients undergoing HNC treatment are in a context in which they need to deal with both the physical effects of clinical treatment and the emotional or social challenges that involve a limiting disease of human relationships and self-esteem (Rhoten et al., 2020). Therefore, the significant disfigurement of the face and neck, as well as the impairment of the senses and facial expressions, caused by both the disease and the treatment, critically affect the experiences of these patients' sexuality (Katz, 2018).

According to the World Health Organization (WHO), sexuality and intimacy are essential to well-being and quality of life (WHO, 2017). The diagnosis of cancer, as well as its therapeutic approaches, affects the physical, psychic, and social dimensions of cancer patients and results in significant impairments of sexual function and relationships (Gurevich et al., 2004) (Juraskova et al., 2003). Recent evidence shows an incidence of 24% to 100% of patients with CCP reporting negative effects of treatment and disease on sexuality (Rhoten, 2016). Individuals undergoing treatment also report a perception of reduced quality of life and general health status when they perceive impairments in sexual experiences, such as sexual dysfunction or problems with intimacy (Low, et al., 2009) (Muzzatti et al., 2012) (Tierney, 2008).

In this context, the patients' emotions directly reflect on their clinical condition, raising the importance of understanding these feelings for a better case management. Thus, evidence indicates the reduction of sexual satisfaction as one of the main symptoms after treatment of CCP and, also, the support related to sexuality as one of the main unmet care needs of these patients (Batıoğlu-Karaaltın et al., 2018).

From this perspective, a group of experts from the American Society for Clinical Oncology (ASCO) published guidelines based on the Cancer Care Ontario (CCO) ones, which provide recommendations for the management of sexual dysfunction stemming from the diagnosis and/or treatment of cancer. The document shows that the multidisciplinary team should discuss and plan for the continuation of treatment (Carter, et al., 2018). Psychosocial assessments should be performed when a concern is identified. Referrals should be made since sexual problems often have psychosocial and physiological causes. However, the experts emphasize the difficulty of collect studies to justify the relation between HNC treatment and patients' sexuality (Carter, et al., 2018) (Rhoten et al., 2020).

Despite the importance of the findings in the literature, a review of empirical studies between 2005-2014 confirmed the paucity of data on the experiences of sexuality in patients with head and neck cancer, with only 9 empirical studies published (Rhoten, 2016) (Mendes et al., 2008).

In this context and given the diverse impacts CCP has on patients' experiences of sexuality, we note the importance of gathering scientific evidence to support the creation of health care guidelines, improve case management and allow for a continuity of care for these patients. For this reason, this study aimed to identify scientific evidence the impact of head and neck cancer treatment on sexuality of patients through an integrative review.

METHODS

Design

An integrative review was carried out for knowledge synthesis in the following stages: preparation of the research question; search for primary studies; data extraction; evaluation of primary studies; and analysis and interpretation of the results (Mendes et al., 2014).

The study was based on the following question: " What is the scientific evidence available in the literature about the impact of head and neck cancer treatment on sexuality of patients?"". For its elaboration, the PICO strategy was used (Da Costa Santos et al., 2007); "P" (population) referred to patients who had treatment for head and neck cancer; "I" (intervention) referred to cancer treatments for HNC; "C" (comparison) = does not apply; and O (outcome or outcomes) referred to sexual experiences and quality of life before and during treatment for HNC and the sexual impact on patients undergoing treatment.

Procedure for identifying relevant articles

IHTP, *1*(3), 368-378, 2021 ISSN 2563-9269

Articles that addressed the sexual impact of HNC treatment on the lives of people were included in this study without any language or age restrictions. We excluded all studies published more than ten years ago; duplicates after the screening of abstracts; studies that did not address the theme of sexuality; studies comprising literature reviews (since they do not use a specific research question, they favor criticism being included in this type of review) and gray literature, such as theses, dissertations, and congress annals; and manuscripts that did not answer the guiding question. The time frame was justified by the specificity of the theme, which had been more studied within the last decade.

The search was conducted from May to October 2020. The search was carried out in May by two authors of this review in five databases: National Library of Medicine National Institutes of Health (PubMed), Cumulative Index to Nursing and Allied Health Literature (CINAHL), Web of Science (WOS), Latin American and Caribbean Literature on Health Sciences (LILACS), and the Scientific Electronic Library Online (SciELO) portal. In line with the search strategy used, descriptors of the Medical Subject Headings Section (MeSH) and Descriptors in Health Sciences (DeCS) were used.

Procedure used to review the articles identified as relevant

After the search, the results were exported to a bibliographic manager, EndNote Basic, and duplicates were excluded. All titles and abstracts were independently screened by two reviewers.
The selection of the articles followed the recommendations of the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) (Moher et al., 2009) (Figure 1). During the final phase, the checklists for Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) (Von Elm, et al., 2007) and Consolidated Criteria for Reporting Qualitative Research (COREQ) (Tong et al., 2007) were used to evaluate the methodological quality of the included studies. Subsequently, the findings were categorized under three topics of analysis according to the themes of greatest recurrence present in the articles.

The studies were analyzed through the following stages: exploratory reading and recognition of information relevant to the subject of this study; selective reading to choose the specific material; analytical and interpretive reading (Mendes et al., 2008) (Soares, et al., 2014). Three topics of discussion were derived from the readings and interpretation of the selected information.

RESULTS

Six articles published between 2008 and 2020 were included for analysis; they included 5 population studies (surveys carried out with human beings) and one theoretical study (searches carried out in scientific databases) (Table 1). Most studies analyzed the questions related to the sexuality of the patients after the clinical interventions and investigated aspects of quality of life, intimacy, and sexual relations.

DISCUSSION

Topic I - Impact and family support for HNC patients during treatment

The evidence was categorized based on the physical, social, and psychological effects during and after treatment for HNC, which imposes adaptation challenges, as well as the relevance of family support to the patient.

The findings show the growing need for specialized care for the population studied, especially for sexuality issues; how to approach and manage these issues and reduce or mitigate possible sexual problems that can interfere with sexuality during this period are crucial. HNC is more frequently present in middle-aged and old men, and little is known about the prevalence and risk factors of sexual dysfunction. Older patients are more likely to report sexual problems than younger patients.

Most of the patients included in the study had family support and excellent relationships with their spouses, children, friends, and other relatives. These findings strongly favor family dynamics. It was reported that the patients had sexual activity although it was decreased, and the main reason for this was the loss of libido. Patients with HNC must face post-treatment challenges, not only related to physical disability, such as eating and speech problems, but also aesthetic disfigurement. This

IHTP, *1*(3), 368-378, 2021 ISSN 2563-9269

forces them to readjust their lifestyles, which leads to a greater degree of suffering and social and sexual problems than is observed in other cancer patients (Hirani et al., 2015) (Bond et al., 2019). The authors raise relevant questions related to aspects of human subjectivity, the representation of the body throughout treatment, and how the patient faces the changes imposed by the treatment. Changes in the body can interfere with social relations and result in psychological and nutritional issues, which emphasizes the need for a multidisciplinary approach to caring for these patients.

The intimacy problems that patients may experience after HNC are recurrent but hidden. The authors reinforce that the findings of the study are weak since they were limited to the retrospective review of case series to identify whether intimacy was discussed and recorded in the clinic. The issues of intimacy and sex are rarely discussed in the clinic (Rogers et al., 2015).

Moreno et al. (2012) found that all the 42 patients assessed reported that HNC negatively impacted their sexual relationships, and 50% of them classified the effects as extremely negative. They found that men younger than 60 years had better sexual satisfaction after treatment than older men. Patients with partners also reported higher sexual satisfaction than those without partners. Patients submitted to at least one surgical option reported sexual satisfaction like those treated with clinical procedures. The age factor, especially in relation to male physiology, is crucial and often necessitates pharmacological or surgical management for correcting impotence, which is one of the most frequent forms of sexual dysfunction in men due to advanced age and may be aggravated by the diagnosis of cancer.

The amount of tobacco/alcohol consumed, the site of the tumor, and the type of treatment (surgery or radiotherapy) had no impact on the sexual difficulties of the patients with laryngeal or hypopharynx cancer. Changes in appearance were also not problematic for patients. However, high degrees of suffering, advanced stages of the tumor, and tracheostomy were indicators of sexual problems. Forty-two percent of the patients included in the study, which is equivalent to less than half of the total number of patients, had a sexual desire and were sexually satisfied or very satisfied at 14 months (mean) after the diagnosis and treatment of HNC (Singer et al., 2008).

Although the authors highlighted sexual problems in patients with HNC during and after treatment in different ways, they did not specify the appropriate strategies for the management of oncosexual problems by the multidisciplinary team that assists these patients.

Topic II: The main instruments for measuring the quality of life or sexuality of patients with HNC

For this topic, the main instruments used by the authors to assess the quality of life or sexuality were synthesized, which allowed the evaluation of the sexual function of the person with HNC at a given time.

Aro et al. (2016) provided an overview of the Health-Related Quality of Life (HRQoL) of patients with HNC during the first year after treatment. The HRQoL scores remained reasonably consistent despite intensive treatment. In addition, psychological well-being improved after treatment, indicating that initial distress related to the diagnosis of malignant disease can be mitigated during treatment. This highlights the importance of patient support throughout the process, including diagnosis, treatment, rehabilitation, and follow-up. The 15D instrument seems useful for evaluating the HRQoL of patients with HNC treated surgically or with radiotherapy, chemotherapy, or a combination of modalities (the domains evaluated by the instrument were mobility, vision, hearing, breathing, sleep, appetite, speech, excretion, normal activities, mental function, discomfort, depression, distress, vitality, and sexual activity). The authors observed a marked deterioration in "vitality" and "sexual activity" three months after the beginning of treatment, with gradual improvement for twelve months, although the baseline levels were not reached.

Hirani et al. (2015) evaluated the impact of HNC treatment on the quality of life of patients and observed that 50% of patients reported that their sex life was worse or much worse than it was before cancer.

Moreno et al. (2012) performed a cross-sectional evaluation of the sexual quality of life of 42 patients

  ISSN 2563-9269

diagnosed with HNC and during treatment through the modified Sexual Adjustment Questionnaire (SAQ), which was specific to evaluating some aspects of sexuality. In the modified version of the SAQ, there were eight specific questions: three on dimensions (sexuality, sexual function, relationship/activity) and five on focus areas (importance, desire, enjoyment, relationship, activity). The authors omitted a question from the original SAQ (focus of tension/frustration: "Do you feel tensed or frustrated after a sexual experience?"), believing that it was too vague to provide insights into a sexual problem or direct an intervention to solve it. The authors added two new questions that assessed enjoyment ("Are you satisfied with the frequency of sexual activity in your life?") and relationship ("Were you the only one to initiate (start) sexual activity with your partner(s) since your last cancer treatment?"). They selected these questions to identify the affected areas that may benefit from the intervention. They reported that they were the first to cross-examine the quality of sexual life in patients with HNC after diagnosis and treatment using an instrument that focuses specifically on sexual behavior, in contrast to other well-known and previously mentioned instruments. Of all the instruments identified in the studies synthesized in this review, the SAQ was the only specific scale that assessed sexuality. There is a need for the construction and validation of scales or instruments that can evaluate sexuality in various dimensions and not exclusively sexual function.

Singer et al. (2008) used the quality-of-life questionnaire, head and neck module (EORTC QLQ-H & N 35). This is a validated and standardized questionnaire for assessing patients with HNC. The "Sexual Difficulties" subscale (EORTC QLQ-HNSX) contains two questions: "During the last week have you felt less interest in sex?" and "During the last week have you felt less sexual enjoyment?" Additional issues related to changes in sexual life due to tracheostomy were highlighted. If the patient indicated any influence, supplementary questions about the cause(s) were asked. Fifty-three percent of the patients intimated that their sex life was worse than it was before they were diagnosed with the tumor. Forty-two percent of men reported erectile dysfunction, and twelve percent reported that it was not HNC-related. Seventy-three percent of the study participants had undergone tracheostomy and lived with their partner; sixty-six percent reported feeling no influence of the stoma on their sexual relationship, three percent said they had positive effects, and thirty-one percent had negative effects. They attributed the negative effects to the reduction of physical strength (n = 19), sputum (n = 8), and respiratory sounds (n = 4). Sixty percent of the patients considered sexuality to be important or very important.

Most of the instruments identified during the literature search were generic, with only a few domains that promptly assessed sexual dysfunction. The development, dissemination, and validation of psychometrically sound instruments that can evaluate sexuality in different dimensions are necessary, covering the conceptual amplitude according to the WHO.

Topic III: Contributions of health professionals to reducing the sexual impact of HNC treatment on patients

Patients with HNC submitted to any treatment option have a sexual impact. Health professionals need to value and accept complaints related to the sexuality of the patients under their care. This topic is related to evidence on the theme and its interfaces for clinical practice.

Aro et al. (2016) and Hoole et al. (2015) have cited strategies to identify and treat psychosexual problems in clinical practice to support these patients, such as the inclusion of brief narratives about the current sexual life of the patient, inclusion of lifestyle education, as well as the effects of smoking and alcohol on sexual vasodilation and how the medications in use can cause sexual side effects. The Permission, Limited Information, Specific Suggestions, Intensive Therapy (PLISSIT) model is a framework that can help professionals use direct and open questions to lead patients into discussing their problems with intimacy and sex.

Rogers et al. (2015). found that it is difficult for health professionals to address the issue of intimacy after HNC treatment. Questionnaires can be included as an instrument to facilitate discussion. However, teams should be trained to increase their confidence and willingness to discuss this issue when asked about their work routines. Intimacy needs to be addressed directly by the clinician to encourage patients to

  ISSN 2563-9269

discuss their difficulties. Reflecting on the objective of the work of health professions in oncology, the oncology nurse is the best professional to work on issues of sexuality in various dimensions, especially considering the holistic training of nurses, which facilitates the revelation of the subjective issues that the theme in question requires. In addition, it is a profession that anchors the work process in theories emphasizing scientific knowledge, which demonstrates the trends of views on the health-disease process in a biopsychosocial way. However, nurses need to appropriate the theme through better scientific evidence, training courses, and seminars, among others.

Singer et al. (2008) reported that the discussion of sexual and psychological problems is rarely part of the activities of health professionals, and they may feel insecure about how to deal with the subject during their consultations. It is necessary to encourage open discussions about the sexuality of patients in the clinic to encourage them to reveal their concerns and allow professionals to indicate appropriate treatment.

A prospective study investigated sexual interest and the pleasure of patients with head and neck cancer (HNC) treated with neoadjuvant radiotherapy and analyzed the sociodemographic and clinical factors, health-related quality of life (HRQol), and symptoms of psychological distress. Before initiating treatment, 37% of patients reported having reduced sexuality, which increased to 60% at the 6-week follow-up and returned to baseline after 12 or more months of follow-up. Old age (P= 0.037) and problems with social contact (P <0.001), weight loss (P= 0.013), and constipation (P= 0.041) before treatment were associated with reduced sexuality over time. The female gender (P = 0.021) and poor social functioning (P<0.001) at 6 months of follow-up were associated with reduced sexuality at the follow-up of 6–24 months. The studies by Singer et al. (2008) and Moreno, et al. (2012) found that reduced sexual activity is often reported in patients with HNC treated with radiotherapy and chemotherapy. These patients have low sexual activity before the start of treatment through 24 months of follow-up, and this has been attributed to advanced age, weight loss before treatment, constipation, and problems with social contact (Hoole et al., 2015).

The treatment of HNC significantly impacts the sexuality of patients. However, the management of sexuality is challenging for clinical practice, since it involves intimate issues, and professionals do not feel safe to access the demands of the intimate and sexual sphere. This insecurity may be related to the lack of instrumentalization or systematization to guide the approaches to sexuality or inadequate training of health professionals or disciplines on sexuality.

CONCLUSION

There are gaps in the studies that address sexuality in relation to head and neck cancer. Most of the studies included in this review focused on measuring the quality of life using only one or two variables related to sexuality, thus limiting the discussion of the theme.

This contributes to the latent and present difficulties related to the sexual lives of people who have experienced head and neck cancer, and this makes it impossible for knowledge on this subject to be disseminated from a scientific point of view, with the aim of improving the management of the issues related to this theme.

Therefore, there is the need to explore other research, since multiple factors, such as social, psychological, cultural, religious, ethnic, and ethical factors, affect sexuality. Qualitative research, by exploring subjectivity, can be a good way of evaluating how the disease process and its consequences impact the experience of sexuality through the perspective of patients.

We need to advance the acquisition of new knowledge on human sexuality because it is a theme rarely addressed in undergraduate and specialization courses for health. We suggest that the interfacing of nursing with other professionals of the multidisciplinary team in oncology is one of the paths for comprehensive care and management of patients.

ACKNOWLEDGEMENTS

The authors wish to acknowledge and thank Teaching and Research Institute (IEP) of the Hospital Sírio-libanês for the approval of the Institutional Incentive for Research ID = 288, bearing all the costs of this publication.

  ISSN 2563-9269

REFERENCES

Aro, K., Bäck, L., Loimu, V., Saarilahti, K., Rogers, S., Sintonen, H., Roine, R., & Mäkitie, A. (2016). Trends in the 15D health-related quality of life over the first year following diagnosis of head and neck cancer. *Head and Neck Surgery, 273*(8), 2141–2150.

Batıoğlu-Karaaltın, A., Binbay, Z., Yiğit, Ö., & Dönmez, Z. (2017). Evaluation of life quality, self-confidence and sexual functions in patients with total and partial laryngectomy. *Auris, Nasus, Larynx, 44*(2), 188–194.

Bond, C. B., Jensen, P. T., Groenvold, M., & Johnsen, A. T. (2019). Prevalence and possible predictors of sexual dysfunction and self-reported needs related to the sexual life of advanced cancer patients. *Acta Oncologica, 58*(5), 769–775.

Carter, J., Lacchetti, C., Andersen, B. L., Barton, D. L., Bolte, S., Damast, S., Diefenbach, M. A., DuHamel, K., Florendo, J., Ganz, P. A., Goldfarb, S., Hallmeyer, S., Kushner, D. M., & Rowland, J. H. (2018). Interventions to Address Sexual Problems in People With Cancer. *Journal of Clinical Oncology 36*(5), 492–511.

Da Costa Santos, C. M., de Mattos Pimenta, C. A., & Nobre, M. R. (2007). The PICO strategy for the research question construction and evidence search. *Revista latino-americana de enfermagem, 15*(3), 508–511.

De Vita, V. T; Lawrence, T. S; Rosenberg, A. S. (2015). *Cancer: Principles & Practice of Oncology*. 10ed. Wolters Kluwer, Philadelphia, p. 422-481.

Ferlay, J., Colombet, M., Soerjomataram, I., Mathers, C., Parkin, D. M., Piñeros, M., Znaor, A., & Bray, F. (2019). Estimating the global cancer incidence and mortality in 2018: GLOBOCAN sources and methods. *International Journal of Cancer, 144*(8), 1941–1953.

Gurevich, M., Bishop, S., Bower, J., Malka, M., & Nyhof-Young, J. (2004). (Dis)embodying gender and sexuality in testicular cancer. *Social Science & Medicine, 58*(9), 1597–1607.

Hirani, I., Siddiqui, A. H., & Muhammad Khyani, I. A. (2015). Apprehensions and problems after laryngectomy: Patients' perspective. JPMA. *The Journal of the Pakistan Medical Association, 65*(11), 1214–1218.

Hoole, J., Kanatas, A. N., & Mitchell, D. A. (2015). Psychosexual therapy and education in patients treated for cancer of the head and neck. *British Journal of Oral & Maxillofacial Surgery, 53*(7), 601–606.

INCA. (2019). Estimativa 2020: incidência de câncer no Brasil / Instituto Nacional de Câncer José Alencar Gomes da Silva. *Coordenação de Prevenção e Vigilância*. – Rio de Janeiro: [Internet]. [cited 2020 Jun 20]. Available from: https://www.inca.gov.br/sites/ufu.sti.inca.local/files//media/document//estimativa-2020-incidencia-de-cancer-no-brasil.pdf.

Juraskova, I., Butow, P., Robertson, R., Sharpe, L., McLeod, C., & Hacker, N. (2003). Post-treatment sexual adjustment following cervical and endometrial cancer: A qualitative insight. *Psycho-oncology, 12*(3), 267–279.

Katz A. (2018). *Breaking the silence on cancer and sexuality: a handbook for healthcare providers*. Oncology Nursing Society Publishing, Pittsburgh (PA), 303.

Low, C., Fullarton, M., Parkinson, E., O'Brien, K., Jackson, S. R., Lowe, D., & Rogers, S. N. (2009). Issues of intimacy and sexual dysfunction following major head and neck cancer treatment. *Oral Oncology, 45*(10), 898–903.

Melissant, H. C., Jansen, F., Schutte, L., Lissenberg-Witte, B. I., Buter, J., Leemans, C. R., Sprangers, M. A., Vergeer, M. R., Laan, E., & Verdonck-de Leeuw, I. M. (2018). The course of sexual interest and enjoyment in head and

  ISSN 2563-9269

neck cancer patients treated with primary (chemo)radiotherapy. *Oral Oncology, 83*, 120–126.

Mendes KDS, Silveira RCCP, Galvão CM. (2008). Integrative literature review: a research method to incorporate evidence in health care and nursing. *Texto Contexto Enferm.17*(4), 758-64.

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & PRISMA Group (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *BMJ, 339*, b2535.

Moreno, K. F., Khabbaz, E., Gaitonde, K., Meinzen-Derr, J., Wilson, K. M., & Patil, Y. J. (2012). Sexuality after treatment of head and neck cancer: findings based on modification of sexual adjustment questionnaire. *The Laryngoscope, 122*(7), 1526–1531.

Muzzatti, B., Giovannini, L., Flaiban, C., & Annunziata, M. A. (2012). La sessualità e l'intimità di coppia dopo il cancro: un'indagine esplorativa a cinque anni o più dallo fine dei trattamenti [Sexuality and intimacy after cancer: an explorative survey at 5 years or more since treatment completion]. *Giornale italiano di medicina del lavoro ed ergonomia, 34*(2 Suppl B), B12–B16.

Rhoten B. A. (2016). Head and Neck Cancer and Sexuality: A Review of the Literature. *Cancer Nursing, 39*(4), 313–320.

Rhoten, B. A., Davis, A. J., Baraff, B. N., Holler, K. H., & Dietrich, M. S. (2020). Priorities and Preferences of Patients With Head and Neck Cancer for Discussing and Receiving Information About Sexuality and Perception of Self-Report Measures. *Journal of Sexual Medicine, 17*(8), 1529–1537.

Rogers, S. N., Hazeldine, P., O'Brien, K., Lowe, D., & Roe, B. (2015). How often do head and neck cancer patients raise concerns related to intimacy and sexuality in routine follow-up clinics?. *Head and Neck Surgery, 272*(1), 207–217.

Singer, S., Danker, H., Dietz, A., Kienast, U., Pabst, F., Meister, E. F., Oeken, J., Thiele, A., & Schwarz, R. (2008). Sexual problems after total or partial laryngectomy. *Laryngoscope, 118*(12), 2218–2224.

Soares, C. B., Hoga, L. A., Peduzzi, M., Sangaleti, C., Yonekura, T., & Silva, D. R. (2014). Revisão integrativa: conceitos e métodos utilizados na enfermagem [Integrative review: concepts and methods used in nursing]. *Revista da Escola de Enfermagem da U S P, 48*(2), 335–345.

Tierney D. K. (2008). Sexuality: a quality-of-life issue for cancer survivors. *Seminars in Oncology Nursing, 24*(2), 71–79.

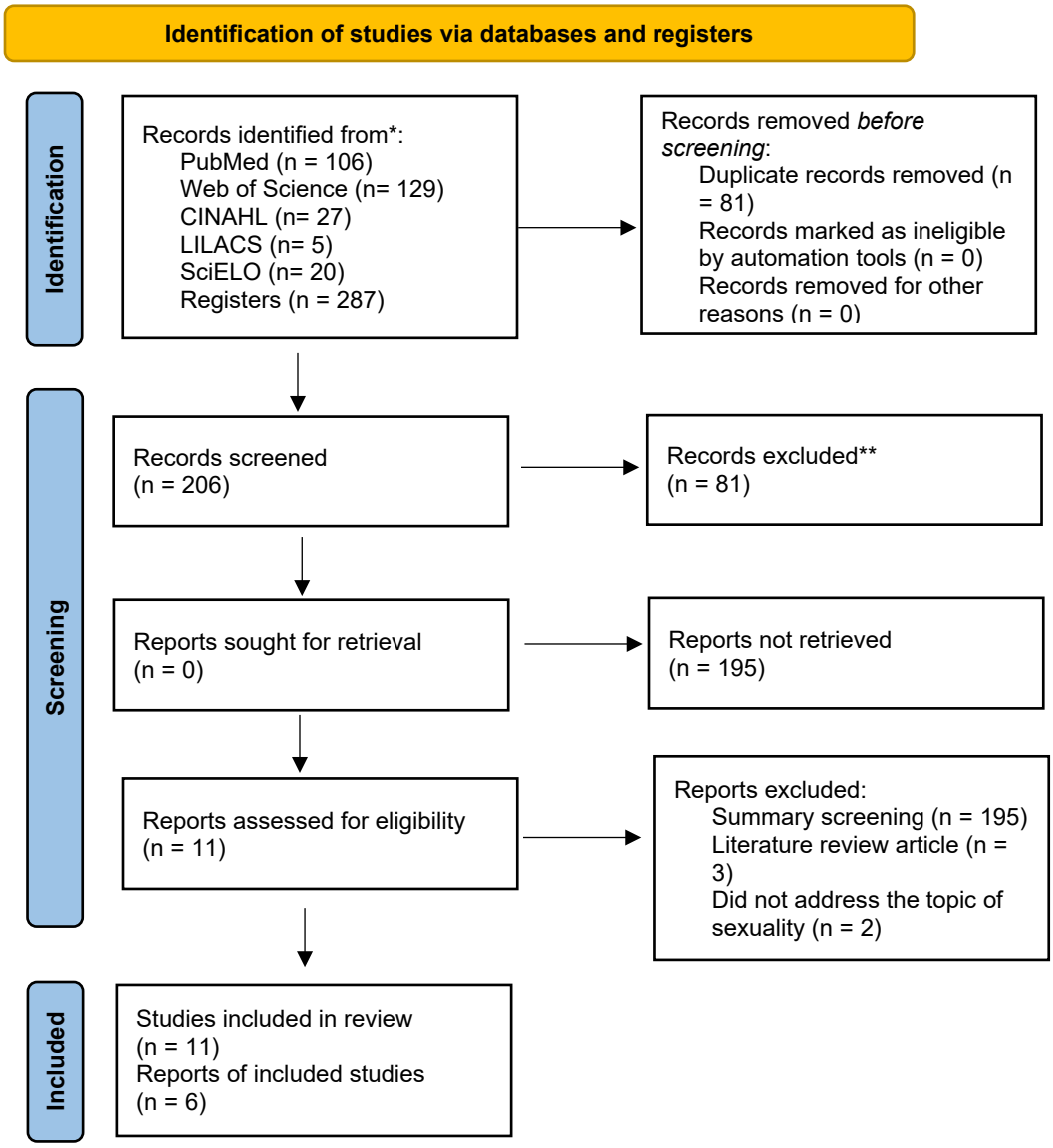
Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. International journal for quality in health care : journal of the International Society for *Quality in Health Care, 19*(6), 349–357.

Von Elm, E., Altman, D. G., Egger, M., Pocock, S. J., Gøtzsche, P. C., Vandenbroucke, J. P., & STROBE Initiative (2007). Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *BMJ , 335*(7624), 806–808.

World Health Organization. *Sexual health* (WHO). [Internet]. (2017). Geneva (CH); [cited 2020 Jul 12]. Available from: http://www.who.int/topics/sexual_health/en.

  ISSN 2563-9269

Figure 1. PRISMA 2020 flow diagram



  ISSN 2563-9269

Table 1. Data Extraction

No.	Author/Year / country	Objectives	Method	Participants	Results	Quality Assessment
1	Aro et al. 2016 Germany	To demonstrate the transitions in HRQoL for a larger head and neck cancer population using the 15D instrument over the first year after diagnosis.	Prospective cohort	- N = 214 patients undergoing treatment for head and neck cancer. - Helsinki University Hospital.	The overall quality of life score remained reasonably constant despite the intensive treatment. Some domains that reflect psychological well-being tend to improve after treatment, indicating that initial distress related to the diagnosis of malignant disease can be mitigated during treatment.	72%
2	Rogers et al. 2015 United Kingdom	To collate the various prompts available in a routine follow-up clinic through the use of an intimacy screening question and Patient's Concerns Inventory (PCI), and to identify how often these problems were raised by patients and what actions took place as a consequence.	Prospective	- N = 177 patients with head and neck cancer; - Follow-up clinic.	Intimacy issues are underreported in clinical reviews. This is a difficult subject to discuss. Suggested construction of information leaflets, staff training on how to talk about such sensitive issues and referral for advice.	72%
3	Hirani et al. 2015 Pakistan	To evaluate the apprehension and social, sexual, and financial problems in patients with advanced laryngeal cancer after total laryngectomy and the impact of attending a laryngeal club for these problems.	Analytical study	- N = 125 patients with laryngectomy; - Medical centers of Sindh and Balochistan.	Of the patients, 7 (5%) feared losing their sexual relationship with their spouse; 98 (78%) had a satisfactory sex life, although with a frequency of 1 to 2 intercourses per month; 21 (17%) had a frequency of 3-10 per month; and 3 (2%) had a frequency of more than 10 per month. Sixteen (13%) patients were not involved in sexual relationships with their spouses due to various reasons.	78%

IHTP, *1*(3), 368-378, 2021 ISSN 2563-9269

4	Hoole et al. 2015 United Kingdom	To introduce the reader to existing methods used in the diagnosis and treatment of psychosexual problems; To describe the first experiences of use.	Theoretical study	Does not apply.	Presents established strategies for the diagnosis and treatment of psychosexual problems to support these patients and describes the first experiences of using these strategies through brief narratives and case reports to show how they made a difference to patients and their partners.	Does not apply.
5	Moreno et al. 2012 USA	To evaluate sexual dysfunction in patients after treatment for head and neck cancer.	Cross-sectional study	- N = 42 patients with head and neck cancer; - Barrett Cancer Center.	All 42 patients reported that head and neck cancer negatively impacted their sexual relationships. Higher satisfaction was found in males.	76%
6	Singer et al. 2008 USA	To investigate post-surgical sexual problems associated with laryngeal and hypopharynx cancer.	Cross-sectional study	- N = 206 patients - German community hospital.	More than half of the patients in the study reported having reduced libido and sexual enjoyment after treatment. Sixty percent considered this an important issue for their contentment with life. Sexual difficulties were not related to gender, formal education, alcohol and tobacco consumption, type of surgery, radiotherapy, and tumor site. Psychological distress had a strong impact on sexual life. The stage of disease and age showed a moderate independent impact.	81%

  ISSN 2563-9269