



Esophageal Cancer: The State of the Art and a Psycho-Oncology Perspective



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Abstract

This work focuses on one of the deadliest cancers globally, esophageal Cancer. It aims to present a review of the state of the art of esophageal Cancer and analyze the importance of psycho-oncology and its role in one of the most delicate and challenging moments in the lives of individuals suffering from this chronic disease. Health is biopsychosocial, so it is necessary to see the person holistically, considering all the different areas of their life. Some cancers are more likely to be hereditary than others. However, many factors can lead a person to develop Cancer and the way each experiences cancer is unique.

Methodology

The research began on September 18th and ended on October 2nd of 2023. The databases used to prepare this work were B-ON and Google. The articles considered key words on the search such as esophageal Cancer, psycho-oncology, health psychology, and psychology. This search resulted in approximately 1,307 articles. Only articles between 2003 and 2023 were included, resulting in 1,274 articles and articles from academic journals were subsequently the only ones included, resulting in a total of 769 articles. At the end of this research, only 20 scientific articles were used; some were found through references from some works that were included initially. Books and websites from health associations were also included. The excluded articles did not consider the inclusion parameters, esophageal Cancer, psycho-oncology, and psychology and were too focused on medicine or the technological area (Table 1).

State-of-the-Art

According to the World Health Organization [1], Cancer belongs to one of the largest groups of diseases and can start in any organ in our body. According to data from 2018, it is the second leading cause of death worldwide, with an estimated 1 in every six deaths resulting from Cancer. In Portugal, oncological diseases represent the second highest cause of mortality [2,3]. In 2020, around 60,000 people were diagnosed with Cancer in Portugal, and half died. There is great concern about the growing number of new cases per year in Portugal [4]. Despite the increase in number of cases, advances in science and medicine allow for

a decrease in mortality rates and, consequently, an increase in survival rates [4]. The Portuguese National Health Service defines several objectives to deal with Cancer. Firstly, work to reduce preventable cancers and improve affected individuals' survival and quality of life, including caregivers, focusing on prevention and early diagnosis [5]. These objectives are based on four pillars: the Prevention Pillar, the Early Detection Pillar, the Diagnosis and Treatment Pillar, and the Pillar of Survivors [3]. In the context of prevention, where Health Psychology is allocated, the aim is to mitigate the risk of exposure to tobacco and alcohol by promoting healthier lifestyles. Early detection aims to reinforce existing screenings, carry out impact studies and campaigns, and create more screening programs to cover a larger population [5,6].

Regarding diagnosis and treatment, a response improvement is expected through an oncology referral network, reinforcing research [6]. Esophageal Cancer is one of the types of Cancer of the digestive system, and in 2020, it was responsible for 500,000 deaths worldwide. It is currently the ninth most common type of Cancer and the sixth most deadly worldwide [2,7]. In Portugal, there are an estimated 706 cases/year of esophageal Cancer. According to the 2020 Health Statistics of the Autonomous Region of Madeira, in Portugal, esophageal Cancer was the cause of 19 deaths, 16 males and three females. The data shows that individuals die between the ages of 50 and 94. However, the age range from 75 to 79 is where it occurs most frequently. Unlike normal cells, esophageal cancer cells do not respect the borders of the organ, invading surrounding tissues and can spread to

other parts of the body [2]. Two subtypes of esophageal Cancer represent 98% of all cases, both diagnosed and treated in the same way: squamous cell carcinoma and adenocarcinoma [2]. The incidence of adenocarcinoma has been increasing over the last 40 years in many countries, and squamous cell carcinoma has been decreasing despite the latter being responsible for 80% of cases [7]. The incidence of esophageal Cancer increases with

age, with adenocarcinoma preferentially affecting the age group between 50 and 60 years old, on average ten years earlier than squamous cell carcinoma [2]. The incidence rate of esophageal Cancer has increased in Western countries as a consequence of the increased prevalence of important risk factors: obesity and gastroesophageal reflux [2].

Table 1: Articles included in order of publication.

Year	n	Reference
2003	2	Carlson, L. E., & Bultz, B. D. (2003). Efficacy and medical cost offset of psychosocial interventions in cancer care: Making the case for economic analyses. <i>Psycho-Oncology</i> , 13(12), 837-849. https://doi.org/10.1002/pon.832 Freire, C. D. O. R. (2003). Contribuições da psicologia para a qualidade de vida do paciente oncológico. Monografia não publicada. Curso de Graduação em Psicologia, Centro Universitário de João Pessoa. João Pessoa, PB.
2005	1	Kadan-Lottick, N.S., Vanderwerker, L.C., Block, S.D., Zhang, B. and Prigerson, H.G. (2005). Psychiatric disorders and mental health service use in patients with advanced Cancer. <i>Cancer</i> , 104: 2872-2881. https://doi.org/10.1002/cncr.21532
2012	1	Hall, K., Gibbie, T., & Lubman, D. I. (2012). Motivational interviewing techniques: Facilitating behavior change in the general practice setting. <i>Australian Family Physician</i> , 41(9), 660-667. https://www.racgp.org.au/afp/2012/september/motivational-interviewing-techniques/
2014	1	Tao, W.-W., Jiang, P., Liu, Y., Aunguroch, Y., & Tao, X.-M. (2014). Psycho-oncologic interventions to reduce distress in cancer patients: a meta-analysis of controlled clinical studies published in People's Republic of China. <i>Psycho-Oncology</i> , 24(3), 269-278. https://doi.org/10.1002/pon.3634
2016	1	Le Bras, G. F., Farooq, M. H., Falk, G. W., & Andl, C. D. (2016). Esophageal Cancer: the latest on chemoprevention and state-of-the-art therapies. <i>Pharmacological Research</i> , 113(Pt A), pp. 236-244. https://doi.org/10.1016/j.phrs.2016.08.021
2018	1	Alves, G. da S., Viana, J. A., & Souza, M. F. S. de. (2018). Psico-oncologia: uma aliada no tratamento de câncer. <i>Pretextos - Revista Da Graduação Em Psicologia Da PUC Minas</i> , 3(5), 520-537. https://periodicos.pucminas.br/index.php/pretextos/article/view/15992
2019	2	Zhong, M., Zhang, Q., Bao, J., & Xu, W. (2019). Relationships Between Meaning in Life, Dispositional Mindfulness, Perceived Stress, and Psychological Symptoms Among Chinese Patients with Gastrointestinal Cancer. <i>Journal of Nervous & Mental Disease</i> , 207(1), 34-37. https://doi.org/10.1097/nmd.0000000000000922 Zhou, Y., & Xu, W. (2019). Short report: The mediator effect of meaning in life in the relationship between self-acceptance and psychological wellbeing among gastrointestinal cancer patients. <i>Psychology, health & medicine</i> , 24(6), 725-731. https://doi.org/10.1080/13548506.2018.1554252
2021	5	Alencar, L. O., Mendonça, M. F., do Nascimento, S. M., & dos Santos Souza, A. H. (2021). Aspectos psicológicos no enfrentamento do tratamento oncológico Psychological aspects when facing oncological treatment. <i>Brazilian Journal of Development</i> , 7(11), 107953-107972. https://doi.org/10.34117/bjdv7n11-429 Cao, W.; Cho, H. (2021). Culture in Cancer Survivorship Interventions for Asian Americans: A Systematic Review and Critical Analyses. <i>Asian Am. J. Psychol.</i> 12, 65-75. https://doi.org/10.1037%2Faaap0000225 Gudz, I., Pais-Ribeiro, J., & Ferreira-Valente, A. (2021). Associação entre religiosidade, resiliência e bem-estar subjetivo em pessoas com dor crônica. <i>Psicologia, Saúde & Doenças</i> , 2021, 22(1), 169-181. http://dx.doi.org/10.15309/21psd220115 Monsell, A., Krzanowski, J., Page, L., Cuthbert, S., & Harvey, G. (2021). What mental health professionals and organizations should do to address climate change. <i>BJPsych Bulletin</i> , 45(4), 215-221. https://doi.org/10.1192/bjb.2021.17 Zanini, D., Pais-Ribeiro, J. & Fernandes, I. (2021). Positive psychology and health: development and interventions. <i>Psicologia, Saúde & Doença</i> . 22. 3-13. https://doi.org/10.15309/21psd220102
2022	1	Silva, S., Bártolo, A., Santos, I. M., Paiva, D., & Monteiro, S. (2022). Validation of the Portuguese Version of the Fear of Progression Questionnaire-Short Form (FoP-Q-SF) in Portuguese Cancer Survivors. <i>Healthcare (Basel, Switzerland)</i> , 10(12), 2466. https://doi.org/10.3390/healthcare10122466
2023	5	Ge, H., Zhang, L., Ma, X., Li, W. & Li, S. (2023). Symptom Experiences Before Medical Help-Seeking and Psychosocial Responses of Patients with Esophageal Cancer: A Qualitative Study. <i>European Journal of Cancer Care</i> . https://doi.org/10.1155/2023/6506917 Hong, K., Yang, Q., Yin, H., Wei, N., Wang, W., & Yu, B. (2023). Comprehensive analysis of ZNF family genes in prognosis, immunity, and treatment of esophageal Cancer. <i>BMC Cancer</i> , 23(1). https://doi.org/10.1186/s12885-023-10779-5 Oliveira, A. F., Sosa-Napolskij, M., Torres, A., Queiroz, D. F., Bártolo, A., Sousa, H., Monteiro, S., Van Dyk, K., Ercoli, L. M., & Santos, I. M. (2023). CanCOG®: Cultural Adaptation of the Evidence-Based UCLA Cognitive Rehabilitation Intervention Program for Cancer Survivors in Portugal. <i>Healthcare (Basel, Switzerland)</i> , 11(1), 141. https://doi.org/10.3390/healthcare11010141 Ozkaraman, A., Kazak, A., Dudaklı, N., & Ozen, H. (2023). Evaluation of the Effect of Self-Efficacy on Symptoms in Gastrointestinal Cancer Patients. <i>Journal of Palliative Care</i> , 38(2), 207-214. https://doi.org/10.1177/08258597221125286 Sheikh, M., Roshandel, G., McCormack, V., & Malekzadeh, R. (2023). Current Status and Future Prospects for Esophageal Cancer. <i>Cancers</i> , 15(3), 765. https://doi.org/10.3390/cancers15030765
Total	20	

It is a highly fatal disease, comprising 500,000 deaths per year worldwide. However, survival rates from esophageal Cancer have improved over the last two decades [7]. The prognosis continues to be low, with a 5-year survival rate of 20% [7], often due to a late diagnosis where the patient is already in the most advanced stage of the Cancer [8]. Most individuals with esophageal Cancer are already in stage II or IV when they seek medical help, which leads to more significant challenges in treatment and recovery [9]. The fact that the first symptoms are insidious and the lack of knowledge about esophageal Cancer are two of the main causes that lead to seeking medical help and a poor prognosis [9]. Individuals end up seeking help when, for example, they experience too much difficulty swallowing, bloating, tightness in the chest when lying down or when a symptom begins to interfere with their day-to-day life [9].

Given that this type of Cancer is more common at an older age, many individuals with esophageal Cancer end up relativizing their symptoms or even attributing tiredness and fatigue as a natural result of aging [9]. Due to the lack of specific methods for early diagnosis and treatment, there is a great need to identify robust biomarkers for predicting the prognosis of patients with esophageal Cancer. Biomarkers may have a role in helping to assess prognosis by tracking patients in need of immunological intervention and drug therapy [10]. Globally, esophageal Cancer is more common in men than in women, accounting for 69% of cases [7].

Squamous cell carcinoma is 3 to 4 times more common in males, while adenocarcinoma has an even higher incidence, being around 6 to 8 times more common in men [2]. Around 80% of esophageal cancer cases occur in Asia and the African continent, being the two regions with the highest risk worldwide. However, the forecast is that it will increase in countries with higher incomes, such as the United Kingdom [7]. Although there are no known causes, there are several risk factors for esophageal Cancer. Some factors are related to lifestyle habits: smoking, excessive alcohol consumption, opium consumption, eating and drinking at scorching temperatures. Environmental factors: socioeconomic status, mycotoxin contamination, type of domestic fuel, water source and contact with animals. Related to individual health: gastroesophageal reflux, Barrett's esophagus, body mass index, gastric atrophy, poor oral hygiene and the microbiome. They are related to dietary factors: food quality, micronutrient consumption and consumption of specific food groups, such as carbohydrate consumption. They are related to infections: viral infections and bacterial infections. Environmental risk factors were found globally responsible for 68% of esophageal cancer cases [7,8]. Esophageal Cancer mainly affects individuals around the sixth and seventh decade of life, making it possible to conclude that older age inevitably becomes a risk factor. According to the Portuguese National Oncological Registry [11], esophageal Cancer has affected more people aged between 60 and 64 years old. They

are considering the baby boomer generation, born between 1945 and 1964 and are essentially retired. They were born when the birth rate increased in several countries after the end of the Second World War. This generation can be characterized by the preference for stability, where work and family building were among the most essential values. Knowing the generation most affected by this type of Cancer, it is essential to consider the biopsychosocial factors that are common to the baby boomer generation. In developing countries, the elderly often live with their children or grandchildren, and in developed countries, the majority of older people live with their spouse or alone; this aspect is essential due to the consequences that the disease can bring to the individual, on a physical level, psychological and functional [12].

Regarding the diagnostic process, in the case of esophageal Cancer, this must be carried out through a gastrointestinal endoscopy. The stage of esophageal Cancer is determined by the infiltration of the tumor into the esophageal wall [8]. Subsequently, considering the patient's stage, the multidisciplinary clinical team evaluates the best treatment to follow, and options may include surgery, radiotherapy treatment and chemotherapy [2]. Immunotherapy is also necessary [10]. Surgery sometimes leads to voice changes in the individual, where they may not even be able to speak. The consequences of esophageal Cancer mean that the individual needs a special diet during cancer treatment. Many people with esophageal Cancer end up having much trouble eating due to difficulty swallowing. The esophagus may become narrower due to the tumor or as a side effect of treatment. Some individuals receive nutrients intravenously or through a tube passed through the nose or mouth to the stomach [13].

Psycho-Oncology

The suspicion or confirmation of Cancer significantly impacts the person's life and those around them [2]. With the increase in the incidence of Cancer in Portugal, as well as survivors, the need for psychological support for everyone involved can be a great asset. According to the Portuguese League Against Cancer [6], around 25 to 30% of individuals with cancer present clinically significant symptoms of poor mental self-care. Symptoms can range from anxiety, depression, and adjustment difficulties. The growing awareness of the emotional, interpersonal, family, vocational and functional challenges that individuals experience is notable [14]. According to a study by Silva et al. [4], fear of disease progression is one of the biggest causes of distress in individuals with Cancer. It is distinct from the anxiety that individuals also feel. Adaptation to the disease depends on multiple physical, psychological, social, cultural, spiritual and family factors, as well as the stage of development in which the individual is (Liga Portuguesa Contra o Cancro, 2022). Each individual has a unique experience as each one has their characteristics, specificities, skills and particular difficulties [6].

Research shows that culture plays a vital role in how each experiences cancer survival, influencing how they deal with Cancer [15]. Psychology is central to preventing, treating, and managing oncological diseases [14]. Psycho-oncology is an interdisciplinary area that crosses psychology, medicine, psychiatry and sociology. Its target audience is individuals with Cancer and their families, caregivers, and oncological health professionals, which arises from the need to support them [14]. When an individual with Cancer enters the hospital for the first time, the psycho-oncology team and nurses carry out an initial assessment. For example, the "DISTRESS" Thermometer is a screening program that aims to assess emotional suffering by observing the individual holistically [2]. This screening covers all problems that may arise from the disease, whether family, financial, emotional, spiritual/religious, or physical. In clinical terms, an individual who scores five or more must be psychologically monitored [2]. Psycho-oncology works on several aspects, such as the impact of Cancer on the psychological function of individuals, the influence of the quality of relationships between health professionals and cancer patients, prevention and the role of psychological and behavioral variables in diagnosis and treatment, and the effectiveness of psychological interventions to improve the quality of life of individuals [14].

Some of the main impacts on the life of an individual with Cancer may be the constant uncertainty of the disease's prognosis or lack of life expectancy, physical changes and body image, chronic pain, changes in abilities or mobility limitations, concerns with money, tension in family and friendship relationships, difficulties in working or studying, feelings of loneliness, abandonment or marginalization, social stigma and changes to the pre-established life project [14]. A qualitative study in China, with the highest number of esophageal squamous cell carcinoma cases, concluded that the most significant effects analyzed on patients were physical, social, and psychological.

Within the psychological aspects, it was mentioned: regret for seeking help too late, concern about the prognosis, feeling of injustice for having a relatively healthy lifestyle, the difficulty of acceptance, the feeling of guilt for the isolation of the family and the financial loss to the family; and self-isolation by avoiding social activities [9]. Psycho-oncology provides psychological support by addressing insecurities, fears, sadness and stress that arise in the face of a diagnosis. It also aims to help the individual adapt to the new reality, maintaining the routine according to their current capabilities and enhancing their quality of life. This work can be done individually or in groups to develop strategies to reduce the suffering caused [16]. Physical issues, functionality, wellbeing, intimacy, and isolation are also part of the role of psycho-oncology [17]. Emotional reactions can be fears, uncertainties, shock, denial, anger, sadness, relational and work difficulties, sexual problems, anxiety and depressive symptoms [6]. Feelings such as impotence, hopelessness, fear, and apprehension may also occur, resulting in depression [18].

According to the Order of Portuguese Psychologists [14], psychological distress in cancer patients reaches 47%, with 30% to 40% having anxiety and depression problems. An individual's quality of life encompasses physical, cognitive, spiritual, emotional, functional, and psychological aspects [19]. Various problems can affect an individual's quality of life, such as depression, anxiety, post-traumatic stress disorder, sexual dysfunctions, body image problems, cognitive disorders and suicidal ideation [20]. Stress can weaken the body's defense mechanisms, making treatment more difficult [14]. In this sense, the psychologist must be able to help the individual develop strategies to deal with stress. According to the Portuguese League Against Cancer, in 2017, Portugal had around 500,000 cancer survivors. Despite the increasing incidence of Cancer, advances in treatment mean that the number of cancer survivors may increase, although the psychological impact that might affect the individual's quality of life [14]. Survivors may experience psychological effects such as anxiety and concern about recurrence; difficulty dealing with the end of treatment (exhaustion, ruminative thoughts); cognitive impact (on memory and cognitive abilities); fatigue; stress responses (irritability, sleep problems, post-traumatic stress disorder); and impact on relationships (isolation, feelings of loneliness; [14]). The contribution of psychologists to oncological diseases involves assessment, intervention and support for individuals and their families [14].

The psychologist can, in fact, help to: i) reduce emotional suffering and deal with the feelings that arise after the diagnosis and during the treatment of the disease; ii) manage treatment and decisions about medical procedures; iii) understand, adhere to and deal with treatment; dealing with pain, discomfort and fatigue that result from treatments, reducing side effects that jeopardize the quality of life; iv) manage feelings of depression, anxiety, anger and hopelessness; v) adjusting to loss and change on a physical level including physical appearance, self-esteem and intimacy; vi) improving communication between patients, their families and healthcare professionals; vii) dealing with the impact that the disease has on social and family relationships; viii) adjusting to the change in roles previously performed; ix) managing the uncertainty of the future; and improving quality of life in general [14]. About family members, the psychologist provides psychological support and psychoeducational interventions [14]. Psycho-oncology also plays a role in optimizing medical care, coordination and communication between all stakeholders, and managing the psychosocial aspects of the disease and its consequences. It also seeks to implement and promote self-care and disease management strategies, contribute to patient literacy, and promote biopsychosocial health and quality of life [14]. Individuals' non-adherence to psychological support can contribute to the amplification of symptoms, a decrease in quality of life and even suicidal ideation [14].

Physical exercise can also be important in reducing side

effects caused by treatments [6]. Exercise can reduce depressive and anxiety symptoms. At a psychosocial level, it can help with the ability to complete daily activities, socialize, increase satisfaction with body image, leading to better self-esteem, increase energy levels, and help reestablish the routine, facilitating the return to work [6]. It is then up to the psychologist to help motivate cancer patients to maintain a healthy and active lifestyle [6].

Positive Psychology has demonstrated its benefits in improving health levels when a problem is present, such as reducing depressive symptoms in the elderly [21]. A study carried out with patients in China demonstrated that patients with more excellent mindfulness practices could have a more meaningful life, making them feel less stressed and resulting in fewer psychological symptoms when faced with Cancer.

A meaningful life is essential to psychological health and can be considered an effective mindfulness mechanism in psycho-oncology [22]. By working on this life purpose with these patients, they can increase the benefits of psychological interventions and reduce psychological symptoms [23]. In individuals with Cancer, self-efficacy can be stimulated at the level of self-confidence, capabilities, and new behaviors to deal with the difficulties faced from diagnosis to treatment [24]. An individual with a perceived self-efficacy will be more successful in managing stress and symptoms, improving quality of life [24]. Self-care is one of the best approaches to symptom management, where an individual with Cancer can self-observe and recognize their symptoms. The lack of trust is notable in how individuals manage the most negative situations related to their health [24]. The concept of self-efficacy is affected by the multidimensionality and subjectivity of situations, such as the individual's cognitive state, capabilities, effort and desire, with the effect of environmental and social factors [24]. Resilience is positively associated and is a predictor of wellbeing in people with chronic pain. It is essential to promote resilience in individuals to promote their wellbeing and adjustment to their condition [25]. Psychoeducation is an effective intervention with sound effects on depression and anxiety in cancer patients [26].

Demystifying death can also play an essential role in psycho-oncology consultations. When the possibility of a diagnosis arises, suffering can set in alongside fear. However, suffering is unique to each person; it is individual. An individual who experiences the same symptoms as another does not necessarily feel the same suffering, as the experience of pain has its mechanisms [27]. With the diagnosis of a disease such as Cancer, suffering and the possibility of death become two necessary factors that the psychologist must work on. Motivation for behavior change must also be part of the psycho-oncology intervention. This motivation to change behavior may involve unhealthy lifestyle habits or adopting new behaviors [28]. Motivational interviewing can be part of the psychologist's intervention, helping the individual change behavior through resolving ambivalence. This

method proves to be efficient in the individual's adherence to treatment and medication and in changing risk behaviors such as smoking, drinking, poor nutrition, pain management, and stress management. With motivational interviewing, an important aspect to be emphasized is the therapeutic relationship, where the individual's autonomy is always respected, and the psychologist is seen as a facilitator of change [28]. A motivational interview can involve developing motivation for change and strengthening commitment. An objective must be established, and an action plan must be negotiated [28]. Some strategies involve questioning the disadvantages of current habits, the advantages of change, optimism for change and the intention of change [28].

Final conclusion

After analyzing the state of the art on esophageal Cancer, it is possible to see that it would be beneficial for this topic to be the subject of new studies. It was also possible to understand that new treatments are needed to improve the quality of life of patients with esophageal Cancer and their survival. It is necessary to produce more knowledge for the general population about symptoms that are not obvious and how to prevent them, as lack of knowledge is a risk factor. An individual with good mental self-care may have a less complicated process when discovering a diagnosis. The indirect impact that disease has on climate change is also something to consider. If the work of psychologists and other health professionals is preventive, the costs associated with health care will be more effective [29]. The psychologist is essential in monitoring individuals with Cancer. An individual who goes through a situation like this and who does not have emotional and psychological support may have difficulties during the process. Ruminatory thoughts (which can be interrupted with simple distractions for 2 minutes); low self-esteem (essential to recognize self-criticism, recognize failure, but see that there is potential to develop and improve); mental loneliness (does not imply physical loneliness and can often cause depression, it is essential to encourage quality social relationships); failure (working on resilience and learning from failure); little resilience (being able to resist to traumatic situations and overcome them); emotional wounds are invisible and are activated with the discovery of news such as a health problem such as the diagnosis of esophageal Cancer [30-35].

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