

# Stomach Cancer: A Literature Review About Psychological Adaptation To The Disease

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## 1. Abstract

There are several ways to control stomach cancer, with one or more treatments being able to be used at the same time, before or in sequence with each other. But no less important, it is essential to highlight the consequences that this type of disease causes, at a psychological level, in the life of the patient as psychological well-being becomes subject to fluctuations due to the entire distressing and prolonged process from diagnosis to physical treatment. This literature review showcases the research knowledge of stomach cancer and provides a research context, emphasizing existing work in the field of psychological and physical treatment.

## 2. Keywords:

Stomach cancer, literature review, psychological adaptation.

## 3. Introduction

In 2020, malignant tumors were one of the most dominant causes of death worldwide, accounting for almost 10 million deaths, with stomach cancer being considered the fourth most common and deadly neoplasm worldwide, accumulating more than 769,000 deaths[1]. According to data from Portugal and the Autonomous Region of Madeira (RAM) in southern Europe, in the same year, Portugal recorded that 23% of all deaths were due to malignant tumors in general. In the Autonomous Region of Madeira (RAM), there were 35 deaths resulting from the spread of stomach cancer, 22 of which were male and 13 female, demonstrating more incidence

among males [2, 3, 4]. Cancer is the term used for a vast group of chronic pathologies, which can originate in different organs or tissues due to the uncontrolled multiplication of abnormal cells that end up invading other nearby areas[1]. Gastric cancer, according to [5], manifests itself in the stomach, being capable of developing in any part of it, and is composed of some variations such as lymphomas, adenocarcinomas, leiomyosarcomas, carcinoids and squamous cell carcinomas. However, 85-90% of stomach cancer cases reported worldwide are comprised of adenocarcinomas, this being the most common type [6]. This type of cancer becomes more likely to arise as they are rarely diagnosed in people under 30 years old, and the most common age groups are between 50 and 70 years old [7]. In addition to age, several studies reveal a prevalence of males[8]. Throughout human development, we go through different physical, cognitive and psychosocial periods, which can influence an individual's life events. In the age group of 40 to 65, physical changes occur, such as a deterioration in health, sensory abilities, and physical strength; Cognitive changes, such as a decreased mental acuity; and psychosocial changes, such as the transition to middle age and more responsibilities [9].

## 4. The knowledge of the disease: Symptoms

This type of cancer usually presents late symptoms since, in the early stages, many severe and specific signs of the presence of the pathology are not evident, which consequently influences individuals to ignore the symptoms and not quickly seek medical attention. For this reason, in most cases, when there is evidence of any notable symptoms, the cancer in question has already spread to other parts of the body [5, 10]. The initial symptoms are the absence of appetite (especially meat) and heartburn or indigestion; later episodes of exhaustion, weakness, nausea, vomiting (sometimes of blood), weight loss, abdominal pain, and diarrhea are also likely to occur, constipation and problems swallowing [11]. Stomach cancer varies in different regions, being more common in Eastern countries such as China, Japan, and Korea. Because of this, to try to enable an early diagnosis of neoplasia, some programs were implemented to detect the early stages, resulting in reduced deaths and better prognoses in these countries[10]. Unlike these countries, in Portugal, due to the insufficient number of cases, there is no recommendation for screening or triage to detect gastric cancer [12]. However, the National Health Plan for 2030 was published in August 2023 for Portugal [13], which encompasses 15 goals distributed across five main objectives, namely: "reduce inequalities," "promote the development of healthy behaviors, cultures and communities," "minimize the consequences of changes and other environmental determinants on health"; "reduce the burden of communicable and non-communicable diseases in an integrated way"; and "maintain currently controlled health problems under control." Accordingly, Portugal's PNS also aims to

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preserve the planet for current and future generations and improve health and well-being by reducing risk factors and increasing health protective factors [13]. As for the Autonomous Region of Madeira regional health plan, it also refers to sustainable health, marked by seven determinants: environmental, biological, behavioral, health care, demographic, social and economic; which are strongly correlated with possible risk factors for the development of chronic diseases, such as cancer [3]

## 5. Methodology

Firstly, to carry out this literature review, an analysis of the currently available literature was carried out, exploring articles that allowed us to understand better what stomach cancer is, covering a little about various points such as risk factors, diagnosis, tumor classification, treatment and quality of life of individuals with the pathology. To this end, a search was carried out in four digital databases: PubMed, Google, B-on and Google Scholar, using the following keywords: stomach cancer, gastric

cancer, diagnosis, treatment, intervention, mental health, psychology, psycho-oncology, well-being and quality of life. This research began on September 29, 2023, and ended on November 3, 2023. Furthermore, the information collection followed some inclusion criteria, such as the focus on books and articles from scientific journals and thesis and dissertations, written in Portuguese or English and considering references from the last two decades (2003 to 2023). The exclusion criteria were comprised of the date of publication outside the stipulated time (before 2003) also, when access to the full text was not available, approach to other types of pathologies, written in another language (than Portuguese or English). In addition to the articles collected to the analysis, additional sources of information were included, including three books and one page web article.

In Table 1, we present the documents selected with the date of publication, author, title, type, and database from which they were taken.

**Table 1:** Summary of the information collected

Year	Author	Title	Type	Database
2023	[14]American Cancer Society	Cancer staging.	Página Web	Google
2019	[15]Arantes	A morte é um dia que vale a pena viver.	Livro	Recomendação da Docente
2015	[8]Azevêdo et al.	Gastric cancer and associated factors in hospitalized patients.	Artigo Científico	PubMed
2020	[16]Conceição & Bueno	101 técnicas da terapia cognitivo-comportamental.	Livro	Recomendação da Docente
2010	[17]Cunha	Cancro Gástrico e Helicobacter Pylori.	Dissertação de Mestrado	Google Scholar
2023	[3]Direção Regional da Saúde	Plano Regional de Saúde 2021-2030.	Página Web	Google
2023	[2]Direção Regional de Estatística da Madeira	Estatísticas da Saúde da Região Autónoma da Madeira.	Página Web	Google
2022	[18]Ferreira & Lima	Vivências de pacientes durante e após o tratamento de câncer: relato de experiência profissional em Psicologia em um ambulatório de Onco-Hematologia.	Artigo Científico	Google Scholar
2021	[19]Gonçalves	Impacto dos fatores psicológicos na qualidade de vida de doentes com cancro metastático.	Dissertação de Mestrado	B-on
2012	[20]Hall et al.	Motivational interviewing techniques facilitate behavior change in general practice.	Artigo Científico	Recomendação da Docente
2011	[21]Hermann & Looney	Determinants of quality of life in patients near the end of life: a longitudinal perspective.	Artigo Científico	PubMed
2003	[7]Kelley & Duggan	Gastric cancer epidemiology and risk factors.	Artigo Científico	PubMed
2021	[22]Kim & Jung	Endoscopic Resection of Gastric Cancer.	Artigo Científico	PubMed
2008	[11]Magalhães et al.	Weight, educational achievement, basic sanitation, alcoholism, smoking, and eating habits in patients with gastric cancer.	Artigo Científico	PubMed
2011	[10]Martins	Abordagem terapêutica do doente com o diagnóstico de carcinoma do estômago.	Dissertação de Mestrado	Google Scholar

2020	[23]Marsh & Buicko	Gastric resection.	Artigo Científico	Google Scholar
2017	[24]Makris & Poultsides	Surgical Considerations in the Management of Gastric Adenocarcinoma.	Artigo Científico	PubMed
2004	[25]McKenzie et al.	The hidden assassin	Artigo Científico	Google Scholar
2019	[5]Nguyen	The Relationship Between Nutritional Status and the Quality of Life for Gastric Cancer Patients.	Dissertação de Mestrado	Google Scholar
2013	[9]Papalia & Feldman	Desenvolvimento Humano.	Livro	Recomendação da Docente
2023	[13]Plano Nacional de Saúde 2030	Implementar oPlano Nacional de Saúde 2030.	Página Web	Google
2020	[26]Poorolajal et al.	Risk factors forstomach cancer: a systematic review and meta-analysis.	Artigo Científico	B-on
2023	[4]Pordata	Portugal: Óbitos por algumas causas de morte.	Página Web	Google
2012	[27]Reais	Cancro gástrico familiar e hereditário.	Dissertação de Mestrado	Google Scholar
2020	[12]Ribeiro	A Fitoterapia no Cancro do Estômago	Dissertação de Mestrado	B-on
2016	[25]Rickes	Generations in flux.	Artigo Científico	B-on
2009	[6]Rodrigues et al.	Cancro gástrico familiar.	Artigo Científico	B-on
2013	[26]Scannavino et al.	Psico-Oncologia: atuação do psicólogo no Hospital de Câncer de Barretos.	Artigo Científico	Google Scholar
2014	[27]Sette & Gradvohl	Vivências emocionais de pacientes oncológicos submetidos à quimioterapia.	Artigo Científico	Google Scholar
(2017).	[28]Song et al.	Progress in the treatment of advanced gastric cancer.	Artigo Científico	B-on
2017	[29]Lopes	Modelação da concentração de poluentes agrícolas em aquíferos.	Dissertação de Mestrado	Google Scholar
-2010	[30]UNSCEAR	United Nations Scientific Committee on the effects of atomic radiation: Publications.	Página Web	Google
-2019	[31]Tan	Recent advances in the surgical treatment of advanced gastric cancer: a review.	Artigo Científico	PubMed
2020	[32]Wei & Wei	The power of self-care: An ENERGY model to combat clinician burnout.	Artigo Científico	Google Scholar
2023	[1]World Health Organization	Cancer	Página Web	Google

## 6. Results

### 6.1. Risk factors

Given that numerous causes can affect the onset and development of this pathology, it has become crucial in recent years to investigate the main factors and how they affect the disease and the individual. Therefore, some factors will be presented, such as socioeconomic factors, infectious disease, genetic factors, eating habits, lifestyles, tobacco, alcohol, and environmental factors (pollution and radiation). One of the risk factors is associated with lower socioeconomic status, as they seem to have some effect with regard to the spread of the pathology, namely basic sanitation, electricity and residence conditions, as well as educational opportunities [11]. The environment and contaminated water and food also allows the spread of *Helicobacter pylori* (Hp), a bacterium more common in developing countries that mainly affects families with more members and

children, which can lead to the formation of an adenocarcinoma of the type intestinal or diffuse [6, 17]. This bacterium is considered the main cause of the development of stomach cancer, since, due to the decrease in Hp infections in recent years and sequentially in cases of stomach cancer, a firm relationship between the two is presumed [17]. To prevent this infection from occurring, hands must always be washed well and, as it occurs more frequently in childhood, separate beds are recommended for younger children[17]. Hereditary genetics is one of the aspects that can pose a certain vulnerability, which is why studies indicate a greater risk for people with a family history of gastric cancer. In these cases, the pathology is classified as autosomal dominant and is called Hereditary Diffuse Gastric Cancer (CGDH) [27].

Another factor that is considered a risk for the development of gastric cancer is inappropriate eating habits or diets, such as low intake of

vegetables and fruits and excessive consumption of foods cooked at too high temperatures, foods rich in sodium chloride, sodium and foods with high nitrate content [8]. Individuals who are overweight and maintain a lifestyle with little physical activity can also increase the chances of developing cancer. Therefore, it is recommended to carry out physical exercises and take care of nutrition [25]. Environmental factors, such as pollution, can contaminate food and water, which causes a high risk of developing stomach cancer, due, more specifically, to the presence of nitrates [29]. Even so, exposure to ionizing radiation also appears to have an influence on the development of stomach tumors [30]. Tobacco, in the same way, is considered a great risk for the spread of this cancer since the smoke that cigarettes release can contain several chemicals that are extremely toxic to health. These chemicals can cause changes in DNA, causing it to alter cell growth, resulting in possible cancer [26] (Poorolajal et al., 2020). Alcohol can also damage DNA as well as cause serious problems with the mucosa (internal lining of the stomach) [26]. Still, some medications used to treat other diseases or primary tumors may lead to a greater potential for secondary tumors to appear. However, it is worth emphasizing that health professionals are fully aware of this factor, taking necessary precautions regarding the dosage used for each medication [25].

## 6.2. Diagnosis

The diagnosis of this type of cancer can be made through some tests, such as: a physical examination, which evaluates whether there is any pain or changes in the abdomen when it is touched; computed tomography (CAT), which allows precise images to be examined of different parts such as the abdomen; digestive endoscopy, using a tube with a tiny chamber that goes into the stomach and sends the image to a separate screen for examination; gastric photofluorography with barium, using x-rays to examine the stomach and other organs; examination of serum levels of pepsin, which is produced inside the stomach; and blood analysis in feces [12]. According to the [14], to classify a cancer, the TNM system is commonly used, with T being about the tumor, N about expansion to the lymph nodes and M about metastasis (expansion throughout the body). Adjacent to each letter, another letter or a number is added according to the progress of the cancer: in the case of T this could be TX (there is no information about the tumor), T0 (not seen) or T1 to 4, taking into account the larger the tumor the larger the number; in the case of N this can be NX (there is no information about the lymph nodes), N0 (there is no cancer in the nearby lymph nodes) or N1 to 3, as higher numbers mean greater expansion of the cancer through the lymph nodes; and finally, M, which can be M0 (the cancer has not expanded far) or M1 (the cancer has already expanded to other organs or tissues that are further away) [14].

Having said this, the classification of stomach cancer is broken down into five stages classified from 0 to 4. The stage 0 is also known as epithelial carcinoma due to its exclusive location in the layer that covers the wall of the stomach; stage 1 (T1N0M0; T1N1M0; T2N0M0), is when cancer cells invade, at most, six different lymph nodes, but the tumor is limited by the second layer of the stomach wall; stage 2 (T1N2M0, T2N1M0, T3N0M0), cancer cells take over between 7 and 15 lymph nodes and the

tumor affects only the most superficial layer of the skin, or, cancer cells have invaded 1 to 6 lymph nodes and the tumor it reaches a deeper layer below the muscle and mucosa, or, the cancer cells do not spread to other organs and lymph nodes but the tumor reaches the outermost layer of the stomach; stage 3 (T2N2M0, T3N1M0, T3N2M0, T4N0M0), cancer cells dominate 7 to 15 lymph nodes and the tumor affects a deeper layer below the muscle and mucosa, or, cancer cells invade 1 to 15 lymph nodes and the tumor reaches the outer layer, or, the cancer cells do not spread to distant organs and lymph nodes and the tumor affects nearby organs; and stage 4 (T1-3 N3 M0, T4 N1-3 M0, T1-4 N1-3 M1), cancer cells take over more than 15 lymph nodes, or, tumors reach at least one lymph node and to the surrounding organ, or, cancer cells invade more distant organs [5,10].

## 6.3. Treatment: physical and psychological

As previously mentioned, this type of cancer has late symptoms, which leads to a greater number of more serious and difficult to control cases. Patients' quality of life is influenced both physically and psychologically [5,10, 19]. Tumor removal can be performed, if the cancer is diagnosed in the early stages, through the use of endoscopic mucosal resection, due to the small size of the tumor [22]. In more advanced cases, surgery is often used, which aims to remove certain lymph nodes as well as the entire (total gastrectomy) or sections (subtotal gastrectomy) of the stomach [23, 24]. Surgery is currently the treatment considered most effective for positive long-term effects [31]. To increase the chances of these types of treatment, mentioned above, it is recommended to combine them with radiotherapy (radiation that eliminates cancer cells), chemotherapy (drug(s) to reduce cancer cells) and/or immunotherapy (immune vaccines that stimulate the immune system for its own defense against cancer cells) [12,28]. Therefore, with regard to physical treatment, there are several ways to control stomach cancer, with one or more treatments being able to be used at the same time, before or in sequence with each other.

On the other hand, but no less important, it is essential to highlight the consequences that this type of disease causes, at a psychological level, in the life of the patient and their family, as psychological well-being becomes subject to fluctuations due to the entire distressing and prolonged process from diagnosis to physical treatment [19]. Adaptation to a new phase of life in which cancer is present must be supported through the help of a psychologist who could address psychosocial issues through intervention strategies, designed to provide the patient and their family with acceptance and confrontation of changes for a better quality of life [27]. Cognitive-behavioral therapy is a psychotherapeutic approach that can use specific techniques with the aim of redirecting the client towards more appropriate behaviors, emotions and thoughts, at times when they are faced with significant changes in their life [16]. Likewise, motivational interviewing can be used in the therapeutic process, as it focuses on the client's motivation, as well as their preparation, perseverance and possible learning for good autonomy [20]. It may occur in two phases, in the first the client's motivations to change will be worked on and in the second phase the focus is the personal commitment to establish the change [20].

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A patient's psychological state can be influenced through socialization with other patients with similar clinical conditions, due to the sharing of experiences. These meetings between patients tend to occur, for example in chemotherapy rooms, where, even with the distraction of dialogue between them, they are always reminded, due to the medications, that they are both sick. This factor, on the one hand, can be negative, with a vision of despair and suffering, or it can be positive, where there are feelings of consolation and hope for the future [27]. Regarding the format of psychological support, according to [26], whether individual or group, both demonstrate good results in terms of improvements in quality of life leading to a reduction in stress, control of anxiety and mood balance. According to [21] the more advanced the cancer stage, the lower quality of life the patient tends to have. In this sense, individuals with cancer tend to sometimes experience mood disorders (e.g. depression), as well as higher levels of anxiety and stress, possibly associated with negative understandings about the disease, such as that cancer is a disease fatal and that there is no way to get rid of death, which leads the patient to experience the fear of death, but also of pain, mutilation and the uncertain future itself [18,19, 27].

## 7. Conclusions

Each case is different and not all cancers are deadly, however, as the Brazilian medical author [15] states in the book "Death is a day worth living", death is something that must be talked about more openly so that these types of stigmas do not occur and, consequently, so that people are not ill-prepared for this type of event, be it dying or even going through grief. Therefore, in order for the patient to obtain improvements in terms of mental and emotional health, the psychologist himself and other health professionals involved must pay great attention to emotional hygiene. Emotional hygiene involves, according to [32], the practice of mindfulness, nurturing more positive perspectives, performing physical activities, having a mindset of gratitude and knowing how to self-recognize. This means that, for a healthcare professional to be able to provide the necessary help to the client, they need to be mentally and physically well, so that they do not run the risk of harming the health of others. The discovery of an oncological disease ends up unintentionally bringing about a new routine, and this adaptation is accompanied by emotions and thoughts that influence the quality of life of an individual diagnosed with cancer. In view of this, psychology in the context of health ends up treating the patient and their family in order to work on understanding the pathology as well as restructuring and confronting their new life condition.

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