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Health-related quality of life after gastric cancer treatment in Brazil: Narrative review and reflections

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Abstract

In Brazil, gastric cancer is the third most common type of cancer among men and fifth among women, with an estimated 13360 new cases among men and 7870 among women each year during the 2020-2022 period. This study presents reflections and attempts to add knowledge to the theme of quality of life (QoL) in patients with gastric adenocarcinoma and describes some of its characteristics in three regions of Brazil, with an evaluation of the disease's impacts in various dimensions of life, as reported by the patients themselves. We performed a narrative review of the literature and a data analysis of studies on QoL in Brazilian patients treated for gastric adenocarcinoma from three different cities in three geographic regions: Brasília (the midwest), Jaú (the southeast), and Macapá (the north).

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Core Tip: In Brazil, gastric cancer is the third most common type of cancer among men and fifth among women. This study presents reflections and attempts to add knowledge to the theme of quality of life in patients with gastric adenocarcinoma and describes some of its characteristics in three regions of Brazil, with an evaluation of the disease's impacts in various dimensions of life, as reported by the patients themselves.

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INTRODUCTION

Most gastric adenocarcinomas affect men approximately 60-70 years of age. Approximately 65% of patients are over 50 years old. Gastric cancer is the third most common type of cancer among men and fifth among women in Brazil, with an estimated 13360 new cases among men and 7870 among women each year for the 2020-2022 period[1]. According to the Brazilian National Cancer Institute, in the country's five geographic regions, without considering nonmelanoma skin tumors, gastric cancer in men is the second most frequent cancer in the north, followed by the northeast, occupying third position. In the south, southeast, and midwest, it is the fourth most frequent (Table 1). For women, it is the fifth most frequent cancer in the south and in the north. The midwest and northeast occupy the sixth position, followed by the southeast, occupying the seventh position (Table 1)[1]. Although its incidence has declined, the registered mortality of gastric cancer is still high, reaching approximately 70% to 90% in Latin America, Asia, and Eastern Europe[2-4].

The term "quality of life" (QoL) can be used in everyday language by people from the general population and professionals in different fields. However, here, we refer specifically to its scientific research context in different fields of knowledge such as economics, sociology, education, and health specialties. The concept of QoL most frequently used in health studies is health-related QoL, encompassing the impact of a disease and its treatments on diverse aspects of life. The idea of QoL is centered on subjective assessment and reported by patients themselves, relating the influence of their health status to their ability to live fully[3-7].

The definition of "quality of life" is still being discussed in the scientific literature; its broad meaning might not be fully understood[3-7]. Some authors confuse functional assessments and isolated elements of patients' lives with the broad and comprehensive definition used by the World Health Organization, which considers the subjective and multidimensional facets of QoL and defines it as the individual's perception of his/her position in life in the context of his/her culture and value system (including spiritual matters); QoL concerns one's goals, expectations, and standards[3-7]. This notion incorporates components such as life experiences, well-being, satisfaction, and social and physical functions, which are influenced by physical and socio-economic factors, psychological factors, and perceived health status[3-7].

The evaluation of health-related QoL should be carried out using scientific instruments that are internationally validated in several languages and cross-cultural, reproducible, and comparable statistical tools. Such instruments, in the form of questionnaires, usually address physical, psychological, occupational, social, environmental, and spiritual relations (personal beliefs and religion), and they always maintain a multidimensional character and assess the individual's perception of his/her QoL. To avoid the researcher's influence in such an evaluation, most questionnaires have been developed in a self-administered manner, and prior healthcare team training is required. These questionnaires can be generic when applied to determine

Table 1 Estimated gastric cancer incidence (per 10⁵) each year for 2020-2022 period according to gender and geographic region[1]

	Geographic region					Brazil (all country)
	North	Northeast	Midwest	Southeast	South	
Men	11.75	10.63	9.38	13.99	16.02	12.81
Women	6.03	7.03	6.71	7.30	9.15	7.34

the QoL in the general population, provide a more general perspective, and assess different diseases; alternatively, they can be specific when applied to assess patients with a certain disease or peculiar symptom previously defined as objects of study[3-5,7-19]. Different features of the patient's health and life can be assessed with these tools. The characteristics of each instrument should guide the researcher's choice for use according to his/her needs, queries, objectives, and study design[3-7,19-24].

Given the increase in survival and the growing variety of cancer treatments, modern oncology is forced to confront its results and global impact, since no treatment is harmless, even when curative. It is thus necessary to develop and improve the various questionnaires used for this research, including both generic questionnaires such as the medical outcomes study 36-item short form health survey (SF-36) and specific instruments for each illness. Here, we mention some questionnaires for evaluating patients with gastric cancer, such as the functional assessment of cancer therapy-gastric (FACT-Ga). In exploring these instruments to better understand their scope and dynamics, please note the SF-36, a generic instrument for appraising multidimensional QoL, allows for comparison with other chronic diseases and the general population. The SF-36 has been translated and validated for the Brazilian population and consists of 36 items (questions) that encompass 8 domains: Functional capacity, pain, physical aspects, vitality, general health, emotional aspects, social aspects, and mental health. A score is assigned in the 8 domains ranging from 0 (worst) to 100 (best) for each domain for each question. The FACT-Ga is an example of a specific questionnaire to assess QoL in patients with gastric cancer and consists of 27 items divided into scales of functional, physical, emotional, social/family well-being, and additional concerns (GaCS). When added together, these scales derive a TOI (Trial Outcome Index), a FACT-G or a FACT-GASTRIC total score [3-8,17,18].

This study presents reflections and attempts to add knowledge to the theme of QoL among patients with gastric adenocarcinoma. The study describes some of the characteristics of this cancer in three regions of Brazil, with quantification of previously (supposedly) abstract facets, through the use of validated questionnaires. The study also evaluates the impacts of the disease in various dimensions of life, as reported by patients themselves (the protagonists of the information).

METHODOLOGY

We performed a narrative review of the literature and an analysis of data obtained by Brazilian QoL studies in patients treated for gastric adenocarcinoma[3,4] – after receiving approval from the Research Ethics Committee following the principles of the Declaration of Helsinki (1964) – from three different cities in three geographic regions of Brazil: Brasília (the midwest), Jaú (the southeast) and Macapá (the north)[3,4].

DISCUSSION AND REFLECTIONS

Gastric cancer is a significant disease with varying social impacts, depending on the reality of the Brazilian or worldwide region where it occurs and the affected population's access to specialized services. Its prognosis is directly related to the tumor's extension through the organ wall, lymph node involvement, and the team's expertise and qualification[1-4,24-30]. Surgical resection is the main therapeutic modality with curative potential, but the interdisciplinary approach is fundamental and leads to improved results. Nevertheless, therapy can adversely affect health-related QoL and is therefore undesirable, making it challenging to balance standardized treatment with the most complete and ideal response (including patients' perceptions of, and expectations about, their disease)[3,4].

In analyzing national data, we noted an average age of patients of 59.8 years. In addition, 54.9% of the patients were smokers, 51.9% were male, their average income range consisted of two minimum wages, and 43.7% were white[3,4]. The predominant histopathological type observed in 62 (61.4%) patients, the intestinal type, reveals that the family relationship did not predominate in the disease's spread in our series (Table 2). The frequency of 40.6% *Helicobacter pylori* contamination and 54.9% smokers reinforces the evidence of the correlation widely described in the literature, as well as the disease's primarily sporadic character, allowing for efficient collective strategies for prevention and for identifying the suppression risk factors most responsible for stomach carcinogenesis. This information can help to build policies on prevention and health promotion[3,4].

Data from Brazilian authors suggest that the QoL is more related to the type of treatment itself rather than anatomopathological, epidemiological, or demographic characteristics[3,4]. This implies that most socioepidemiological variables do not interfere in QoL. Further, if these variables do not interfere in other aspects, they should not be considered relevant information for therapeutic decisions, even though some authors consider schooling to be an influencing factor of QoL[3,4]. Such data strengthen the perception that specialized teams must address these patients from the beginning of their natural history, with multimodal and preventive interventions in the different elements of the disease and its treatment, not only the clinical or biological components. Interdisciplinary care in physiotherapy, nutrition, psychotherapy, and spiritual support (here, different from religion) is recommended for all patients. Each symptom or sign must be informed and treated in an early, specific, and individualized way[3,4].

The literature has tried to correlate initial staging with better QoL, notably, stage I[31]. Data from our group suggest that the higher the lymph node staging, the worse some scores may be in the domains of the SF-36 and the FACT-Ga questionnaires, hence reinforcing the importance of adequate lymphadenectomy, with an essential impact on the oncological outcomes of treatment and improvement of the staging (by more representative lymph node numerical sampling). Proper lymphadenectomy and best surgical decisions are directly linked to the surgeon's learning curve[32-38]. Such information contributes to the assertion that specialized treatment for gastric cancer reduces morbidity and mortality related to the treatment and improves survival by allowing better therapeutic strategies[28,33-41]. On the other hand, the argument that there is a negative impact of lymphadenectomy extension on QoL loses strength, making the oncological indication of this procedure prevail. Our finding of statistical non-significance in the correlation between QoL and the number of resected lymph nodes leaves open a discussion about nonsurgical factors (such as research and anatomopathological processing) influencing lymph node count and their possible statistical relationship with other variables and QoL outcomes[3,4].

The location of the tumor in the stomach affects QoL in Brazil (Table 3 and Table 4) [3,4]. Patients who underwent partial gastrectomy (PG) performed better than patients who underwent total gastrectomy. Patients with tumors in the distal region had better scores than patients with proximal tumors (Table 3 and Table 4)[3,4]. In practice, this result is compatible with literature reports and easily understandable when we realize that the tumor's location in the organ determines the extent of surgical procedure. Proximal tumors indicate the need for total gastrectomy in the search for adequate proximal surgical margins. In contrast, distal tumors can be treated with PG, which is initially less morbid (Table 4)[2-4,24,25,28,39-55]. The symptoms and signs that impact QoL can be attributed to nutritional status changes and the remaining gastric reservoir[3,4,45]. In Brazil, according to the FACT-Ga (GaCS items), answers confirming a negative impact were recorded for the following percentages of patients[3]: Bothered by flatulence (46.8%), loss of appetite (42.6%), avoiding going out to eat because of illness (38.5%), a feeling of fullness or heaviness in the stomach area (35.4%), diarrhea (33.3%), feeling tired (32.2%), bothered by a change in eating habits (31.9%), concerned by stomach problems (31%), discomfort or pain when eating (28.1%), losing weight (28.1%), feeling weak all over (28.1%), bothered by reflux or heartburn (26%), discomfort or pain in the stomach area (25%), swelling or cramps in the stomach area (20.1%), and trouble swallowing food (11.4%)[3]. More studies aimed at this point should be designed before the subject is exhausted.

Using different QoL tools can help suggest (or even audit) behaviors such as gastrectomy extension. In the literature, partial gastrectomy has proven to be superior to total gastrectomy in terms of QoL outcomes. Therefore, total gastrectomy (for patients who are more symptomatic in the early post-operative period) should be reserved for patients with oncological needs as long as radical treatment is maintained. In Brazilian studies, partial gastrectomy can be superior when the QoL outcome is

Table 2 Anatomopathological, clinical, and treatment characteristics of the studied sample[3,4]

	<i>n</i>	%
Tumor stage ¹ (<i>n</i> = 102)		
0	1	0.98
1	30	29.41
2	18	17.64
3	33	32.35
4	20	19.60
Lymph node stage ¹ (<i>n</i> = 103)		
0	59	57.28
1	21	20.38
2	12	11.65
3	11	10.67
Tumor grade (<i>n</i> = 96)		
I	10	10.40
II	42	43.80
III	4	45.80
<i>Helicobacter pylori</i> (<i>n</i> = 64)		
Positive	26	40.60
Negative	38	59.40
Lauren histopathological type (<i>n</i> = 101)		
Diffuse	33	32.70
Intestinal	62	61.40
Mixed	6	05.90
Smoking (<i>n</i> = 102)		
Yes	56	54.90
No	46	45.10
Alcoholism (<i>n</i> = 102)		
Yes	17	16.70
No	85	83.30
Gastrectomy performed (<i>n</i> = 104)		
Proximal	2	01.90
Total	38	36.50
Partial	64	61.50
Neoadjuvant treatment		
Yes	23	22.10
No	81	77.90
Adjuvant treatment		
Yes	36	35.60
No	65	64.40

¹Pathologic stage groups (pTNM).

Table 3 Statistically significant scores of the 36-item short form health survey domains according to tumor site, adjuvant treatment, neoadjuvant treatment[3]

		Bodily pain		Physical functioning	
		Score average	P value	Score average	P value
Tumor site	Cardia			83.6	0.042 ²
	Proximal			61.7	
	Distal			70.6	
Neoadjuvant treatment	Not treated	100	0.007 ¹ ; 0.363 ²		
	Treated	72			
Adjuvant treatment	Not treated	77.1	0.178 ¹ ; 0.048 ²		
	Treated	81.4			

^aP < 0.05.

¹Mann-Whitney test.

²Kruskal-Wallis test.

Table 4 Statistically significant scores of the functional assessment of cancer therapy-gastric domains according to tumor site, type of gastrectomy[3]

		PWB		GaCS		TOI		FACT-Ga total score	
		Average score	P value	Average score	P value	Average score	P value	Average score	P value
Tumor site	Cardia			57.3	0.01 ¹	101.3	0.020 ¹	144.4	0.018 ¹
	Proximal			51		88.7		128.6	
	Distal			60		103.4		144.9	
Type of gastrectomy	Total	21	0.33 ¹	52.6	0.006 ¹	91.8	0.008 ¹	132	0.011 ¹
	Partial	23.4		60.8		104.9		146.9	

¹Kruskal-Wallis test.

FACT-Ga: Functional assessment of cancer therapy-gastric; GaCS: Gastric cancer subscale; PWB: Physical well-being; TOI: Trial outcome index.

analyzed and preferred whenever appropriate[3,4].

There is also a clear correlation of improvement in QoL scores over the post-operative period[3,4,48,49]. According to the consulted literature, the improvement of QoL in gastrectomy patients starts at three months post-operatively, being marked after six months. According to some authors, patients may have a complete recovery, with the resolution of symptoms resulting from sequelae of the surgery between 12 and 24 mo[3,4,40,41,49-54]. In cardia tumor patients, esophagectomy seems to match total gastrectomy QoL scores starting from the sixth month[44]. This positive, temporal correlation between post-operative time and QoL can be used for planning preventive measures for symptom control and rehabilitation; informing patients of this disease behavior pattern can also contribute to better therapy adherence[3,4].

Another surgical aspect being highlighted is the reconstruction of intestinal transit. Some authors admit reconstruction to Billroth I; others (such as most in Brazil) prefer and perform the Roux-en-Y. A consensus has not yet been reached regarding the debate on the best reconstruction technique[27,46,52-54], but the preference for Roux-en-Y finds support, as it offers the best post-operative control of alkaline reflux and its sequelae[53]. This information set leads us to reflect on the need for interdisciplinary, prophylactic intervention in the post-operative period. These strategies can mitigate difficulties, answer questions, and rule out unforeseen events caused by incomplete therapeutic planning. Once again, QoL information can be an essential treatment tool, enabling rational and preventive interference in the complex, multidimensional illness process[3,4].

Due to this evidence of QoL changes in the post-operative gastrectomy period, a paradigm shift in cancer care becomes desirable. Interdisciplinarity, specialized assistance, good surgical techniques, therapeutic planning, nutritional assistance,

physiotherapy, and psychotherapy, as well as accurate information on the disease evolution pattern, can reduce expectations and increase treatment adherence and results[3,4].

The multimodal treatment of cancer confers unparalleled complexity in the interpretation of its effects on QoL. Diverse influences of other therapeutic modalities on QoL outcomes must be meticulously investigated[3,4,55-60].

CONCLUSION

The evolution of QoL research allows for statistical analysis and, consequently, more precise and personalized approaches, even for aspects of the disease previously considered abstract. The QoL concept and its measurement tools bring the possibility of using this information in scientific research, therapeutic planning, and healthcare policies[3,4]. We believe that the development of specialized, interdisciplinary healthcare in oncology should be a priority for improving outcomes. QoL statistical data can support decisions and consolidate or change therapy, generating even more scientific knowledge by including the patient's perceptions.

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