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## OBESITY AND BARIATRIC SURGERY: A LITERATURE REVIEW

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**Abstract:** Obesity is a pathology in which the real association with psychiatric disorders is unknown, among which the most overlapping are anxiety, eating disorders and depression. The aim of the present study was to analyze the psychiatric interrelationships of the individual with body image in society and bariatric and metabolic surgery. An integrative literature review was carried out, accessing the databases of the Virtual Health Library, Lilacs, Medline and SciELO, using the descriptors: obesity and bariatric surgery. The following inclusion criteria were used for the selection of articles: articles published within the time frame (2007 to 2021) and in Portuguese. Articles that did not fit the research topic and duplicate articles were excluded. Of the 15 selected articles, three reported body image in obese individuals in the context of surgical intervention for weight loss, verifying that there is an association between a decrease in the patients' BMI and a decrease in body image dissatisfaction. Seven articles reported the psychological variables associated with bariatric surgery. There was a positive relationship in which weight loss and decreased body image dissatisfaction was accompanied by a reduction in anxiety and depression levels, which suggests that these are important factors in obesity. Three studies revealed that women live with the need to adopt healthy eating habits that make it possible to reach and maintain the desired weight. Two articles identified instruments that measure body image as a theoretical basis for clinical data. Finally, the patient's social reintegration must be assisted and guided, with multidisciplinary assistance for the diagnosis of psychiatric pathologies such as depression and anxiety, as well as the modification of the body image that the body can achieve.

**Keywords:** Obesity, psychiatric disorders, bariatric surgery, body image.

## INTRODUCTION

In Brazil, according to the most recent data from the Ministry of Health (MS), the prevalence of obesity has increased by 67.8% in the last thirteen years, from 11.8% in 2006 to 19.8% in 2018, according to the latest survey. Surveillance of Risk and Protection Factors for Chronic Diseases by Telephone Survey (Vigitel). Obesity is a non-infectious chronic disease and is classified into three groups, which are determined by the Body Mass Index (BMI), calculated by the weight divided by the square of the individual's height. above adolescence, excluding children and their age subdivisions<sup>1,2</sup>.

According to the Brazilian Society of Bariatric and Metabolic Surgery, Bariatric Surgery (BC), also known as obesity surgery, or, popularly, stomach reduction, brings together scientifically supported techniques for the treatment of morbid obesity and/or severe obesity and diseases associated with or aggravated by excess body fat. The concept of metabolic surgery was incorporated about ten years ago due to the importance of scientific studies demonstrating that the organs involved in the surgery produced hormonal substances and that the surgery actually altered this initial hormonal balance in a beneficial way to the obese patient, either in the loss of weight, whether in the control and even in the cure of endocrinological diseases, such as diabetes, hypercholesterolemia, hyperuricemia and even hypertension, part of the plurimetabolic syndrome<sup>2,6,8</sup>. In fact, it is worth noting that BS can be performed by three basic procedures: videolaparoscopy, laparotomy and robotics. The videolaparoscopic route has a mortality rate of less than 0.2% and the recommended by the World Health Organization (WHO) and accepted by the same is a rate of 1%. The conventional route has a mortality rate of 0.8%, close to that established by the WHO.

Surgical procedures involving BC are classified into three groups and to be performed there are several techniques that are recommended according to what is best for the patient and their associated comorbidities, they are: restrictive, malabsorptive and mixed.<sup>3,5</sup>. The surgical procedure most used for the treatment is the technique developed by Fobi-Capella, also known today as Roux-en-Y Bypass. However, it is known that weight regain is expected in around 0.2% of patients undergoing by-pass and that weight regain has increased after the first two years after surgery.<sup>3,5</sup>. In addition to this technique, the following are also used: sleeve gastrectomy, duodenal switch and *Adjustable Gastric Band*<sup>7,8</sup>. The Vertical Gastrectomy is known as *Sleeve* or shirt sleeve gastrectomy has good efficacy in controlling hypertension and lipid (cholesterol and triglyceride) diseases. Currently, the number of surgeons who believe in the results of this technique, including for diabetes control, has been growing a lot. It is estimated that in a short time it will be the most performed surgery in Brazil and in the world.<sup>13,14</sup>. The technique: *Duodenal Switch* is the association between sleeve gastrectomy and intestinal diversion, in this operative technique, intestinal diversion reduces the absorption of nutrients, leading to weight loss. It was created in 1978, and the technique corresponds to 5% of procedures and leads to the loss of 75% to 85% of the initial excess weight.

The pathophysiology of obesity is not very clear, with studies that converge on an association of environmental, genetic and psychiatric factors, the latter as a consequence of interpersonal relationships that generate some type of psychological trauma in the individual.<sup>2,3,5</sup>. On the subject of genetics as a factor that predisposes obesity, there are doubts as to whether its influences really have an influence on weight control, if gene

expression can regulate the hormonal and humoral axes for weight gain<sup>4,11,21</sup>.

Obesity is a pathology in which the real association with psychiatric disorders is unknown, among which the most overlapping are Anxiety, Eating Disorders and Depression.<sup>3,18</sup>. In addition, there is a small percentage of cases associated with inborn errors of metabolism or cases of deficiencies in the regulation of the hormonal axis that regulates the individual's satiety, as in Prade Willi Syndrome, characterized by hyperphagia and morbid obesity and more common its manifestation in childhood<sup>4,19</sup>.

In the treatment of obesity, it is recommended that the individual changes his/her life habits, such as insertion of a diet accompanied and prescribed by a nutritionist, regular physical activity, but the stipulated goals are not always achieved.<sup>5,15,20</sup>. Nevertheless, there are pathologies that are generally acquired with obesity, such as cardiovascular and metabolic diseases, with emphasis on Systemic Arterial Hypertension (SAH) and Type II Diabetes Mellitus (DM II), which are the most prevalent.<sup>6,14,21</sup>.

However, a small number of diagnoses based on the etiology of obesity and psychiatric diseases are observed in the clinical routine. Well, it is being common, nowadays, to regain weight after, one of the main treatments for obesity, Bariatric Surgery (BC)<sup>7, 18, 22</sup>. There are some operative techniques that can be restrictive, disabsorptive and mixed, the latter being the most used and known as the Fobi-Capella technique.<sup>8,21,23</sup>. Even with a low rate of operative failure, it is noted that patients undergoing this procedure are not satisfied with the result or after two years of the surgical procedure they regain weight, returning to the same weight in the preoperative period or even larger<sup>9,10,24,25</sup>.

It is noted that obesity, for those who are carriers, has their esteem diminished and their

interpersonal relationships harmed because they feel outside an aesthetic standard labeled by society and demanded both in the real and in the virtual environment, not to mention the traumas. that whoever owns it suffers for not being in the standard<sup>11,12,18,26,27</sup>. Excess adiposity, intended for the terminology of obesity and excess body weight. Obesity is defined as the accumulation of adipose tissue of sufficient magnitude to impair health.<sup>13,28</sup>. Overweight is better evaluated in adolescents, young adults and the elderly by the BMI, which classifies as adequate weight, overweight, obesity grade I, obesity grade II, obesity grade III and morbid obesity. Obesity is a disease of caloric imbalance which results from excess calories ingested above body consumption.<sup>28</sup>. Therefore, BC plays an important role in the patient's reintegration into society. The aim of the present study was to analyze the psychiatric interrelationships of the individual with body image in society and bariatric and metabolic surgery.

## METHODOLOGY

An integrative literature review was carried out as it is considered a unique tool in the field of health, as it enables the synthesis of available evidence on a given topic and guides clinical practice based on scientific knowledge. The guiding question of the research was: "Can Bariatric Surgery be characterized as a facilitator in the reintegration of the individual with obesity and their psychiatric interrelationships in society?". A bibliographic search was carried out in the Lilacs (Latin American and Caribbean Literature on Health Sciences) and SciELO databases, using the following descriptors: "obesity and bariatric surgery" with the Boolean operator "e". The following inclusion criteria were used for the selection of articles: articles published within the time frame (2007 to 2021) and in Portuguese. Articles that did not fit the research

topic and duplicate articles were excluded. The following article types were excluded: articles other than the original research (eg case report or series, review articles, letters to the editor, editorials or comments), duplicate publication and articles in other languages. Articles were selected based on their relevance, timeliness and publication in indexed scientific journals. After reading, articles that did not address the topic were discarded. From this, after applying the inclusion criteria, the final sample of this integrative literature review consisted of 15 articles. The methodology that was carried out is exemplified as shown in the **figure 1**.

## RESULTS

In the first phase of the search, a total of 244 articles were found in the databases and after applying the inclusion and exclusion criteria, 1 article remained in SciELO, 14 articles in Lilacs, totaling 15 articles, as shown in the **figure 1**. The objectives and the main results of the 15 articles included in this study, selected from the descriptor "obesity and bariatric surgery", are shown in **Chart 1**.

Of the selected articles, 3 (three) sought to report body image in obese individuals in the context of surgical intervention for weight loss, verifying that there is an association between the decrease in the patients' BMI and the decrease in body image dissatisfaction. Following this line of scientific thinking, another 7 (seven) selected articles reported the psychological variables associated with the performance of bariatric surgery. Therefore, there was a directly proportional relationship in which weight loss and the decrease in body image dissatisfaction were accompanied by a reduction in anxiety and depression levels, which suggests that these are important factors in obesity. Among the fifteen articles analyzed, it was observed that obesity is a disease of multifactorial character, ranging from social, environmental and genetic

YEAR	AUTHOR	GOALS	RESULTS
2014	SCHAKA-ROSKI <sup>1</sup>	To analyze an understanding of the possible changes that occur after bariatric surgery in body image, highlighting the postoperative conditions of morbidly obese patients	It was observed that even after surgery, individuals continue to face the challenge of experiencing a new appropriation of their body image. This process of adjusting the body image is complex and occurs throughout life, requiring a different time from the adjuvant moment of surgical intervention. Because of this, systematic psychological intervention is essential in the process of healthy body image reorganization.
2017	CASTRO <sup>2</sup>	To evaluate body image in obese patients in a context of surgical intervention for weight reduction, those studies that presented body image evaluation in the pre-surgical, post-surgical stage or both were included.	The results show that despite the emphasis given by the literature to the impact that the change in body image causes in morbidly obese, the current review revealed that the evaluation of the variable is not uniform. However, there is a tendency to assess the level of subjective satisfaction with one's own body, even with different instruments. Few studies have evaluated the psychophysical aspects of body image perception.
2016	FAGUNDES <sup>3</sup>	To identify the psychological variables that are associated with the performance of bariatric surgery.	It was found that the psychological variables associated with the performance of bariatric surgery are mainly anxiety, depression and low self-esteem as psychological aspects that directly interfere in the obese person's life. It is important to pay attention to possible emotional maladjustments that compromise the patient's adherence to treatment as their condition of socio-emotional adaptation, evidencing the interdependence between psychological variables and obesity.
2011	NASSIF <sup>4</sup>	To create theoretical basis of clinical data regarding multiprofessionality in the scope of Bariatric and Metabolic Surgery.	It was possible to create an electronic database of clinical data related to multiprofessionality in bariatric and metabolic surgery for standardized collection of information and it was possible to computerize this database.
2014	GUERRA <sup>5</sup>	To estimate, through a standardized interview, the frequency of mental disorders and correlated factors among obese patients seeking bariatric surgery.	Data from the present study showed that mental disorders are frequent conditions among obese patients before bariatric surgery. The frequency rate of mental disorders at the time of the interview was 57.8% (57.6% men and 58.5% women). Affective disorders were the most frequent (64.9%), with bipolar disorders and depressive disorders being the most common (35.6% and 29.3%). Among respondents who had any mental disorders throughout their lives, about half of the sample had three or more simultaneous disorders. Anxiety disorders were the most frequent diagnoses (46.3%) among the participants with current disorder. Age and educational level were associated with the probability of having mental disorders at the time of the interview.
2009	MISHIMA <sup>6</sup>	To present a form of psychotherapeutic treatment for obese women, for through Interventional Psychodiagnostics (IP), and find out their possibilities of assistance, so that they do not reach sufficient weight to undergo bariatric surgery and, thus, avoid the surgical procedure and possible consequences that may arise from this alternative.	It was found that obesity can have a differentiated treatment and a therapeutic follow-up that achieves weight loss, without necessarily making the patient undergo surgery with possible risks. Therefore, the use of projective techniques, in an interventional care, allows the obese to get in touch with affective aspects related to their disease, making weight loss a consequence of the treatment.
2012	ALMEIDA <sup>7</sup>	To investigate the levels of anxiety and depression, as well as the changes suffered in the perception of body image in obese patients undergoing bariatric surgery at three moments: preoperatively, 6 months and 12 months after surgery.	The surgery significantly decreased both the patients' body mass index and dissatisfaction with their body image. This weight loss and decrease in body image dissatisfaction was accompanied by a reduction in anxiety and depression levels, which suggests that these are important factors in obesity.

2011	SILVA <sup>8</sup>	To characterize the life experiences and physical and mental health problems of a group of obese individuals and compare them with non-obese subjects.	It was evidenced that the experiences of emotional abuse and neglect are frequently reported, but some experiences of adversity in childhood are little reported by obese and non-obese individuals. Obese people report more complaints and physical health problems, but non-obese individuals have higher mean values of psychopathology. In the personality dimensions, there was no difference between the groups. General psychopathology, health complaints and health problems distinguish obese from non-obese. Thus, obese individuals do not report more adversity and report less general psychopathology than non-obese individuals. However, they have more complaints and health problems.
2009	ROSA <sup>9</sup>	To investigate the psychodynamic aspects in subjects who underwent bariatric surgery without medical indication	The results revealed that the surgery constitutes an attempt to change, in this case, to change their own identity. Previously obese subjects seek to provoke a real cut in their own history, seek to operate a change in their own identity inscribed and expressed in the visible of their bodies.
2012	CARDOSO <sup>10</sup>	To understand, from the experiences of two women and a caregiver, the meaning and meaning of living in an obese body in current society. The approach used was qualitative based on the concepts of hermeneutics.	It was found that understanding the logic/dynamics of these people's health needs can contribute to the construction of more ethical professional practices by rescuing care from the perspective of those who experience obesity. The consideration of socio-anthropological knowledge in the care of people with obesity is recommended as an important aspect in the reconstruction of health practices for this population.
2020	AMBROSIO <sup>11</sup>	To introduce bariatric surgery as a new possible contingency to produce reflexes in the perception of the self and in the feelings of self-confidence and self-esteem of the person submitted to such an intervention.	It was noticed how bariatric surgery has an effect not only on the health of those who undergo it, but also on the person's relationship with their social world, people can start to establish a different relationship, either through physical change or through new behaviors of the patient. person after bariatric surgery. Therefore, the importance of the behavior analyst psychologist to help you in this self-perception.
2016	OLIVEIRA <sup>12</sup>	To understand the experience of women in the postoperative period of bariatric surgery.	It was found that the surgery enabled the control of chronic diseases associated with obesity, autonomy for self-care and daily activities, the recovery of self-esteem and social inclusion. It also showed that women live with the need to adopt healthy eating habits that make it possible to reach and maintain the desired weight. Although this study shows a gain in the quality of life of "bariatric" women, it also highlights the need for shared and longitudinal care for this clientele by a multiprofessional team, due to the chronic nature of obesity.
2007	CORDEIRO <sup>13</sup>	To identify and analyze the experience of patients undergoing bariatric surgery before, during and after the procedure in a public hospital in the city of Salvador, Bahia, through a semi-structured interview.	The subjects are clearly aware of the importance of prior preparation when they said that it could alleviate or eliminate health complications caused by obesity, favoring greater adequacy in the process of changes and adaptation to the new life, in the long term.
2017	CASTRO <sup>14</sup>	To investigate the set of instrumental assessment applied in body image studies in obese individuals in the context of surgical intervention for weight loss.	Nine instruments that measure body image were identified. There is a significant trend towards the use of self-report scales on the perception of satisfaction with body image. Changes in body image in the condition of severe obesity are consistently reported in the medical and psychological literature.
2019	SILVA <sup>15</sup>	To analyze some conflicts involved in people's experiences undergoing bariatric surgery, a resource adopted after their failed weight control attempts.	It was found that feelings such as guilt and shame express the recognition of the failure of their self-management project. Post-surgical reports suggest the permanence of a process of self-rationality constantly threatened by fat, which is mainly reflected in the fear of weight regain. Some patients expressed the difficulty of managing the new body according to medical guidelines, while others exposed the dilemma of not recognizing themselves in the new appearance.

Chart 1. Objectives and main results of the studies.

Source - Souza et al. 2010

relationships, due to this particularity, it needs a more specific and complex treatment. The understanding and care in the experience of women in the postoperative period of bariatric surgery were reported by 3 specific articles, also revealing that women live with the need to adopt healthy eating habits that allow the achievement and maintenance of the desired weight and the CB improved self-esteem and self-confidence. Finally, another 2 selected articles identified instruments that measure body image as a theoretical basis of clinical data regarding multiprofessionality in the scope of Bariatric and Metabolic Surgery.

## DISCUSSION

Body dissatisfaction causes more people to change their appearance. The obese people's motivations for bariatric surgery have focused mainly on the appropriation of the idealized body image, based on social feedback, aesthetic standards and the immediate desire to change their lives. However, the psychic process of body image construction is complex, extending throughout life (Mishima et al. 2009). Fifteen articles on the topic were reviewed, submitted to content analysis, identifying a gap regarding the updating of body image in the psyche after bariatric surgery. The establishment of a line of research involving the subject of body image can contribute to the consolidation of knowledge on the subject and support a more consistent and resolute clinical practice. The present study is limited by the lack of meta-analysis and case-control studies to support the data.

Regarding the social dimension, the findings of this research point to positive aspects in relation to social inclusion, evidenced after weight loss. A qualitative study in Norway showed that the sense of compliance with the body norm imposed by society presented itself as a facilitator for the social cohesion of the operated, referring

to the return of human dignity in the social context<sup>4,6,9,10,22,26</sup>. It is noteworthy that, when undergoing BC, the participants wanted to feel socially accepted. In this sense, weight loss evokes a sense of social adaptation that allows the performance of daily activities and the resumption and strengthening of social bonds. Also noteworthy is the return to work activities experienced by women <sup>6,10,14</sup>. In this regard, it is noted that weight loss mediated by BC favors the return to work, allowing the insertion of the individual in the social sphere, including the professional context.

Worldwide, major depression, defined by DSM-IV (*Diagnostic and Statistical Manual of Mental Disorders*), has a higher prevalence in women than in men. In addition to this pathology, we have anxiety, which is a response to stress, however, when the stimulus becomes chronic, it is converted into a psychiatric disease in which food cravings are usually associated and lead patients to gain weight<sup>6,9,10,38,39,40</sup>. The relationship between mood disorders and obesity has an enormous social and economic impact and constitutes the largest proportion of seriously ill patients. The treatment of obesity is multifactorial and involves a team composed of several health areas such as psychologists, nutritionists and surgeons<sup>23,26,28</sup>.

It is already known that the pathogenicity of obesity is well influenced by multiple factors and that it is associated with many secondary pathologies. However, what is to be worried about is the validation of the entire surgical procedure for the patient's reintroduction to interpersonal relationships, since the percentage of weight regain and/or the non-satisfaction of body image are directly involved in the failure of treatment. all surgical preparation. The question is whether the preparation and diagnosis of psychiatric pathologies are being resolved or

is there a failure in the treatment, especially when it comes to standardized body image 7,12,18,23,38,39,40.

It is believed that bariatric surgery is actually a modifier of obesity and, in addition, it manages to insert the patient into social life, but this is only possible when the treatment of overlapping pathologies, especially those of a psychiatric nature, such as depression and anxiety, are well diagnosed and properly treated preoperatively. It is important to emphasize that to get to the operating room to apply the surgical technique, the patient starts a psychological treatment, as he will need to understand that his habits will have to be modified, for this, some questionnaires are applied, among them we have the Depression and Anxiety Inventory of Beck 38,39,40,41. After this psychological evaluation, the patient is inserted in the nutritional sphere, for a readjustment of their eating habits. When there is a favorable positioning of these two spheres, the patient is referred for the surgical procedure (Almeida et al. 2012, Silva et al. 2011). Patients who achieve a reduction in the degree of obesity, going from morbid obesity to overweight, are seen by the team as an achievement and this would be expected by all patients, but this is not what happens, mainly, in females (Guerra et al. 2014). The body image of women is much more valued than that of men, which explains why in Western countries the demand for bariatric surgery is more intense and the justification lies in the standard of beauty that is required in this society. Even so, it must not be forgotten that the results will improve your body image. However, it is extremely important that the team leaves patients well oriented on the beauty standards that are required in everyday life, emphasizing to the patient that the body image must not be prioritized, but the decades of life that the patient will enjoy. if you follow the postoperative follow-ups (Ambrosio et al. 2020).

## FINAL CONSIDERATIONS

Obesity is the gateway to other pathologies that are difficult to control and its pathophysiology is uncertain, but its treatment, however complex and possible it may be. As mentioned and defended, BC is the best treatment, when performed with a well-oriented team, which prepares its patients from the preoperative period, with multidisciplinary assistance for the diagnosis of psychiatric pathologies such as depression and anxiety, as well as the body modification that the body can reach. Not forgetting that in the late postoperative period, the team must not leave the patient without periodic returns for follow-up, as weight regain may be due to poor patient compliance and associated psychiatric pathologies that have not been completely stabilized. Therefore, the patient's social reintegration must be assisted and guided, mainly for the patient to understand that reaching the standard of beauty imposed by society is not the main achievement, but the return to quality health and that allows her to reenter the society and continue to live in a healthy and guided way on the standardizations that are common in the globalized world. The present study is limited by the lack of meta-analysis and case-control studies to support the data. The scientific literature lacks more studies of clinical trials on the association of obesity with psychiatric disorders, among them, the most overlapping, anxiety, eating disorders and depression.

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## ANNEX

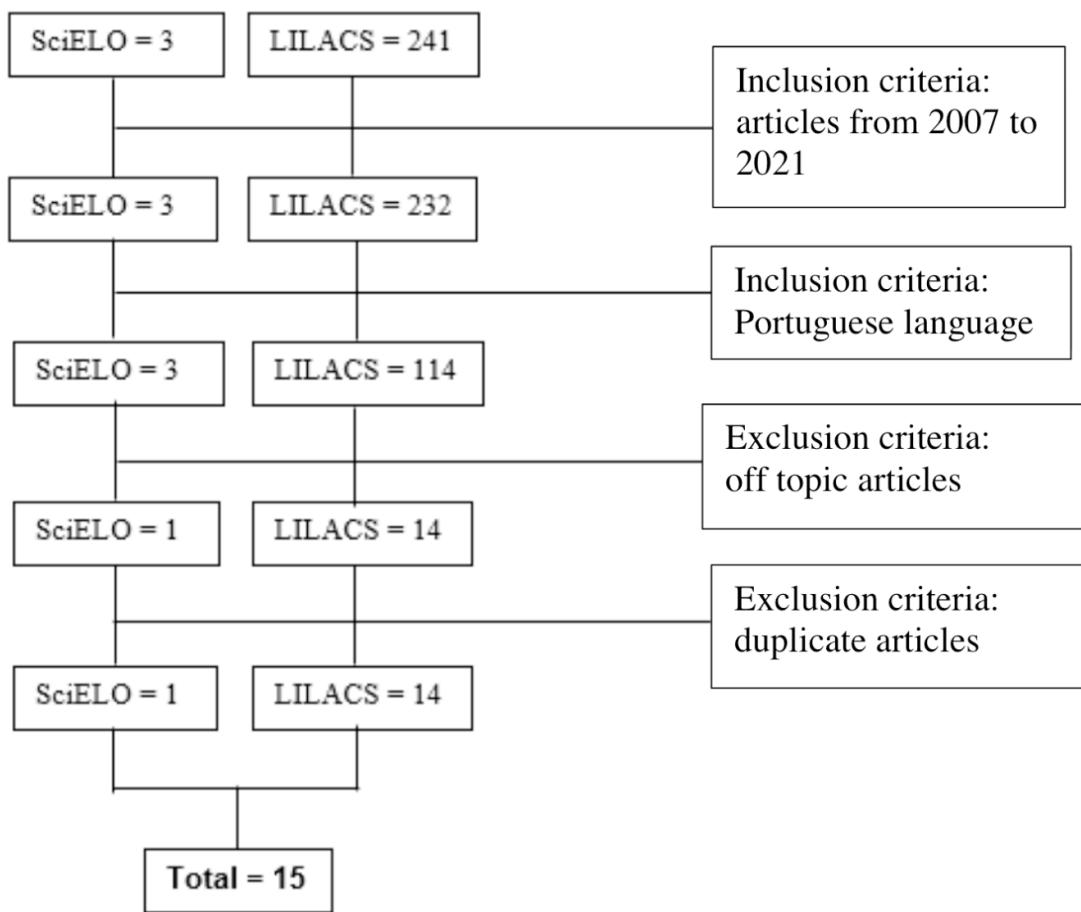


Figure 1: Result of the bibliographic search in the databases.

Source: Adapted from Souza et al. 2010.