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ORIGINAL ARTICLE

CHANGES IN QUALITY OF LIFE AFTER BARIATRIC SURGERY MUDANÇAS NA QUALIDADE DE VIDA APÓS A CIRURGIA BARIÁTRICA CAMBIOS EN LA CALIDAD DE VIDA DESPUÉS DE LA CIRUGÍA BARIÁTRICA

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ABSTRACT

Objective: to assess quality of life (QOL) of patients in the late postoperative period after bariatric surgery. **Methods:** cross sectional study with quantitative approach, performed in a referral hospital in bariatric surgery in Fortaleza-CE/Brazil with 57 bariatric patients. The data collected through the questionnaire of QOL Moorehead-Ardelt II protocol Bariatric Analysis and Reporting Outcome System (BAROS) were tabulated in Excel and analyzed according to descriptive statistics and figures arranged. The study was approved by the Ethics Committee CAAE. 0039.0041.000-11. **Results:** it was found that 79% of patients reported significant improvement in QoL, 15.8% reported an improvement and only 5.2% had no change in QOL. **Conclusion:** there was an effective benefit of patients undergoing bariatric surgery, since they had an improvement of QOL as a result of weight loss and decrease in BMI. **Descriptors:** Morbid Obesity; Bariatric Surgery; Quality of Life.

RESUMO

Objetivo: avaliar a qualidade de vida (QV) dos pacientes no pós-operatório tardio submetidos à cirurgia bariátrica. **Método:** estudo transversal, com abordagem quantitativa, realizado em um hospital referência em cirurgia bariátrica em Fortaleza-CE/Brasil, com 57 pacientes bariátricos. Os dados coletados por meio do questionário de QV de Moorehead-Ardelt II do protocolo Bariatric Analysis and Reporting Outcome System (BAROS) foram tabulados no Excel e analisados de acordo com a estatística descritiva e dispostos em figuras. O estudo foi aprovado pelo Comitê de Ética sob CAAE n. 0039.0041.000-11. **Resultados:** constatou-se que 79% dos pacientes afirmaram melhora significativa da QV, 15,8% observaram melhora e apenas 5,2% não tiveram nenhuma alteração na QV. **Conclusão:** houve um benefício efetivo dos pacientes submetidos à cirurgia bariátrica, uma vez que estes obtiveram uma melhora da QV como consequência da perda de peso e da diminuição do IMC. **Descritores:** Obesidade Mórbida; Cirurgia Bariátrica; Qualidade de Vida.

RESUMEN

Objetivo: evaluar la calidad de vida (QOL) de los pacientes en el postoperatorio tardío después de la cirugía bariátrica. **Método:** ESTUDIO transversal con abordaje cuantitativo, realizado en un hospital de referencia en cirugía bariátrica en Fortaleza-Ceará/Brasil con 57 pacientes bariátricos. Los datos recogidos a través del cuestionario de calidad de vida Moorehead-Ardelt II del protocolo Análisis Bariátrica y Reporting System Resultado (BAROS) fueron tabulados en Excel y analizados según la estadística descriptiva y las figuras dispuestas. El estudio fue aprobado por el Comité de Ética CAAE. 0039.0041.000-11. **Resultados:** se encontró que el 79% de los pacientes reportaron una mejoría significativa en la calidad de vida, el 15,8% reportó una mejoría y sólo el 5,2% no tenía el cambio en la calidad de vida. **Conclusión:** Se observó un beneficio efectivo de los pacientes sometidos a cirugía bariátrica, ya que tenían una mejora de la calidad de vida como resultado de la pérdida de peso y disminución en el IMC. **Descriptores:** Obesidad Mórbida; La Cirugía Bariátrica; La Calidad de Vida.

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INTRODUCTION

Obesity has a significant impact on health, longevity and quality of life (QOL), as it increases the chances of mortality and decreases indicators of quality of life among obese and non-obese patients of the same age. Also interferes in the quality of life of individuals because of their association with decreased psychological well-being, with limited social interaction and low self-esteem, which favors social isolation, depression and increased stress, and reduce the functional capacity, harming productivity Professional.¹

The improvement of QoL is an important benefit experienced by patients after bariatric surgery because it covers a variety of activities and feelings. The results concerning the quality of life can not be assessed only on the type of quantification and associated complications, operative time, costs of procedures and the mortality rate, as there is a need to evaluate other variables also influence the outcome surgical treatment such as age, sex, weight before surgery, physical activity, type of surgery, general medical conditions of the individual, the commitment in maintaining dietary guidelines, patient motivation and cooperation of family and friends.^{2,3}

To evaluate the impact of bariatric surgery on the quality of life is done effectively and efficiently, it is necessary to make use of standard methods and respected ⁽⁴⁾, for the assessment of QoL allows the obtaining of treatment efficacy and impact assessment of these treatments on the daily life of obese, and allows to analyze the individual holistically, considering their biopsychosocial context.¹

The protocol Bariatric Analysis and Reporting Outcome System (BAROS) was developed to evaluate and standardize the results of bariatric surgery. The combination of the questionnaire on quality of life with the analysis of other relevant data to assess the success of bariatric surgery allows BAROS is the only instrument able to provide a current overall assessment methodology with practical and efficient results surgical treatment for obesity.⁶

The questionnaire on the quality of life consists of six questions related to self-esteem, the provision for physical activities, work performance, social interaction, the practice of sexual activity and eating behavior. The answers to each question will be represented on a Likert scale of 10 points and the score for each question ranges from under 0.5 to over 0.5. According to the final

score, the result is classified into five groups: very diminished, decreased, unchanged, improved and much improved.⁷

The use of instruments such as the protocol BAROS, by nursing professionals in the care process favors the planning of nursing care to the client, the implementation of interventions and evaluating the results thereof. Furthermore, it is important that nursing broaden their participation in targeted patient care bariatric throughout his journey in search of the desired weight, and the assessment of quality of life and guidance on how to achieve a healthier lifestyle one way to provide care.

Therefore, we realize the importance of evaluating the quality of life of these patients in order to check how is the adaptation of the same to your new lifestyle. It is noteworthy that build healthier lives through the expected result for the population undergoing surgery is a very complex process because it involves the interconnection of physical, psychological, social and varies from individual to individual.⁸

Thus, from the concept of quality of life and their relationship with the bariatric patient in the late postoperative period, the questions arise: what is the impact of bariatric surgery on the quality of life of these patients? What changes in lifestyle habits after bariatric surgery?

The interest in the topic came from reading several articles on the subject and involvement as fellow undergraduates from the National Council for Scientific and Technological Development (CNPq) for data collection with patients undergoing surgery through the project of Nursing Diagnoses response class cardiovascular/pulmonary clients undergoing bariatric surgery Institutional Program for Scientific Initiation Scholarships (PIBIC) in which I observed that gastric bypass requires the individual to adapt her lifestyle, mainly by modifying their eating habits, but also the practice of physical activity, improvement of self-care, the return of self-esteem and social involvement. The assessment of the bariatric patient during the postoperative period allows it to be identified this process of adaptation.

OBJECTIVE

- To evaluate the quality of life of patients in the late post-operative period, after bariatric surgery.

METHOD

Cross-sectional study was conducted between November 2011 and February 2012 in a referral hospital in the state of Ceará in performing bariatric surgeries by the Unified Health System (SUS).

During the period of data collection, 70 patients were treated in outpatient institution with the multidisciplinary team to monitor the late postoperative bariatric surgery. Of these, only 57 bariatric patients were included in the sample. Of the total, three patients refused to participate in the survey and the remainder did not meet the inclusion criteria.

Inclusion criteria for the study were: a) age over 16 years, b) be registered in the service of bariatric surgery c) be experiencing postoperatively for at least three months. This period has been established in order to address the patients when they begin to practice physical activity, started eating differently, and be able to experience the changes in daily routine.

Data were collected directly from the client in outpatient from an interview using a structured instrument that was divided into three parts: a) socio-demographic data, b) data on lifestyle and BMI in pre-and post-operative and c) quality of life questionnaire for Moorehead-Ardelt II protocol BAROS.

To assess the quality of life, we used the Quality of Life Questionnaire of Moorehead-Ardelt II (QoL-II). The QoL-II contains six items that assess subjectively the quality of life of patients: 1) self-esteem, 2) physical activity, 3) social relations, 4) job satisfaction, 5) pleasure related to sexuality and 6) behavior food. All questions have the same weight and a Likert scale 1-10 is used to mark the answers.⁷

Each question is worth 0.5 points, for a total of 3 points to the domain. After aggregation of scores, quality of life scores very decreased (-3 to -2.1), decreased (-2 to -1.1), unchanged (-1 to 1), improved (1.1 to 2) greatly enhanced (2.1 to 3).

As the completion of the questionnaire that assesses the quality of life, each patient received a score. Data collected by completing the Research Protocol BAROS were tabulated in Excel and analyzed according to descriptive statistics and graphs arranged.

Patients who agreed to participate in the study signed an informed consent for the development of research, which included the explanation of all the stages of the study, guaranteed anonymity and the right to withdraw their consent at the time you desire

without prejudice to the treatment. Was assured that participation in the study would not bring moral and physical.

The study was conducted according to the ethical principles of Resolution 196/96 of the National Health Council and approved by the Ethics Committee of the institution (CEP 538/2011), CAAE 0039.0041.000-11.

RESULTS

The type of surgery is prevalent in conventional or open at a frequency of 52.6%(30) while laparoscopic surgery was 47.4% (27). Mean time after surgery was 32.3 months with a minimum of three months and a maximum of 133 months. Eighteen (31.6%) had 1 to 2 years of surgery, nine (15.7%) in the range of 2 to 3 years, 7(12.3%) had six months, 7(12.3%) had over five years of surgery, six (10.5%) were between 4-5 years, 5(8.8%) were between 3-4 years and five (8.8%) between six months to a year.

Of the 57 patients who underwent surgery, 48 were female (84.2%). Regarding age, 11 (19.2%) were between 21-30 years, 21 (35.8%) between 31 and 40, 17 (29.8%) from 41 to 50 and eight (14%) from 51 to 60. It was found that the highest percentage is in the age group between 31 to 40 years and the average age is 41 years and a variance spanning from 22 to 58 years.

The merits, 48(84.2%) of the patients come from the metropolitan region of Fortaleza, seven (12.3%) in rural Ceará and 2(3.5%) from other states. Regarding the level of education, 28 (42.2%) completed high school, 12(21%) had completed elementary education, six (10.5%) completed elementary school, 10(17.6%) had higher education and only one (1.7%) did not complete high school.

In terms of occupation, 41(72%) paid activity and 16 (28%) did not work. Of these, 11(68.7%) were housewives, 2(12.5%) were unemployed, 2(12.5%) were students and one (6.3%) was retired. Family income ranged from zero to 15 wages, with predominance of the range between 1-5 minimum wages, present in 26(45.6%) of the participants, the average monthly income of 2.5 salaries. It was found that 16(28%) had income below the poverty level, 9(15.8%) had income between 6-10 salaries, 55 (8.7%) had no income and 1(1.7%) had incomes above 10 salaries.

Regarding marital status, 35 (61.4%) were married, 12(21%) were single, five (8.8%) were divorced, 3(5.3%) had stable and 2(3.5%) widowed. Regarding religion, Catholic (73.7% - 42) corresponded to the highest proportion.

Religion was also present in 25.6% (14) and 1(1.7%) was a partidary of umbanda.

The assessment of changes in living habits in daily patient is valid for verifying the adequacy of the lifestyle of the patient postoperatively with the guidance received during the perioperative period. In this study, we evaluated how lifestyle: physical activity, smoking and alcohol use.

As for physical activity, 68.4% of the participants were sedentary. After surgery, 54.7% were engaged in physical activity, with a mean onset of activity after 3.6 months. The average frequency of weekly physical activity is 2.6 times with the change from zero to six times a week. It was observed that 17.6% (10) of the participants stopped alcoholic beverages (Figure 1).



Figure 1. Distribution of the lifestyle in the pre- and postoperative patients undergoing bariatric surgery at a referral hospital in Fortaleza, CE. In 2012.

In the pre-operative BMI was 35.1 kg/m2 minimum and maximum of 62.8 kg/m2, and mean BMI of 47.1 kg/m2. Only four (7%) of patients had grade II obesity, whereas 53 (93%) of the participants were in a state of morbid obesity (morbid obesity). In the postoperative period, 23 (40.4%) were overweight (Figure 2). The minimum BMI was 23.8 kg/m2 and a maximum of 45.3 kg/m2, and mean BMI of 30.7 kg/m2. There was a difference of 16.4 kg/m2 in BMI of

participants between the pre-and postoperatively. It is worth noting that the presence still morbid obesity in the post-operative period is related to the fact that super-obese individuals with a BMI above 55 kg/m2 to lose weight and reduce your BMI for obesity level to another lesser degree, this achievement is important, because the scope of this level is important when compared to the state of superobesity.



Figure 2. BMI classification in the pre- and post-operative patients undergoing bariatric surgery at a referral hospital in Fortaleza, CE. In 2012.

The average quiz score was 2.3 points, with a minimum of -0.5 and a maximum 3 points. Only eight (14%) participants had the highest score. With respect to the areas covered in the questionnaire, self-esteem and ability to

work were the areas that had the highest mean score, whereas physical activity and sexual interest had the lowest average (Figure 3).



Figure 3. Average score of the questionnaire domains of quality of life of patients undergoing bariatric surgery at a referral hospital in Fortaleza, Ceara, 2012.

The data obtained through the questionnaire for evaluating the quality of life BAROS showed that 45 (79%) of patients responded that their quality of life greatly

improved after surgery, nine (15.8%) feel that it has improved and only three (5.2%) had no change in quality of life (Figure 4).



Figure 4. Classification of the results of the questionnaire of quality of life of patients undergoing bariatric surgery at a referral hospital in Fortaleza, Ceara. 2012.

From the analysis of the results, it is clear that bariatric surgery is valid and provided a better quality of life for patients, especially in terms of self-esteem and job performance.

DISCUSSION

The surgical technique used in Brazil is Fobi-Capella, is considered the gold standard for surgical treatment and the most effective procedure for the management of morbid obesity.^{9,10} It is a mixed technique, because it

is based on two principles: the restrictive when a small gastric pouch is created with the aim of reducing the intake of too many calories at once, and malabsorptive in which there is a deviation of the small intestine (intestinal bypass), aiming at the reduction of calories absorbed.¹⁰

At the institution where the research was performed, the surgical technique used is Fobi-Capella, and laparoscopic or open up to the year 2010 and currently only

laparoscopically. This justifies the predominance of type open in our results.

The surgical although similar in the peritoneal cavity is smaller in laparoscopic procedure. Among the benefits of laparoscopy, it is noteworthy that the patient has less pain, ambulation and promoting easy handling, hospitalization is shorter, the recovery is faster with early return to physiological functions, social and work-and late complications such as adhesions hernias and are also less frequent in addition to being aesthetically better due to the size of the scar. Initial results when comparing the Y gastric bypass and laparoscopic Roux laparotomy appear to be favorable to the laparoscopic mainly on reducing cardiopulmonary complications and complications related to the surgical wound.¹¹

When analyzing the results of this study, we noticed the female predominance with a frequency of 84.2% in relation to the opposite sex. These results corroborate the findings of a study conducted in California which analyzed trends in mortality after bariatric surgeries performed in the period from 2002 to 2009, identified that a total of 105.287 patients from a period of eight years, 80, 4% were women.¹²

A study to assess the quality of life of patients undergoing biliopancreatic diversion with gastric preservation found that, of 30 patients, the majority were young women aged 20 to 40 years, this fact being related stigma in society that prioritizes women "skinny", which affects the physical look of all the women who go to value their own vanity.²

Thus, the predominance of women can demonstrate that the obesity epidemic is growing among females, which may be related to the fact they have the same double day (work and family), being exposed to greater stress load and more prone to obesity because they have a greater tendency to inadequate food intake and depression. Another justification is grounded in the social issue that involves the standards of beauty valued by society, by the difficulties of transportation, mobility and access to various environments, plus conducting various social activities, domestic and economic.¹⁴

The average age of the present study corroborates the results of other studies, being in the age range described in the literature, in national studies, averages between 37 and 38.4 years old.

It can be seen that most of the patients came from the state capital, which shows us that there is still a lack of access for people

living in the interior can perform surgery because there is a greater difficulty coming regularly to the city to attend the consultations, conduct examinations and participate in the support group for the morbidly obese in the preoperative period. A study in Minas Gerais found the need to train new multidisciplinary groups and expand local service demand of the state of Minas Gerais to facilitate access to surgery.¹⁶

It was observed that 59.8% of study participants were over 10 years of study. The high level of education of patients may contribute to the persistence and search for strategies to achieve therapeutic alternatives to maintain weight.¹⁷ In addition to contributing to a better understanding of the information provided during consultations and educational interventions.

Most patients were married (61.4%), a finding similar to another study in which 54.5% of the participants had the marriage bond. The fact that these people have a partner can give them some peace of mind and even lead to some accommodation. However, it is observed that people with a stable relationship feel a greater need and/or desire to decrease the size of the body. This may be due to the same experience a pressure your partner or other demands inherent in marriage that can not easily be met because of the excess weight.¹⁴

Identified a reduction in the practice of smoking and drinking, our results being in agreement with another study in the literature, which also found a reduction in the number of smokers and consumers of alcohol after the surgery.¹¹

Smoking cessation is recommended in the preoperative period in order to minimize the occurrence of surgical complications. Furthermore, it is known that smoking is associated with an increase in body mass, representing a concern in an attempt of smoking cessation.¹¹

With regard to alcoholic beverages, they can pose a risk of failure of weight loss, because they are calorie liquids and decrease the bioavailability of nutrients, promoting malnutrition. Another negative factor of alcoholism is that the patient may try to meet with the liquor he had the urge to eat earlier.

One study noted an increase of 28.6% of the physical activity post-operatively, similar to that found in the present study was 23.1%. Another study also received reports of increased willingness to carry out such activities, due to reduced body mass and improvement of comorbidities among patients

in their study. However, although we noticed a larger number of patients performing regular physical activity, 36.8% are still sedentary. This fact alerts us to the need to intervene with these patients advising them about the importance of physical activity to maintain weight loss.

Another study found that after bariatric surgery, physical activity is replaced importance to women in that it is valued not only by health-related benefits, but also for the maintenance of body weight.¹⁷

In our study, the mean BMI in the preoperative period was 47.1 kg/m², which is consistent with national and international recommendations for bariatric surgery.¹³ Gastric bypass can be assessed by changes in BMI, the improvement of co-morbidities, changes in quality of life and level of patient satisfaction with surgery. We can see a difference in BMI of 16.4 kg/m² participants between pre-and postoperatively, which indicates a satisfactory result in the improvement of obesity. A recent study also found a reduction significantly in BMI after bariatric surgery, with a tendency to stabilize weight from the sixth month after the procedure.¹¹

The quality of life questionnaire Moorehead-Ardelt II (QoL-II) is a standardized tool designed specifically to evaluate existing psychosocial outcomes after bariatric surgery and is applicable in patients before or later of bariatric surgery.²¹ In our study, it was applied only in the postoperative period with a positive result with respect to the quality of life of our patients in whom the majority had their quality of life improved or much improved after surgery.

The QoL-II consists of six domains related to self-esteem, the provision for physical activities, work performance, social interaction, the practice of sexual activity and dietary behavior. A study in Austria evaluated the quality of life of patients found that, when compared with the preoperative period, patients have bariatric weight reduction with improvement of co-morbidities, and feel better about the physical dimensions psychological and social quality of life.²²

This study also found that in Austria the biggest weight loss has significant influence on self-esteem, physical activity, social relationships, sexuality and eating pattern. Women with the highest score in QoL-II have greater satisfaction with weight loss, whereas men are more satisfied with the social, dietary patterns and quality of life.²¹ Another study in Natal-RN found that the perception of improvement and feelings of well-being were

reported in social, sexual and family, as well as satisfaction with the surgery, which is presented as a reinforcer to tack attitudes treatment of obesity.²³

In our study, self-esteem was one of the areas that got one of the highest scores. Such surgery is valid because it raises the self-esteem of the person making the same feel well.²⁴ This shows that individuals who underwent surgery are in a state of satisfaction with their current image, indicating a positive return.

It is known that morbid obesity has many difficulties to develop certain activities be they mundane or not. The physical activity is even more committed when people are obese, causing them to stop practicing and ultimately will harm health.²⁵ The quality of life in patients with morbid obesity is compromised due to damage to the psychosocial and physical dysfunctions such as pain in the joints and spine, that prevent activities from day to day.²⁶ Despite the improvement in quality of life after surgery, some patients still demonstrate some obstacles in physical activity as a lack of interest, time and motivation.

When a person has excess weight, he has great difficulty in attending social events.² After surgery, the progressive weight loss body generates a new identity, which intensifies some psychological processes, such as raising self-esteem, providing a significant improvement in their social and psychological spaces. This phenomenon was identified in our study in which patients scored better this domain, revealing a satisfaction in engaging in social gatherings and family, besides being more communicative.

The ability to work also had one of the best averages in scoring. In general, a person who has experience of working in a more positive self-esteem and feel more confident. For patients that work can be assumed that they had emotional condition to do so, despite the physical difficulties.¹⁵

Obesity interferes with the experience of sexuality and sexual function, as loss of libido causes significant damage to the health of obese. Also affects the frequency or the realization of sexual practice due to tiredness, lack of stamina, the difficulty of the obese individual mobility or feeling of low self-esteem and body shame.²⁸

The fear of non-acceptance of the other, due to your body, causes overweight create restrictions on affective and sexual relationships. The low self-esteem, generated by self-prejudice, is the main trigger of the

problems related to affection and intimacy in relationships.⁸

With respect to sexual interest, 45.6% of patients rated their interest with the maximum score. This shows that the improved self-esteem can also influence on the improvement of sexual life. When a person feels good about your body, if you think more beautiful and now has more security in the relationship, losing the shame of being exposed to the partner and letting it flow increasing your libido.²

A study to analyze the quality of sexual life of morbidly obese men undergoing gastropasty for Fobi-Capella found in Pernambuco improved erectile function, sexual satisfaction, orgasm, sexual desire and overall satisfaction among most participants.¹⁰ Such changes show the beneficial effect of reducing body weight afforded by surgery on sexual function.

A study conducted in São Paulo in order to know the effects of bariatric surgery in morbidly obese sexuality found that most participants of their study was improvement in the quality of sexual life in both the physical aspect and the emotional recovery with pleasure, desire and sexual fulfillment.²⁸

Eating behavior was the new variable to be evaluated in QoL-II and in our study, only 50.8% of the participants had the highest score in this regard. One goal of bariatric surgery is to promote weight loss and permanent satisfactory associated with a better quality food. Patients may have a suitable weight loss, but may present unhappy with the deal's impact on the quality and quantity of their food on a daily basis. With decreased stomach capacity, the individual can no longer endure the usual amount of food. With this, the stomach fills up quickly and the message of satiety is transmitted to the brain causing the person eat much less than before.⁸

Man seeks food not only for their visceral needs, but also to meet their desires to eat certain preparations, simply because they are nice, tasty, attractive aroma or because they are known as extremely appetizing. This is a predisposing factor to obesity because it does not adequately consider the nutritional aspects.²⁵

After surgery, the ingest food becomes a rational conduct, brushstroke on authentic emotions capable of being buoyed by desire and satiety.²⁴ The improvement in quality of life and satisfaction with the results achieved through the operation, may motivate patients

to adhere to healthy eating behavior in order to maintain a stable weight loss.³⁰

CONCLUSION

Therefore, we can conclude an effective benefit of patients undergoing bariatric surgery, since they had an improvement in quality of life as a result of weight loss and decrease in BMI. Most patients who underwent bariatric surgery were female and the average age of 41.

From the analysis of the questionnaire domains of quality of life, it was observed that patients do not feel very motivated to participate in physical activities, although there has been significant change in the number of patients who engage in physical activity. It is necessary that the multidisciplinary team, particularly nurses as educator, operates actively in the guidance on the importance of physical activity for weight maintenance and improvements obtained with bariatric surgery. For this, it is essential that nurses expand their participation in targeted patient care bariatric throughout his journey in search of a healthier life, and the assessment of QoL and guidance on the changes in lifestyle. Thus, the nurse will be promoting health and preventing return of overweight and comorbidities, favoring adherence to physical activity and healthy eating.

It is essential that the multidisciplinary team follow these patients during the postoperative period in order to analyze the improvement of quality of life, and strengthen guidance on changes in lifestyle such as healthy eating, physical activity in order to prevent weight regain after a few years of surgery.

It is worth mentioning that this study is relevant and current to the scientific community that seeks to update themselves about the impact of morbid obesity and bariatric surgery on the lives of these individuals as a way to provide new knowledge and facilitate the planning of interventions that provide an adequate quality of life with the choice of healthy lifestyle habits in your daily life. It is important to conduct further studies to contribute to the provision of data and the basis of the guidelines for this population.

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