

**Quality of life among morbid obese and patients submitted to bariatric surgery****Qualidade de vida entre obesos mórbidos e pacientes submetidos à cirurgia bariátrica**

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**ABSTRACT**

The objective was to assess Quality of Life (QoL) among obese waiting for bariatric surgery and post-surgery patients. A cross-sectional quantitative study conducted in a hospital reference in bariatric surgery in Fortaleza-CE. The sample was composed by 64 pre- and 92 post-surgery patients. Data was collected through the QoL questionnaire Moorehead-Ardelt II from the Bariatric Analysis and Reporting Outcome System (BAROS) protocol. Most individuals at pre-surgery stage classified their QoL as minimal – 57,8% (37), while the post-surgery group observed a significant change where 75% (69) of participants considered their QoL very good after the procedure ( $p < 0,001$ ). In both groups, the QoL aspects that presented worse evaluation were: physical activity, sexual interest and eating behavior. Bariatric surgery represents improvement in quality of life of individuals.

**Descriptors:** Obesity, Morbid; Bariatric Surgery; Quality of Life; Weight Loss; Perioperative Nursing.

**RESUMO**

Objetivou-se avaliar a Qualidade de Vida (QV) entre os obesos que aguardam a realização da cirurgia bariátrica e pacientes que estão no pós-cirúrgico. Estudo transversal com abordagem quantitativa realizado em um hospital referência em cirurgia bariátrica em Fortaleza-CE. A amostra foi de 64 pacientes do pré-operatório e 92 do pós-operatório. Dados coletados por meio do questionário de QV de Moorehead-Ardelt II do protocolo Bariatric Analysis and Reporting Outcome System (BAROS). A maioria dos indivíduos do período do pré-operatório classificou sua QV como mínima - 57,8% (37), enquanto que, no grupo do pós-operatório, observou-se uma mudança significativa em que 75% (69) dos participantes consideraram que sua QV estava muito boa após a cirurgia ( $p < 0,001$ ). Em ambos os grupos, os aspectos da QV que apresentaram pior avaliação foram: atividade física, interesse sexual e comportamento alimentar. A cirurgia bariátrica representa uma melhora na qualidade de vida dos indivíduos.

**Descritores:** Obesidade Mórbida; Cirurgia Bariátrica; Qualidade de Vida; Perda de Peso; Enfermagem Perioperatória.

## INTRODUCTION

On the last decades, a continuous increase of obese people or with weight excess is observed, turning obesity in one of the main health problems from contemporary world<sup>(1-3)</sup>. The Quality of Life (QoL) from these obese individuals is affected when compared to normal weight people and the increase in obesity rates is therefore, equivalent to a continuous increase in the group of people with less quality of life<sup>(1,4)</sup>.

An effective method to treat patients with severe obesity is the bariatric surgery, resulting in significant weight loss and improvement of comorbidities and quality of life<sup>(1,5-6)</sup>. The expectative to improve QoL represents one of the main reasons for patients that search for obesity control through bariatric surgery<sup>(1,4-5,7)</sup>.

Among morbidly obese, there is expectation that weight reduction and the disappearance or reduction of symptoms associated with obesity after bariatric surgery will possibly result in better quality of life, manifested as work performance, social relationships and in their daily routine, for example, to get dressed or to be seen by others<sup>(8)</sup>.

Results from bariatric surgeries do not exclusively depend on weight loss, but also on the resolution of comorbidities and improvement in quality of life<sup>(4,6-7)</sup>. Thus, assessment of quality of life related to health status is an important factor in the evaluation of impact caused by the disease on the wellbeing, in special those individuals who present other comorbidities. Therefore, for an effective evaluation of bariatric surgery results of the domains that involve quality of life, reliable instruments are needed, as this measure provides efficacy data from the surgical procedure in the daily life at the post-surgery period of those individuals<sup>(1,9-10)</sup>.

The importance of quality of life studies during therapeutic process of bariatric surgeries is confirmed by a number of studies assessing the effect of obesity on wellbeing and satisfaction with life in post-surgery patients<sup>(1-2,6)</sup>. Aiming to measure QoL, many instruments were developed on the past years and, for bariatric

surgery, the questionnaire of quality of life evaluation specific for this population stands out, which is included on the BAROS Protocol (Bariatric Analysis and Reporting Outcome System), created by Oria and Moorehead that assesses results from the surgical treatment<sup>(1)</sup>. It is a standard tool specifically projected to assess psychosocial results after bariatric surgery and it is applicable to patients before and after bariatric surgery<sup>(9)</sup>.

Although largely demonstrated that bariatric surgery offers to many patients, short and long term improvement in physical, psychological, social and sexual quality of life, it can have variations on post-surgery for each patient and for each one of those QoL dimensions<sup>(4-6)</sup>. Thus, after surgery, it is required to observe in long term the quality of life with intention to verify which aspects are showing improvement, and the nurse should establish strategies to allow wellbeing during post-surgery process.

The evaluation of large scale procedures that will propitiate permanent changes in the patients' life should be done periodically at the post-surgery, with the intention to verify patient's adaptation to the new lifestyle. The quality of life questionnaire Moorehead-Aldert II performs the evaluation effectively, as it allows identification of changes perceived by patients in their quality of life after surgery. It can be applied to patients of pre- and post-surgery to compare changes on quality of life due to the benefit of bariatric surgery.

The use of standardized instruments favors the planning of actions related to the patient's care with the implementation of interventions and the assessments of their results. Besides that, it is important for professionals to amplify their participation in the care directed to the bariatric patient during his course for the desired weight, being the quality of life assessment and the orientation of how to obtain a healthier lifestyle, one of the ways to provide care. Also, assessment of quality of life can propitiate knowledge of factors that should be targeted in nursing interventions aiming to improve quality of life

after surgery and to provide a more effective assistance for the patient.

Facing the exposed, this study had as objective to evaluate the quality of life among obese patients waiting for bariatric surgery and those that are on post-surgery.

## METHODS

Cross-sectional study conducted during November of 2011 to June of 2012 in a reference hospital for bariatric surgeries done by the Unified Health System (SUS) in the city of Fortaleza – Ceará. This institution performs bariatric surgery since 2002 with a monthly average of eight surgeries. The hospital also monitors patients through a multidisciplinary team before the surgery and up to five years after the procedure.

The targeted population was composed by patients of the Obesity Program from Ceará State, in accordance with data from the Epidemiology Center of the institution, it is estimated that in October of 2011, 300 pre-surgery patients were in the process of consultations with the multidisciplinary team and exams to become apt to go through the surgery and 563 patients that were experiencing post bariatric surgery period. Thus, the study sample was selected by temporality, being divided in two groups: patients from pre- and post-surgery periods.

The pre-surgery sample was composed by 64 patients on the waiting list to have bariatric surgery. Inclusion criteria for the pre-surgery group were: a) to be over 18 years old; b) to be on pre- bariatric surgery phase; c) to be on the multidisciplinary team monitoring and d) to have attended to the institution on data collection period. The exclusion criteria were: patients that had some cognitive limitation that could compromise their answers during data collection considering that it is a self-reported instrument.

The post-surgery sample was composed by 92 bariatric patients who were on late post-surgery period and came to the ambulatory in the referred period to go through the consultations with the multidisciplinary

team. The inclusion criteria were: a) to be over 18 years old; b) to be on the post-surgery period for at least three months. The exclusion criterion was patients with some cognitive limitation in a way to compromise participation during data collection.

For the post-surgery, the minimal time of three months was established due to the recommendation of the ordinance of Assistance of High Complexity to Patients with Severe Obesity and the Guidelines for Attention to Patients with Severe Obesity of the Brazilian Ministry of Health that indicates assessment of quality of life, using an instrument adapted from BAROS, and should be performed on the third post-surgery month. It also allows quality of life assessment during the pre-surgery moment to serve as parameter in the evolution of this aspect during post-surgery<sup>(11)</sup>.

The BAROS is a protocol that presents three main domains: assessment of weight loss (using the percentage of reduction in excess weight), clinical evaluation (through identification of improvement or resolution of comorbidities, as heart disease, blood pressure hypertension, Diabetes Mellitus, osteoporosis, infertility and sleep apnea) and assessment of quality of life (using the Moorehead-Ardelt II questionnaire). For each domain, a maximum of three points can be scored. Occurrence of complications and re-surgeries decrease the total score. The quality of life questionnaire is composed by six questions referring to self-esteem, readiness for physical activity, performance at work, social interaction, sexual activity and eating behavior<sup>(12)</sup>.

Data were collected directly with the client in an ambulatory consultation from an interview with the filling of a structured instrument containing sociodemographic information (gender, age, marital status, religion, occupation, family income and origin) and the Quality of Life questionnaire created by Moorehead-Ardelt, available at Ordinance nº 492 from August 31<sup>st</sup> of 2007 from the Brazilian Ministry of Health. The questionnaire is self-reported and contains six items that subjectively assess the patient's quality of life: 1) self-esteem, 2)

physical activity, 3) social relationships, 4) satisfaction at work, 5) pleasure related to sexuality and 6) eating behavior. All questions have the same weight and a Likert type scale ranging from 1 to 10 is used to mark the answers that vary from -0,5 to 0,5. Each question is worthy 0,5 points, adding a total of three points for each domain. After totalizing scores, quality of life is classified as very bad (-3 to -2,1), bad (-2 to -1,1), minimal (-1 to 1), good (1,1 to 2) and very good (2,1 to 3)<sup>(13)</sup>.

For data analysis, information were entered on Excel and exported to a statistical software SPSS, version 19, for treatment and generation of results. Data related to sociodemographic variables were treated as absolute and relative frequencies. To evaluate normality of means from scores between the pre- and post- groups, Kolmogorov-Smirnov and Shapiro-Wilk tests were used. To compare the improvement in quality of life with the scoring classification from the BAROS protocol of each patient on post-surgery, Mann-Whitney test was used. The level of significance adopted was 5% and the confidence interval was 95%.

The study followed the recommendations from the Resolution 466/2012 from the National Council of Health that regulates research with human beings in Brazil. The project was approved by the Ethics in Research Committee from the institution (CEP538/2011). Before starting the data collection, patients were informed again about the objectives of the research and data secrecy, being asked to sign the Free and Informed Consent.

## RESULTS

The profile of the studied group points out the predominance of females in both groups, the frequency of women was 87,5% (56) for the pre- and 82,6% (76) for the post-surgery ( $p=0,501$ ). Regarding age, there was also similarity of age groups, as the higher percentage was found between the ages of 29 to 38 years, being the frequency of 42,2% on pre- and 33,7% on post-surgery ( $p=0,109$ ). The mean age was  $35,47 \pm 9,51$  years on the pre-surgery and a variance ranging from 20 to 57 years.

For the post-surgery, the mean age was  $40,53 \pm 10,03$  years on the pre-surgery and a variance ranging from 22 to 70 years ( $p=0,003$ ).

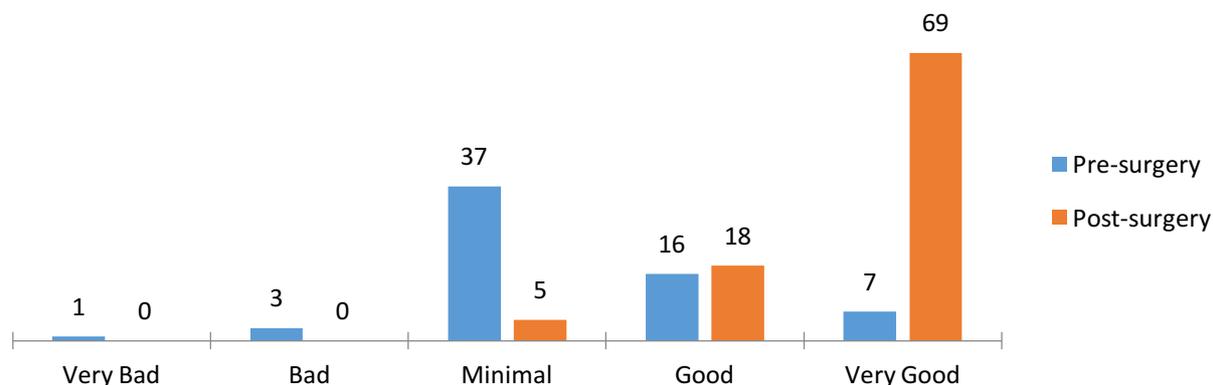
Regarding marital status, 50% (32) of individuals from pre-surgery were married. On the post-surgery group, marriage was present for 65,2% (60) of patients, also having similarities between groups in this sociodemographic characteristic ( $p=0,149$ ). Regarding education level, there was a predominance of completed high school in both groups, 46,9% (30) of pre-surgery patients and 53,3% (49) of post-surgery had it completed ( $p=0,368$ ).

When assessing occupation of people from both groups, it was observed 68,7% (44) of pre- and 75% (69) of post-surgery patients had a paid job. The distribution of monthly family income was similar in both groups considering that most of them presented family income between one and three minimum wage (R\$ 622,00 per salary), being the frequency of 51,6% (33) for pre- and 40,2% (37) for post-surgery ( $p=0,089$ ).

Regarding their origin, it was observed that a higher participation on the obesity program are from people living at the Metropolitan Region of Fortaleza, as 65,6% (42) patients from pre- and 75% (69) from post-surgery were from Fortaleza and its Metropolitan Region. Only 32,8% (21) and 21,7% (20) of patients from pre- and post-surgery, respectively, were from a rural area ( $p=0,266$ ).

Graphic 1 presents the classification of patients from groups pre- and post-surgery about their quality of life.

### Quality of Life



**Graphic 1:** Distribution of quality of life classification between pre- and post-surgery groups from patients of the Obesity Program from Ceará State (n=156). Fortaleza, CE, Brazil, 2012.

Data obtained by the Moorehead-Ardelt II Quality of Life Questionnaire demonstrated that 57,8% (37) of individuals from the pre-surgery classified their quality of life as minimal and only 10,9% (seven) considered it as very good and 25% (16) as good. In the post-surgery group, a significant change was observed on the result of this classification where 75% (69) of participants considered their quality of life very good after the

surgery, 19,6% (18) think their QoL is good and only five (5,4%) patients classified their QoL as minimal, not having any classification as bad or very bad for this group.

To identify quality of life changes between pre- and post-surgery groups presented on Table 1, we present below the correlation between quality of life domains and its statistical significance (Table 1).

**Table 1:** Mean (standard deviation) of scores for each quality of life domain between pre- and post-surgery groups of patients from the Obesity Program of Ceará State (n=156). Fortaleza, CE, Brazil, 2012.

Descriptive Statistics	Quality of Life mean scores (Standard Deviation)		p-value*
	Pre	Post	
Total Score	0,794 (1,13)	2,335 (0,65)	<0,001
Self-esteem	0,800 (0,28)	0,459 (0,09)	<0,001
Physical activity	-0,420 (0,35)	0,214 (0,27)	<0,001
Sociability	0,238 (0,33)	0,404 (0,18)	<0,001
Work performance	0,231 (0,28)	0,441 (0,14)	<0,001
Sexual interest	0,062 (0,37)	0,326 (0,27)	<0,001
Eating behavior	0,144 (0,32)	0,395 (0,14)	<0,001

\* Mann-Whitney test

In relation to the six domains addressed in the questionnaire, all presented comparisons statistically significant between the two groups with  $p < 0,001$  for all domains. During the pre-surgery phase, domains with the lowest mean were: physical activity, sexual interest and

eating behavior. An improvement was seen in the assessment of quality of life for those domains among post-surgery patients. However, those domains were still presented with QoL aspects with the lowest means (Table 1).

Although physical activity domain had one of the lowest scores in both groups, it was noted that this aspect was the one with higher variation considering the mean score varying from -0,420 to 0,214 when the pre- and post-surgery groups are compared (Table 1).

## DISCUSSION

Bariatric surgery improves quality of life and perception of health status, and those changes are observed during the first post-surgery year, and it can last up to 10 years<sup>(14-15)</sup>. It is associated with the reduction of depression and aggressiveness, better self-concept, self-esteem, feelings, satisfaction and ability to perform activities. It also promotes improvements in comfort, mobility, social interaction, sexual function and productivity<sup>(13,15-16)</sup>.

In this study, there was a significant improvement in quality of life of people submitted to bariatric surgery. Another study assessed QoL in patients before and after bariatric surgery in a Brazilian public health system, and found 82,2% of patients considering their quality of life as good or very good, while in the pre-surgery, only 40% considered their QoL the same way<sup>(10)</sup>.

Besides health problems associated to obesity, losses on psychological, emotional or social aspects are also observed, reflecting on quality of life deficit, as intolerance to physical exercise, difficulty on mobility, joints pain, lack of self-acceptance, increase on stress level, decrease in self-esteem and humor, and depression<sup>(1)</sup>. Obese individuals frequently mention lower QoL in aspects as self-esteem, loving relationships, work life and socialization<sup>(17)</sup>.

Factors that are particularly important for QoL can provide information about what motivate obese patients to search for a bariatric surgery as treatment. Also allows to identify the goals' results of QoL that are more relevant to assess global efficacy of interventions for weight loss, from the perspective of patients<sup>(17)</sup>.

The worse domains related to QoL are represented by physical activity, sexual relationship and eating behavior.

In a study conducted with 570 obese individuals searching for bariatric surgery, domains associated with low QoL due to obesity were: physical activity, sociability, self-esteem and sexual activity<sup>(17)</sup>.

In the present study, self-esteem was the domain that had the highest score among both groups, although we observed a negative difference in the mean score when comparing patients from pre- and post-surgery periods. Self-esteem and self-image are part of self-knowledge. When self-esteem is balanced, it is possible to have a better analysis of your own body, reflecting in higher vitality, vanity and happiness<sup>(18)</sup>.

Obese individuals presented low self-esteem due to difficulties to lose weight, unhappiness with their self-image and appearance, presenting avoidance behaviors as social isolation. Dissatisfaction with body image is strongly correlated with depression symptoms, that is particularly true in women, probably due to the social emphasis about feminine physique<sup>(15,19)</sup>.

In relation to the physical activity domain, an increase in scores was observed between pre- and post-surgery groups, a fact that can be related to the bariatric surgery contribution to abandon sedentary behavior and to start some physical activity. However, besides the improvement in quality of life post-surgery, some patients still demonstrate few obstacles to be physically active, as the lack of interest, time and motivation.

There is a positive association between physical activity and weight loss during post-surgery period. Patients who lose more weight can feel physically better and this can lead them to exercise more<sup>(20)</sup>. Exercise benefits include increase in energy expenditure and lean body weight, increase in self-esteem, humor, decrease depression and increase quality of life, fat loss and decrease the risk of complications related to obesity<sup>(20-21)</sup>.

It is hard, many times, to be physically active for patients with morbid obesity due to the presence of comorbidities, as osteoarthritis and asthma, and the lack of physical fitness<sup>(20)</sup>. Obesity turns ambulation difficult, because when trying to minimize the weight impact on

the knee joints and pain occurrences, the individual tends to walk slower, fact that demotivate to be physically active<sup>(3)</sup>.

Fast physical changes after surgery tend to increase QoL and to motivate the individual to compromise with their new lifestyle to keep the surgical treatment success in long term. On the first three months after surgery, improvements in walking, in walking speed, fitness, joint and low back pains, contribution to a better self-perception of QoL. Those changes can still facilitate participation in regular physical activity, allowing increased weight loss<sup>(3)</sup>.

After surgery, it is possible to note a better insertion of the individual in social activities considering that post-surgery patients scored higher on sociability domain, revealing satisfaction while involved in social and family meetings, besides being more communicative. Therefore, bariatric surgery represents a revival and transformation for the better<sup>(14-15)</sup>.

Social isolation associated with obesity is one of the more important factors contributing to quality of life deficit<sup>(19)</sup>. Improvement in socialization is directly associated to improvement in QoL and the changes related to weight loss as to be able to sit at a pub (without worrying about the chair), go to the cinema, travel by airplanes, take a bus, get into a pool, go to the beach, to recover the right of coming and going, to not need help to stand up from a couch or even for their self-hygiene, to assume responsibilities from which they were spared of due to lacking physical conditions and limitations imposed by obesity<sup>(22-23)</sup>.

The ability to work also had a significant change when comparing people who have not gone through bariatric surgery with those who had. In contrary of many chronic health conditions, obesity harms quality of life not only because it predispose occurrence of other diseases, but also because in many cultures it is socially undesirable and stigmatizing. Obese people are target for prejudice in many environments as school, work and healthcare services<sup>(17)</sup>.

Regarding sexual interest, patients at post-surgery period presented a higher mean score on this domain. It demonstrates that improvement in self-esteem can also influence better sexual life. After surgery, significant improvements happen on sexual function, arousing, lubrication, desire and satisfaction, also improving self-image and satisfaction in loving relationships<sup>(2)</sup>.

Sexuality receive positive scoring in most investigations after bariatric surgery, but in cases where there is excessive skin and lack of financial conditions for esthetics surgeries, it causes retraction of the person and even more feelings of failure. Skin excess can cause discomfort, especially during sexual encounters, favoring situations of self-image embarrassment, representing a constant remainder of the impossibility to be fully liberated of the big obese body<sup>(14)</sup>.

Eating behavior assesses how the patient takes advantage of food. One of the goals of the bariatric surgery is to promote satisfactory and permanent weight loss associated to better eating quality. Usually, patients who have not gone through bariatric surgery keep inadequate eating habits; those individuals do not choose nutritional food and do not savor the food when eating them in a hurry. The change in eating habits can be observed in these study groups where there was an improvement in the mean score on the domain eating behavior.

Bariatric surgery is an invasive procedure that affects eating behavior, and the health professional should investigate the potential risk factors for a failure in long term weight loss<sup>(24)</sup>. After surgery, patients go through a learning process of new habits that are incorporated. They start to change their behavior in relation to food, learning to adequate the type and quantity of food that the new stomach tolerates and to tolerate satisfaction signs of the body<sup>(15,23)</sup>.

During post-surgery, it is necessary to assess individual motivations for the consumption of indicated food, preferences, food tolerance, adherence to diet and chewing. The importance of an adequate ingestion of

proteins after surgery should be emphasized, considering the micronutrients deficiencies and post-surgery alterations of body composition with the weight loss<sup>(7,25)</sup>.

With the intention to prevent undesirable gastrointestinal symptoms (nauseas, vomits, or dumping syndrome), post-surgery complications (nutritional deficits and weight recovery), patients are oriented to change nutritional diet and eating behaviors, including the consumption of small portions on established schedule and adequate chewing<sup>(23-24)</sup>. They should be taught about the importance of adequate protein quantity ingestion to avoid disproportional lean mass loss and to avoid ingestion of sweets and hyper caloric food to avoid dumping syndrome. Besides that, they should be alerted of the weight regain possibility, in case they do not follow correctively the orientations or do not change their eating habits<sup>(7,25)</sup>.

Considering the above, we highlight that the Moorehead-Ardelt II Quality of Life questionnaire is a useful instrument and easy to apply that is presented as an important tool for the practice of professionals who work this patients submitted to the surgery and it allows the assessment of different domains influencing the quality of life, as self-esteem, physical activity, sociability, work performance, sexual interest and eating behavior. All those domains had a significant increase in scores when we compared individuals who were on the waiting list for a bariatric surgery to those who were already submitted to the surgical procedure.

## CONCLUSION

From the results obtained in this study, we conclude that bariatric surgery favors the increase in perception of

individuals about their wellbeing state and increase their quality of life. The changes observed in quality of life referred to increase in self-esteem in direct relation in improvement of vanity and self-perception; to the practice of physical activity, that contributes for weight loss; to better performance at work; to a more active social life due to the wellbeing experienced by patients; to the increase in sexual interest with contribution to improvements in personal relationships and to a healthier eating behavior.

The worse domains assessed were similar between patients from pre- and post-surgery periods, being: physical activity, sexual interest and eating behavior. This finding serves as an alert for health professionals that act in primary care as well as other levels of health attention to identify factors causing this deficit and to stablish interventions aiming to a better quality of life in those domains.

As study limitation, we highlight the fact of patients from both groups being different, although, it does not compromise the inference of the presented results, as the sociodemographic profile was similar between them, allowing to infer observed changes in the quality of life assessment between these two groups is related to the benefits propitiated by the bariatric surgery.

The conduction of other studies is recommended, especially those aimed to follow the evolution of the quality of life assessment between the pre- and post-surgery periods for at least one year after the surgery applying the questionnaire in a series of intervals, which could propitiate a more reliable analysis of the bariatric surgery results and the impact of it in the patient's quality of life.

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