

 Rayane Rebelo Barbosa da Silva <sup>1</sup>

 Jorginete de Jesus Damião Trevisani <sup>2</sup>

 Carlos Gabriel Avelar de Bustamante Sá <sup>3</sup>

<sup>1</sup> Universidade do Estado do Rio de Janeiro, Instituto de Nutrição. Rio de Janeiro, RJ, Brasil.

<sup>2</sup> Universidade do Estado do Rio de Janeiro, Instituto de Nutrição, Departamento de Nutrição Social, Núcleo de Alimentação e Nutrição em Políticas Públicas. Rio de Janeiro, RJ, Brasil.

<sup>3</sup> Fundação Oswaldo Cruz. Escola Nacional de Saúde Pública Sergio Arouca. Rio de Janeiro, RJ, Brasil.

#### Correspondence

Jorginete de Jesus Damião  
jjdamiao@yahoo.com.br

## Quality of life assessment in users of the Reference Center for Obesity (RCO), Rio de Janeiro, Brasil

### *Avaliação da qualidade de vida em usuários do Centro de Referência em Obesidade (CRO), Rio de Janeiro*

#### Abstract

Obesity is a serious public health problem that has grown in recent years and is associated with increased comorbidities and decreased quality of life. This study aims to evaluate the perception about the quality of life of users of the Reference Center for Obesity of Acari, in the municipality of Rio de Janeiro, at two different times: before and during the treatment. The follow-up protocol of the users of the Reference Center for Obesity includes a quality of life assessment using the SF-36 questionnaire. A total of 58 medical records were selected for male and female patients with morbid obesity who started using the service from August 2012 to December 2016 and who had completed two SF-36 questionnaires. The mean and standard deviation for the continuous variables and the frequencies of categorical variables were described. To compare the evolution of the quality of life scores, the paired T-test and the Wilcoxon test were used for the variables with parametric distribution and the variables with non-parametric distribution, respectively. The Statistical Package for Social Science (SPSS), version 19, was used for data analysis. The results were analyzed statistically and compared between the first and second questionnaire. The eight domains had a higher score in the second application of the SF-36 (role-physical, physical functioning, general health perception, bodily pain, vitality, social functioning, role-emotional and mental health) ( $p < 0.05$ ). The study showed the importance of multidisciplinary health care and its positive impact on the quality of life of individuals with obesity.

**Keywords:** Obesity. Quality of life. Health Care (Public Health).

#### Resumo

A obesidade é um grave e crescente problema de saúde pública, e está associada ao aumento de comorbidades e diminuição da qualidade de vida. Este trabalho tem como objetivo avaliar a percepção sobre a qualidade de vida de usuários do Centro de Referência em Obesidade (CRO) da unidade de Acari, Rio de Janeiro, em dois momentos: antes e durante o tratamento para obesidade grave. O protocolo de acompanhamento dos usuários do CRO inclui a avaliação da qualidade de vida, usando o questionário SF-36. Foram selecionados 58 prontuários de usuários com obesidade grau III, de ambos os sexos, que entraram no serviço entre agosto de 2012 e dezembro de 2016, e que possuíam dois questionários SF-36 preenchidos. Descreveram-se a média e o desvio padrão para as variáveis contínuas, e as frequências de variáveis categóricas. Para comparar a evolução dos escores de qualidade de vida, para as variáveis com distribuição paramétrica foi realizado o teste T pareado, e para as variáveis com distribuição não paramétrica, o teste de Wilcoxon. Utilizou-se para a análise dos dados o programa Statistical Package for the Social

Science (SPSS), versão 19. Os resultados dos dois questionários foram analisados e comparados. Os oito domínios (aspectos físicos, capacidade funcional, estado geral de saúde, dor, vitalidade, aspectos sociais, aspectos emocionais e saúde mental) apresentaram escores maiores na segunda aplicação do SF-36 ( $p < 0,05$ ), ou seja, houve melhoria da percepção da qualidade de vida em todos os domínios avaliados pelo instrumento, o que parece apontar o impacto positivo do modelo de cuidado multidisciplinar experimentado pelo serviço.

**Palavras-chave:** Obesidade. Qualidade de vida. Atenção à saúde.

## INTRODUCTION

Obesity is considered as a serious public health problem by the World Health Organization because of fast evolution and worldwide reach of the disease.<sup>1</sup> According to data from the Surveillance System of Risk and Protective Factors for Chronic Diseases by Telephone Survey (VIGITEL), the number of obese people in Brazil has grown from 11.8% to 19.8%, and its frequency is similar between males and females. In 2006, 12.1% of women and 11.4% of men were obese; in 2018 this rate rose to 20.7% and 18.7%, respectively.<sup>2</sup>

This condition is related to biological, sociocultural, economic, environmental and metabolic complications, such as increased levels of cholesterol and triglycerides, insulin resistance, high blood pressure, and other complications, e.g. mental health related illnesses, hypothyroidism, and some types of cancer, in addition to people's decreased quality of life,<sup>3-7</sup> especially people who have a body mass index (BMI) equal to or greater than 40 kg/m<sup>2</sup>, classified as obesity grade III.

The multifactorial nature of obesity, the factors that affect an obese person's quality of life, as well as psychosocial factors inherent with such person's context of life, point to the need for interdisciplinary provision of health care with a comprehensive approach.

The performance of an interdisciplinary team is important in health care and for the quality of life of obese people, as it allows the exchange of knowledge, thereby making the treatment more effective.<sup>3</sup> In this sense, health care for obese people should be focused not only on weight loss, but also on improvements in sleep, intestinal and emotional functions, self-esteem, clinical conditions and quality of life.<sup>3,8,9</sup>

In this context, the Reference Center for Obesity (RCO) was implemented by the Municipal Health Department of Rio de Janeiro. It is a service specialized in health care to users with severe obesity (BMI ≥ 40 kg / m<sup>2</sup>), and it is connected to Brazil's primary health care network. The service has multidisciplinary staff (nurse, psychologist, nutritionist, physical educator and endocrinologist) and offers outpatient clinical treatment aimed at weight loss, improvement of comorbidities and promotion of quality of life. Individual appointments, consultation-liaisons and collective activities are carried out, based on the shared construction of the therapeutic project.<sup>10</sup>

## Measuring quality of life

The concept of quality of life is very broad, and there are several definitions and approaches in the literature.<sup>11-14</sup> The World Health Organization defines quality of life as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns".<sup>15</sup>

It can be said that issues concerning quality of life are related to the standard that people at large define and endeavor to achieve, either consciously or unconsciously. It is also related to the set of public and social policies that involve human development and changes in living conditions and lifestyle (which are part of the formulations and responsibilities of the health sector).<sup>13</sup>

Although quality of life is a broad concept, different instruments or questionnaires have been used in an attempt to quantify how affected it is by diseases.<sup>16</sup> The *Medical Outcomes Study 36-Item Short Form* (SF-36) is a questionnaire that has been used alone or together with other instruments in studies with obese patients, although it has not been particularly designed for such group. In the literature, uses of SF-36 have been reported; for example, to assess the quality of life of people with different degrees of obesity,<sup>17</sup>

comparisons of perceived quality of life by patients before and after surgical treatment<sup>18-20</sup> and comparisons between people with or without obesity.<sup>21,22</sup>

In view of the multifactorial context of obesity and the need to address patients' quality of life in health care strategies for the treatment of obesity, the aim of the present study is to evaluate how users of the Reference Center for Obesity at the Acari unit, Rio de Janeiro, perceive their quality of life at two different times: before and during treatment.

## METHOD

The study was conducted with users of the Reference Center for Obesity in Acari, in the city of Rio de Janeiro, using restricted-use secondary data. Data collection used all medical records of both male and female patients, who used the service from August 2012 to December 2016, and who had completed two SF-36 questionnaires: the first one, applied at the beginning of the treatment, and the second one after three to six months after starting the treatment.

The SF-36 questionnaire (*Medical Outcomes Study 36-Item Short Form*) was developed by Ware & Gandek<sup>23</sup> and validated in Brazil by Ciconelli.<sup>24</sup> This instrument, which is not very long and easy to administer, can be used to study different health or disease conditions; it evaluates both positive and negative aspects.<sup>24,25</sup>

The protocol for monitoring RCO users includes assessing quality of life, using the SF-36 questionnaire. This consists of 36 items, divided into eight components, namely: physical functioning (10 items), role-physical (4 items), bodily pain (2 items), general health perception (5 items), vitality (4 items), social functioning (2 items), role-emotional (3 items), mental health (5 items) and a one-item measure of self-evaluated change in health status (health transition) over the previous year.<sup>23</sup> For evaluation of results after application, each question is assigned a score; the scores are subsequently transformed into a 0-100 scale, where zero corresponds to a worse health status, while 100, to a better one. Only the item that deals with the comparison of health status over the previous year does not have a score for quality of life. There is no single value that sums up the entire assessment; each dimension is analyzed separately.<sup>24</sup>

The SF-36 is applied when the user contacts the service for the first time, through an individual appointment with the nurse or in collective health care. The questionnaire is self-completed by the user, with the help of a health worker who can clarify the patient's doubts. Three to six months after the start of the follow-up at the RCO, the questionnaire is reapplied and filed in the patient's medical record.

Data collection was based on the selection of medical records of users that received health care from August 2012 to December 2016. The data from the SF-36 questionnaires were entered into a Microsoft Excel 2010 spreadsheet, designed for coding the answers and calculating the score proposed by the questionnaire, according to Ciconelli.<sup>24</sup>

The collected data were focused on individual characteristics (age and race/skin color), socioeconomic status (education and income), morbidity (diabetes *mellitus*, high blood pressure, dyslipidemia, hypothyroidism and depression) and anthropometric assessment (body mass, height and BMI). The respective data were collected from the users' registration form, which was part of their medical record. All information contained in the registration form was self-reported by patients and written down in their medical record at the time of the first nursing appointment, except for the anthropometric assessment, which was performed by the staff at RCO.

The analysis also included the scores for each component of the questionnaire and the item comparing health perceptions at present and in the previous year - obtained at time 1 (at the beginning of the treatment) and at time 2 (three to six months after the start of the treatment) of the application. The mean and standard deviation for the continuous variables and the frequencies of the categorical variables were described.

To compare the evolution of the quality of life scores, for the variables with parametric distribution, the paired T-test was performed; and for the variables with non-parametric distribution, the Wilcoxon test was used. The Statistical Package for the Social Science (SPSS), version 19, was used for data analysis.

This study was approved by the Research Ethics Committee of the State University of Rio de Janeiro, under protocol number 2.475.275.

## RESULTS

A total of 436 medical records were analyzed. In 94 (21.5%) of them, the questionnaire had not been completed; 196 (44.9%) had a completed questionnaire; 72 (16.5%) had two questionnaires filled out in a longer or shorter interval than required by the study; in 16 (3.6%) of them, one of the questionnaires was undated or incomplete. Only 58 (13.3%) medical records met the inclusion criteria established by the present study.

Among these 58 medical records, most of them were answered by female users (84.5%), aged between 18 and 67 years (mean = 44.25); 65.5% were black or brown and 51.7% were married. The predominant level of education was complete high school (46.6%); 48.3% reported having a paid job and the majority (70.7%) reported having a family income of up to two minimum wages (table 1).

**Table 1.** Sociodemographic characteristics of patients followed up by the Reference Center for Obesity. Rio de Janeiro-RJ, 2012-2016.

| Variables                    | Frequency | Percentage rate |
|------------------------------|-----------|-----------------|
| <i>Sex</i>                   |           |                 |
| Females                      | 49        | 84.5            |
| Males                        | 9         | 15.5            |
| <i>Marital Status</i>        |           |                 |
| Single                       | 19        | 32.8            |
| Married                      | 30        | 51.7            |
| Divorced                     | 3         | 5.2             |
| Widow(er)                    | 6         | 10.3            |
| <i>Race/Skin color</i>       |           |                 |
| Black                        | 21        | 36.2            |
| Brown                        | 17        | 29.3            |
| White                        | 18        | 31.0            |
| Not informed                 | 2         | 3.4             |
| <i>Level of education</i>    |           |                 |
| Incomplete Elementary School | 20        | 34.5            |
| Complete Elementary School   | 9         | 15.5            |
| Complete High School         | 27        | 46.6            |
| College Degree               | 1         | 1.7             |
| Not informed                 | 1         | 1.7             |
| <i>Paid work</i>             |           |                 |
| Yes                          | 28        | 48.3            |
| None                         | 30        | 51.7            |

**Table 1.** Sociodemographic characteristics of patients followed up by the Reference Center for Obesity. Rio de Janeiro-RJ, 2012-2016. (continues)

| Variables                    | Frequency | Percentage rate |
|------------------------------|-----------|-----------------|
| <i>Family Income</i>         |           |                 |
| Up to 1 minimum wage         | 18        | 31.0            |
| 1 to 2 minimum wages         | 23        | 39.7            |
| 2 to 4 minimum wages         | 12        | 20.7            |
| 4 to 6 minimum wages         | 1         | 1.7             |
| Does not know/Did not inform | 4         | 6.9             |

Regarding the medical records that were not included in this study, the majority of respondents were also females (77.2%), with an average age of 44 years, and 39.4% had finished high school. In terms of clinical conditions, according to the medical records, of patients reported being hypertensive (93.1%), diabetic (63.8%), and dyslipidemic (34.5%), while 3.4% reported having hypothyroidism and depression (table 2).

**Table 2.** Clinical characteristics reported by patients when they start follow-up at the Reference Center for Obesity and frequency and percentage of BMI at both application times of SF-36. Rio de Janeiro-RJ, 2012-2016.

| Nutritional status / pathology          | Frequency | Percentage rate |
|---|-----------|-----------------|
| BMI 1 <sup>a</sup> (kg/m <sup>2</sup> ) |           |                 |
| 40 ┐ 50                                 | 32        | 55.2            |
| 50 ┐ 60                                 | 20        | 34.5            |
| 60 ┐ 70                                 | 5         | 8.4             |
| > 70                                    | 1         | 1.7             |
| BMI 2 <sup>b</sup> (kg/m <sup>2</sup> ) |           |                 |
| < 40                                    | 5         | 8.6             |
| 40 ┐ 50                                 | 29        | 50.0            |
| 50 ┐ 60                                 | 20        | 34.5            |
| 60 ┐ 70                                 | 4         | 6.9             |
| > 70                                    | 0         | 0               |
| High Blood Pressure                     | 54        | 93.1            |
| Diabetes Mellitus                       | 37        | 63.8            |
| Dyslipidemia                            | 20        | 34.5            |
| Hypothyroidism                          | 2         | 3.4             |
| Depression                              | 2         | 3.4             |

<sup>a</sup> BMI 1 = Body mass index of patients in the first application of the SF-36 questionnaire.

<sup>b</sup> BMI 2 = Body mass index of patients in the second application of the SF-36 questionnaire

The anthropometric data showed that the BMI of 55.2% of the individuals ranged between 40 and 50 kg/m<sup>2</sup> in the first application of the SF-36 questionnaire. At the time of the second assessment, there was a change in the BMI categories. Thus, the BMI of five patients (8.6%) was less than 40 kg/m<sup>2</sup> and, therefore, they shifted from class III obesity to class II obesity. Mean BMI ranged from 50.66 kg/m<sup>2</sup> (SD 7.56; Min 40.13; max. 80.61) to 49.11 kg/m<sup>2</sup> (SD 6.83; min 36.54; max. 67.91); this difference was statistically significant ( $p < 0.001$ ).

The data in Table 3 show the means and standard deviation of the SF-36 questionnaire domains, at both times of application. At first, the domains role-emotional (31.60), role-physical (36.20), bodily pain (40.97) and vitality (41.89) had the lowest scores. Social functioning (53.01) and general health perception (46.37) had the best results, followed by physical functioning (43.79) and mental health (42.75).

In the second application of SF-36, the domains with the lowest score were: vitality (47.75), role-physical (50.86), bodily pain (54.02) and mental health (51.86). Social functioning (65.73), general health perception (57.58) and physical functioning (57.15) remained with the highest scores, followed by role-emotional (55.74), unlike the first evaluation time. The results show a statistically significant difference between the two times of the evaluation in all domains of the SF-36, with higher scores in the second moment of the application of the questionnaire. The item about the comparison of health perception over the previous year also showed a significantly improved score, increasing from 40.51 (28.41) to 65.06 (27.68) (M  $\pm$  SD).

**Table 3.** Perception of users of the Reference Center for Obesity about quality of life, according to the components evaluated using the SF-36 questionnaire, at two times of clinical follow-up (values described in M  $\pm$  SD). Rio de Janeiro, 2012-2016.

| Domains                   | 1 <sup>st</sup> SF-36 |       | 2 <sup>nd</sup> SF-36 |       | p      |
|---------------------------|-----------------------|-------|-----------------------|-------|--------|
|                           | M                     | SD    | M                     | SD    |        |
| Physical functioning      | 43.79                 | 25.44 | 57.15                 | 26.58 | 0.000* |
| Role-physical             | 36.20                 | 38.09 | 50.86                 | 40.54 | 0.011* |
| Bodily pain               | 40.97                 | 22.56 | 54.02                 | 21.47 | 0.001* |
| General health perception | 46.37                 | 20.51 | 57.58                 | 17.52 | 0.000* |
| Vitality                  | 41.89                 | 20.68 | 47.75                 | 16.86 | 0.002* |
| Social functioning        | 53.01                 | 28.32 | 65.73                 | 27.16 | 0.004* |
| Role-emotional            | 31.60                 | 38.70 | 55.74                 | 44.32 | 0.003* |
| Mental health             | 42.75                 | 17.73 | 51.86                 | 15.17 | 0.007* |

## DISCUSSION

Most of the study group was composed of women, similarly to the sample in other studies.<sup>20,26</sup> According to Brillmann et al.,<sup>17</sup> males and females behave differently as to their concern with weight and the search for treatments. Females seek and use health services more often than males, especially because of reproductive issues.<sup>27</sup>

With regard to nutritional diagnosis, the users treated by the health service had severe obesity, according to the service protocol established by the RCO. In the present study, a significant change was found in the BMI of patients undergoing clinical treatment for obesity. Such findings possibly indicate the positive impact of multidisciplinary care on severe obesity in a short period of time. This is a positive result, even though weight loss maintenance is clearly the biggest challenge in the treatment of obesity in the medium and long terms.

Regarding comorbidities, the prevalence of hypertensive, diabetic and dyslipidemic patients was greater than that of previous research.<sup>28,29</sup> One can try to explain this higher prevalence of morbidity in comparison to other studies on the basis of the severity of obesity found in the present sample; all subjects had obesity class III, the highest stage of the disease and, thus, a greater possibility of associated comorbidities. In addition, the users of the RCO are referred by the municipal primary care network, and a large part of adults

and the elderly being followed up at this level of care are hypertensive and diabetic, since the control of these two morbidities is among the priority actions of primary care.<sup>30</sup>

Costa & Liberali,<sup>31</sup> after comparing the quality of life of obese and eutrophic women, found that there was no significant association between obesity and general health perception, social functioning and mental health. On the other hand, they found a significant relationship between obesity and role-physical, bodily pain, vitality, physical functioning and role-emotional. A similar result was found by Brilmann et al.<sup>17</sup> for the domains "physical functioning", "role-physical" and "bodily pain".

Other studies have also found worse results in the domains "physical functioning", "role-physical" and "bodily pain", when assessing the quality of life of patients who are candidates for bariatric surgery.<sup>20,32-34</sup> It should be noted that RCO patients have a clinical profile for bariatric surgery, although this is not the objective of the service.

In addition to the influence of obesity on quality of life, there is a difference between males and females in terms of the impact of obesity on quality of life. According to Torres et al.,<sup>35</sup> obese women have lower quality of life when compared to men. Their study found higher percentages of low quality of life for the physical and mental components in females, with greater associations in the physical component. According to the authors, the influence of sex may be due to biological, genetic, social and emotional characteristics inherent in females.

The present study showed an improvement in the self-perception of quality of life in users who were undergoing treatment at the RCO, since all components of the SF-36 showed a significant difference after the start of the treatment. In other words, such improvement was not limited to anthropometric issues (BMI); the users reported better development in their daily activities and in emotional and social issues. One factor that may have contributed to this result is the fact that health care is offered by a multiprofessional team, and social support is reinforced through meetings in educational groups with health workers and service users.

The item that evaluates perceived health transition over the previous year also showed a significant improvement between the two applications. Although this item has not been addressed in previous studies, as it does not score any of the eight dimensions of the SF-36, an analysis of it can offer further insights into a person's disease.<sup>24</sup>

In a study by Vasconcelos & Costa Neto<sup>20</sup> on the perception of quality of life of male and female adult patients with class II and III obesity and awaiting bariatric surgery in a public hospital, there was greater preservation of social satisfaction and mental health, but worse results for the physical components (physical functioning, role-physical, and bodily pain). The authors claim that the loss of some dimensions of quality of life can be compensated for by satisfaction in other dimensions, through personality characteristics and monitored expansion of the social support network.

In the literature, quality of life assessment has been widely used in individuals undergoing bariatric surgery. Some studies have addressed the assessment and comparison of quality of life, along with weight variance and psychological aspects in individuals before and after surgical intervention. In general, the surgical treatment of obesity has also shown a positive effect on quality of life.<sup>19,33,36</sup>

Although the SF-36 questionnaire is not specific for obesity, different studies have used it for this group, either alone or with other types of questionnaires. In the study by Araújo et al.,<sup>37</sup> the domains "physical functioning", "general health perception", "bodily pain", "vitality", "social functioning" and "mental health" of the SF-36 had a significant correlation with the "physical function" domain of the Impact of Weight on Quality of Life - Lite (IWQOL-Lite), a specific questionnaire for obesity.



The present study presented a limitation: it was based on data contained in the medical records, but although the application of the SF-36 questionnaire to all patients had been recommended by the health service, only 13.3% of the medical records had two complete questionnaires, with a three to six-month interval between them. Such condition was required for a comparison.

However, the findings of the present study showed that quality of life assessment is useful to support the health care provided to people with severe obesity, as the goal of treatment cannot be restricted to weight loss.

## CONCLUSION

The present study showed an improvement in the self-perception of quality of life in users who were undergoing treatment at the RCO, in the eight domains (role-physical, physical functioning, general health perception, bodily pain, vitality, social functioning, role-emotional and mental health) evaluated by the SF-36 questionnaire. These findings probably point to the success of the health care model experienced by the study service, which involved an interdisciplinary therapeutic plan for the treatment of obesity.

Coping with obesity will only be possible with effective, well-planned and continuing intersectoral initiatives. However, the health sector has a clear role, which involves both prevention and control of this epidemic and provision of health care to the huge amount of people already affected. This health care must be organized, and obesity must be understood as a chronic disease, which means that the main focus of treatment should not be the cure, but rather the control and monitoring of the problems associated with obesity and the improvement of the quality of life of obese people. Therefore, the service needs to use instruments capable of evaluating improvements in the quality of life and other subjective aspects of obese patients.

## ACKNOWLEDGMENTS

We are thankful to Milena Miranda de Moraes for her contribution to statistical analysis.

## REFERENCES

1. World Health Organization/WHO. Obesity and overweight. Geneva: World Health Organization; 2018 [acesso em 21 out 2019]. Disponível em: <http://www.who.int/mediacentre/factsheets/fs311/en/>.
2. Brasil. Ministério da Saúde. Vigitel Brasil 2018: vigilância de fatores de risco e proteção para doenças crônicas por inquérito telefônico. Brasília: Ministério da Saúde, 2019. 132 p. [acesso em 21 out 2019]. Disponível em: <http://portal.arquivos2.saude.gov.br/images/pdf/2019/julho/25/vigitel-brasil-2018.pdf>
3. Brasil. Ministério da Saúde. Estratégias para o cuidado da pessoa com doença crônica: obesidade. Brasília; 2014. 212 p. – (Cadernos de Atenção Básica, n.38). [acesso em 23 nov 2018]. Disponível em: [http://189.28.128.100/dab/docs/portaldab/publicacoes/caderno\\_38.pdf](http://189.28.128.100/dab/docs/portaldab/publicacoes/caderno_38.pdf)
4. Apovian CM. Obesity: Definition, Comorbidities, Causes, and Burden. *Am J Manag Care*. 2016;22(7):176-185.
5. Taylor VH, Forhan M, Vigod SN, McIntyre RS, Morrison KM. The impact of obesity on quality of life. *Best Practice & Research Clinical Endocrinology & Metabolism*, 2013; 27(2):139-146.
6. Fontaine KR; Barofsky I. Obesity and health-related quality of life. *obesity reviews* 2001;2(3):173-182.
7. Tavares TB, Nunes SM, Santos MOS. Obesidade e qualidade de vida: revisão da literatura. *Rev. Med Minas Gerais*, 2010;20(3):359-366.

8. Brasil. Ministério da Saúde. Obesidade. Brasília; 2006. 108 p. (Cadernos de Atenção Básica, n. 12). [acesso em 23 nov 2018]. Disponível em: [http://189.28.128.100/dab/docs/publicacoes/cadernos\\_ab/abcad12.pdf](http://189.28.128.100/dab/docs/publicacoes/cadernos_ab/abcad12.pdf)
9. BRASIL. Ministério da Saúde. Perspectivas e desafios no cuidado às pessoas com obesidade no SUS: resultados do Laboratório de Inovação no manejo da obesidade nas Redes de Atenção à Saúde. Brasília: Ministério da Saúde; 2014. 116 p. (Série Técnica Redes Integradas de Atenção à Saúde, v. 10). [acesso em 23 nov 2018]. Disponível em: [http://bvsms.saude.gov.br/bvs/publicacoes/perspectivas\\_desafios\\_cuidado\\_pessoas\\_obesidade.pdf](http://bvsms.saude.gov.br/bvs/publicacoes/perspectivas_desafios_cuidado_pessoas_obesidade.pdf).
10. Rodrigues PAF, Bustamente CG, Reis EC. Centro de Referência em Obesidade do Município do Rio de Janeiro – O Papel do Educador Físico. *Rev Bras Ativ Fis e Saúde*. 2014;19(5):656-658.
11. Pereira EF, Teixeira CS, SANTOS A. Qualidade de vida: abordagens, conceitos e avaliação. *Rev. bras. Educ. Fís. Esporte*. 2012;26(2):241-50.
12. Seidl EMF, Zannon CMLC. Qualidade de vida e saúde; aspectos conceituais e metodológicos. *Cad. Saúde Pública*. 2004;20(2):580-588.
13. Minayo MCS, Hartz ZMA, Buss PM. Qualidade de vida e saúde: um debate necessário. *Ciência & Saúde Coletiva*. 2000;5(1):7-18.
14. Vankova D. Conceptual and methodological approaches to quality of life - a public health perspective. *Scripta Scientifica Salutis Publicae*. 2015;1(2):7-13.
15. The WHOQOL Group. The World Health Organization quality of life assessment (WHOQOL): position paper from the World Health Organization. *Social Science and Medicine*. 1995;41(10):1403-1409.
16. Garratt A, Schmidt L, Mackintosh A, Fitzpatrick R. Quality of life measurement: bibliographic study of patient assessed health outcome measures. *BMJ*. 2002;324(1417):1-5.
17. Brilmann M, Oliveira MS, Theirs VO. Avaliação da qualidade de vida relacionada à saúde na obesidade. *Cad. Saude Colet*. 2007;15(1):39-54.
18. Cattai GBP, Hintze LJ, Cremon AS, Bevilacqua CA, Junior NN, Marcon SS. Improvement on the quality of life in patients who underwent bariatric surgery. *Acta Scientiarum. Health Sciences*. 2014;36(2):171-177.
19. Silva I, Pais-Ribeiro J, Cardoso H. Cirurgia de obesidade: qualidade de vida e variáveis psicológicas antes e depois do tratamento cirúrgico. *Psicologia: Teoria e Prática*. 2009;11(2):196-210.
20. Vasconcelos APO, Costa Neto, SBC. Qualidade de vida de pacientes obesos em preparo para a cirurgia bariátrica. *Rev. PSICO PUCRS*. 2008;39(1):58-65.
21. Sinzato E. Avaliação da qualidade de vida de obesos. *Estudos*. 2007;34(1/2):35-51.
22. Son N. Assessment of body perception, psychological distress, and subjective quality of life among obese and nonobese subjects in Turkey. *Niger J Clin Pract*. 2017;20(10):1302-1308.
23. Ware JE, Gandek B. IQOLA Project Group. The SF-36 Health survey: Development and Use in Mental Health Research and the IQOLA Project. *Int. J. Ment. Helth*. 1994; 23(2):49-73.
24. Ciconelli RM. (1997). Tradução para o português e validação do Questionário Genérico de Qualidade de Vida Medical outcomes study 36 - item short-form health survey (SF-36). [Tese] São Paulo: Universidade Federal de São Paulo, Escola Paulista de Medicina; 1997.
25. Ciconelli RM, Ferraz MB, Santos W, Meinão I, Quaresma, MR. Tradução para a língua portuguesa e validação do questionário genérico de avaliação de qualidade de vida SF 36 (Brasil SF-36). *Rev Bras Reumatol*. 1999;39(3):143-150.
26. Bertolossi EHW, Sifuentes RO, Gomes LAS, Navarro AC. Perfil de imagem corporal e exercício físico de pacientes com sobrepeso e obesidade de uma clínica de nutrição de Brasília. *Revista Brasileira de Obesidade, Nutrição e Emagrecimento* 2008;2:303-12.
27. Couto M.T. et al. Men in primary healthcare: discussing (in)visibility based on gender perspectives. *Interface - Comunic., Saude, Educ*. 2010;14(33):257-70.
28. Santos AX. Prevalência de hipertensão arterial sistêmica e diabetes mellitus em obesos candidatos à cirurgia bariátrica. *Revista Brasileira de Obesidade, Nutrição e Emagrecimento*, 2012;6(34):184-190.
29. Souza ACB, Oliveira JED, Caritá EC, Nogueira-de-Almeida CA. Perfil dos pacientes obesos no primeiro atendimento em Ambulatório de Nutrologia Municipal de Ribeirão Preto (SP). *Medicina (Ribeirao Preto)*. Online. 2017;50(4):207-215.
30. Escorel S, Giovanella L, Mendonça MHM, Senna MCM. O Programa de Saúde da Família e a construção de um novo modelo para a atenção básica no Brasil. *Rev Panam Salud Publica/Pan Am J Public Health*. 2007;21(2):164-76.

31. Costa LS, Liberali R. Avaliação da qualidade de vida na obesidade. *Revista Brasileira de Obesidade, Nutrição e Emagrecimento*. 2008;2(9):232-239.
32. Tamura LS, Cazzo E, Chaim EA, Piedade SR. Influence of morbid obesity on physical capacity, knee-related symptoms and overall quality of life: A cross-sectional study. *Rev Assoc Med Bras*. 2017;63(2):142-147.
33. Costa AJR, Pinto SL. Transtorno da Compulsão Alimentar periódica e qualidade de vida de pacientes candidatos a cirurgia bariátrica. *ABCD Arq Bras Cir Dig*. 2015;28(1):52-55.
34. Hachem A, Brennan L. Quality of Life Outcomes of Bariatric Surgery: A Systematic Review. *Obes Surg*. 2016;26(2):395-409.
35. Torres KDP, Rosa MLG, Moscovitch SD. Gender and obesity interaction in quality of life in adults assisted by family doctor program in Niterói, Brazil. *Ciênc. Saúde Coletiva*. 2016;21(5):1617-1624.
36. Soares A, Silva I. Qualidade de vida em mulheres que procuram tratamento para obesidade: estudo comparativo entre mulheres com diagnóstico de obesidade clinicamente grave propostas a tratamento cirúrgico e mulheres submetidas a cirurgia. *Psicologia, saúde & doenças*. 2011;12(2):235-254.
37. Araujo M, Dias J, Vasconcelos K, Medeiros A, Santos C, & Dias R. Impacto das condições clínicas e funcionais na qualidade de vida de idosas com obesidade. *Fisioterapia e Pesquisa*. 2014;21(4):372-377.

### Contributors

Silva RRB and Bustamante CG participated in the conception, production and analysis of data and writing of the article and its final version; Damião JJ participated in the study design, data analysis, writing the article and reviewing its final version.

Conflict of interest: the authors declare no conflict of interest.

---

Received: February 1, 2019

Accepted: December 9, 2019