

# Perception of quality of life of a group of individuals subjected to bariatric surgery

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## Perception of quality of life of a group of individuals subjected to bariatric surgery

**Objective.** The study sought to identify the state of health and quality of life of post-bariatric surgery patients. **Methodology.** This was a cross-sectional study conducted in 2012 with the participation of 338 individuals attending the private practice of a bariatric surgeon from Medellín (Colombia). With prior signed informed consent, the survey was filled out by each patient. The information gathered was sociodemographic in nature along with the World Health Organization's Quality of Life Brief Questionnaire (WHOQoL-Bref). **Results.** It was found that 82.2% were women and mean age was  $41 \pm 12$  years. Gastric bypass was practiced on 79.6% of the cases. Mean weight before surgery was  $106.3 \pm 17.5$  Kg and after surgery it was  $73.2 \pm 13.4$  Kg. Nine of every 10 participants classified their quality of life and state of health between extremely well and quite well. Quality of life was better in men, in those younger than 40 years of age, in those from socio-economic levels 4 to 6, and in those with educational level above the secondary (high school). **Conclusion.** As a consequence of the important and rapid weight loss occurring during the first months after surgery, most of the participants perceived having a good quality of life and were satisfied with their health status. For nursing, it is a challenge to implement educational programs and projects, bearing in mind the sociocultural diversity of the individuals and communities, through interdisciplinary and inter-sector work, which contributes to the well-being of obese individuals subjected to bariatric surgery and their families.

**Key words:** bariatric surgery; quality of life; health status; obesity, morbid.

## Percepción de calidad de vida de un grupo de personas operadas de cirugía bariátrica

**Objetivo.** Identificar el estado de salud y calidad de vida (CV) de los pacientes posoperados de cirugía bariátrica. **Metodología.** Estudio cross-sectional realizado en 2012 en el que participaron 338 personas que asistieron a la consulta particular de un cirujano bariátrico de Medellín (Colombia). Previo consentimiento

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informado firmado, se aplicó una encuesta que fue diligenciada por cada paciente. La información recolectada fue de tipo sociodemográfica y el cuestionario abreviado de calidad de vida de la Organización Mundial de la Salud (WHOQoL-Bref). **Resultados.** El 82.2% pertenecía al sexo femenino, la edad media fue  $41 \pm 12$  años. Les practicaron Bypass gástrico al 79.6% de los casos. El peso medio antes de la cirugía fue de  $106.3 \pm 17.5$  Kg y después de ella de  $73.2 \pm 13.4$  Kg. 9 de cada 10 participantes calificaron entre extremadamente bien y bastante bien su calidad de vida y el estado de salud. Aquella fue mejor en los hombres, en los menores de 40 años, en quienes pertenecían a estratos socioeconómicos 4 a 6 y en los que tenían estudios superiores a los secundarios. **Conclusión.** Como consecuencia de la rápida pérdida de peso ocurrida durante los primeros meses tras la cirugía, la mayor parte de los participantes percibe tener una buena calidad de vida y está satisfecha con su estado de salud. Para la enfermería es un reto implementar programas y proyectos educativos, teniendo en cuenta la diversidad sociocultural de las personas y las comunidades, a partir de un trabajo interdisciplinario e intersectorial, que contribuya al bienestar de las personas obesas sometidas a cirugía bariátrica, así como al de su familia.

**Palabras clave:** cirugía bariátrica; calidad de vida; estado de salud; obesidad mórbida.

### Percepção de qualidade de vida de um grupo de pessoas operadas de cirurgia bariátrica

**Objetivo.** Identificar o estado de saúde e qualidade de vida (CV) dos pacientes pós-operados de cirurgia bariátrica. **Metodologia.** Estudo cross-sectional realizado em 2012 no que participaram 338 pessoas que assistiram à consulta particular de um cirurgião bariátrico de Medellín (Colômbia). Prévio consentimento informado assinado se aplicou uma enquete que foi diligenciada por cada paciente. A informação coletada foi de tipo sócio-demográfica e o questionário abreviado de qualidade de vida da Organização Mundial da Saúde (WHOQoL-Bref). **Resultados.** 82.2% foram mulheres, a idade média foi  $41 \pm 12$  anos. Praticaram-lhes Bypass gástrico ao 79.6% dos casos. O peso médio antes da cirurgia foi de  $106.3 \pm 17.5$  Kg e depois dela de  $73.2 \pm 13.4$  Kg. 9 de cada 10 participantes qualificaram entre extremamente bem e bastante bem seu CV e o estado de saúde. A qualidade de vida foi melhor nos homens, nos menores de 40 anos, nos que pertenciam a estratos socioeconômicos 4 a 6 e nos que tinham estudos superiores aos secundários. **Conclusão.** Como consequência à importante e rápida perda de importância ocorrida durante os primeiros meses depois da cirurgia, a maior parte dos participantes percebem ter uma boa qualidade de vida e estão satisfeitos com o estado de saúde. Para a enfermagem é um repto implementar programas e projetos educativos, tendo em conta a diversidade sociocultural das pessoas e as comunidades, através de um trabalho interdisciplinar e intersectorial, que contribua a bem-estar das pessoas obesas, suas famílias que são submetidas a cirurgia bariátrica.

**Palavras chave:** cirurgia bariátrica; qualidade de vida; nível de saúde; obesidade mórbida.

## Introduction

Obesity is an important risk factor for numerous chronic diseases, including diabetes, cardiovascular disease, and cancer. This ailment, which has become one of the epidemics of the 21<sup>st</sup> century, causes impairment and its complications represent a public health problem in almost all the countries in Latin America.<sup>1</sup> In Colombia, in 2010, at least one in every two individuals from 18 to 64 years of age had excess weight, with the

prevalence of obesity at 11% in men and 20% in women.<sup>2</sup> Weight loss through medical and nutritional treatment does not always produce significant weight loss, which is why surgical techniques to control morbid obesity are currently considered the therapy of choice.

One of the aspects of growing interest in the research on obesity and bariatric surgery is

the quality of life of patients subjected to this procedure, mostly performed in Anglo-Saxon countries.<sup>3,4</sup> In Colombia, the studies are related to measuring the prevalence of complications;<sup>5</sup> anesthetic techniques for bariatric surgery;<sup>6</sup> and perioperative nutritional management<sup>7</sup> among others. Improving the quality of life of individuals subjected to bariatric surgery is one of the main goals in healthcare; recognizing it permits carrying out nursing interventions that will impact upon the increase or maintenance of adherence to treatment and on decreasing morbidity and preventable mortality. This study sought to assess the quality of life of individuals who had been subjected to bariatric surgery in a group of patients from the city of Medellín.

## Methodology

This was a cross-sectional study with the participation of 338 post-bariatric surgery patients from the private medical practice of a bariatric surgeon from the city of Medellín - Colombia. The information was gathered from February to August 2012. With prior informed consent signed, the self-reported survey was applied containing sociodemographic information, type of surgery, prior and current weight through clinical history and the World Health Organization Quality of Life Bref (WHOQoL-Bref) scale;<sup>8</sup> this instrument is the reduced version of the WHOQoL-100, which evaluates quality of life as a multidimensional concept that incorporates the individual perception of the state of health, the psycho-social state, and other aspects of life. The abbreviated version has 26 items and two general questions on quality of life and health in general.

The domains comprising it are: Domain I *Physical health* (physical pain, need for medical treatment, energy for daily life, capacity for displacement, satisfaction with sleep, satisfaction with the ability to perform daily life activities, and satisfaction with the work capacity); Domain II *Psychological Health* (enjoyment of life, sense of life, capacity to concentrate, acceptance of physical appearance, satisfaction with oneself, and presence of

negative feelings), Domain III *Social relationships* (satisfaction with personal relationships, satisfaction with sexual life, and satisfaction with friends); and Domain IV *Environment* (assuredness in daily life, healthy physical environment, enough money to cover needs, information necessary for daily life, opportunity to conduct leisure activities and leisure time, satisfaction with living conditions, access to health services and transportation). Each item has five Likert-type ordinal response options, the total score is the sum of the scores of the 26 items transformed according to the authors' indications until converting them into scores from 1 to 100 for the complete scale and by domain, which makes the results of investigations using the abbreviated instrument comparable to those used in the WHOQoL-100. The interpretation of the classification of the scale is that a higher score means better quality of life. The WHOQoL-BREF is validated into Spanish, having a Cronbach's alpha of 0.88 for the scale total.<sup>9</sup>

This study defined obesity as a BMI  $\geq 30$  kg/m<sup>2</sup> and morbid obesity as BMI  $\geq 40$  kg/m<sup>10</sup> and assumed quality of life as "the perception individuals have of their place in existence, within the context of culture, and of the system of values in which they live and in relation to their expectations, norms, questionings. It is a very broad concept influenced in complex manner by the subjects' physical health, their psychological status, level of independence, and social relationships, as well as their relationship with the essential elements of their environment".<sup>8</sup>

The SPSS software (version 21) was used to analyze the information. A descriptive analysis was conducted, including the description of frequencies, central tendency measures, and dispersion measurements. The one-factor ANOVA test was used to evaluate differences of scores per domain and total of the WHOQoL-Bref according to selected variables. Probability values  $<0.05$  were considered statistically significant. To evaluate the consistency of the WHOQoL-Bref scale, the Cronbach's alpha was analyzed. The project was approved by the Ethics Committee in the Faculty of Nursing at Universidad de Antioquia in 2011.

## Results

### General characteristics of the study sample

Table 1 shows that of the 338 individuals surveyed, 82.2% were females, with a mean age of  $41.1 \pm 11.6$  years (46.8% were younger than 40 years of age), 45.9% were married, 71.8% were from socio-economic level 3 and less, and 49.4% had secondary education as the maximum educational level. The most frequent type of surgery was gastric bypass with 79.6%, with  $14 \pm 10$  the average number of months since the surgery at the moment in which the information was gathered for this research.

The BMI prior to the bariatric surgery was  $41.2 \pm 4.5$  and the current BMI was  $28.4 \pm 4.0$ , with a difference of  $12.8 \pm 3.7$  (CI<sub>95%</sub>: 12.3-13.2), which is statistically significant ( $t=62.8$ ,  $p<0.001$ ).

### Analysis of quality of life

As noted in Table 2, nine of every 10 individuals classified their quality of life and satisfaction with their state of health between extremely well and quite well.

Table 3 shows details of the average score for each of the items in the WHOQoL-BREF scale. The best scores per domain were: Are you capable of moving from one place to another? in physical health (4.4); How much do you enjoy life? in psychological health (4.6); How satisfied are you with your personal relationships? in social relationships (4.2); and How satisfied are you with your living conditions? in environment (4.2).

Rather, among the lowest per domain, there are: How satisfied are you with your sleep? in physical health (3.9); How often do you have negative feelings? in psychological health (3.6); How satisfied are you with your sexuality?, in social relationships (3.6); and, Do you have enough money to cover your needs?, in environment (3.0).

The comparison of the total average and by domain of the WHOQoL-BREF scale according to some of the study variables can be seen in Table 4. By sex, it was found that men had higher scores with respect to women with said difference being statistically significant for the total and domains I, II, and III. An inversely proportional relationship of the score on quality of life and age group was noted, without this difference being significant only in domain IV.

Regarding marital status, only domain III (social) showed a statistically significant difference, given that single individuals had higher scores than the other groups. With respect to socioeconomic level, an inverse relationship of this variable with the score was found, with this difference not being significant only in domain I (physical health). A directly proportional and statistically significant relationship was noted between educational level and the total score in the four domains. By type of surgery and months since the surgery no differences were found with the total scores or per domains.

The reliability of the WHOQoL-BREF scale in the study population was measured with Cronbach's alpha was 0.89.

**Table 1.** General characteristics of 338 post-bariatric surgery patients

| <b>Characteristic</b>           | <b>Value</b> |
|---------------------------------|--------------|
| Female sex; n (%)               | 278 (82.2)   |
| Age group; n (%)                |              |
| 18-29                           | 50 (14.8)    |
| 30-39                           | 108 (32.0)   |
| 40-49                           | 84 (24.9)    |
| 50-59                           | 75 (22.2)    |
| 60 and more                     | 21 (6.2)     |
| Marital status; n (%)           |              |
| Married                         | 155 (45.9)   |
| Single                          | 90 (26.6)    |
| Widow(er)                       | 13 (3.8)     |
| Divorced                        | 17 (5.0)     |
| Common law                      | 60 (17.8)    |
| Without data                    | 3 (0.9)      |
| Socio-economic level; n (%)     |              |
| 1                               | 15 (4.4)     |
| 2                               | 95 (28.1)    |
| 3                               | 133 (39.3)   |
| 4                               | 56 (16.6)    |
| 5                               | 31 (9.2)     |
| 6 (the highest)                 | 8 (2.4)      |
| Educational level; n (%)        |              |
| Primary                         | 44 (13.0)    |
| Secondary                       | 123 (36.4)   |
| Technical or technological      | 80 (23.7)    |
| University                      | 73 (21.6)    |
| Graduate                        | 18 (5.3)     |
| Type of Surgery; n (%)          |              |
| Gastric sleeve                  | 68 (20.1)    |
| Gastric bypass                  | 269 (79.6)   |
| Other                           | 1 (0.3)      |
| Months since the surgery; n (%) |              |
| 0-3                             | 34 (10.1)    |
| 4-6                             | 59 (17.5)    |
| 7-12                            | 78 (23.1)    |
| 13-24                           | 126 (37.3)   |
| 25-36                           | 31 (9.2)     |
| Without data                    | 10 (3.0)     |

**Table 2.** General quality of life and satisfaction with health of 338 post-bariatric surgery patients

| <b>Classification</b> | <b>Quality of life<br/>n (%)</b> | <b>Satisfaction with health status<br/>n (%)</b> |
|-----------------------|----------------------------------|--|
| Very poor             | 0 (0.0)                          | 1 (0.3)  |
| Poor                  | 4 (1.2)                          | 7 (2.1)  |
| Normal                | 24 (7.1)                         | 18 (5.3)   |
| Quite well            | 69 (20.4)                        | 65 (19.2)  |
| Extremely well        | 241 (71.3)                       | 247 (73.1)                                       |

**Table 3.** Average scores of items from the WHOQoL-BREF scale of 338 post-bariatric surgery patients

| <b>Item</b>  | <b>Mean ± SD</b> |
|--|------------------|
| To what point do you think pain (physical) keeps you from doing what you need to do?     | 4.2± 1.1         |
| Do you need any medical treatment to function in your daily life?                        | 3.9±1.1          |
| To what point do you feel your life has sense?   | 4.4±0.8          |
| How much do you enjoy life?  | 4.6±0.7          |
| What is your capacity to concentrate?  | 3.7±1.0          |
| How sure are you in your daily life?   | 4.2±0.8          |
| How healthy is the physical environment around you?                                      | 4.0±0.8          |
| Do you have enough energy for your daily life?   | 4.0±0.9          |
| Are you able to accept your physical appearance?   | 4.2±0.9          |
| Do you have enough money to cover your needs?  | 3.0±0.8          |
| Do you have the information you need for your daily life?                                | 3.8±0.9          |
| To what point do you have the opportunity to perform leisure activities (leisure time)?  | 3.2±1.0          |
| Can you move from one place to another?  | 4.4±0.8          |
| How satisfied are you with your sleep?   | 3.9±1.1          |
| How satisfied are you with your ability to conduct your daily life activities?           | 4.2±0.9          |
| How satisfied are you with your work capacity?   | 4.1±0.9          |
| How satisfied are you with yourself?   | 4.4±0.7          |
| How satisfied are you with your personal relationships?                                  | 4.2±0.8          |
| How satisfied are you with your sexual life?   | 3.6±1.3          |
| How satisfied are you with your friends?   | 4.1±0.9          |
| How satisfied are you with your living conditions?                                       | 4.2±0.8          |
| How satisfied are you with your access to health services?                               | 4.1±1.0          |
| How satisfied are you with your transportation?  | 4.0±0.9          |
| How often do you have negative feelings, like sadness, despair, anxiety, and depression? | 3.6±1.0          |

**Table 4.** Average scores of the WHOQoL-BREF scale by total and domains according to study variables of 338 post-bariatric surgery patients

| Characteristic             | Total      | Domains              |                            |                             |                   |
|----------------------------|------------|----------------------|----------------------------|-----------------------------|-------------------|
|                            |            | I<br>Physical health | II<br>Psychological health | III<br>Social relationships | IV<br>Environment |
| Total                      | 80.3±10.3  | 77.8±15.2            | 78.4±14.6                  | 74.7±19.3                   | 72.0±13.3         |
| Sex                        |            |                      |                            |                             |                   |
| Male                       | 83.9±9.3   | 82.3±14.1            | 80.2±14.5                  | 83.1±14.8                   | 73.7±13.0         |
| Female                     | 79.6±10.3  | 76.8±15.3            | 77.6±14.5                  | 72.9±19.7                   | 71.6±13.4         |
| Student's t p-value        | 0.003      | 0.009                | 0.032                      | <0.001                      | 0.230             |
| Age group; n (%)           |            |                      |                            |                             |                   |
| 18-29                      | 81.9±10.0  | 79.8±13.6            | 79.3±12.7                  | 81.3±18.6                   | 70.6±13.4         |
| 30-39                      | 82.5±10.3  | 81.1±15.5            | 81.2±14.4                  | 79.0±18.0                   | 72.5±13.3         |
| 40-49                      | 78.9±10.2  | 77.4±15.0            | 76.1±15.9                  | 71.7±19.7                   | 71.4±13.3         |
| 50-59                      | 79.7±9.8   | 75.7±14.0            | 79.1±13.4                  | 71.2±18.4                   | 73.9±13.3         |
| 60 and more                | 73.4±10.0  | 65.9±15.9            | 69.6±15.4                  | 62.5±20.1                   | 69.1±13.7         |
| F test p-value             | 0.001      | <0.001               | 0.007                      | <0.001                      | 0.508             |
| Marital status             |            |                      |                            |                             |                   |
| Married                    | 80.7±9.7   | 78.7±14.6            | 78.3±13.6                  | 75.9±19.2                   | 72.0±13.2         |
| Single                     | 80.9±9.6   | 77.3±14.5            | 79.3±14.2                  | 76.3±17.4                   | 73.3±12.5         |
| Widow(er)                  | 77.0±12.8  | 72.8±18.0            | 77.8±17.5                  | 59.7±21.4                   | 76.6±18.2         |
| Divorced                   | 78.3±9.2   | 78.8±15.4            | 78.8±13.1                  | 65.2±16.7                   | 70.8±11.9         |
| Common law                 | 79.5±12.2  | 78.5±16.8            | 77.0±16.8                  | 74.7±22.1                   | 68.1±14.0         |
| F test p-value             | 0.532      | 0.721                | 0.887                      | 0.008                       | 0.084             |
| Socio-economic level       |            |                      |                            |                             |                   |
| 1                          | 75.5±12.9  | 73.3±15.8            | 72.7±20.5                  | 69.5 ±21.5                  | 75.5±12.9         |
| 2                          | 77.7±11.1  | 76.0±15.9            | 75.1±14.4                  | 70.6±22.8                   | 77.7±11.1         |
| 3                          | 81.1±9.5   | 78.0±15.2            | 79.9±13.8                  | 77.0±17.9                   | 81.1±9.5          |
| 4                          | 80.9±8.4   | 77.8±13.9            | 79.2±13.2                  | 75.2±15.2                   | 80.9±8.4          |
| 5                          | 84.7±10.5  | 83.3±15.1            | 82.6±16.1                  | 77.6±18.2                   | 84.7±10.5         |
| 6 (the highest)            | 86.0±10.7  | 85.1±10.0            | 84.4±14.7                  | 81.3±18.3                   | 86.0±10.7         |
| F test p-value             | 0.002      | 0.126                | 0.027                      | 0.013                       | <0.001            |
| Educational level          |            |                      |                            |                             |                   |
| Primary                    | 76.3±10.6  | 71.9±14.5            | 74.5±15.6                  | 68.8±22.0                   | 67.5±12.2         |
| Secondary                  | 78.6±10.4  | 76.1±16.1            | 75.7±15.3                  | 71.7±19.1                   | 70.6±13.9         |
| Technical or technological | 82.5±9.8   | 80.3±14.1            | 81.1±13.1                  | 78.6±18.7                   | 74.3±13.3         |
| University                 | 81.8±8.6   | 79.3±14.1            | 80.5±11.9                  | 78.0±16.5                   | 72.9±11.9         |
| Graduate                   | 86.8±12.1  | 87.4±12.8            | 87.1±17.8                  | 79.9±22.3                   | 79.8±14.0         |
| F test p-value             | <0.001     | 0.001                | 0.001                      | 0.007                       | 0.007             |
| Type of Surgery            |            |                      |                            |                             |                   |
| Gastric sleeve             | 82.0± 11.7 | 80.9±16.2            | 80.7±14.2                  | 75.9±21.2                   | 73.3±13.9         |
| Gastric Bypass             | 79.9±9.9   | 77.0±14.8            | 77.9±14.7                  | 74.3±18.8                   | 71.7±13.2         |
| Student's t p-value        | 0.123      | 0.054                | 0.157                      | 0.547                       | 0.383             |

**Table 4.** Average scores of the WHOQoL-BREF scale by total and domains according to study variables of 338 post-bariatric surgery patients (Cont.)

| Characteristic | Total     | Domains                 |                               |                                |                   |
|----------------|-----------|-------------------------|-------------------------------|--------------------------------|-------------------|
|                |           | I<br>Physical<br>health | II<br>Psychological<br>health | III<br>Social<br>relationships | IV<br>Environment |
| 0-3            | 78.3±8.9  | 75.6±15.0               | 78.6±12.0                     | 68.3±17.6                      | 70.8±12.0         |
| 4-6            | 82.0±10.2 | 78.0±16.2               | 80.5±14.8                     | 78.7±17.8                      | 73.7±12.7         |
| 7-12           | 81.9±9.9  | 79.5±15.8               | 81.4±13.5                     | 77.2±19.7                      | 73.5±13.1         |
| 13-24          | 79.7±11.0 | 77.9±14.9               | 77.1±15.6                     | 73.6±20.3                      | 71.4±14.1         |
| 25-36          | 79.7±10.0 | 78.7±13.6               | 76.4±13.6                     | 75.0±18.2                      | 70.5±13.6         |
| F test p-value | 0.269     | 0.799                   | 0.208                         | 0.095                          | 0.586             |

## Discussion

This research permitted inquiring, from the nursing meta-paradigm, on three of its important concepts: the first two, the person and the environment, confirmed the perceptions on the quality of life of the bariatric surgery post-operative participants in relation to the dimensions of physical health, psychological health, social relationships, and environment; additionally, presenting the needs for care. The third concept inquired on the interventions upon which nursing should focus. Obesity, as a chronic disease, intervenes negatively on the quality of life and health of individuals who endure it. Rubio *et al.*,<sup>10</sup> recommend that patients with morbid obesity who have not managed to lose weight in the long run with conventional therapy, should be offered surgical treatment, given that it provides superior results regarding weight loss, diminished co-morbidities and improved quality of life.<sup>10</sup>

In this study, the sociodemographic characteristics of the patients subjected to bariatric surgery were similar to others with respect to distribution by sex<sup>11</sup> and age;<sup>11-13</sup> regarding socio-economic level, most of those operated (67%) belonged to socio-economic levels 2 and 3, being low levels unlike the study by Maza *et al.*, where the higher levels predominated.<sup>14</sup> This group of patients had a mean weight loss of 33 Kg, which is similar to that found by González and Arriagada in Chilean

patients.<sup>15</sup> In eight out of every 10 of the study participants, gastric bypass was practiced, without statistical significance in the difference with respect to quality of life between this procedure and the gastric sleeve, agreeing with other similar research.<sup>16-18</sup>

A total of 92% of the participants scored quality of life as extremely and quite well after the procedure, which agrees with other similar studies.<sup>13,15,19</sup> As per the dimensions of the WHOQoL-Bref, it was noted that in order from the greatest to the least, the dimensions with the best scale classification were: psychological health, physical health, social relationships, and environment; and the items with the best scores in this instrument were: enjoyment of life, mobility capacity, personal relationships, and satisfaction with home environment. These findings are comparable to those reported by other studies that manifest post-bariatric surgery improvement in functional capacity, mobility,<sup>13</sup> in physical, social, and emotional aspects<sup>13</sup> and self-esteem.<sup>15</sup>

Conversely, the items with the lowest scores in the WHOQoL-Bref were: satisfaction with sleep, having frequent negative feelings, satisfaction with sexuality, and having enough money to cover needs. One of the main co-morbidities after the bariatric surgery is sleep apnea and its prevalence



in this population is estimated from 50 to 23%.<sup>20</sup> Negative feelings in these patients remain present after surgery and the literature reports risk of anxiety and depression, associated to distorted bodily image.<sup>21</sup> This also occurs with depression and suicidal thoughts.<sup>13</sup> Instead, another study reports that after surgery negative feelings diminish, but not anxiety.<sup>22</sup>

Regarding lack of satisfaction with sexual life, the study by González *et al.*,<sup>15</sup> describes that the sexuality of patients with morbid obesity improved in only half of the cases intervened surgically. This could be explained because sexuality in the obese is closely related to self-esteem and bodily image and to the relationship existing with the partner prior to the surgery. Additionally, it has been reported that up to 12% of the patients operated can worsen their sexuality or even suffer rejection from the partner.<sup>23</sup> With respect to the item of having enough money to cover needs, this could be related to the fact that many of our patients were from socioeconomic levels 2 and 3, low and medium. Another important matter shown by this study is the relationship between educational level and quality of life, which was also described by Sarwer *et al.*,<sup>24</sup> who also found association to greater mental health and physical health of the social function and better social function.

By sex, men scored the WHOQoL-Bref better for domains I, II, and III and the total. When comparing these results to those from the study by Tessier *et al.*,<sup>25</sup> it was found that both men and women had similar scores during the pre-operative period with respect to their mental health in the SF-36 instrument; during the post-operative period men improved their quality of life by week 20 and continued improving when assessed at week 40. On the contrary, women improved by week 20, but then experienced decreased scores during the rest of the study period. Regarding marital status, single individuals presented better scores for social relationships. The study by Mamplekou *et al.*,<sup>26</sup> found that married participants with morbid obesity experienced more aggressive feelings than single or divorced patients, both before and after the operation. On the contrary, the study by

Sarwer *et al.*,<sup>24</sup> presents that over time, married individuals have higher scores in the SF-36 regarding their social functioning, physical health, and mental health.

A limitation of this study was that in the literature review no publications were found related to the use of the WHOQoL-Bref applied to measuring quality of life after bariatric surgery, which hindered the comparison of the study's results. This instrument is easily understood and applied to measure quality of life and it would be important to validate it in our realm, specifically for individuals subjected to bariatric surgery.

The conclusion of this study is that as a consequence of the important and rapid weight loss occurring during the first months after surgery, the majority of the participants subjected to bariatric surgery perceive having a very good quality of life. For the researchers the results of this research have shown multiple care needs that go beyond the hospital context and which imply for the healthcare staff, and specially for nursing professionals, the establishment of interventions to promote health to satisfy the needs of post-bariatric patients, according to the individual characteristics, related to accompaniment and education that influence the understanding of their situation, adherence to treatment, diminished complications, and adoption of healthy lifestyles.

Specifically, for nursing it is highly important to continue research in this area, to contribute to the enhancement of care that responds to the true needs of individuals subjected to bariatric surgery. It is fundamental to include qualitative approaches that permit determining other aspects of the experience of undergoing bariatric surgery and which are part of the quality of life perceived by some of the users. In the same sense, develop research related to the complications and comorbidities confronted by individuals after the procedure, given that these can influence on their quality of life and on its negative perception.

The results obtained in this research show the need to implement and intensify aid measures for the population with obesity aimed at education as the most effective strategy to transmit knowledge

related to obesity and its effects on the damage to quality of life.

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