

Por otra parte, contrariamente a lo esperado, la satisfacción con la imagen corporal sólo mostró una relación estadísticamente significativa con un componente del BES (satisfacción con la vida) en el grupo posquirúrgico, explicando un porcentaje importante de su varianza. No se observó relación entre dicha variable y los demás componentes estudiados en el caso del grupo prequirúrgico. Igualmente, la distorsión de la imagen corporal tampoco mostró una correlación significativa con las variables analizadas. Una posible explicación de tal hallazgo es que para las personas que aguardan cirugía la salud deteriorada sería una de las mayores fuentes de estrés y preocupaciones (Carr et al., 2007), siendo más importantes a la hora de explicar su bienestar que las cuestiones relacionadas con la apariencia física. Por el contrario, para quienes ya se sometieron a la CB la imagen corporal podría tener más relevancia e impacto en el BES, pues la pérdida de peso y la subsiguiente disminución del tamaño corporal podrían considerarse una evidencia visible (para sí mismas y para quienes los rodean) de que se está teniendo éxito con la cirugía.

Sin embargo, el resultado observado también podría deberse a que el IMC de varios participantes del estudio fuera superior al máximo contemplado por la escala de figuras y siluetas (47.5 kg/m²), lo que dio lugar a que algunos casos debieran ser excluidos de los análisis, disminuyendo así el tamaño de la muestra y probablemente también la potencia del test utilizado. En este sentido, sería interesante una revisión y ampliación de la escala de figuras y siluetas, pues es un instrumento de demostrada utilidad en la evaluación de la imagen corporal de personas con obesidad, pero que podría ser ajustado para el caso de pacientes que buscan tratamiento quirúrgico para dicho trastorno, cuyos IMC suelen ser muy altos, como en el caso de este trabajo, en el que el promedio estuvo en aproximadamente 47 kg/m².

Ahora bien, algunas implicaciones que estos resultados pueden tener para la práctica de los profesionales que atienden a estos pacientes son, por una parte, la atención a cómo perciben su propio cuerpo estas personas y cómo se sienten con respecto de dicha percepción, tanto antes como después de la cirugía, debido a que la insatisfacción con la propia imagen podría acarrear síntomas de trastornos alimentarios, como purgaciones o la práctica excesiva de ejercicios físico (De Zwaan et al., 2010; Grossbard, Lee, Neighbors y Larimer, 2008; Kakeshita et al., 2009), que podrían convertirse en una complicación del proceso posquirúrgico; dichos síntomas deberían ser detectados tempranamente para una mejor atención.

Por otra parte, estos resultados también sugieren que, aunque los pacientes presenten un alto nivel de neuroticismo o bajo de extroversión, la mejora en la funcionalidad podría ayudar a aumentar el BES. Pero para que tal mejora se dé es necesario un compromiso del paciente y del equipo de profesionales que le atienden, para promover una mayor adherencia al tratamiento desde el periodo prequirúrgico, pues favorece la obtención de mejores resultados tras la cirugía (Pontiroli et al., 2007). Para esto, los profesionales podrían servirse más del apoyo de los cuidadores del paciente, promoviendo una mayor vinculación de los mismos al proceso pre y posquirúrgico.

Para concluir, los resultados de estos estudios sugieren que la CB podría inducir una mejora del bienestar subjetivo, de la capacidad funcional y de la imagen corporal de las personas que se someten a ella. Sin embargo, aún es necesario avanzar en la identificación de los mecanismos mediante los cuales se generaría tal influencia y de los factores que pueden potenciarla, recordando que mantener tales beneficios a largo plazo dependerá en gran medida de los cambios de estilo de vida que el paciente logre generar y conservar (Hall, 2010; Larsen et al., 2004).

Además, es relevante recordar que este tipo de tratamiento no es indicado para todas las personas con obesidad, siendo sólo una de las alternativas de una línea de cuidados que se inicia con las terapias de estilo de vida (O'Brien, 2010), y que se reserva para casos

severos (IMC > 40 kg/m² o >35 kg/m² con comorbilidad) en los que no han sido eficaces otros protocolos clínicos con seguimiento de por lo menos dos años (Conselho Federal de Medicina-CFM, 2016). Es posible que beneficios similares pudieran darse en personas que presentan una pérdida continua de peso, a través de otro tipo de tratamientos, como la actividad física, la cual también ha mostrado una importante relación con el afecto positivo (Pasco et al., 2011), por lo que sería interesante realizar estudios que pudieran acompañar los efectos que la pérdida de peso alcanzada con diferentes estrategias podría tener sobre el BES, la capacidad funcional y la imagen corporal de las personas con obesidad.

Así mismo, los estudios aquí presentados tienen como limitaciones el ser transversales y contar una muestra pequeña, la cual se vio aún más reducida en el caso de la evaluación de la imagen corporal por las limitaciones del instrumento utilizado en cuanto al IMC máximo que permite analizar. Por tales motivos se recomienda, por una parte, la realización de estudios longitudinales que puedan acompañar a estos pacientes a largo plazo. De especial interés sería observar si las mejoras en el BES y en la imagen corporal se mantienen más allá de los primeros meses poscirugía, en los que la pérdida de peso es más rápida y evidente, así como la influencia que podrían ejercer sobre los mismos los cambios físicos como el exceso de piel que puede aparecer con el tiempo. Por otra parte, sería aconsejable también avanzar en la adaptación de los instrumentos de evaluación, como la escala de figuras y siluetas, a las características específicas de la población con obesidad mórbida, a fin de tener instrumentos válidos y confiables para el trabajo con estas personas.

Extended Summary

The epidemic of morbid obesity is one of the main concerns in public health nowadays. Different treatments have been developed to face this condition and its comorbidities. Among those, Bariatric Surgery (BS) has shown to be one of the most effective in the long term, which has led to the increase in the number of surgeries carried out worldwide annually.

The benefits of BS in health have been well documented. However, deepening its psychological and social effects is still needed. Thus, this work focused on Subjective Well-Being (SWB), Body Image (BI), and Functional Capacity (FC) of people candidate for or undergoing BS.

SWB is considered by Diener et al. (2003) as an important indicator of quality of life, and so, it could better reflect post-surgery psychological adjustment than a measure of psychopathology (Belanger, Weschler, Mahsaw, & Virden, 2010). Nevertheless, little is known about the SWB of bariatric patients. Most of the research in this area has focused on obesity and the affective components of SWB, therefore, it is necessary to study its cognitive component and to identify if there are differences in the levels of Life Satisfaction and Positive and Negative Affect between pre- and post-surgery periods.

Additionally, we considered important to study how BI and FC contribute to the variance of the components of SWB, since different studies have shown that those variables have a strong impact on obese people quality of life, and that BS cause improvements in them, which in turn could influence SWB.

Method

Therefore, this work was composed by two studies. The first of them aimed at assessing and comparing the SWB, FC, and BI of obese patients candidates for or undergoing BS, whereas the second study aimed at identifying the relationship between the components of SWB and the Body Mass Index (BMI), FC and BI, controlling the

influence of two personality traits that have shown to be important for explaining SWB (Extraversion and Neuroticism).

Both studies had a cross-sectional design. The first of them was a comparative study, while the second was a correlational study. In both studies the sample was composed by 77 participants (pre-surgery, $n = 48$; post-surgery, $n = 29$). All of them were part of the Bariatric Surgery Program of a public hospital in Porto Alegre (Rio Grande do Sul, Brazil). Post-surgery patients were just assessed when they were between the fifth and eighth months postoperatively.

For the Study 1, the instruments used were the Life Satisfaction Scale, the Positive and Negative Affect Scale, the WHODAS 2.0., and the Brazilian Scale of Figures and Silhouettes. For the Study 2, in addition to the above instruments, the *bateria fatorial da personalidade* was used.

The procedure for collecting data was the same for both studies. It started with contacting by telephone people who had outpatient consultations scheduled during the months June through December 2015, to invite them to participate in the research. With those who agreed to participate a session prior or subsequent to the outpatient consultation was carried out for applying the instruments. All the sessions for collecting data were held in the hospital, and lasted approximately an hour and a half.

Data analysis for the Study 1

All the data was processed using SPSS.18 for Windows. Due to the large number of people who were not working or studying, we decided not to use the component 5B (activities of daily life: work/study) for calculating WHODAS 2.0's FC index. Thus, the total result of such scale included the 32 items of the remaining components. In the case of the scale of silhouettes, the scores of satisfaction and distortion of BI were calculated for 33 participants of the pre-surgical group and 25 of the postsurgical group, because the BMI of the other patients exceeded the limit established for the scale (47.5 kg/m^2).

To verify that the groups were similar in socioeconomic issues that could influence the results, we conducted t -tests to compare them in their age and economic level, and chi square tests to identify whether they were similar in gender, marital status, and education. We also carried out normality tests for the main variables to identify the kind of tests that could be used for comparison and correlation analyses. Later, we performed t -tests to identify whether the groups differed in the components of SWB, Index of FC, and satisfaction and distortion of BI, and we carried out Mann-Whitney U tests to compare the groups in the components of WHODAS 2.0. Finally, we conducted effect size tests for the observed differences.

Data analysis for the Study 2

We kept the same conditions mentioned above for calculating the scores of WHODAS 2.0., and the index of satisfaction and distortion of BI. We also carried out Pearson correlations for both groups, in order to identify the relationship between BMI, FC, satisfaction, and distortion of BI and the components of SWB. Finally, we performed regression analyses to identify the percentage of the variance of SWB explained for those variables, controlling personality factors Extroversion and Neuroticism, using the Enter method.

Results

Study 1

Most of the participants of both groups were women. The average age of pre-surgery group was $43.8 (\pm 9.6)$, and its average BMI was $46.9 \text{ kg/m}^2 (\pm 8.8)$. For post-surgery group, the average

age and BMI was $44.8 (\pm 11.3)$ and $37.4 \text{ kg/m}^2 (\pm 8.1)$ respectively. The participants of post-surgery group had lost about 54.5% of their excess of weight. The groups did not differ in gender, age, education, marital status, and economic level.

About SWB, 25% of the pre-surgery group showed low levels of Life Satisfaction and 35.4% showed low Positive Affect, while in the post-surgery group, only 6% showed low Life Satisfaction, and 44.8% showed low Negative Affect. All the participants of the pre-surgery group and 96% of the post-surgery group referred to be unsatisfied with their body image, wishing to have, in average, a BMI of $30 \text{ kg/m}^2 (\pm 4.4)$ and $26.9 \text{ kg/m}^2 (\pm 4.6)$, respectively. Most of the participants of the pre-surgery group overestimated their body size, while 40% of the post-surgery group had a more accurate perception of it, and 32% estimated it was smaller than what it actually was.

We also found statistically significant differences between both groups about Index of FC, and all the components of BI and SWB, excepting Positive Affect. Finally, we found statistically significant differences in four out of six components of WHODAS 2.0, which showed moderate effect sizes (see Table 3).

Study 2

Current BMI only showed relationships with a tendency to significance with Negative Affect in the pre-surgical group, and Life Satisfaction in the post-surgery group ($p = .053$ and $p = .06$, respectively). The index of FC showed to be correlated to Life Satisfaction and Positive and Negative Affect in both groups. Satisfaction with BI showed a statistically significant relationship with Life Satisfaction only for the post-surgical group, while distortion of BI was not related to the components of SWB in any of the groups.

Regression analyses showed that, even including in the model the personality traits Extraversion and Neuroticism, the variability of FC helped to explain the variance of Life Satisfaction and Negative affect (39% and 44% respectively). Different results were found for Positive Affect. Personality traits were more important than FC for explaining the variance of that component of SWB.

Satisfaction with BI, along with Extraversion and Neuroticism, explained 37% of the variance of Life Satisfaction, but only for the post-surgery group. It did not contribute to explaining the variance of other components of SWB, nor did the distortion of BI and the current BMI.

Discussion

Our findings coincide with those of other authors who have also found a negative association between obesity and SWB, and the frequency of low Positive Affect in obese population. Some authors suggest that such association could be mediated by gender, and women would be the most affected, especially if they are in the more productive workforce ages, as most of the participants of our studies.

We also found that people from the post-surgery group showed less Negative Affect and more Life Satisfaction. Those results suggest that BS may have some influence on improving SWB. However, few studies have analyzed the changes of SWB from pre- to post-surgery periods, a gap remaining in literature.

Even so, and despite the limitation that these studies are cross-sectional, there are some aspects that could support the hypothesis of the improvement of SWB after BS. One of them is the improvements in obesity comorbidities after BS. Some studies have shown that the number of comorbidities of obese patients contribute to explaining the variance of SWB, so an improvement could also generate better results in patients' SWB.

Another aspect would be FC. About this issue, literature shows that some of the most important restrictions that obese people face are related to mobility, and daily life activities, which sometimes cause dependence in activities such as bathing, dressing, and getting out of bed or seat. Additionally, obesity can lead to restrictions in social life, hindering the integration into the community. In that sense, some authors have found that FC mediates the relationship between obesity and SWB, and that actually it would be the impairment of FC what would lead to a lower SWB, and not the obesity itself. Additionally, it was in the areas of mobility, personal care, activities of daily living, and participation in society where we found the statistically significant differences between pre- and post-surgery group, the results being better for the second group. Those findings suggest that the BS would extend its benefits from physical to psychological and social aspects. Other studies have also found that after the surgery, patients refer to be more autonomous and independent for daily life activities, and to have fewer physical restrictions, which could help to improve SWB.

About BI, we found that Satisfaction and Distortion were significantly lower in the post-surgery group. That coincides with the findings of other studies that suggest that after BS, BI improves and patients feel more attractive. However, we also found that most of the participants of the post-surgery group still wished to have a lower BMI. About that, some authors warn that, even though the dissatisfaction with current BI could help to decrease BMI, it could also become an alert sign of the development of eating disorders.

On the other hand, contrary to what we expected, Satisfaction with BI only showed a significant relationship with one component of SWB (life satisfaction) in the post-surgery group, and Distortion of BI was not related to any component of SWB. A possible explanation for those results is that among people waiting for BS, the impaired health would be the main concern, being more important for explaining SWB than physical appearance, whereas for the people who already underwent the BS, BI could be more relevant and impact more on their SWB, because weight loss and decrease in body size could be considered a visible evidence that they are succeeding with surgery. However, such results could be also related to the number of cases we had to exclude from the analysis of BI, due to the maximum BMI covered by the scale of figures and silhouettes, what decreased the sample size and probably also the power of the test used.

To sum up, the results of these studies suggest that BS would induce improvements of SWB, FC, and BI of patients who undergo it. However, further research is needed to identify the mechanisms that underline that influence, and the factors that can potentiate it, taking into account that the long-term benefits of BS strongly depend on life style changes that the patients can make and keep. We recommend carrying out longitudinal studies that evaluate the evolution of SWB from pre- to post-surgery group. It would be interesting to identify if improvements in SWB remain beyond the first month post-surgery, when weight loss is faster and evident, and the influence that changes in physical appearance, such as excess skin that may appear over time, could have on those improvements.

Conflicto de intereses

Los autores de este artículo declaran que no tienen ningún conflicto de intereses.

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