

THE CASE OF BARIATRIC SURGERY: A PILOT STUDY UNIVERSITY OF SALERNO

G. CERSOSIMO¹ A. SANTONICOLA² P. IOVINO³

Abstract: *The paper analyses, through interdisciplinary approaches, the perception of one's own body image in subjects treated with bariatric surgery. This research clearly emphasizes the increase in adult obesity for biological causes as well as for factors inextricably bound up with a range of social and cultural elements, such as dietary habits, social and local backgrounds, family and gender customs. The work presents the results of an investigation on a sample of people treated with bariatric surgery and realized through quantitative methodologies. The results of the research have shown the need for adoption of a more comprehensive and holistic perspective to further extend the discussion, connecting a social epidemiological framework for obesity together with an analysis of the transformations in the process of socialization of the people. The research showed also that for the bariatric surgery is important for each patient because s/he prefers the perspective of the body as a 'project' and for people such a project casts into a total adherence to the indications received by their respective doctors.*

Key words: *globesity, obesity, adherence to recommendations post-surgery, new lifestyle.*

1. Introduction

Obesity is defined as an excess of body fat mass inducing adverse effects on health, in fact it is a risk factor for illnesses such as heart disease, diabetes and cancer which has become a worldwide epidemic, and it is also associated with nutritional deficiencies (Sánchez *et al.*, 2015; Peterson *et al.*, 2015). Indeed, although obese subjects display an excess caloric intake, they are prone to malnutrition as previously shown in obese individuals who had lower serum vitamin status than healthy lean controls matched for age and sex (Aasheim *et al.*, 2008). Studies evaluating morbidly obese patients before bariatric surgery (BS), also demonstrated subclinical serum protein depletion (Ledoux *et al.*, 2006) as well as micronutrient deficiencies (Coupaye *et al.*, 2014). These findings may be the result of under consumption of foods such as fresh fruit, vegetables and lean meat during energy dense meals (Lo Menzo *et al.*, 2014).

Therapeutic strategies to treat obesity are limited. Although effective, lifestyle intervention is both disappointing regarding the degree of weight loss (Dyson *et al.*, 2010)

¹University of Salerno, Department of Medical, Surgery and Dentistry, gcersosi@unisa.it

²University of Salerno, Department of Medical, Surgery and Dentistry

³University of Salerno, Department of Medical, Surgery and Dentistry

and its maintenance in the long term (≥ 6 months) (Wing, Phelan, 2005). Therefore, BS, which is currently recommended for patients with BMI above 40kg/m² or above 35kg/m² when associated with obesity-related diseases (Mechanick *et al.*, 2009), has dramatically risen, reaching 468,000 interventions in 2013 worldwide (a 3.2-fold increase compared to 2003) (Angrisani *et al.*, 2015). BS enables major and sustainable weight loss as well as significant improvement of obesity related-diseases (Jones *et al.*, 2009). Multiple surgical procedures are available. An the update worldwide Survey 2014 (in press) showed that Sleeve Gastrectomy (SG) had a steep increase all around the world, although Roux-en-Y gastric bypass (RYGB) still represented the most performed procedure, while adjustable gastric banding (AGB) declined. All bariatric procedures currently available are actually considered effective in the treatment of morbid obesity and its related comorbidities compared to non-surgical interventions (Jones *et al.*, 2009; Colquitt *et al.*, 2014).

Weight loss mechanisms after BS include food restriction due to gastric narrowing in all surgical procedures, and an added reduction in nutrient absorption due to proximal alimentary limb diversion in GBP which leads to a certain degree of malabsorption (Dixon, 2011). Globesity is nowadays at the very heart of debates. Globesity means that obesity affects a large percentage of the world population, so it is seen as a social problem worldwide, affecting the public health crisis. It should be recognized that “halting and reversing current trends is (...) a broader societal challenge that has become an explicit goal of sustainability strategies worldwide” (Reisch *et al.* in Cersosimo, 2017, p. 148).

Research clearly demonstrates the deficiency of approaches that consider the increase in adult obesity from only one perspective; particularly when that perspective emphasizes medical or biological causes, often considered unsatisfactory and ultimately inadequate. Instead, the factors that have influenced the increase in childhood obesity are inextricably bound up with a range of social and cultural factors including gender, age, social stratification, local contexts and so on. In this research project we argue for the adoption of a more comprehensive and holistic perspective to further extend the discussion, connecting a social epidemiological framework for obesity together with an analysis of the transformations in the process of socialization of the people to other possible weight loss as bariatric surgery.

Such an approach also highlights the pivotal role of the individual in the (re)definition of cultural patterns and lifestyles.

We believe that for each patient the bariatric surgery is important because as in the metaphor of the ‘car-like’ body, he prefers the perspective of the body as a ‘project’, a representation of one’s own self amid the others.

So the body was, for each respondent, a presupposition that provides the basis for defining oneself as a subject in good shape and presentable, according to an individual (and collective) project linked to one’s own physical and social well-being. For people such a project translates into a total adherence to the indications received by their doctors (ranging from such issues as healthy food to risky behaviours). The body must be considered instrumental for the optimal achievement of one’s own performance along the biological and organic developmental process that leads to maturity; it is affected by many social factors penetrating into daily life actions (Goffman, 1969).

Another question was connected to the possibility of the sanitary costs reduction. The Italian Ministry for Health estimates that ‘44% of patients affected by Diabetes Type II, about the 23% of patients affected by ischemic heart disease and up to 41% of patients affected by cancer developed these pathologies due to obesity and overweight’ (Ministero

della Salute, 2014a). Obesity in Italy has an impact on health expenditure in terms of direct and indirect costs due to its metabolic, cardiovascular, and systemic complications, side effects on organs and all social relational consequences in childhood such as low levels of self-confidence, social exclusion and depression. This costs the Italian National Health System about 8.3 billion euros, or 6.7% of the whole health expenditure (Ministero della Salute, 2014b).

On these premises the value of measures to improve the effectiveness of surgery is a very hot topic. Two studies have been recently published that faced different sides of the problem. One is an English paper that takes into account that if effective, obesity surgery improves a patient's health and reduces their need for NHS care. If unsuccessful then the costs include not only subsequent NHS costs due to these other illnesses but also the costs of the unsuccessful operation and the emotional cost to the patient. The investment based intervention aims to help improve the effectiveness of surgery which in the longer term is likely to be cost effective. This research is based upon a small scale pilot study that showed that a simple investment based intervention which encouraged patients to consider their personal investment in having weight loss surgery, improved weight loss and if this is reproduced in the current larger scale study then such a simple, easy to administer and low cost intervention could become routine practice for bariatric patients.

Another study published by researchers from the Neuropsychiatric Research Institute, Fargo, ND. 'Postoperative Behavioral Variables and Weight Change 3 Years after Bariatric Surgery', published in *JAMA Surgery*, suggests that the utility of programmes to modify problematic eating behaviours and eating patterns because assessing certain weight control practices and eating behaviours after bariatric surgery can significantly influence the amount of weight loss after surgery.

2. Objectives and Methods

Our research aimed to observe the following in subjects treated with bariatric surgery: the Adherence to recommendations post-surgery for obesity, the new lifestyles and the potential cost reduction in the public health plan.

We investigated: a. Bariatric procedures performed; b. Individual reasons underlying bariatric surgery; c. Lapse of time since last bariatric surgery; d. Frequency of follow up visits postsurgical intervention; e. Perception of well-being post bariatric surgery; f. Adherence to recommendations post-surgery; g. Changes in lifestyles

The research has been carried out following a quantitative methodology through structured interviews.

The choice of structured interviews allowed both pre-structuring the interview schedule according to the theoretical central themes and integrating topics arisen during pre-test.

The choice is explained by the fact that answers to research questions concerning the development of an interpersonal relationship require an identification of personal impressions and insights after the treatment of bariatric surgery. Therefore, a survey was selected as the most appropriate research method for this study. Choosing web survey as method was it helpful for reasons such as: a) Cheapness; b) Easiness; c) Quickness; d) Shareability.

The questionnaire consists of 23 questions with particular filters and control items to investigate that the interviewees. This phase of web survey has followed the normal procedures to validate the quantitative research tool: questionnaire construction; pre-test and validation of the questionnaire.

3. Participants and Refusals

Participants have been selected among patients who underwent bariatric surgery with a single operator (Professor L. Angrisani⁴) from 1996 to 2016.

Potential participants were invited by SMS to take part in the project of verifying patients-doctors relationship after bariatric surgery, the Adherence to recommendations post-surgery for obesity and the new lifestyles. The address's link for actively participating at the research was sent 1100 out of 1600 responded to the invitation. In researchers' view, refusal was due to various reasons. First, the auto-selection was linked to the non-use of mobile devices, social media and the Internet; second, the link showed also to be the result of a possible underestimation of the importance of the research and of its contribution to improving the Adherence to recommendations post-surgery for obesity.

Among respondents, patients were chosen for their frequent access to the Internet.

The research was conducted in South Italy in the city of Naples between June 2016 and March 2017 with e-methods: web survey, using a survey monkey. Before starting the study and during its completion, the authors were aware that "the choice of research practices depends upon the questions that are asked, and questions depend on the context" (Nelson *et al.*, 1992, p. 2). Participants were therefore divided according to age, gender and qualifications.

4. Results Section first Discussion

288 patients responded to the invitation. Table 1 shows the demographic characteristics of the population.

Table 1

Demographic characteristics of the population
*mean±standard deviation (SD)

	Population N=288
Gender (M/F)	54/234
Age (years)*	39.55±10.08
Ethnic origin (Caucasian %)	100
Weight (Kg)*	127±24.9
Height (cm)*	166.1±7.7
High School Degree (%)	62.84
Marital Status (Married/Single/Other) (%)	65.6/18.7/15.6

The 288 participants reported 310 bariatric procedures. The most performed procedure was Sleeve Gastrectomy (SG) 62.15%, then Roux-en-Y Gastric Bypass (RYGB) 32.29%; then Gastric Banding (GB) 7.29%. Duodenal Switch (DS), Single Anastomosis Duodeno-Ileal Bypass (SADI) and Biliopancreatic Diversion (BPD) were performed only in 2.1% of patients (Figure 1).

⁴ Sampling is based on Prof. L. ANGRISANI's bariatric procedures Time: 2006-2016; Total bariatric surgery procedures (n)= 1990 Male 546; Female 1444 Mean age 38.05 Kg/m²

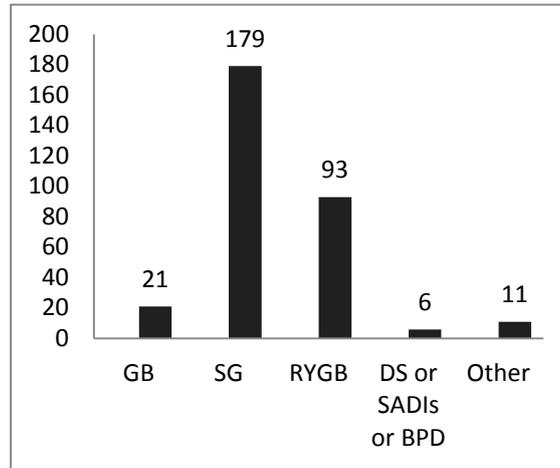


Fig. 1. Type and number of bariatric procedures performed. Abbreviations: Sleeve Gastrectomy (SG); Roux-en-Y Gastric Bypass (RYGB); Gastric Banding (GB); Duodenal Switch (DS), Single Anastomosis Duodeno-Ileal Bypass (SADI), Biliopancreatic Diversion (BPD)

All bariatric procedures currently available are actually considered effective in the treatment of morbid obesity and its related comorbidities compared to non-surgical interventions (Picot *et al.*, 2009; Colquitt, 2014).

The choice of the bariatric procedure is generally due to a number of factors such as literature results, specific local conditions, and the experience of the surgical staff in each country. Several worldwide surveys have been previously performed (Scopinaro, 1998; Buchwald *et al.*, 2004; Buchwald *et al.*, 2009; Buchwald *et al.*, 2013) to illustrate the evolution of bariatric surgery around the world in the last decades.

Recently a global overview describing the number and type of each performed procedure of worldwide bariatric surgery in 2013 has been published, showing that sleeve gastrectomy (SG) had a steep increase all around the world, although Roux-en-Y gastric bypass (RYGB) still represented the most performed procedure, while adjustable gastric banding (AGB) declined (Angrisani *et al.*, 2013). Our hypothesis that might explain why SG is growing all around the world is the simpler surgical technique of SG as compared to RYGB, together with the promising long-term weight loss outcomes (Diamantis *et al.*, 2014; Angrisani, 2015).

As just said, some of the first data of the survey show how patients are scrupulous to their doctors' recommendations after surgery, as seen from Figure 2.

Patients do not forget to follow health instructions and if they behave otherwise it is for their well physical condition, as you can see in Figure 3.

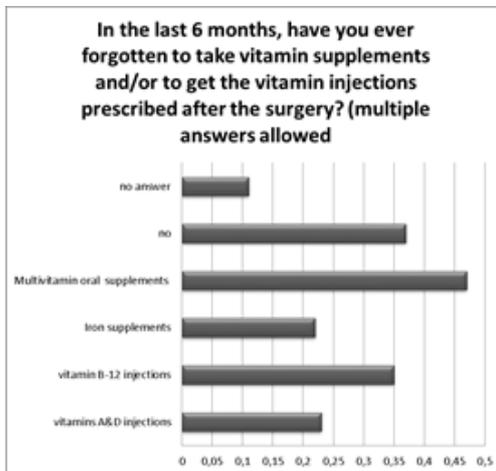


Fig. 2. Type of responses to the questions adherence to recommendations post-surgery

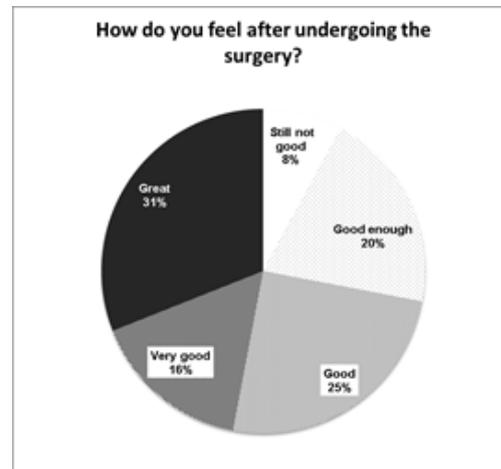


Fig. 3. Type of responses to the questions: Perception of one's being healthy after the intervention of Bariatric Surgery

Moreover when asking “Is it important for you to comply with the vitamin therapy prescribed after the surgery?” 90% of respondents answered that it is very important. The 72% of the sample analyzed reported feeling very well after the intervention of bariatric surgery, and this is also showed by responses to the question “After bariatric surgery, do you like yourself?” In this case, 72% said to live their everyday lives much better.

5. First Conclusions

An extension of this research would entail taking into consideration a constructivist approach which consented – as regards bariatric surgery themes, environment and the inherent self - awareness of the subjects themselves – to understand how perception towards certain interrogatives (such as conceptions of illness and well-being from both a personal and general perspective) are individually constructed in parallel with the assembly of information and experience. Regarding any consideration of the possible understanding that the sample of patients treated with bariatric surgery may have towards the subject of obesity and its problems it depends upon the importance that each individual attributes to the argument - not forgetting those factors which can influence the construction (or non-construction) of that importance (social-demographic variables: age; sex; the provenance of both student and family; schooling, etc.) – in other words, precisely that importance motivated both from within the subject and from individual external experience (Habermas, Luhmann, 1971). Nevertheless, it can be safely assumed that any person will have acquired a bariatric surgery understanding of relevance of post-surgery recommendations for obesity, not only as regards their potential efficacy relative to health and illness but also in terms of subjective analysis and active response to such themes. In other words this paper wants eventually to represent the beginning of an important and enduring research and also the structuring of a large research network.

Acknowledgements

We thank prof. Luigi Angrisani and Mrs. Maria Police for the constructive help on in the detection of the datum and earlier version of the manuscript. Responsibility for the arguments made in the article remains, however, with the authors alone.

References

- Aasheim, E.T., Hofsø, D., Hjelmessaeth, J., Birkeland, K.I., Bøhmer, T. (2008). Vitamin status in morbidly obese patients: a cross-sectional study. *The American journal of clinical nutrition*, 87(2), 362–369.
- Angrisani, L., Santonicola, A., Hasani, A., Nosso, G., Capaldo, B., Iovino, P. (2015). Five-year results of laparoscopic sleeve gastrectomy: effects on gastroesophageal reflux disease symptoms and co-morbidities. *Surgery for Obesity and Related Diseases*, 7289(15)00855-2.
- Angrisani, L., Santonicola, A., Iovino, P., Formisano, G., Buchwald, H., Scopinaro, N. (2015). Bariatric Surgery Worldwide 2013. *Obesity Surgery*, 25(10), 1822–32.
- Buchwald, H., Oien, D.M. (2009). Metabolic/bariatric surgery Worldwide 2008. *Obesity Surgery*, 19(12), 1605-11.
- Buchwald, H., Oien, D.M. (2013). Metabolic/bariatric surgery worldwide 2011. *Obesity Surgery*, 23(4), 427-36.
- Buchwald, H., Williams, S.E. (2004). Bariatric surgery worldwide 2003. *Obesity Surgery*, 14, 1157–1164.
- Cersosimo, G., Merico, M. (2017). Childhood and Juvenile Obesity in Italy: Health Promotion in an Era of Austerity. In P. Kelly, J. Pike (Eds.), *Neoliberalism, Austerity, and the Moral Economies of Young People's Health and Well-being*. London: Palgrave Macmillan, p.141-159.
- Colquitt, J.L., Pickett, K., Loveman, E., Frampton, G.K. (2014). Surgery for weight loss in adults. *Cochrane Database of Systematic Review*, 8(8).
- Coupaye M., Rivière P., Breuil M.C., Castel B., Bogard C., Dupré T., Flamant M., Msika S., Ledoux S. (2014). Comparison of nutritional status during the first year after sleeve gastrectomy and Roux-en-Y gastric bypass. *Obesity Surgery*, 24(2), 276–83.
- Diamantis, T., Apostolou, K.G., Alexandrou, A., Griniatsos, J., Felekouras, E., Tsigris, C. (2014). Review of long-term weight loss results after laparoscopic sleeve gastrectomy. *Surgery for Obesity and Related Diseases*, 10(1), 177-83.
- Dixon, J.B., Straznicky, N.E., Lambert, E.A., Schlaich, M.P., Lambert, G.W. (2011). Surgical approaches to the treatment of obesity. *Nature reviews. Gastroenterology & hepatology*, 8(8), 429–37.
- Dyson, P.A. (2010). The therapeutics of lifestyle management on obesity. *Diabetes, Obesity and Metabolism*, 12(11), 941–6.
- Goffman, E. (1969). *Where the action is. Three essays*. London: The Penguin Press.
- Habermas J., Luhmann N. (1971). *Theorie der Gesellschaft oder Sozialtechnologie. Was leistet die Systemforschung?* [Theory of society or social technology. What does system research do?]. Frankfurt: Suhrkamp.
- Ledoux, S., Msika, S., Moussa, F., Larger, E., Boudou, P., Salomon, L., et al. (2006). Comparison of nutritional consequences of conventional therapy of obesity, adjustable gastric banding, and gastric bypass. *Obesity Surgery*, (16)8, 1041-9.

- Lo Menzo, E., Cappellani, A., Zanghì, A., Di Vita, M., Berretta, M., Szomstein, S. (2014). Nutritional Implications of Obesity: Before and After Bariatric Surgery. *Bariatric Surgical Practice and Patient Care*, 9(1), 9–17.
- Mechanick, J.I., Kushner, R.F., Sugerman, H.J., Gonzalez-Campoy, J.M., Collazo-Clavell M.L., Spitz, A.F., *et al.* (2009). American Association of Clinical Endocrinologists, The Obesity Society, and American Society for Metabolic & Bariatric Surgery medical guidelines for clinical practice for the perioperative nutritional, metabolic, and nonsurgical support of the bariatric surgery patient. *Obesity* 17, Suppl 1: S1-70.
- Ministero della Salute (2014a). *Obesità* [Obesity]. Available at: http://www.salute.gov.it/portale/salute/p1_5.jsp?lingua=italiano&id=175&area=Malattie_endocrine_e_metaboliche. Accessed: 14-10-2015.
- Ministero della Salute (2014b). Piano Nazionale della Prevenzione 2014-2018 [National Prevention Plan 2014-2018]. Available at http://www.salute.gov.it/imgs/C_17_pubblicazioni_2285_allegato.pdf. Accessed: 14-10-2015.
- Nelson, C., Treichler, P. A., & Grossberg, L. (1992). Cultural studies. In L. Grossberg, C. Nelson & P. A. Treichler (Eds.), *Cultural studies*. New York : Routledge, p.1-16.
- Peterson, L.A., Cheskin, L.J., Furtado, M., Papas, K., Schweitzer, M.A., Magnuson, T.H., *et al.* (2016). Malnutrition in Bariatric Surgery Candidates: Multiple Micronutrient Deficiencies Prior to Surgery. *Obesity Surgery*, 26(4), 833-8.
- Picot, J., Jones, J., Colquitt, J.L., Gospodarevskaya, E., Loveman, E., Baxter, L., Clegg A.J. (2009). The clinical effectiveness and cost-effectiveness of bariatric (weight loss) surgery for obesity: a systematic review and economic evaluation. *Health Technology Assessment*, 13(41), 1-190, 215-357.
- Sánchez, A., Rojas, P., Basfi-Fer, K., Carrasco, F., Inostroza, J., Codoceo, J., *et al.* (2015). Micronutrient Deficiencies in Morbidly Obese Women Prior to Bariatric Surgery. *Obesity Surgery*, 25(10), 1822–32.
- Scopinaro, N. (1998). The IFSO and obesity surgery throughout the world. *Obesity Surgery*, 8, 3–8.
- Wing, R.R., Phelan, S. (2005). Long-term weight loss maintenance. *The American journal of clinical nutrition*, 82(1 Suppl), 222S–225S.