

Emotional factors relating to weight gain during the COVID-19 pandemic at post-bariatric women from São Paulo: a cross-sectional study

  <https://doi.org/10.56238/devopinterscie-112>

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ABSTRACT

Objective: Evaluate the impact of the covid-19 pandemic on weight regain in post-bariatric women and correlate it with symptoms of anxiety, depression, binge eating, and fear of covid-19.

Methods: It collected anthropometric and mental health information with the application of psychometric scales on the patients mentioned above, between May/2021 and January/2022. Frequencies (descriptive statistics), test t for independent samples, and Spearman were used to obtain a correlation between weight gain and the psychometric scales.

Results: The sample comprised 25 women. The average age was 53.0 years and the average body mass index was 35.2kg/m² before the pandemic. We observed an average increase in the body mass index of 1.4 points during the pandemic. However, 40% maintained or lost weight during the same period. The weight gain group had higher scores for depression, anxiety, and binge eating symptoms. Fear of covid-19 scores did not differ between the groups.

Conclusion: Anxiety, depression, and binge eating symptoms have influenced weight to regain in a small sample of post-bariatric women during the covid-19 pandemic.

Keywords: COVID-19, Bariatric Surgery, Weight Gain, Anxiety, Depression.

1 INTRODUCTION

In the last years, due to a higher prevalence of morbid obesity in the Brazilian population,^[1] bariatric surgery has been used as an alternative to improve health conditions. Nevertheless, some studies have shown a 5.7% to 75.6% weight regain in these patients 2 to 6 years after the procedure.^[2,3] Therefore, psychological, behavioral, physiological, and psychosocial factors may justify these unfavorable results.^[4]

During the coronavirus disease 2019 (COVID-19) pandemic, obesity has been associated with higher risks of aggravation of the disease, likely due to immunological and inflammatory mechanisms.^[5-7] The lockdown applied in several countries during the COVID-19 pandemic has brought about global changes to eating habits. In Spain, for example, 50% of people declared an increase in the consumption of sweets and snacks during meals.^[8] In France, around 40% of the interviewees were using food as compensation for emotions such as "emptiness", boredom, and stress.^[9] Among Italians, a rise in the consumption of comfort foods, associated with higher levels of anxiety, was observed, and 20% of the people reported weight gain.^[10]

2 METHODS

This cross-sectional study was carried out at the endocrinology outpatient clinic of the Irmandade da Santa Casa de Misericórdia de São Paulo (ISCMSP) hospital between May/2021 and January/2022. Female patients (over 18 yo) who had undergone bariatric surgery by 2017 were invited to participate. Body mass index (BMI) was used to assess the anthropometric measures, Binge Eating Scale (BES),¹¹ Patient Health Questionnaire-9 (PHQ-9),¹² Generalized Anxiety Disorder- 7 (GAD-7),¹³ and fear of COVID-19 Scale (FCS)¹⁴ were used to assess binge eating, depression, anxiety and fear of COVID-19 symptoms respectively. The data were collected through voice calls or online self-filled questionnaires via Google Forms.

For statistical analysis, the Statistical Package for the Social Sciences (SPSS) software for Windows, Version 24.0, was used, employing tables, and frequencies (descriptive statistics). Student's t-test differences were considered statistically significant if $p < 0.05$. for independent samples and Spearman, differences were considered statistically significant if $p < 0.05$. correlation between weight gain and the psychometric scales.

All subjects interviewed signed the free and informed consent form after an explanation of the objectives, procedures, benefits, and risks of the study. This project was approved by the Research Ethics Committee of ISCMSP. 43343220.7.0000.547 was submitted and approved on 8th April 2021.

3 RESULTS

The final sample (Table 1) comprised 25 women with an average age of 53 years old (standard deviation, $SD \pm 9.8$).

The average BMI before the pandemic was 35.2kg/m² (SD ± 8.0) and 36.6kg/m² (SD ± 7.1) after the pandemic. We divided the entire group into two: The weight gain (WG) group with 15 individuals that gained weight and the weight loss (WL) group with 10 volunteers that lost or maintained weight in the period.

The WG group had a mean score almost five times higher for binge eating ($t = 4.78$; $P < 0.001$), more than two times higher for depression ($t = 3.43$; $P = 0.002$), nearly three times higher for anxiety ($t = 3.67$; $P = 0.001$) and no statistical difference in Fear of COVID-19 ($t = 0.47$; $P = 0.644$).

We found a positive correlation between weight regain and binge eating scores ($t = 0.77$; $P = 0.001$) and depression scores ($t = 0.63$; $P = 0.001$). Anxiety and fear of COVID-19 scores and pre-pandemic BMI did not correlate with weight regain.

Table 1. Weight loss (WL) or weight gain (WG) group during the covid-19 pandemic in post-bariatric patients, according to psychometric variables at the pandemic onset.

(Average in kilograms)	WL (n = 10)				WG (n = 15)				
	-5.7				+ 9				
Score	BES	PHQ-9	GAD-7	Fear of COVID-19	BES	PHQ-9	GAD-7	Fear of COVID-19	
M	4.60	7	5	18.60	20.2	16.27	13.33	19.93	
SE	2.06	2.22	1.80	2.02	2.7	1.63	1.40	1.89	
95% CI	Inf	0.05	1.96	0.91	14.01	15.33	12.77	10.32	15.88
	Sup	9.25	12.04	9.09	23.19	25.7	19.76	16.35	23.99
Median	1.50	5.50	3.50	20.50	1.50	5.50	3.50	2.50	
SD	6.50	7.04	5.72	6.42	6.50	7.04	5.72	6.42	
Minimum	0	0	0	7	5	2	4	8	
Maximum	20	19	17	29	32	24	21	32	

M = mean; SE = standard error; SD = standard deviation; CI = confidence interval; Inf = inferior; Sup = superior; PHQ-9 = Patient Health Questionnaire-9; GAD-7 = Generalized Anxiety Disorder-7; COVID = coronavirus disease 2019.

4 DISCUSSION

Weight gain has been observed in several populations during the COVID-19 pandemic, according to the NutriNet Brasil cohort. More people have gained weight than lost weight during the pandemic, and the people that have gained more weight were already overweight. The same has been found in Poland, Spain, the United States, and Saudi Arabia.^{[15]-[18]}

This study confirmed this trend toward weight gain in a small sample of women that had been submitted to bariatric surgery before the pandemic.

However, this regain was not equal. 40% of the sample kept or lost weight. Interestingly, those who gained weight had extremely higher scores of binge eating, anxiety, and depression symptoms. Furthermore, it showed a correlation between weight regain and depression, and binge eating scores. Individuals with depression and anxiety were affected disproportionately during the pandemic when it comes to weight gain.^{[19],[20]}

Additionally, studies have shown a rise in the incidence of those disorders during the pandemic.^{[21],[22]} It should be considered that although this study was conducted during a period with social restrictions in Brazil, there was no difference between fear of COVID-19 levels between people that lost and gained weight in the same period. This result goes against the hypothesis of the effect of fear of COVID-19 on weight regain.

The main limitation of this study was the sample size. Multicentric studies with bigger samples and longitudinal studies are needed for better conclusions.

5 CONCLUSION

Due to the strong association between binge eating, depression, anxiety, and weight regain in post-bariatric patients in the present study, we suggest that it is necessary to consider psychiatric symptomatology such as depression, anxiety, and binge eating even in patients who are not afraid of contracting COVID-19.

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