

DEPRESSION AND HOPELESSNESS AS POSSIBLE PREDICTORS OF WEIGHT CHANGE AMONG OBESE DAY-HOSPITAL PATIENTS: A 6-MONTHS FOLLOW-UP STUDY

Bjanka Vuksan-Ćusa^{1,2,3}, Nenad Jakšić¹, Martina Matovinović⁴, Maja Baretić⁴, Zrinka Vuksan-Ćusa², Filip Mustać¹, Katarina Ivana Tudor⁵, Marina Šagud^{1,2} & Darko Marčinko^{1,2}

¹Department of Psychiatry and Psychological Medicine, University Hospital Centre Zagreb, Zagreb, Croatia

²School of Medicine, University of Zagreb, Zagreb, Croatia

³School of Medicine, Josip Juraj Strossmayer University, Osijek, Croatia

⁴Division of Endocrinology, Department of Internal Medicine, University Hospital Center Zagreb, Zagreb, Croatia

⁵Department of Neurology, University Hospital Center Zagreb, Zagreb, Croatia

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Both depression and obesity are common problems and major public health concerns, highly associated with morbidity and mortality as well as with functional impairment and healthcare expenditure (Milaneschi et al. 2017). A large number of epidemiological studies and empirical analyses have confirmed the association between depression and obesity as commonly co-occurring medical conditions (Faith et al. 2011, Lin et al. 2013). The mechanisms linking these two conditions have been extensively studied indicating the involvement of hypothalamic–pituitary–adrenal (HPA) dysregulation, inflammation, oxidative stress, as well as endocrine dysfunction (Hryhorczuk et al. 2013). Moreover, a recent meta-analysis reported that major depressive disorder (MDD) may be associated with increased risk of developing obesity or being overweight later on, thus indicating a prospective relationship between depression and obesity (Luppino et al. 2010). It has been suggested that depression can affect body weight via the altered appetite of the patients, however, this relationship is probably bidirectional and rather complex, including a common genetic vulnerability between these two medical conditions (Milaneschi et al. 2017). Thus, development of treatments effectively targeting immunometabolic dysregulations may benefit patients with depression and obesity, both syndromes with important disability. The aim of our study was to evaluate whether initial depressive status could predict weight change among obese patients attending a structured weight loss program followed by regular monthly check-ups. Additionally, we wanted to evaluate the long-term effects of our program and compare them to our preliminary findings (Matovinović Osvatić et al. 2016).

Study included 130 Caucasian outpatients (31 men, 99 women), mean age 47.25 years, SD=12.106, range 23–78 years, attending a structured weight loss program at the Division of Endocrinology, University Hospital Centre Zagreb. A 5-day program included daily consultations with a multidisciplinary healthcare team. The team led by an endocrinologist-diabetologist

and nurse-educator, also included a nutritionist, physiotherapist, psychiatrist and psychologist who provided psychological support and facilitated behaviour modifications, and other subspecialists. Exclusion criteria were patients with pituitary and/or adrenal disease, and untreated thyroid disease. None of the patients were suffering from severe mental illness and none were on antidepressant medication during the study period. At the baseline and after 6 months (4 to 8 months) we estimated anthropometric values. Baseline mean body mass was 124.84 kg (76.30–243 kg); after 6 months mean body mass was 117.61 kg (72.40–191.60 kg). In addition, baseline examination included two self-report instruments assessing patients' depressive status: the Depression Anxiety Stress Scale-21 (DASS-21; Lovibond & Lovibond 1995) and the Beck Hopelessness Scale (BHS; Beck 1988). The Cronbach's alpha coefficients in the current study were 0.89 and 0.87, respectively. Statistical analyses were conducted in the SPSS version 19 (SPSS, Chicago, IL), and the level of statistical significance was set at $p < 0.05$.

We compared the baseline and 6-month average weight of our patients, and the difference was statistically significant ($t=6.483$, $p < 0.01$). The mean scores on the DASS-21 depression subscale and the BHS scale were 12.36 (SD=12.347) and 5.11 (SD=4.568), respectively, suggesting mild levels of depression and hopelessness. Most importantly, none of the correlations of depression and hopelessness with weight change were significant ($p > 0.05$).

Our results indicate that patients have lost a significant amount of body weight, 6 months after attending the abovementioned structured weight-loss program. This finding is in line with our previous results within a smaller sample, pertaining to weight reduction in a 3-month follow-up (Matovinović Osvatić et al. 2016), suggesting a longer-term efficacy of our treatment method. Furthermore, we did not find a significant association between baseline depressive symptoms and level of hopelessness with weight reduction 6 months after group treatment. This is somewhat incongruent with

previous research that documented predictive function of depression on weight loss (Legenbauer et al. 2009) and treatment adherence (Somerset et al. 2011) among obese patients. It should be noted, however, that these two studies were carried out with patients exhibiting higher levels of depression, including those diagnosed with MDD, whereas levels of self-reported depression in our sample were generally on subclinical levels. None of our patients required antidepressant pharmacotherapy. Moreover, these previous studies utilized a more detailed and broader measure of depression (i.e., BDI-II), while our patients were evaluated by a more narrow instrument (i.e., DASS-21), so future studies are encouraged to include a more comprehensive psychological evaluation.

Today, there is a great variety of different therapeutic approaches to obesity covering different aspects of the problem (single mode, two modes, three or more modes of interventions, pharmacological and non-pharmacological) (Primack 2018). Our weight loss program included multiple treatment interventions (nutritive, behavioural, counseling, exercises, educational, endocrinological treatment of vitamins and mineral deficiency or insufficiency, etc.), so the final weight change was the result of the complex interaction of all these parameters. Thus, there is a need for greater standardization in designing weight-loss trials in order to include other psychological tests to better evaluate different aspects of specific interventions.

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Correspondence:

Bjanka Vuksan-Ćusa, MD, PhD

Department of Psychiatry and Psychological Medicine, University Hospital Centre Zagreb

Kišpatićeva 12, 10 000 Zagreb, Croatia

E-mail: bjanka.vuksan@gmail.com