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Comparing of Metabolic Syndrome Components, Inflammation, Cortisol Level, and Psychological Distress in Obese/Overweight and Normal Weight Women

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ABSTRACT

Background: High levels of stress in obese people, hypothalamic-pituitary-adrenal (HPA) axis disorder, and social pressures can increase cortisol level and lead to psychological disorders. The aim of this study is to compare psychological distress, biochemical parameters, and metabolic syndrome components between normal-weight and overweight (OW)/obese women. **Methods:** This was an analytical cross-sectional study conducted on 75 women aged 18 to 60; they were divided into three groups: obese and OW on diet (obese/OW on diet), obese and OW without diet (obese/OW without diet), and normal-weight. The components of metabolic syndrome, serum cortisol, and high sensitive C-reactive protein (hs-CRP) levels were measured. General health questionnaire-28 (GHQ-28) was also completed to assess psychological distress. **Result:** The results revealed that there was a significant difference between normal weight and the other two groups regarding metabolic syndrome components, which included waist circumference (WC), fasting blood sugar (FBS), systolic blood-pressure (SBP), and hs-CRP (P<0.05). Serum cortisol level was significantly higher in obese/OW on diet compared with the other two groups (P<0.001). Moreover, the total-GHQ score was significantly lower in normal weight compared with the group of obese/OW on diet and the group without diet (P=0.001). **Conclusion:** Being on a diet may expose a person to stress and increase the serum cortisol level. Elevated psychological distress, metabolic syndrome components, and inflammation were apparent in obese and OW women compared to normal-weight ones.

Keywords: *Obesity; Metabolic syndrome; Inflammation; Psychological distress; Diet; Non-communicable diseases*

Introduction

Obesity, as a chronic multifactorial disease, results from a positive balance of energy and excess fat accumulation throughout life. Obesity leads to structural abnormalities, physiological damage, and functional disorders when left untreated (Jastreboff *et al.*, 2019). According to the World Health Organization (WHO), overweight and obesity are among the top five causes of

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Conclusion

Going on a diet, irrespective of weight changes, might expose a person to stress and increase the serum cortisol levels; a significant weight loss was probably required to improve the components of metabolic syndrome and inflammation. It was also found that psychological distress, metabolic syndrome components and inflammation were higher in obese and OW cases compared with normal-weight ones.

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Conflict of interests

The authors declared no conflict of interest.

Authors' Contribution

Soltani E, Hejazi N, Sohrabi Z and Gordali M wrote and reviewed the manuscript; Soltani E was involved with the research method, ; Hejazi N was the managed the project, and Gordali M analyzed data. All the authors approved the final manuscript.

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