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Leptin and aging association with anxiety and depression symptoms in overweight middle-aged women

**Maria Fernanda Naufel, PhD¹, Valter Tadeu Boldarine, PhD¹, Lila Missae Oyama, PhD¹,
Claudia Maria Oller do Nascimento, PhD¹, Gianni Mara Silva dos Santos, PhD²,
Helena Hachul, PhD^{3,4}, and Eliane Beraldi Ribeiro, PhD¹**

¹Department of Physiology, Universidade Federal de São Paulo (UNIFESP), São Paulo, SP, Brazil;

²Department of Applied Statistics, Universidade Federal de São Paulo (UNIFESP), São Paulo, SP, Brazil;

³Department of Psychobiology, Universidade Federal de São Paulo (UNIFESP), São Paulo, SP, Brazil; and

⁴Department of Gynecology, Universidade Federal de São Paulo (UNIFESP), São Paulo, SP, Brazil.

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During reproductive aging, increased rates of factors, such as sleep disorders, psychological symptoms, and obesity negatively impacts quality of life. The aim of the present study was to investigate the effect of menopause and of postmenopausal stages on depression and anxiety symptoms, and whether these symptoms associate with anthropometric, metabolic, and hormonal parameters in midlife women.

Methods: Postmenopausal women (age 50-65), either at early (EPM, n=33) or late (LPM, n=23) postmenopause, and 23 premenopausal controls (PreM, age 40-50), matched for BMI with the PM groups, were studied. Blood biochemical and hormonal determinations, bioimpedance anthropometry, and depression and anxiety symptoms (Beck's depression [BDI] and anxiety [BAI] inventories) were conducted.

Results: The BAI score was higher in both PM groups than in the PreM group. In contrast, only the LPM group showed a significantly elevated BDI score. All groups presented overweight and abdominal obesity, having similar BMI and waist/hip ratio values. Both PM groups showed insulin resistance, whereas only the LPM group presented decreased skeletal muscle mass and basal metabolic rate. Correlation analysis, including all 79 middle-aged women, showed age, percentage body fat, waist/hip ratio, and leptinemia to correlate positively with the anxiety and depression scores. Multivariate regression showed leptin and age to associate positively with depressive- and anxious-like symptoms.

Conclusions: Postmenopausal women presented impaired body composition, energy expenditure, insulin sensitivity, and mental symptoms, in comparison to similarly overweight premenopausal women. Among all the overweight midlife women, these symptoms were more strongly associated with age and leptin levels than with reproductive aging itself. The data indicate that, among overweight middle-aged women with abdominal obesity, the aging process and the development of leptin resistance are associated with impairment of mental health.

Keywords: abdominal obesity, inflammatory markers, leptin resistance, mental health, insulin, gut hormones

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Biography:

Maria Fernanda Naufel is a Postdoctoral researcher / Departamento de Fisiologia, Programa de Pós-Graduação em Nutrição – Universidade Federal de São Paulo – UNIFESP/EPM. Maria Fernanda Naufel is graduated as a Dietitian, specialist and master at Nephropediatrics and PhD at Nutrition from Universidade Federal de São Paulo (UNIFESP). Professional experience focusing on Clinical Nutrition, acting on the following subjects: gut hormones, obesity, sleep and mood disorders, nephrology and postmenopause. At the moment works as a postdoctoral researcher at the Pós-Graduação em Nutrição-UNIFESP. Current project: The influence of obesity on sleep and mood disorders in postmenopausal women.

fernanda.naufel@gmail.com or fernanda.naufel@unifesp.br