

Relationship between obesity and depression, anxiety and psychological distress among Iranian health-care staff

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Abstract

Background: Psychological-related disorders such as obesity are a key contributor to morbidity and mortality.

Aims: To assess the association between general and abdominal obesity with depression and anxiety among Iranian health-care staff.

Methods: This cross-sectional study was conducted under the framework of the Study on the Epidemiology of Psychological Alimentary Health and Nutrition. A total of 4361 Iranian health-care staff were analysed for general obesity and 3213 for central obesity. Overweight and obesity was defined as body mass index 25.0–29.9 and ≥ 30.0 kg/m², respectively. Abdominal obesity was defined as waist circumference (WC) ≥ 88 cm for females and ≥ 102 cm for males. The Iranian validated versions of the Hospital Anxiety and Depression Scale and the General Health Questionnaire were used to assess depression and anxiety.

Results: Stratified analysis by sex revealed no significant relationship between general obesity, depression and anxiety among males. However, we found an inverse association between abdominal obesity (WC > 102 cm) and severe depression among males. In females, abdominal obesity was significantly associated with anxiety, before and after taking confounders into account. No significant association was seen between abdominal obesity and psychological distress in either sex after controlling for potential confounders.

Conclusions: Abdominal obesity was associated with anxiety in Iranian adult females but not in males. Further studies, particularly prospective research, are required to confirm these findings.

Keywords: obesity, abdominal obesity, psychological health, depression, anxiety

Citation: Heidari-Beni M; Azizi-Soleiman F; Afshar H; Khosravi-Boroujeni H; Hassanzadeh Keshteli A; Esmailzadeh A. et al. Relationship between obesity and depression, anxiety and psychological distress among Iranian health-care staff. *East Mediterr Health J.* 2021;27(4):326–335. <https://doi.org/10.26719/emhj.20.132>

Received: 02/10/19; accepted: 06/04/20

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Introduction

Depression is a common psychological disorder and like obesity, is a key contributor to morbidity and mortality (1). Not much research has been performed on the relationship between obesity and mental illness such as depression and anxiety. Depression can adversely affect quality of life and working ability (1). Treatment and management of obesity and depression or anxiety are costly; therefore, more studies are required to elucidate the association between obesity and psychological disorders to improve clinical management plans (2).

Previous studies have reported a connection between obesity and anxiety and depression, albeit with conflicting results (3,4). Some studies have found a negative association of obesity with depression and anxiety (2), whereas others have shown a U-shaped association, meaning that underweight and overweight people are more likely to have depression and anxiety than those

with normal weight (5,6). Despite such evidence, some researchers have not found any relationship between body weight and depression and anxiety (7). Furthermore, some investigators have found an association only in men (8), while others have found a significant association only in women (5).

One of the major reasons for obesity in patients with psychological disorders is medication, which can lead to 2–17 kg weight gain over the course of clinical treatment. Adverse effects of these medications include reduced quality of life and cardiovascular disorders in patients with severe mental illness compared to the general population. In patients with severe weight gain after the first 3 months of beginning medication, lifestyle intervention is suggested (5).

It should be borne in mind that most studies in this area have been conducted in western countries and limited data are available from other regions. In particular, studying the relationship between obesity

with depression and anxiety is important among Middle-Eastern populations, where there is a specific pattern of obesity (9). Abdominal obesity is prevalent among adult women living in the Middle East. Moreover, previous studies have focused on general obesity, while it seems that the influence of fat distribution within the body on psychological disorders is more important than total body fat. Moreover, previous studies have focused on depression as the main psychological outcome, whereas other conditions like stress and psychological distress might also be associated with obesity. Given the limited details on the relationship between general and central adiposity and psychological disorders in the Middle East, the purpose of this study was to investigate whether obesity is associated with depression, anxiety and psychological distress among Iranian healthcare staff.

Methods

Study participants

We conducted a cross-sectional study within the framework of the Study on the Epidemiology of Psychiatric-Alimentary Health and Nutrition (SEPAHAN). Participants were adults aged 18–55 years selected from 50 healthcare centres of Isfahan Province, Islamic Republic of Iran. Details of the study protocol have been discussed previously (10). The study group comprised different categories of employees recruited from different health centres, with different lifestyle and socioeconomic status. So, there was no homogeneity in the study population. These differences were similar to those in wider society.

The required information in the SEPAHAN study was collected in 2 phases. First, a questionnaire that contained information on demographic and dietary data was sent to 10 087 participants and 8691 returned the completed questionnaires (response rate 86.16%). Second, information on psychological health was gathered and 6239 participants returned the completed questionnaires. After linking the completed questionnaires from the first and second phases, 4633 participants had given complete information on diet and psychological factors. We excluded under- and over-reporting of food intake (energy intake outside the range of 800–4200 kcal/day). Finally, data on 4361 participants were analysed for general obesity and 3213 for central obesity. Participants gave signed informed consent to take part in the study.

Anthropometric assessment

Anthropometric data [body height and weight and waist circumference (WC)] were collected using a validated self-administered questionnaire (11). Body mass index (BMI) was categorized into normal (≤ 24.9 kg/m²), overweight (25.0–29.9 kg/m²) or obese (≥ 30.0 kg/m²). The guidelines of the National Cholesterol Education Program were used to define abdominal obesity. Accordingly, participants were classified into 3 categories: normal WC (< 80 cm for women, < 94 cm for men); level 1 abdominal obesity (80–87.99 cm for women, 94–101.99 cm for

men); and level 2 abdominal obesity (≥ 88 cm for women, ≥ 102 cm for men) (12).

The validity of self-reported anthropometric values was assessed in a pilot study including 200 individuals from the same population (11). These values were compared with actual measured values. There was a reasonable correlation between self-reported and measured values. The correlation coefficients were 0.95 ($P < 0.001$) for self-reported body weight, 0.83 ($P < 0.001$) for height, and 0.60 ($P < 0.001$) for WC versus corresponding measured values. The correlation coefficient for report-based BMI (calculated from self-reported body height and weight) and the measurement-based BMI (calculated from measured body weight and height) was 0.70 ($P < 0.001$).

Assessment of psychological profile

Anxiety and depression were measured by the validated Iranian translation of the Hospital Anxiety and Depression Scale (HADS) (13). HADS is a screening tool used to measure symptoms of anxiety and depression. HADS consists of 2 subscales, with 7 items measuring anxiety and 7 items measuring depression. Items are rated on a 4-point scale (0–3), with higher scores indicating a higher level of anxiety and depression symptoms. The maximum score of HADS is 21 in each of the subscales. Scores of ≥ 11 on either subscale were considered to be a severe form of depression or anxiety, 8–10 borderline and 0–7 normal (14).

Psychological distress was evaluated by the validated Iranian translation of the General Health Questionnaire (GHQ) with 12-items (15). GHQ-12 is a short, simple and easy-to-complete questionnaire that measures current and primary mental health, to determine if the respondent is at risk of developing psychological distress. Items are rated on a 4-point response scale comprising: 1, less than usual; 2, no more than usual; 3, rather more than usual; and 4, much more than usual. The total score is 12 or 36 according to the scoring method used. We used the dichotomous scoring style (0-0-1-1). Total score ranges from 0 to 12. Higher scores indicate high levels of psychological distress (16). We considered poor mental health to be GHQ-12 score ≥ 4 .

Statistical analysis

Statistical analysis was performed using SPSS version 16 (SPSS Inc, Chicago, IL, USA). $P < 0.05$ was considered significant. Data were analysed for the overall population as well as stratified by sex. General characteristics of study participants across different categories of BMI and WC were examined by analysis of variance or χ^2 test. Prevalence of mental illness across categories of BMI and WC was assessed by χ^2 test. Binary logistic regression was performed to explore the relationship between general and central obesity and psychological disorders. This analysis was adjusted for possible confounders including age (continuous), sex (male/female), marital status (single/married/divorced), education (below high school, university graduate), smoking (non-smokers, ex-smok-

ers/current smokers) and physical activity (never, < 1 h/week, 1–3 h/week and > 3 h/week). In all multivariate models, those with normal BMI or WC were considered as a reference. The logistic regression was applied for different levels of mental illnesses: borderline and severe forms of depression, anxiety and high psychological distress were considered as separate outcomes in the analysis. We also used the combined variable of these 2 levels in the analysis. The growing trend of odds ratios across BMI and WC categories was examined through the use of median values of BMI and WC in each category as a continuous variable.

Results

The general characteristics of the study participants across BMI and waist circumference categories are indicated in Table 1.

Prevalence of overweight and obesity was 37% (43.7% for men and 10% for women) and 9.7% (9.3% for males and 10.0% for females) in the overall population, respectively. Prevalence of abdominal obesity (level 2) was 33.1% for the overall population (18.3% for men and 39.7% for women). Prevalence of abdominal obesity (level 2) was 30.4% for the overall population (16.8% for men and 38.4% for women).

Prevalence of mental illnesses across different categories of BMI in the whole population as well as by gender is shown in Figure 1. Prevalence of severe depression and anxiety was significantly higher in obese participants than in other categories. When the analyses were stratified by sex, such significant differences were only seen among women. Prevalence of depression, anxiety and high psychological distress among abdominally obese (level 2) participants was more than that in other categories of WC in the whole population.

The same findings were also observed among women in our stratified analysis.

Sex-stratified analysis revealed no significant relationship between general obesity and depression, anxiety and high psychological distress among men (Table 2). However, abdominal obesity (WC > 102 cm) was inversely associated with severe depression in men. In women, a significant relationship was seen between obesity and severe depression [odds ratio (OR) = 1.45, 95% confidence interval (CI) = 1.0–2.11] as well as severe anxiety (OR = 1.66, 95% CI = 1.03–2.67) (Table 3). However, after adjustment for confounders, these relationships disappeared. Significant relationships were observed between abdominal obesity and depression, in particular severe depression among women; such that abdominally obese women had 63% (OR = 1.63, 95% CI = 1.19–2.24) and 28% (OR = 1.28, 95% CI = 1.03–1.59) higher risk for severe depression and depression (combined borderline and severe depression), respectively, than those with normal WC. Both relationships disappeared after adjusting for confounding variables. Abdominal obesity was significantly associated with anxiety and severe anxiety among women, either before or after taking confounders into account. Although abdominally obese women were 31% more likely to have psychological distress, adjustment for confounders made the association disappears.

Discussion

We found an inverse association between abdominal obesity (WC > 102 cm) and severe depression among men. In women, abdominal obesity was significantly associated with anxiety, before and after taking confounders into account. No significant association was seen between abdominal obesity and psychological distress in either sex after controlling for potential confounders.

Table 1 General characteristics of study participants across different categories of BMI and waist circumference^a

Whole population	BMI categories ^b			P	WC categories ^c			P*
	Normal	Overweight	Obese		Normal	Abdominal obesity level 1	Abdominal obesity level 2	
Age (yr)	34.2 (7.8)	38.3 (7.3)	39.8 (7.3)	< 0.001	34.8 (7.8)	36.8 (7.4)	38.7 (7.2)	< 0.001
Weight (kg)	61 (8.8)	75.3 (9.2)	87.1 (16.9)	< 0.001	62.6 (11.6)	69.5 (12.8)	74.8 (11.7)	< 0.001
BMI (kg/m ²)	22.1 (2.1)	27 (1.3)	33.9 (7.3)	< 0.001	22.6 (3.8)	25.3 (3.1)	28.2 (4.2)	< 0.001
WC (cm)	76.8 (17.1)	87.7 (17.4)	96.6 (20.4)	< 0.001	78.3 (8.1)	88.6 (7.3)	98.48 (8.3)	< 0.001
Married (%)	72.7	90.8	89.7	< 0.001	74.1	86.2	90.0	< 0.001
University graduates (%)	62.2	54.2	46.7	< 0.001	63.8	63.0	53.8	< 0.001
Current smokers (%)	13.7	15.2	14.9	0.082	12.8	12.5	15.8	0.065
Supplement use (%)	8.3	6.7	6.5	0.104	8.6	9.2	7.8	0.524
OCP use (%)	3.3	2.2	3.4	0.103	2.1	3.2	4.2	0.013
Self-reported diabetes (%)	0.9	2.3	3.1	< 0.001	0.8	1.7	2.5	0.005

^aAll values are mean (standard deviation), unless indicated.

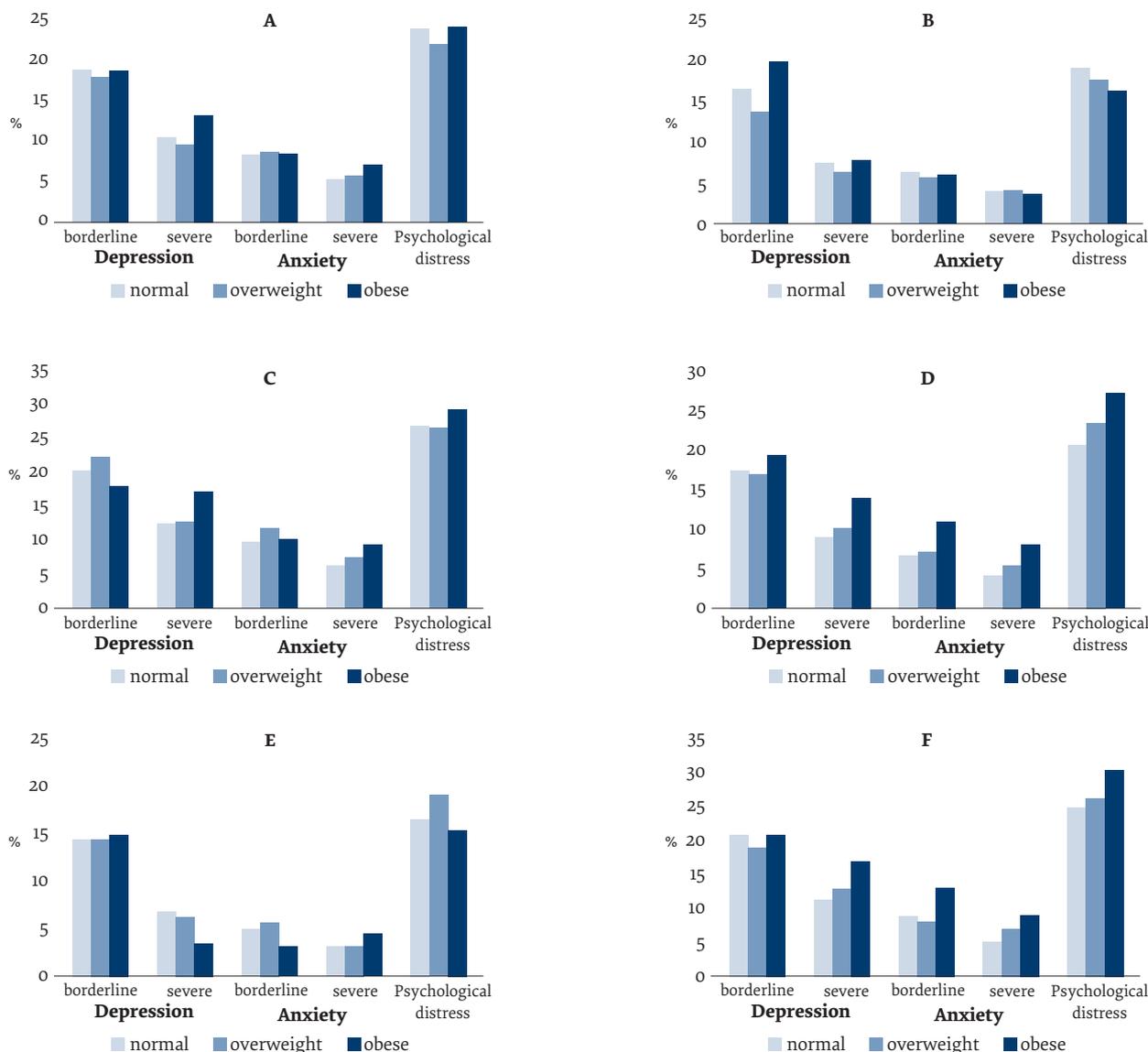
^bNormal weight (≤ 24.9 kg/m²), overweight (25.0–29.9 kg/m²) and obesity (≥ 30.0 kg/m²)

^cNormal (< 80 cm for women, < 94 cm for men), abdominal obesity level 1 (80–87.99 cm for women, 94–101.99 cm for men), abdominal obesity level 2 (≥ 88 cm for women, ≥ 102 cm for men).

*Obtained from analysis of variance or χ^2 .

BMI = body mass index; OCP = oral contraceptive pill; WC = waist circumference.

Figure 1 Prevalence of depression, anxiety and psychological distress according to body mass index (BMI) and waist circumference (WC) categories in the whole population and stratified by sex. (A) Based on BMI categories in the whole population; (B) based on BMI categories in men; (C) based on BMI categories in women; (D) based on WC categories in the whole population; (E) based on WC categories in men; and (F) based on WC categories in women.



Prevalence of depression, anxiety and high psychological distress in developing countries has grown in parallel with increasing prevalence of overweight and obesity. In the current study, we did not observe any significant association between BMI and these mental illnesses. A recent systematic review showed a significant, but weak, cross-sectional relationship between obesity and depression (17). While some cross-sectional studies have shown a positive association between depressive symptoms and obesity (5,7,18), others have shown an inverse relationship (19,20). A negative relationship between central obesity and depressive symptoms has also been reported among Korean women (21). Revenes et al. (22) suggested that BMI was not related to depression and even might have some preventive effects against anxiety. Rebert et al. (7,18) showed that obesity is positively related to depression, might

worsen mental disorders, and aggravates pessimism and satisfaction. A recent meta-analysis showed a positive association between BMI and depression in 17 community-based cross-sectional studies in adults (23). It is worth noting that all previous studies have been conducted in developed nations, which shows that ethnic differences can affect the strength of the relationship between obesity and depression. Additionally, the current study was from the Middle East, where a particular pattern of obesity is prevalent (9). Furthermore, it seems that severity of obesity influences the association between obesity and depression, anxiety and high psychological distress. Some researchers have suggested that this association might be limited to individuals with extreme obesity. For instance, Onyike et al. (24) found that, after controlling potential confounders, the association remained significant only in severely obese

Table 2 Multivariable-adjusted ORs and 95% CIs for depression, anxiety and high psychological distress across categories of BMI and waist circumference for men^a

	BMI status ^b				P _{trend}	WC status ^c			P _{trend}
	Normal weight	Overweight	Obese			Normal	Abdominal obesity level 1	Abdominal obesity level 2	
Depression (borderline+severe)									
Crude	1.0	0.80 (0.64–1.01)	1.28 (0.89–1.84)	0.95	1.0	0.98 (0.70–1.34)	0.84 (0.56–1.26)	0.48	
Adjusted ^d	1.0	0.89 (0.66–1.21)	1.50 (0.93–2.42)	0.38	1.0	1.04 (0.70–1.55)	0.71 (0.42–1.20)	0.40	
Depression (severe)									
Crude	1.0	0.82 (0.56–1.20)	1.14 (0.62–2.10)	0.83	1.0	0.92 (0.54–1.58)	0.49 (0.21–1.12)	0.16	
Adjusted	1.0	0.83 (0.48–1.44)	1.44 (0.61–3.38)	0.79	1.0	0.95 (0.46–1.95)	0.21 (0.04–0.95)	0.10	
Depression (borderline)									
Crude	1.0	0.80 (0.61–1.04)	1.34 (0.89–2.02)	0.83	1.0	0.99 (0.68–1.45)	1.0 (0.64–1.57)	0.98	
Adjusted	1.0	0.92 (0.65–1.29)	1.50 (0.88–2.55)	0.37	1.0	1.10 (0.70–1.73)	0.91 (0.52–1.59)	0.98	
Anxiety (borderline+severity)									
Crude	1.0	0.94 (0.68–1.28)	1.0 (0.59–1.71)	0.85	1.0	1.10 (0.69–1.75)	0.90 (0.49–1.64)	0.96	
Adjusted	1.0	1.02 (0.66–1.57)	0.86 (0.38–1.92)	0.85	1.0	0.91 (0.50–1.66)	0.57 (0.24–1.34)	0.26	
Anxiety (severe)									
Crude	1.0	1.03 (0.64–1.68)	1.16 (0.53–2.55)	0.72	1.0	1.03 (0.49–2.18)	1.44 (0.64–3.21)	0.47	
Adjusted	1.0	1.41 (0.70–2.81)	1.35 (0.43–4.29)	0.38	1.0	0.77 (0.28–2.09)	0.58 (0.16–2.14)	0.38	
Anxiety (borderline)									
Crude	1.0	0.87 (0.58–1.31)	0.92 (0.46–1.85)	0.61	1.0	1.17 (0.66–2.09)	0.60 (0.24–1.45)	0.59	
Adjusted	1.0	0.89 (0.52–1.52)	0.66 (0.22–1.94)	0.44	1.0	1.07 (0.50–2.24)	0.58 (0.19–1.76)	0.54	
Psychological distress									
Crude	1.0	0.91 (0.71–1.17)	0.82 (0.52–1.28)	0.31	1.0	1.19 (0.84–1.68)	0.92 (0.58–1.44)	0.79	
Adjusted	1.0	1.05 (0.76–1.45)	1.01 (0.58–1.76)	0.84	1.0	0.99 (0.65–1.53)	0.66 (0.37–1.18)	0.30	

^aSevere anxiety and depression was defined as Hospital Anxiety and Depression Scale score ≥ 11 ; 8–10 was considered as borderline. Psychological distress was defined as General Health Questionnaire score ≥ 4 .

^bNormal weight (≤ 24.9 kg/m²), overweight (25.0–29.9 kg/m²) and obesity (≥ 30.0 kg/m²).

^cNormal (< 94 cm), abdominal obesity level 1 (94–101.99 cm), abdominal obesity level 2 (≥ 102 cm).

^dAdjusted for age, marital status, education, smoking and physical activity.

BMI = body mass index; CI = confidence interval; OR = odds ratio; WC = waist circumference.

(BMI ≥ 40 kg/m²) individuals. Although overweight and obesity were highly prevalent in our study, the prevalence of severe obesity was not so high. Different types of obesity and location of fat accumulation might affect psychological disorders. We discovered a significant positive relationship between abdominal obesity and depression, anxiety and high psychological distress in crude models. However, the relationships disappeared after adjusting for potential confounders. A positive association was reported between waist to height ratio and anxiety in women, independent of confounders. However, some studies have proposed that central obesity

does not impose further risk for depressive disorders compared with that for general obesity (25,26).

In the current study, there was no association between general obesity and depression, anxiety and high psychological distress, neither in men nor in women. However, while there was a positive link between abdominal obesity and these psychological disorders in women, an inverse relationship between abdominal obesity and severe depression was observed in men. Earlier studies have mostly shown that abdominal obesity is connected with these psychological disorders

Table 3 Multivariable-adjusted odds ratios and 95% CIs for depression, anxiety and high psychological distress across categories of BMI and waist circumference for women^a

	BMI status ^b			P _{trend}	WC status ^c			P _{trend}
	Normal weight	Overweight	Obese		Normal	Action level 1	Action level 2	
Depression (borderline+severe)								
Crude	1.0	1.14 (0.95–1.37)	1.15 (0.87–1.53)	0.14	1.0	0.99 (0.78–1.26)	1.28 (1.03–1.59)	0.02
Adjusted ^d	1.0	1.03 (0.82–1.30)	0.86 (0.60–1.24)	0.61	1.0	0.98 (0.73–1.31)	1.02 (0.76–1.38)	0.83
Depression (severe)								
Crude	1.0	1.11 (0.85–1.45)	1.45 (1.0–2.11)	0.05	1.0	1.13 (0.80–1.61)	1.63 (1.19–2.24)	0.001
Adjusted	1.0	0.90 (0.64–1.25)	0.84 (0.51–1.37)	0.42	1.0	1.20 (0.79–1.82)	1.17 (0.77–1.79)	0.50
Depression (borderline)								
Crude	1.0	1.15 (0.93–1.43)	0.97 (0.68–1.38)	0.59	1.0	0.90 (0.68–1.20)	1.08 (0.83–1.41)	0.48
Adjusted	1.0	1.14 (0.87–1.50)	0.89 (0.57–1.38)	0.99	1.0	0.85 (0.59–1.21)	0.94 (0.66–1.33)	0.79
Anxiety (borderline+severity)								
Crude	1.0	1.27 (1.01–1.59)	1.33 (0.94–1.87)	0.02	1.0	1.12 (0.81–1.54)	1.80 (1.36–2.38)	< 0.001
Adjusted	1.0	1.0 (0.75–1.33)	0.96 (0.62–1.49)	0.90	1.0	1.09 (0.74–1.61)	1.47 (1.01–2.14)	0.03
Anxiety (severe)								
Crude	1.0	1.27 (0.91–1.80)	1.66 (1.03–2.67)	0.02	1.0	1.42 (0.88–2.28)	1.99 (1.30–3.07)	0.001
Adjusted	1.0	1.03 (0.67–1.59)	1.12 (0.60–2.11)	0.72	1.0	1.56 (0.87–2.80)	1.86 (1.04–3.34)	0.04
Anxiety (borderline)								
Crude	1.0	1.29 (0.97–1.70)	1.14 (0.73–1.77)	0.19	1.0	0.94 (0.63–1.41)	1.66 (1.18–2.35)	0.002
Adjusted	1.0	0.99 (0.69–1.41)	0.89 (0.51–1.54)	0.73	1.0	0.84 (0.52–1.37)	1.27 (0.80–2.0)	0.21
Psychological distress								
Crude	1.0	0.98 (0.81–1.20)	1.13 (0.83–1.52)	0.56	1.0	1.06 (0.82–1.38)	1.31 (1.03–1.66)	0.02
Adjusted	1.0	0.94 (0.74–1.21)	0.84 (0.57–1.24)	0.39	1.0	1.15 (0.85–1.57)	1.17 (0.86–1.60)	0.33

^aSevere anxiety and depression defined as Hospital Anxiety and Depression Scale score ≥ 11 ; 8–10 was considered as borderline'. Psychological distress was defined as General Health Questionnaire score ≥ 4 .

^bNormal weight (≤ 24.9 kg/m²), overweight (25.0–29.9 kg/m²) and obesity (≥ 30.0 kg/m²).

^cNormal (< 80 cm), abdominal obesity level 1 (80–87.99 cm), abdominal obesity level 2 (≥ 88 cm).

^dAdjusted for age, marital status, education, smoking and physical activity.

BMI = body mass index; CI = confidence interval; OR = odds ratio; WC = waist circumference.

in either sex (22). Our results are in agreement with some findings (27) but in contrast with others (28). The negative association between severe depression and obesity in men has also been shown in some studies (29). These conflicting results might be explained by the different pattern of abdominal obesity among men and women in different countries and greater relationship between abdominal obesity and depression in women (30). The possible mechanisms through which abdominal obesity might affect depression, anxiety and high psychological distress are unknown. Poor self-esteem, unhealthy dietary habits (31), binge eating as well as decreased

physical activity (32) in abdominally obese individuals might provide some reasons. Additionally, abdominal-obesity-related chronic conditions such as diabetes and cardiovascular disease might affect depression, anxiety and high psychological distress. These conditions can cause vascular damage and earlier studies have suggested that vascular damage in brain might predict depression (33). Abdominal obesity is related to higher inflammation. Increased concentrations of inflammatory biomarkers might also contribute to depression (34). Cortisol secretion (35) and sex-dependent steroid hormones (36) and their dysregulation occur in individuals with

abdominal obesity with depression, anxiety and high psychological distress. Both depression and anxiety are involved in the hypothalamic–pituitary–adrenocortical axis hyperactivity that could result in increased cortisol secretion.

Increased appetite and reduced physical activity are common symptoms of depression. Initiation or maintenance of exercise programmes or diet change can be affected by reduced motivation or self-efficacy associated with depression or anxiety. Depression or anxiety can enhance risk of weight gain by its impact on binge eating, particularly among women. Medications used to manage mood or anxiety disorders may also lead to weight gain. Some studies have suggested that obesity causes or contributes to depression or anxiety. The stigma attached to obesity (especially for women) may contribute to depression, and this stigma may vary by race/ethnicity or socioeconomic status. Physical activities decrease because of obesity or obesity-related chronic illnesses. Obesity may increase risk of depression and anxiety through distressing physical symptoms or involvement in rewarding or pleasurable activities. Finally, depression and obesity may be linked by environmental or biological factors (4).

Our study had several strengths. This was one of the most comprehensive studies with a large sample size in developing countries. The most prevalent psychological disorders including depression, anxiety and psychological distress were examined using

validated questionnaires. Sex-stratified subanalysis allowed us to identify sex differences in the investigated associations. Moreover, the analyses were adjusted for several well-known confounding factors. There were also some limitations that could have affected our results. The cross-sectional nature of the study meant that causality could not be established. However, our validation study demonstrated that self-reported values of anthropometric indices could provide reasonably valid data. Questionnaire-based data were used for assessment of depression, anxiety and high psychological distress. Although these questionnaires were valid instruments to measure symptoms (13,15), they cannot be used as diagnostic tools for these psychological disorders. Confounding variables such eating disorders, use of psychiatric medications affecting weight, and pregnancy were not controlled in our study. Finally, the absence of data on socioeconomic status and its relation to obesity and mental status was another limitation.

In conclusion, this study revealed that abdominal obesity was associated with anxiety only among Iranian adult women. We were unable to find any evidence confirming the relationship between general obesity and depression, anxiety and high psychological distress in this population. Future research, particularly of a prospective nature, is warranted to confirm these findings.

Funding: None.

Competing interests: None declared.

Relation entre obésité et dépression, anxiété et détresse psychologique parmi le personnel de santé iranien

Résumé

Contexte : Les troubles psychologiques associées à l'obésité constituent un facteur essentiel qui contribue à la morbidité et à la mortalité.

Objectifs : Évaluer le lien entre l'obésité générale et abdominale et la dépression et l'anxiété parmi le personnel de santé iranien.

Méthodes : La présente étude transversale a été menée dans le cadre de l'étude sur l'épidémiologie de la santé psychologique, alimentaire et nutritionnelle. Au total, 4361 membres du personnel de santé iranien ont été dépistés pour l'obésité générale et 3213 pour l'obésité abdominale. Le surpoids et l'obésité ont été définis respectivement en fonction d'un indice de masse corporelle de 25,0-29,9 et supérieur ou égal à 30,0 kg/m². L'obésité abdominale a été définie par un tour de taille supérieur ou égal à 88 cm pour les femmes et à 102 cm pour les hommes. Les versions iraniennes validées de l'échelle hospitalière d'anxiété et de dépression et du questionnaire général de santé ont été utilisées pour évaluer la dépression et l'anxiété.

Résultats : L'analyse stratifiée par sexe n'a révélé aucune relation significative entre l'obésité générale, la dépression et l'anxiété chez les hommes. Cependant, nous avons trouvé une association inverse entre obésité abdominale (tour de taille >102 cm) et dépression sévère chez les hommes. Chez les femmes, l'obésité abdominale était associée de manière significative à l'anxiété, avant et après la prise en compte des facteurs de confusion. Aucune association significative n'a été observée entre l'obésité abdominale et la détresse psychologique dans les deux sexes après contrôle des facteurs de confusion potentiels.

Conclusions : L'obésité abdominale était associée à l'anxiété chez les femmes adultes iraniennes, mais pas chez les hommes. Par ailleurs, des études prospectives sont nécessaires pour confirmer ces résultats.

العلاقة بين السمنة والاكتئاب والقلق والضائقة النفسية بين العاملين الإيرانيين في مجال الرعاية الصحية

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الخلاصة:

الخلفية: تُعتبر الاضطرابات النفسية مثل السمنة من العوامل الرئيسية التي تُسهم في حدوث المراضة والوفيات.

الأهداف: هدفت هذه الدراسة إلى تقييم العلاقة بين السمنة العامة وسمنة البطن وبين الاكتئاب والقلق لدى العاملين الإيرانيين في مجال الرعاية الصحية.

طرق البحث: أُجريت هذه الدراسة المقطعية كجزء من دراسة حول وبائيات الصحة التغذوية النفسية والتغذية. وبلغ مجموع العاملين الإيرانيين في مجال الرعاية الصحية الذين خضعوا لتحليل السمنة العامة والسمنة المركزية 4361 و3213 شخصاً، على التوالي. وعُرفت زيادة الوزن والسمنة بأنها منسب كتلة الجسم الذي يبلغ 25.0-29.9 و≤ 30.0 كجم/م²، على التوالي. وعُرفت سمنة البطن على أنها محيط الوسط ≤ 88 سم للنساء، و≤ 102 للرجال. واستُخدمت النسختان الإيرانيتان المصادق عليهما لمقياس المستشفيات للقلق والاكتئاب والاستبيان الصحي العام لتقييم الاكتئاب والقلق.

النتائج: كشف التحليل الطبقي حسب نوع الجنس عن عدم وجود علاقة وطيدة بين السمنة العامة، والاكتئاب، والقلق بين الرجال. ولكننا وجدنا ارتباطاً عكسياً بين سمنة البطن (محيط الوسط < 102 سم) والاكتئاب الحاد بين الرجال. وفي النساء، ارتبطت سمنة البطن ارتباطاً كبيراً بالقلق، قبل وبعد أخذ عوامل الإرباك في الاعتبار. ولم تُلاحظ علاقة وطيدة بين سمنة البطن والضائقة النفسية في أي من الجنسين بعد السيطرة على عوامل الإرباك المحتملة.

الاستنتاجات: ارتبطت سمنة البطن بمشاعر القلق في النساء البالغات الإيرانيات ولكن ليس الرجال. كما يلزم إجراء دراسات استباقية خاصة لتأكيد هذه النتائج.

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