ABSTRACT | Background: People manifest a growing concern with their bodies due to health-related or esthetic reasons which contributes to increase their body dissatisfaction and distortion. Objective: To analyze weight gain, body image dissatisfaction and distortion among employees of a university restaurant in Juiz de Fora, Minas Gerais, Brazil. Methods: Cross-sectional study in which we analyzed the participants' body weight, height and body mass index. Body image dissatisfaction and distortion were investigated with a figure scale. We administered a questionnaire to investigate weight gain and changes in dietary habits since starting in the job. Sample characteristics and factors related to body image dissatisfaction are described as frequencies and were compared by means of the \( \chi^2 \) test with software SPPS version 17.0. Results: We analyzed 46 employees (82.61% female) 63% of whom gained weight since starting in the job, 3.4 kg on average. Women reported having acquired poorer dietary habits. About 68.4% of the women and 75% of the men exhibited overweight. All the women (100%) and 50% of the men reported body image dissatisfaction and 76.3 and 50% respectively a desire to lose weight. We found a high prevalence of body image distortion, of 94.7% for the women and 100% for the men. Conclusion: Weight gain, changes in dietary habits, body image distortion and dissatisfaction point to the need for dietary and nutritional educational programs which promote healthy eating habits and changes in behavior relating to diet and body image. Keywords | eating habits; food service; weight gain; nutritional status; body image.

RESUMO | Introdução: Atualmente, há uma crescente preocupação com o corpo, seja por questões de saúde, seja por estética, contribuindo para o aumento da insatisfação e da distorção corporal. Objetivo: Avaliar o ganho de peso, a insatisfação e a distorção da imagem corporal de trabalhadores de um restaurante universitário de Juiz de Fora, MG. Métodos: Estudo transversal no qual se avaliaram peso, altura e índice de massa corporal (IMC) dos participantes. A insatisfação e a distorção da imagem corporal foram avaliadas pela escala de silhuetas. Aplicou-se um questionário para avaliação do ganho de peso e de mudanças no hábito alimentar durante o tempo de trabalho. As características da amostra e os fatores relacionados com a insatisfação corporal foram apresentados por frequências e comparados pelo teste \( \chi^2 \), utilizando-se o programa Statistical Package for the Social Sciences (SPSS) versão 17.0. Resultados: Foram avaliados 46 funcionários (82,61% do sexo feminino). O ganho de peso durante o tempo de trabalho foi relatado por 63% dos participantes, sendo o ganho médio de 3,4 kg. As mulheres relataram piora nos hábitos alimentares ao longo desse período. O excesso de peso atingiu 68,4% das mulheres e 75% dos homens. A insatisfação corporal no sexo feminino foi de 100%, e 76,3% desejavam perder peso. Entre os homens, 50% estavam insatisfeitos e desejavam perder peso. A distorção da imagem corporal apresentou elevada prevalência: 94,7% das mulheres e 100% dos homens. Conclusão: O ganho de peso, as mudanças de hábitos alimentares e a distorção e a insatisfação corporal remetem à necessidade de programas de educação alimentar e nutricional que promovam hábitos alimentares saudáveis e mudanças de comportamento diante do alimento e da imagem corporal. Palavras-chave | hábitos alimentares; serviço de alimentação; ganho de peso; estado nutricional; imagem corporal.

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INTRODUCTION

Obesity is frequent among food service workers\(^1\). Reasons include continuous exposure to food\(^2\), inadequate dietary habits and lack of perception of them. According to Rosa and Alves\(^3\) intake of simple carbohydrates, fat (fried food and butter) and processed food is high, and that of fruit and vegetables low among food service workers.

Obesity increases the odds of occurrence and/or worsening of noncommunicable diseases, causes musculoskeletal damage, depression, isolation, abandonment and low self-esteem\(^4\), in addition to hindering the performance of job tasks as a function of impaired mobility, which makes such activities become exhausting\(^5\).

By contrast, people currently manifest an increasing concern with their bodies for health-related or esthetic reasons\(^6\), which encourages them to change their dietary habits, perform physical activity, undergo cosmetic surgery, and seek different methods to maintain, restore or even transform their physical shape\(^7\). Such concern might influence the development of personal identity, as well as the self-perception of one's own body and of what is or not healthy. A negative body image is associated with eating disorders, such as anorexia and bulimia\(^8,9\).

Body image is a person's perception of their physical self and the resulting thoughts and feelings. It develops under sociocultural, neurophysiological and cognitive influences\(^10\). According to Cash and Deagle\(^11\) body image has two independent components: one of cognitive nature, related to precision in self-judgment of one's own physical appearance and associated with body image distortion. The other is an attitudinal component that represents the feelings people have relative to their body size and shape and may lead to body image dissatisfaction.

As a function of the aforementioned considerations, the aim of the present study was to analyze the body image of workers according to its perceptual and attitudinal aspects. For this purpose we investigated weight gain, body image dissatisfaction and distortion among employees of a university restaurant in Juiz de Fora, Minas Gerais, Brazil.

METHODS

The present cross-sectional study was performed with employees of a university restaurant. All employees were invited to participate at a meeting to explain the study aims; those who agreed, were aged 18 to 59 and had body mass index (BMI) 18.5 to 40 kg/m\(^2\) were included, as recommended by Kakeshita and Almeida\(^12\).

The study was approved by the research ethics committee of Universidade Federal de Juiz de Fora, on 26 February 2018, ruling no. 2,513,624.

Body weight was measured with LC200-OS digital scale and height with a portable stadiometer (exact height). Based on BMI the participants were categorized following criteria formulated by the World Health Organization as: underweight <18.5 kg/m\(^2\); normal weight 18.5–24.9 kg/m\(^2\); overweight 25–29.9 kg/m\(^2\); class I obesity 30–34.9 kg/m\(^2\); class II obesity 35–39.9 kg/m\(^2\); and class III obesity ≥40 kg/m\(^2\)\(^13\).

We administered the scale formulated by Kakeshita et al.\(^14\) to investigate body image dissatisfaction and distortion. We showed the participants a printed card with 15 numbered sex-specific figures which represent increasing BMI from 12.5 to 47.5 kg/m\(^2\) with 2.5 intervals. The participants were requested to respond the following questions: which figure represents your current body? Which figure represents the body you’d like to have?

Body image dissatisfaction was assessed as the difference between current and desired BMI. Participants were categorized as satisfied when difference was zero and dissatisfied when difference was any other value. Positive values were interpreted as dissatisfaction with desire to reduce the body size and negative values as dissatisfaction with desire to increase it. Body image distortion was defined as the difference between the average selected and calculated BMI. Here we considered deviations of one figure up or down on the scale. Through direct questions we also inquired the participants on weight gain and changes in dietary habits since starting in the job.

Descriptive analysis included absolute and relative frequencies and calculation of mean and standard deviation. The sample characteristics were analyzed according to sex and compared by means of the $\chi^2$ test, which we also used in the analysis of factors associated with body image dissatisfaction. Analysis was performed with software Statistical Package for Social Science (SPSS) version 17.0 and the significance level was set to 5%.
RESULTS

Forty-six (50.4%) of the 96 university restaurant employees agreed to participate in the study. About 82.61% of them were female, with average age 29.5 (±9.68) years old and the following jobs: cook, waiter, nutritionist and general services assistant. They had 2.3 (±6.18) years in the job, on average.

Most participants (63%), especially the women (71.1%, p=0.03) reported having gained weight since starting in the job, 3.4 kg on average. About 31.6% of the women were categorized as with normal weight, 50% with overweight and 18.4% with class I obesity. Among the men, the corresponding frequencies were 25, 50 and 25%.

The prevalence of body image dissatisfaction reached an alarming level among the participants of both sexes (91.3%) and 71.7% of the participants reported a desire to lose weight. Dissatisfaction was significantly higher among the women (p=0.001). Also the prevalence of body image distortion was high for both sexes (95.7%) (Table 1).

Table 2 describes factors related to body image dissatisfaction among the women. The frequency of those who reported a desire to lose weight was higher among the ones with overweight or obesity compared to the participants with normal weight.

Table 3 describes factors related to body image dissatisfaction among the men. In this case, dissatisfaction was not related to weight gain, dietary habits, nutritional status or body image distortion.

Table 1. Characteristics of 46 food service workers according to sex. Juiz de Fora, Minas Gerais, Brazil, 2018 (n=46).

| Characteristics                  | Women          | Men  | Total       | p-value |
|----------------------------------|----------------|------|-------------|---------|
|                                  | N (%)          | N (%)| N (%)       |         |
| Weight gain                      |                |      |             |         |
| No                               | 11 (28.9)      | 6 (75)| 17 (37)     | 0.038   |
| Yes                              | 27 (71.1)      | 2 (25)| 29 (63)     |         |
| Dietary habits                   |                |      |             |         |
| Worse                            | 12 (31.6)      | 0 (0.0)| 12 (26.1)  | 0.142   |
| Unchanged                        | 13 (34.2)      | 3 (37.5)| 16 (34.8)  |         |
| Better                           | 13 (34.2)      | 5 (62.5)| 18 (39.1)  |         |
| BMI                              |                |      |             |         |
| Normal weight                    | 12 (31.6)      | 2 (25)| 14 (30.4)   | 0.887   |
| Overweight                       | 19 (50)        | 4 (50)| 23 (50)     |         |
| Class I obesity                  | 7 (18.4)       | 2 (25)| 9 (19.6)    |         |
| Body image satisfaction          |                |      |             |         |
| Wants to lose weight             | 29 (76.3)      | 4 (50)| 33 (71.7)   | 0.001   |
| Satisfied                        | 0 (0.0)        | 4 (50)| 4 (8.7)     |         |
| Wants to gain weight             | 9 (23.7)       | 0 (0.0)| 9 (19.6)   |         |
| Body image distortion            |                |      |             |         |
| No                               | 2 (5.3)        | 0 (0.0)| 2 (4.3)     | 1.000   |
| Yes                              | 36 (94.7)      | 8 (100)| 44 (95.7)  |         |

BMI: body mass index.
Table 2. Factors related to body image dissatisfaction among women (n=38). Juiz de Fora, Minas Gerais, Brazil, 2018.

| Characteristics          | Wants to lose weight | Wants to gain weight | p-value |
|--------------------------|----------------------|----------------------|---------|
|                          | n (%)                | n (%)                |         |
| Weight gain              |                      |                      |         |
| Yes                      | 8 (72.7)             | 3 (27.3)             | 1.000   |
| No                       | 21 (77.8)            | 6 (22.2)             |         |
| Dietary habits           |                      |                      |         |
| Worse                    | 11 (91.7)            | 1 (8.3)              | 0.319   |
| Unchanged                | 9 (69.2)             | 4 (30.8)             |         |
| Better                   | 9 (69.2)             | 4 (30.8)             |         |
| BMI                      |                      |                      |         |
| Normal weight            | 5 (41.7)             | 7 (58.3)             | 0.003   |
| Overweight               | 17 (89.5)            | 2 (10.5)             |         |
| Class I obesity          | 7 (100)              | 0 (0.0)              |         |
| Body image distortion    |                      |                      |         |
| No                       | 1 (50)               | 1 (50)               | 0.422   |
| Yes                      | 28 (77.8)            | 9 (23.7)             |         |

BMI: body mass index.

Table 3. Factors related to body image dissatisfaction among men (n=8). Juiz de Fora, Minas Gerais, Brazil, 2018.

| Characteristics          | Wants to lose weight | Wants to gain weight | p-value |
|--------------------------|----------------------|----------------------|---------|
|                          | n (%)                | n (%)                |         |
| Weight gain              |                      |                      |         |
| Yes                      | 3 (50)               | 3 (50)               | 1.000   |
| No                       | 4 (50)               | 4 (50)               |         |
| Dietary habits           |                      |                      |         |
| Unchanged                | 0 (0.0)              | 3 (100)              | 0.143   |
| Better                   | 4 (80)               | 4 (20)               |         |
| BMI                      |                      |                      |         |
| Normal weight            | 0 (0.0)              | 2 (100)              | 0.223   |
| Overweight               | 3 (75)               | 1 (25)               |         |
| Class I obesity          | 1 (50)               | 1 (50)               |         |
| Body image distortion    |                      |                      |         |
| No                       | 0                    | 0                    | 1.000   |
| Yes                      | 4 (57.1)             | 3 (42.9)             |         |

BMI: body mass index.
DISCUSSION

The results evidence an increasing trend in body weight among the female participants after having started in the job. This situation may contribute to the occurrence of noncommunicable diseases, psychological disorders derived from negative perception of the body image, and impaired performance at work.

In a study performed with other food service workers, average weight gain since starting in the job was 4.3 kg. Simon et al. reported an increase in body weight of 500 g per year in the job. Such increases reflect as excess weight and changes in the anthropometric profile of workers, as was found also in the present study and is confirmed by several other authors. In the study by Silva and Dumond, 82% of the participants exhibited excess weight and 60.6% in the study by Gonçalves et al. In turn, Pascini et al. reported overweight among 50% of the male participants in their study, 38.9% of overweight and 11.1% of obesity among the women.

Inadequate dietary habits is one the factors associated with such weight gain, related to irregular meal times, high intake of hypercaloric food and beverages, and snacking between meals. In the study by Rocha et al. with employees of two food services, 40% of the participants reported inability to eat at regular times due to tiredness, loss of appetite and scarce time for meals during the working hours; 32% of the sample observed they preferred to sleep than to eat. Silva and Drumond found that 65% of the participants in their study consumed sweets and snacks every week, and 94% soft drinks.

In Escobar’s study, different from the men most women classified their diet as inadequate. In our study, perceived weight gain was more frequent among the women, which might be related to the division of labor, since female workers are more often hired for jobs involving food supply and intake.

Obesity is related to noncommunicable diseases — dyslipidemia, cardiovascular diseases, type 2 diabetes and systemic hypertension. This situation is no different among food service workers. In a study by Estevam and Guimarães, 35.29% of employees exhibited some comorbidity, including spine problems, depression and hypertension. Similar findings were reported by Paiva and Cruz in an analysis of employees of four food services: 34.8% reported some comorbidity, 75% depression and anxiety, and 25% diabetes, hypertension and high cholesterol. This type of diseases might interfere with work, activities of daily living and personal relationships, in addition to being directly or indirectly related to work accidents as a function to difficulties to perform tasks, especially those which demand greater physical effort.

Weight gain further contributes to body image dissatisfaction, although this phenomenon is also reported by individuals with normal weight. Social and media imposition of a beauty pattern characterized by thinness may be one of the factors which account for the growing rates of body image dissatisfaction.

Studies of body image dissatisfaction among workers, especially those in food services, are scarce. About 66.7% of street fair workers interviewed by Souza and Noda reported body dissatisfaction. In another study with agroindustry workers, most reported a desire to attain a body shape reflecting a lower body weight.

In the present study the rate of body image dissatisfaction was high among the women. This finding might be accounted for by several factors, including social pressure to be thin, self-pressure to have a perfect body and the media influence, among others. Other authors reported lower prevalence of body image distortion among men. According to Del Ciampo et al., men tend to underestimate their body weight while women overestimate it. Kakeshita and Almeida found that 97% of women with normal weight or overweight overestimated their body size, while obese women and men with any BMI (73%) underestimated it.

On these grounds, programs to promote lifestyle changes to achieve better weight control are necessary, especially in the case of food service workers, since excess weight is determinant for the occurrence of noncommunicable diseases and body image dissatisfaction and distortion. Dietary and nutritional education represents a relevant strategy within health education inasmuch as it is an active process that promotes changes in the way of thinking, feeling and behaving of people, with consequent modifications or reinforcement of healthy attitudes and practices.
CONCLUSION

We found a high prevalence of women who gained weight since starting in the job, in addition to high rates of excess weight, body image dissatisfaction and distortion among participants of both sexes. These findings are relevant as a function of their association with higher risk of noncommunicable diseases, eating disorders, psychological damage, and impaired performance at work.

We suggest implementing dietary and nutritional education actions and to promote physical activity and healthy dietary habits, changes in the relationship of workers with food and their own bodies, improve the quality of life, and prevent noncommunicable diseases and emotional disorders.

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