

Body self-perception in subjects beginning a three-month multifaceted group weight loss programme

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Summary

Aim. Disturbances of body self-perception may lead to eating disorders such as anorexia nervosa and obesity. This self-perception is one of the most important factors influencing the decision to begin weight reduction therapy. The aim of this study was to assess self-perception of subjects that became involved with a multifaceted group weight loss programme.

Material and methods. The study group involved 80 obese subjects starting a three month multifaceted group weight loss programme (age 41.8 ± 11.9 years, BMI 35.7 ± 5.3 kg/m²). At the commencement of the first meeting, body self-perception was assessed using the Figure Rating Scale adapted by Stunkard's (FRS), followed by anthropometric measurements and BMI calculation. The figures corresponding to the calculated BMI were compared with the figures selected by the participants using the FRS scale.

Results. In 78.7% (n=63) of subjects, body self-perception was parallel to BMI. Whereas in the remaining 21.3% (n=17) of subjects, body self-perception differed from the BMI. Seven subjects visualised their own figure as more obese and 10 subjects perceived their own figure as less obese. The increased disturbance of body self-perception correlated positively with age, body mass, and BMI ($r=0.32$, $p=0.005$; $r=0.30$, $p=0.01$ and $r=0.34$, $p=0.01$, respectively).

Conclusion. Body self-perception in the majority of obese subjects beginning a multifaceted group weight loss programme is accurate. Increased disturbance in self-perception of obesity corresponds with increases of age, body mass, and BMI.

self-perception / obesity / Figure Rating Scale

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This article has not been aided by any grant

Acknowledgment: We are very grateful Mike Smertka for the assistance in the correction of the manuscript

INTRODUCTION

Eating disorders are an important clinical problem. The frequency of both anorexia nervosa and obesity are progressively increasing [1, 2]. Among many factors participating in the development of these disorders, disturbance of body self-perception appears to be an important one. In the case of anorexia nervosa, improper body self-perception is one of the diagnostic criteria [3, 4, 5, 6, 7, 8, 9]. Perhaps overweight subjects may also have disturbances in body self-perception.

A portion of overweight subjects do not perceive themselves as having excessive body fat. The decision to initiate weight loss therapy may be influenced by emotional pressure exerted by their relatives, friends, or doctor. Such a situation may limit efficacy of the therapy. Therefore adequate psychotherapy in these subjects may decrease the frequency in which weight loss therapy goals are not met.

There are numerous methods of assessing body self-perception [8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18]. One of which is the Figure Rating Scale adapted by Stunkard's (FRS) [19]. As with other techniques, FRS has several limitations. Among those identified are the lack of figures presenting very obese people, minimally reproducible results, the manner of presentation (the row is presented on a single sheet of paper in an ascending manner from the figure of the thinnest person on the left to the figure of the most obese person on the right), and only presenting a frontal view of the body. Furthermore, the figures illustrated in the questionnaire are not realistic enough and do not account for the height of the individual. More importantly, neither proportions of body parts nor the classic division into central and peripheral obesity is presented. These factors make interpretation and statistical analysis more difficult [20].

Despite these limitations, Stunkard's adaptation of FRS has some advantages. It facilitates a uniform approach to study subjects and is not an overly time-consuming procedure. The credibility of the FRS scale also does not differ significantly from other assessment methods [8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18]. Therefore we decided to utilise the FRS method for screening body self-perception in our study subjects.

The aim of the study was to assess the body self-perception of subjects beginning a multifaceted group weight loss programme.

MATERIAL

Eighty participants (72 women, 8 men) starting a three-month, multifaceted, group weight loss programme (age 41.8 ± 14.8 years, weight 93.6 ± 14.8 kg, BMI 35.7 ± 5.3 kg/m²) were subjects of this study.

METHODS

Prior to the measurement of body mass and height, subjects were asked to mark the figure they believed the most accurate depiction of themselves on the nine-degree scale according to Stunkard's adaptation of Figure Rating Scale (FRS) [21]. The figures were prepared separately for women and men and time for selection was unlimited. Anamneses that included the duration of obesity were obtained in all subjects.

Subsequently, anthropometric measurements (body mass and height) and calculation of body mass index (BMI) with the standard formula was performed. The calculated BMI was assigned to the corresponding figure in the FRS scale and compared with the one selected by the study participant.

Based on the differences between the figures participants selected and the figures corresponding to BMI, the study subjects were divided into two groups: A – subjects with body self-perceptions similar to the FRS scale (deviation between selected and corresponding to BMI figure ≤ 1), and B – subjects with body self-perception different from the FRS scale (deviation between selected and corresponding to BMI figure ≥ 2). The B group was additionally divided into subgroups. B1, subjects which visualised their own figure as more obese and B2, subjects that perceived their own figure as less obese than what corresponded on the FRS scale to BMI.

Statistical analysis

All statistical analyses were performed using Statistica 8.0 software. Results are presented as means with standard deviations or percentage. The χ^2 test was used for comparison of quality variables. The *U*-Mann-Whitney test was used for comparison on numerical variables such as age, BMI and duration of obesity. The univariate correlation coefficients between analysed parameters were calculated according to Spearman. The results were considered as statistically significant with a *p* value of less than 0.05.

RESULTS

Group A included 63 (78.7%) study subjects (57 women and 6 men). 50.8% of subjects in this

group (n=32) accurately visualised their own figure (deviation 0), while 30.2% (n=19) perceived their own body image as less obese by 1 grade and 19.0% (n=12) as more obese by 1 grade on the FRS scale.

Group B composed of 17 patients (15 women and 2 men) (21.3%) including 7 women in subgroup B1 (41.2%) (5 cases where the deviation was +2 figures and in 2 with a deviation of +3 figures) and 10 (58.8%; 8 women and 2 men) in subgroup B2 (in 7 cases the deviation was – 2 figures, in 1 case – 3 figures, and in 2 cases – 4 figures).

There were no differences in age, body mass, BMI, or duration of obesity which is also expressed as duration of obesity to age ratio between groups A and B (Tab. 1), or between subgroups B1 and B2. There was also no difference between the accuracy of perception compared to the figure corresponding to BMI between women (79.2%) and men (75%).

Table 1. The characteristics of study groups. Group A – subjects with body self-perceptions similar to the FRS scale, group B-subjects with body self-perception different from the FRS scale

	Group A (n=63)	Group B (n=17)
Age (year)	41.4±11.0	43.2±14.9
Body mass (kg)	94.4±15.7	90.7±10.7
BMI (kg/m ²)	36.3±5.6	33.5±3.6
Duration of obesity (years)	13.1±8.1	10.5±8.7
Duration of obesity to age ratio (%)	33±24	24±17

The study subjects were divided into subgroups according to BMI. All subjects who visualized their own figure as less obese were found to meet the WHO classification for overweight and obese class I. While more subjects (80%) who visualized their own figure as more obese were found in the WHO obese class II and III divisions. Tab. 2.

Table 2. Self-perception according to BMI

BMI [kg/m ²]	All	Group A (accurate)	Group B	
			B1 (less obese)	B2 (more obese)
25–29.9	12	8 (66.7%)	3 (25.0%)	1 (8.3%)
30–34.9	31	26 (83.9%)	4 (12.9%)	1 (3.2%)
35–39.9	18	14 (77.8%)	0	4 (22.2%)
≥ 40	19	15 (78.9%)	0	4 (21.1%)

Increased disturbance in self-visualization of obesity corresponds with increases in age, body mass, and BMI ($r=0.32$, $p=0.005$; $r=0.30$, $p=0.01$ and $r=0.34$, $p=0.01$, respectively) – Fig. 1, 2 and 3 – next page.

DISCUSSION

We observed that 79% of study subjects visualised their own body precisely and half of those very accurately. The remaining 21% of study subjects have disturbances of body self-perception. About 60% perceived their own figure as less obese than it really was. Therefore it is concluded that a majority of obese subjects which decided to seek medical assistance for weight loss were aware of excessive body mass.

As Gardner and Boice [15] have shown, time-restrictions may influence the accuracy of body self-perception. As such we did not limit the time of figure selection. Furthermore the anthropometric measurements were performed after the FRS self selection to avoid of the bias of body mass familiarity with the scale. Therefore we considered that the results obtained in our study are accurate.

Information concerning body self-perception of adult subjects at the beginning of weight loss programmes is extremely limited. We observed an increase of more obese body self-perception with increases in age, body mass, and BMI. An opposite relationship was observed by Sanchez-Villegas et al. in a multicentre survey of 15,000 European Union citizens, similarly applying the FRS scale [22]. The Stunkard et al. study determined additional factors, such as fertility, place of residence, socio-economic status, educational status, smoking, physical activity, and changes in body mass during the previous 6-month period may influence body self-perception [23]. These findings were not analysed in our study and are certainly an important limitation.

Stunkard et al. [19, 23] additionally demonstrated that the duration of obesity may significantly influence body self-perception. We were unable to confirm this finding. Duration of obesity, also expressed as the ratio of obesity duration to age, was similar among participants with accurate and inaccurate body self-perception.

Most obese subjects who are beginning weight loss therapy accurately visualised their own

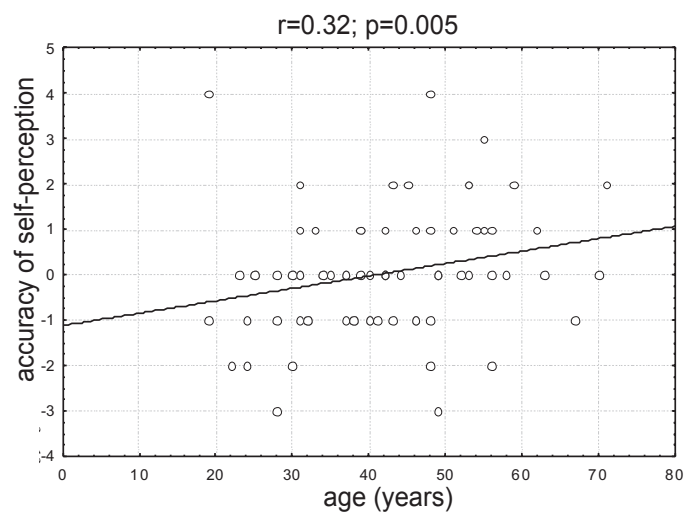


Figure 1. Correlation between age and accuracy of self-perception

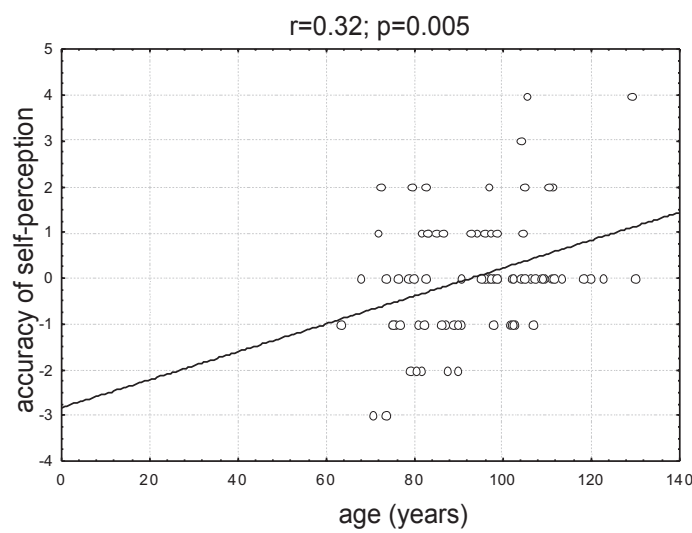


Figure 2. Correlation between body mass and accuracy of self-perception

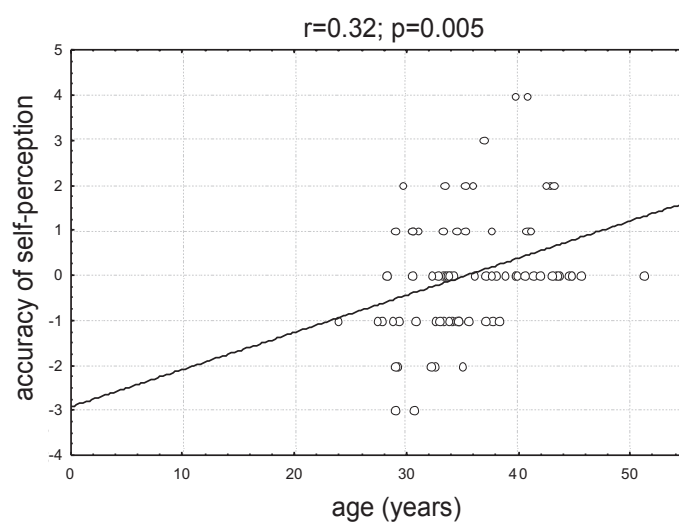


Figure 3. Correlation between BMI and accuracy of self-perception

body image. Even so, we postulate that especially in group programmes, the use of the FRS scale may be beneficial to selected subjects to detect disturbances of body self-perception which may increase the effectiveness of treatment.

CONCLUSION

Body self-perception in the majority of obese subjects beginning a multifaceted group weight loss programme is accurate. Increased disturbance in self-perception of obesity corresponds with increases of age, body mass, and BMI.

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