

A SUBJECTIVE DISSATISFACTION WITH BODY WEIGHT IN YOUNG WOMEN: DO EATING BEHAVIOURS PLAY A ROLE?

Katarzyna Eufemia Przybyłowicz¹, Dorota Jesiołowska¹, Małgorzata Obara-Gołębiowska^{2*},
Lidia Antoniak¹

¹ Chair of Human Nutrition, Faculty of Food Sciences, University of Varmia and Masuria, Olsztyn, Poland

² Chair of Developmental Psychology and Education, Faculty of Social Sciences,
University of Varmia and Mazuria, Olsztyn, Poland

ABSTRACT

Background. Food less frequently used to provide the necessary nutrients for the survival and the body begins to play a role, which it is not able to cope with, leading to a dysfunctional its use. In an era of obesity, excessive interest in his appearance and lean silhouette assigning too much significance relates to a growing number of young women. Young women due to a period of their procreative years are particularly vulnerable to the consequences of abnormal eating habits that threaten the health of women and their offspring.

Objectives. In young women of reproductive age, to determine the emotional and habitual reasons behind binge eating and the effect that restriction diets can have for achieving desired body mass in relation to physical activity and the willingness to improve their weight.

Material and methods. Subjects surveyed were 372 women aged 18 to 27 years (mean 20.6 ± 1.4) who answered a questionnaire on dietary behaviour devised by *Ogińska-Bulik* and *Putyński* [21] which had been extended to include body mass perception/image, adoption of slimming diets, levels of physical activity and place of residence. The women's actual body mass, height and body fat (adipose tissue content) were also measured.

Results. Most subjects (63.9%) were dissatisfied with their figures whilst 33.5% underwent slimming diets at least once. Those overweight, complained much more about their figures compared to normal weight women (97.9% vs. 65.1%, $p < 0.01$), as well as being respectively more emotionally prone to overeating (4.5 ± 2.2 vs. 5.2 ± 2 points round, $p < 0.01$), but less for adopting any dietary restriction (3.5 ± 2.7 vs. 4.8 ± 2.3 , $p < 0.01$).

Conclusions. It seems necessary to create a prevention and educational programs on proper nutrition and the perception of one's own body as effective tools in reducing eating disorders in terms of the health of young women and multigenerational inheritance health of their offspring.

Key words: *restriction diets, obesity, overweight, emotional overeating, reproductive age, pregorexia*

STRESZCZENIE

Wprowadzenie. Żywność coraz rzadziej służy do dostarczania potrzebnych do przeżycia składników odżywczych ciała a zaczyna odgrywać rolę, którym nie jest w stanie sprostać, co prowadzi do jej dysfunkcjonalnego zastosowania. W erze otyłości nadmierne zainteresowanie swoim wyglądem oraz przypisywanie szczupłej sylwetce zbyt dużego znaczenia dotyczy coraz większej grupy młodych kobiet. Młode kobiety ze względu na okres okołokoncepcyjny są szczególnie narażone na konsekwencje nieprawidłowych nawyków żywieniowych, które zagrażają zdrowiu kobiet i ich potomstwu.

Cel badań. Badanie i ocena emocjonalnego i nawykowego objadania się oraz stosowania restrykcji dietetycznych w relacji do subiektywnej oceny posiadanej i oczekiwanej masy ciała, aktywności fizycznej i chęci jej zmiany wśród młodych kobiet w wieku prokreacyjnym.

Material i metody. Badaniem objęto 372 kobiety w wieku od 18 do 27 ($20,6 \pm 1,4$) lat. W badaniach stosowano Kwestionariusz Zachowań Związanych z Jedzeniem *Ogińskiej-Bulik* i *Putyńskiego* [21], poszerzony o ankietę własną zawierającą pytania dotyczące stosunku do masy ciała, częstości stosowania diet odchudzających, stopnia aktywności fizycznej oraz miejsca zamieszkania. Następnie dokonano pomiarów masy i wysokości ciała oraz zawartości tłuszczu w organizmie.

Wyniki. Wśród badanych kobiet 63,9% było niezadowolonych z sylwetki, a 33,5% badanych odchudzało się chociaż 1 raz. Kobiety o nadmiernej masie ciała w porównaniu do kobiet z prawidłową masą ciała były najbardziej niezadowolone

*Corresponding author: Małgorzata Obara-Gołębiowska, Chair of Developmental Psychology, Faculty of Social Sciences, University of Varmia and Masuria, Prawocheńskiego Street 13, 10-447 Olsztyn, Poland, phone +48 89 5246229, fax +48 89 5235057, e-mail: malgorzata.obara@gmail.com

z sylwetki (97,9% vs. 65,1%, $p < 0,01$) i wykazywały największe tendencje do emocjonalnego przejadania ($4,5 \pm 2,2$ pkt vs. $5,2 \pm 2$ pkt, $p < 0,01$) oraz restrykcji dietetycznych ($3,5 \pm 2,7$ vs. $4,8 \pm 2,3$, $p < 0,01$).

Wnioski. Konieczne wydaje się stworzenie programów prewencyjno-edukacyjnych w zakresie prawidłowego żywienia i postrzegania własnego ciała jako skutecznych narzędzi w ograniczeniu zaburzeń odżywiania w aspekcie zdrowia młodych kobiet i wielopokoleniowego dziedziczenia zdrowia u ich potomstwa.

Słowa kluczowe: restrykcje dietetyczne, otyłość, nadwaga, emocjonalne przejadanie, wiek prokreacyjny, pregoreksja

INTRODUCTION

Food less frequently used to provide the necessary nutrients for the survival and the body begins to play a role, which it is not able to cope with, leading to a dysfunctional its use. In an era of obesity, excessive interest in his appearance and lean silhouette assigning too much significance relates to a growing number of young women [25, 26]. Young women due to a period of their procreative years are particularly vulnerable to the consequences of abnormal eating habits that threaten the health of women and their offspring [4,14].

Being overweight adversely affects human health and so promoting a healthy nutritional lifestyle and physical activity becomes necessary. Having a slim figure is however mistakenly treated as a marker unrelated to health, serving to rather reflect personal worth. Without accounting for a person's natural predispositions, expectations of society impose a falling into line with cultural role models. From the earliest of years, girls' attentions are directed towards being slim and slender [19, 33]. This explains why obesity is regarded as something that breaks the standard views on beauty and health. As well as problems of overweight and obesity in young women, there are equally also other health threats from eating disorders arising from inappropriate and obsessive focus on personal appearance along with an uncritical yearning to conform to modern images of being attractive ie. of being a very slim woman. Further, evidence suggests that this disparity reflects, at least in part, the fact that the prevalence of body dissatisfaction and eating-disordered behaviour is higher - and the adverse effect of these variables on mental health greater - in overweight women than in overweight men [18,19].

Women of reproductive age are not only responsible for shaping their health but that of future generations. Disorders of eating, before or during pregnancy, are known to be risk factors for the poor health of future mothers and their offspring [3]. Furthermore, slimming during pregnancy can lead to pregorexia which in turn may cause premature birth and lower newborn weight [4, 14]. Foetal malnutrition increases the likelihood of obesity and metabolic disorders in later life. Many studies focus on the effects of overweight on poor health and in finding its aetiology. Few studies however look at the mental, emotional and habitual aspects of either

overeating or adopting excessive restriction diets. In Poland, there are scarcely any studies on behavioural aspects of nutrition in women of reproductive age and thus it is important that body/figure image is studied in relation to dietary behaviour.

The presented study therefore aims to investigate emotional and habitual overeating, together with adopting restriction diets in relation to body mass (existing and desired) and the willingness for this to change in young women of reproductive age; including also assessing physical activity.

MATERIAL AND METHODS

Sampling

Subjects were 372 women of 18 to 27 years age (20.6 ± 1.4) recruited from the University of Warmia and Masuria in Olsztyn and living at various urban centres; 62.7% towns and 37.3% countryside. The Rolling Snowball (referral) sampling method was used, where existing respondents recommended their fellow peers that fulfilled the study criteria. These were an absence of mental illness, chronic metabolic diseases, pregnancy and lactation as well as agreeing to participate in the study and any further follow up as and when required. Questionnaires were filled in after the study aims had been explained by suitably qualified staff.

Anthropometric measurements and assessment of body composition

These consisted of height, body mass and composition. Subjects were measured in the 'Frankfurt Plane' (standard anatomical position) without footwear and outermost clothing. Nutrition was assessed by BMI, according to WHO classification; $BMI \leq 18.5$ (undernourished), $BMI 18.5 \leq BMI < 25$ (normal body mass) and $BMI \geq 25$ (overweight/obese). The body composition was determined by FUTREX 6100/XL measurement. The body fat content was divided into three categories; low fat ($< 25\%$), normal fat (25 - 30%) and high fat ($> 30\%$). The precision of all measurements was 0.1%.

Questionnaire

This consisted of the Nutritional/Eating Behaviour Questionnaire (*Kwestionariusz Zachowań Związ-*

nych z Jedzeniem; KZZJ) devised by Ogińska-Bulik and Putyński [21] which is a universally used tool for studying the Polish population regarding dietary/nutritional behaviour, that includes diagnosing eating disorders when dieting and predicting the likelihood of weight gain. It is composed of 30 statements with either yes or no answers. Depending on the question, each reply is assigned a mark of 0 or 1 point, where the total points per block, allowed nutritional behaviour to be graded accordingly. Eating abnormalities were defined as ranging between 0-10 points for each of the 3 blocks, respectively; emotional and habitual overeating as well as the tendency to adopt restriction diets. The higher number of points scored, then the greater is the eating behaviour abnormality. The questionnaire was extended by the study authors to include details on body mass, how often were slimming diets adopted, physical activity levels and places of residence.

Statistical analysis

Results were usually expressed as means (\bar{x}) and standard deviations (SD) for each studied characteristic/variable. Mean values were compared by the *Kruskal-Wallis* test and distributions by the *Chi squared* test (χ^2). Correspondence analysis was carried out for the 8 characteristics and results presented in a two dimensional coordinates form, which explained 21% of the inertia. Results were calculated by the Statistica

10.0 PL programme and significance was taken at the $p \leq 0.05$ level.

RESULTS

Presented research constitutes a preliminary part of survey program related to behavioral conditions of young women's nutritional status.

Women's nutritional status

Subjects had normal BMI values of 21.7 ± 3.0 (min-14.9, max-34.2) and normal body fat percentage 28.0 ± 4.8 (min-15.0, max-43.5). Underweight was observed in 9.9% women, normal body mass in 75.9% and overweight in 14.2%; Table 1. Significant differences were seen between BMI and body weight with the frequency of adopting diets and physical activity, but none with places of residence. Of those undernourished women, 42.2% expressed satisfaction with their body mass, 84.8% were never on slimming diets and 72.7% declared an average/medium level of physical activity. In women with a normal body mass, 53.6% wanted to be a little slimmer, 59.9% did not adopt slimming diets and 57.5% engaged in average levels of physical activity. For those who were overweight/obese, 61% would like to be slimmer and 44.7% had low levels of physical activity as did a similar proportion who un-

Table 1. BMI (body mass index) and body's adipose (fatty) tissue content.

Parameter	BMI [kg/m ²]			Body fat [%]		
	>18.5	18.5-24.9	>25	<25	25-30	>30
Numbers [N]	45	282	53	90	190	92
Sample percentage [%]	9.9	75.9	14.2	26.5	46.7	26.8

Table 2. Body image, eating behaviour and physical activity regarding BMI

	Total [%]	Malnourish-ment [%]	Correct body mass [%]	Overweight and obesity [%]	p
Relationship to own body mass					
Desire to be a lot slimmer	17,5	0	11,5	61,7	p>0.01
Desire to be a little slimmer	46.4	6.1	53.6	36.2	
Desire to gain a little weight	7.2	33.3	5.2	0	
Desire to gain a lot of weight	0.6	6.1	0	0	
Reasonably satisfied with body mass	23.5	42.4	25	2.1	
My body mass is ideal	4.8	12.1	4.8	0	
Frequency of dieting					
1-2 times	13.6	9.1	12.7	21.3	p>0.01
3-5 times	13	0	13,1	21.3	
6-10 times	3.3	0	2.4	10.6	
>10 times	3.6	3	3.6	4.3	
Don't know	9.6	3	8.3	21.3	
Never	56.9	84.8	59.9	21.3	
Physical activity					
Low	30.7	15.2	30.2	44.7	p=0.05
Medium	56.6	72.7	57.5	40.4	
High	12.7	12.1	12.3	14.9	

Table 3. Body image, eating behaviour and physical activity regarding Eating Behaviour Questionnaire

	General indicator [x ±SD] [0-30 pts]	Habitual overeating [x ±SD] [0-10 pts]	Emotional overeating [x ±SD] [0-10 pts]	Restriction dieting [x ±SD] [0-10 pts]
Total	11.5±5.6	3.6±2.5	4.4±2.2	3.5±2.7
BMI [kg/m ²]				
<18.5	7.2±4	2.8±2.3	2.8±1.7	1.5±1.7
18.5-25	11.7±5.7	3.7±2.5	4.5±2.2	3.5±2.7
>25	13.4±4.9	3.4±2.6	5.2±2	4.8±2.3
	p<0.01	p=0.1	p<0.01	p<0.01
Relationship to own body mass				
Desire to be a lot slimmer	16.6±5.1	4.8±3.1	6.1±2.1	5.7±2.2
Desire to be a little slimmer	12.9±4.8	3.7±2.3	4.9±2	4.3±2.4
Desire to gain a little weight	8.3±4.5	4±2.5	3.2±2.1	1±1.3
Desire to gain a lot of weight	9±0	4±0	1±0	4±0
Reasonably satisfied with body mass	7.1±3.2	2.7±2.3	3±1.5	1.4±1.7
My body mass is ideal	6±3	2.4±1.9	2.3±1.6	1.3±1.2
	p<0.01	p<0.01	p<0.01	p<0.01
Frequency of dieting				
1-2 times	11.6±4.4	2.7±2.4	4.8±1.9	4.1±2.8
3-5 times	14.8±4.8	3.8±2.3	5.5±2.2	5.6±2.3
6-10 times	18.8±4.5	5.5±2.5	6.8±1.8	6.5±2.1
>10 times	18.9±6.2	5.8±3.5	5.9±2	7.3±2
Don't know	14.7±5.1	4±2.5	5.1±2.4	5.6±2.1
Never	9.3±4.7	3.4±2.4	3.7±2	2.1±1.8
	p<0.01	p<0.01	p<0.01	p<0.01
Physical activity				
Low	12.9±5.7	4.5±2.9	4.9±2.4	3.4±2.5
Medium	10.8±5.4	3.2±2.3	4.2±2.1	3.4±2.7
High	11.3±5.9	3±2.3	4.2±2.3	4.2±2.9
	p=0.01	p>0.01	p=0.03	p=0.2

dertook slimming diets; 1-2 times and 3-5 times (both 21.3%); Table 2.

In overweight and obese women, the BMI was found to be associated with abnormal nutritional behaviour, emotional overeating and being on restricted diets. The greatest abnormalities in nutritional behaviour, emotional and habitual overeating as well as being on restrictive diets were observed in those women wishing to be a lot slimmer. Similar findings were seen in subjects who tried slimming at least 6 times or more. Low levels of physical activity were found to increase the risk of abnormal nutritional behaviour, including the emotional and habitual overeating. There were no significant differences between habitual overeating with BMI, physical activity and restricted dieting (Table 3).

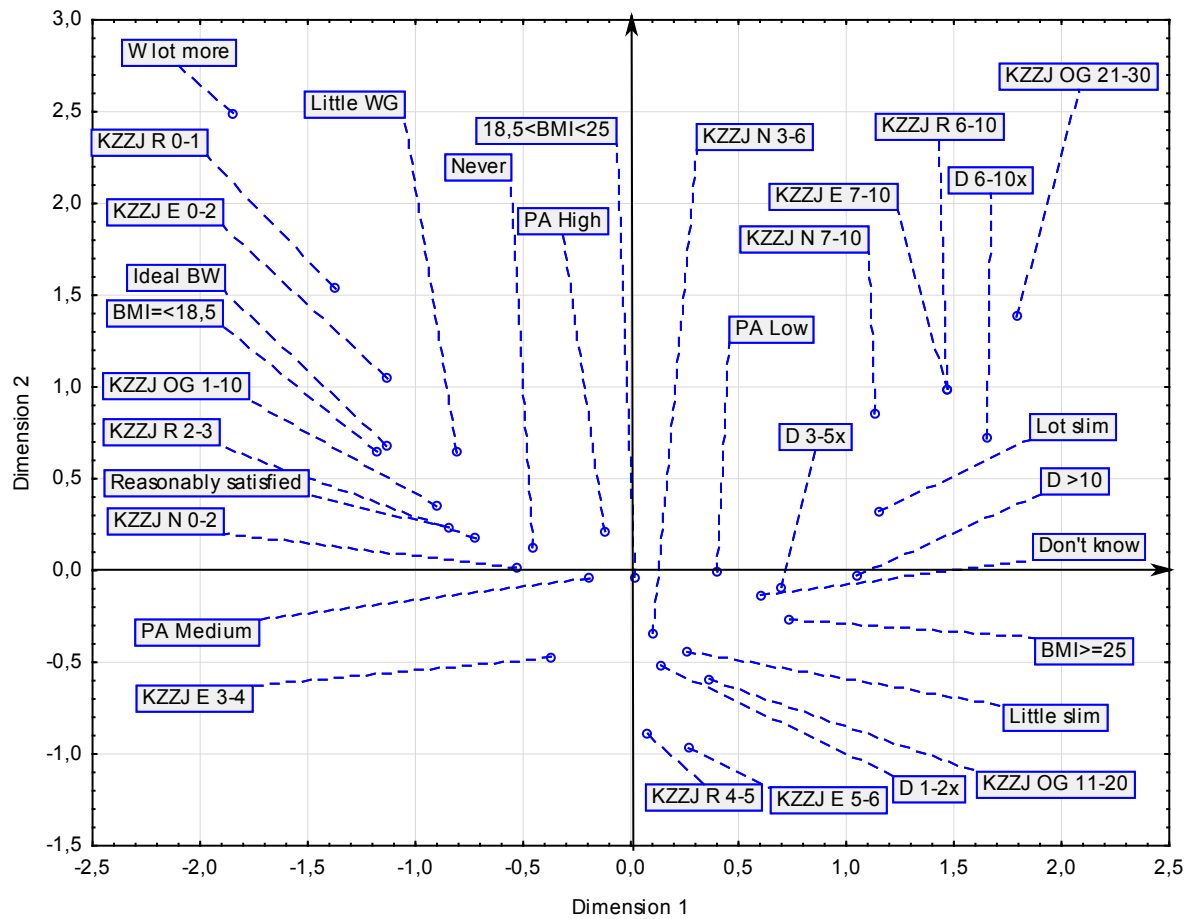
The correspondence analysis found that underweight women were more frequently satisfied with their figures and more willing for gaining a little weight compared to normal weight women or those overweight or obese (Figure 1). This former group were less predisposed to abnormal nutritional behaviour such as the emotional overeating or adopting restrictive diets. Overweight and obese subjects more often tried to slim down, had lower physical activity levels and were

more eager to be slimmer than the other subject groups (Figure 1). Those overweight showed greater abnormal nutritional behaviour, where they frequently overate emotionally and habitually, at the same time as being on restrictive diets.

Women with normal body mass claimed that they more rarely tried to slim than those overweight, resulting in lesser risk of abnormal nutritional behaviour in the former (Figure 1). This group was also more satisfied with their figure than the overweight and obese as well as undertaking more physical activity. Nevertheless they still wished to be more slim.

DISCUSSION

Emerging evidence suggests that body satisfaction may be such a leverage point [13]. The relationship between poor body satisfaction and increased risk of onset of disordered weight control behaviors and symptoms, including vomiting, fasting, and use of laxatives and diet pills for weight control, has been well-established in prospective studies with adolescent females and males [29].



Description: FM – Body fat mass, PA – Physical activity, D – Frequency of dieting, KZZJ OG – General results of the Nutritional/Eating Behaviour Questionnaire (KZZJ), KZZJ E – Results of emotional overeating from the KZZJ, KZZJ N - Results of habitual overeating from the KZZJ, KZZJ R - Results of restrictive dieting from the KZZJ

Figure 1. Relationships between nutritional status, body image, eating behaviour, physical activity and dietary habits according to Eating Behaviour Questionnaire

Abnormal nutritional/eating behaviour, including overeating, arises from many contributing sources such as from emotional states, habits and body image perception [18, 27]. Investigators seeking the causes and treatment of disorders in body mass are increasingly taking into account psychological factors. Interestingly, the association between body weight and mental health impairment in women does not appear to be confined to overweight. Rather, findings from those studies that have considered associations with mental health across the full spectrum of body weight suggest the presence of U-shaped relationships, such that both underweight and overweight are associated with poorer mental health in women [13]. In other studies, only underweight has been found to be associated with mental health impairment [17].

There have been many changes in Poland over the last 23 years, that include cultural ones and in the patterns of human consumption. A much greater availability and diversity of foodstuffs combined with an ubiquitous media presence have resulted in two contradictory messages; ‘eat’ and ‘be slim’ [10]. Lifestyle

changes resulting from technological progress have additionally limited physical activity which had previously been the mainstay of preventing obesity. Studies by *Roberts and Good* [23] have demonstrated that neurotic women are more susceptible to images of slim figures in the media. An analysis by *Rybicka-Klimczyk and Brytek-Matera* [24] on women’s satisfaction with their figures, of various age, showed that those aged 20 – 25 were most dissatisfied and most often adopted slimming diets.

Similar findings have been noted by both *Schwartz and Brownell* [26] and *Brytek-Matera and Charzyńska* [6], where obese women expressed greater dissatisfaction about their appearance and more frequently took steps for slimming their figures down compared to women with normal body mass. Likewise, a study on Brazilian female students found more dissatisfaction about their figures in those that were obese, with 73% of these downgrading their actual body mass [12]. It has been proved that reducing the body mass leads to a less distorted figure, but not in those that are obese during

adolescence. It seems that one's figure becomes fixed at this time and is difficult to then change [30].

Perceiving one's figure as being unattractive through comparison with stereotypes promoted by the media can be stressful [2]. The presented study has demonstrated that women who are overweight or obese are more likely to emotionally overeat. The findings also suggest that women who are very underweight are a vulnerable group, being at increased risk of impairment in both physical and mental health [20, 31]. One of the contributing factors is stress which causes cortisol levels to rise and so deregulates the brain's reward centre and leads to the overconsumption of highly palatable foodstuffs [1]. Many studies have illustrated that overweight subjects are more emotionally anxious and more frequently resort to snacking compared to those of normal body mass [1, 7].

Obesity may be the source of stress that reinforces the obesity through increasing the body mass [9, 22], whilst on the other hand, dissatisfaction with one's body image may act as a spur to alter body mass [25]. This could explain why the attempt to diet is more frequent and adopting restriction diets is more common in obese women. Nevertheless, restriction diets can result in an excess body mass. When the constant attention to limiting food consumption becomes diverted, through falling prey to temptation, then overeating may occur [15]. Imposing dietary restrictions leads to the body's signals being ignored and a loss of being able to differentiate between being hungry or satiated [16, 32]. As aforementioned, obese and overweight women more often succumb to emotional overeating than the other subject groups. For this former group, the results thus both show the tendency for reducing dietary intake but increasing overeating for emotional reasons.

Scant attention is however directed towards those with a normal body mass, where it is assumed that this is a low risk group for overweight and obesity. The presented findings show that over half the normal body mass (weight) subjects would like to be a little slimmer and that 31% actively dieted. Studies on American female students have yielded similar results with 95% of those with a normal body mass wanting to lose weight. Changes in dietary behaviour in normal body mass women consisted of eating smaller than desired portions (44%) and replacing sugar with sweeteners by 31% [16]. Similar findings have been reported by *Burgic-Radmanovic* et al [5], who demonstrated that 50% of white Caucasian women of normal body mass wish to be underweight. *Jaworowska* and *Bazylak* [11] found that in students, only 34.4% of women were satisfied with their body mass and that these adopted restriction diets. Such diets can lead to future changes in one's body mass. The population Health Study of Nord-Trøndelag (HUNT) showed that after the eleventh

year of observation, teenagers who regarded themselves as obese, significantly increased their body mass much more than adults did [8]. Furthermore, subjects of normal body mass that perceived themselves as obese, had waists 3.46 cm larger than those who considered themselves to be not obese.

As has been shown, restriction diets are an inappropriate dietary behaviour and they do not prevent obesity. Such persons have a higher BMI and they have more difficulties in maintaining a correct body mass [29]. The nutritional behaviour of the subjects with normal body mass is also a cause for concern and requires further observation. In addition, with the substantial prevalence of poor body satisfaction, public health initiatives designed to improve body satisfaction along with promotion of healthy eating and active living. We recommend the present findings be confirmed in a longitudinal study among a large, population-based sample of young women.

CONCLUSIONS

1. The study found a relationship between subjective assessment of body weight and possessed body weight and eating behaviors, which should draw attention of physicians to the complexity of having abnormal body weight among young women.
2. It seems necessary to create a prevention and educational programs on proper nutrition and the perception of one's own body as effective tools in reducing eating disorders in terms of the health of young women and multigenerational inheritance health of their offspring.

Conflict of interest

The authors declare no conflict of interest.

REFERENCES

1. *Adam T.C., Epel E.S.*: Stress, eating and the reward system. *Phys Behav* 2007;91:449-458.
2. *Austin S.B., Haines J., Veugelers P.J.*: Body satisfaction and body weight: Gender differences and sociodemographic determinants. *BMC Public Health*. 2009;9:313.
3. *Berner-Trąbska M., Kowalska-Koprek U., Karowicz-Bilińska A., Brzozowska M., Estemberg D., Orłowska K., Kuś E.*: The course of pregnancy and perinatal period in overweight or obese pregnant women regard to the condition of the newborn – own experiences. *Ginekol Pol* 2009;80:845-850 (in Polish).
4. *Bulik C.M., Von Holle A., Siega-Riz A.M., Torgersen L., Lie K., Hamer R., M.*: Birth outcomes in women with eating disorders in the Norwegian Mother and Child cohort study. *Int J Eat Disorders* 2009;42:9-18.

5. *Burgic-Radmanovic M., Gavric Z., Strkic D.*: Eating behavior disorders of female adolescents. *Eur Psychiat* 2008;23:81–90.
6. *Brytek-Matera A., Charzyńska E.*: Cognitive and behavioural determinants of eating disorders in obese women. *Endokryn Otyłość Zaburz Przem Mat* 2009;5:45-50 (in Polish).
7. *Carter F.A., Jansen A.*: Improving psychological treatment for obesity. Which eating behaviours should we target? *Appetite*. 2012; 58: 1063-1069.
8. *Cuyppers K., Kvaløy K., Bratberg, G., Midthjell, K.*: Being normal weight but feeling overweight in adolescence may affect weight development into young adulthood-An 11-Year Follow up: The HUNT Study, Norway. *J Obes* 2012:601-872.
9. *Foss B., Dyrstad S.M.*: Stress in obesity: cause or consequence? *Med Hypotheses*. 2011;77:7-10.
10. *Izdorczyk B, Rybicka-Klimczyk A.*: Cognitive aspects of women's body image and eating disorders. *Endokryn Pol* 2009;60:151-158 (in Polish).
11. *Jaworowska A., Bazylak G.*: An outbreak of body weight dissatisfaction associated with self-perceived BMI and dieting among female pharmacy students. *Biomed Pharmacother* 2009;63:679-92.
12. *Kakeshita I.S., de Sousa Almeida S.*: Relationship between body mass index and self-perception among university students. *Revista Saude Publ* 2006;40:497-504.
13. *Killen J.D., Taylor C.B., Hayward C., Haydel K.F., Wilson D.M., Hammer L.D. et al.*: Weight concerns influence the development of eating disorders: a 4-year prospective study. *J Consult Clin Psychol*. 1996;9(5):936–940.
14. *Koubaa S., Hällström T., Lindholm C.*: Pregnancy and neonatal outcomes in women with eating disorders. *Obstet Gynecol* 2005;105:255-260.
15. *Larsen J.K., van Strien T., Eisinga R.*: Dietary restraint: intention versus behavior to restrict food intake. *Appetite*. 2007;49:100-108.
16. *Malinauskas B.M., Raedeke T.D., Aeby V.G., Dallas M., B.*: Dieting practices, weight perceptions, and body composition: a comparison of normal weight, overweight, and obese college females. *Nutr J* 2006;31:5-11.
17. *Molarius A., Berglund K., Eriksson C., Eriksson H.G, Lindén-Boström M., Nordström E., Persson C., Sahlqvist L., Starrin B., Ydreborg B.*: Mental health symptoms in relation to socio-economic conditions and lifestyle factors- a population-based study in Sweden. *BMC Public Health* 2009, 9:302.
18. *Mond J.M., Rodgers B., Hay P.J., Owen C., Baune B.T.*: Obesity and impairment in psycho-social functioning: the mediating role of eating-disordered behavior. *Obesity*. 2007;15:2769–2779.
19. *Mond J.M., van den Berg P., Boutelle K., Neumark-Sztainer D., Hannan P.J.*: Obesity, body dissatisfaction, and psycho-social functioning in early and late adolescence: findings from the Project EAT Study. *J Adolesc Health*. 2011;48:373–378.
20. *Mond J.M., Rogers B., Hay F., Owen C.*: Mental health impairment in underweight women: do body dissatisfaction and eating disordered behavior play a role? *BMC Public Health* 2011, 11:547.
21. *Ogińska-Bulik N.*: *Psychologia nadmiernego jedzenia*. Łódź, Wydawnictwo Uniwersytetu Łódzkiego, 2004.
22. *Reas D.L., Wisting L., Kapstad H.*: Nibbling: frequency and relationship to BMI, pattern of eating, and shape, weight, and eating concerns among university women. *Eat Behav* 2012;13:65-69.
23. *Roberts A., Good E.*: Media images and female body dissatisfaction: the moderating effects of the Five-Factor traits. *Eat Behav* 2010;11:211-216.
24. *Rybicka-Klimczyk A., Brytek-Matera A.*: Body image dimensions and behavioural aspect of eating disorders in normal female population in different developmental stages. *Endokryn Otyłość Zaburz Przem Mat* 2008;4:143-151.
25. *Sarwer D.B., Thompson J.K., Cash T.F.*: Body image and obesity in adulthood. *Psychiat Clin North Am* 2005;28:69–87.
26. *Schwartz M., B, Brownell K., D.*: Obesity and body image. *Body Image* 2004;1:43–56
27. *Simon G.E., Von Korff M., Saunders K., Miglioretti D.L., Crane P.K., van Belle G., Kessler R.C.*: Association between obesity and psychiatric disorders in the US adult population. *Arch Gen Psychiatry*. 2006;63:824–830.
28. *Smolak, L., Levine M. P.*: *Body image, eating disorders, and obesity in youth. Assessment, prevention, and treatment*. Washington, DC, American Psychological Association. 2001:41-66.
29. *Snoek H.M., van Strien T., Janssens J.M., Engel M.*: Restrained eating and BMI: a longitudinal study among adolescents. *Health Psychol* 2008;27:753-759.
30. *Sorbara M., Geliebter A.*: Body image disturbance in obese outpatients before and after weight loss in relation to race, gender, binge eating, and age of onset of obesity. *Int J Eat Disorders*. 2002;31:416-23.
31. *Stice E, Shaw H.E.*: Role of body dissatisfaction in the onset and maintenance of eating pathology: A synthesis of research findings. *J Psychosom Res*. 2002;9:985–983.
32. *Stroebe W., Mensink W., Aarts H.*: Why dieters fail: testing the goal conflict model of eating. *J Exp Soc Psychol* 2009;44:26–36.
33. *Wildes J.E, Emery R.E., Simons A.D.*: The roles of ethnicity and culture in the development of eating disturbance and body dissatisfaction: a meta-analytic review. *Clin Psychol Rev* 2001;21:521-51.

Received: 05.02.2014

Accepted: 02.06.2014

