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The relationship between body image disturbance and coping with stress in patients suffering from anorexia nervosa

Abstract: *The objective of this study was to identify coping strategies that influence body attitudes in women with anorexia nervosa (n = 34).*
We used the BAT, the FRS and the Brief COPE.
Coping strategies based on focus on and venting of emotions, positive reframing and seeking instrumental social support were predictive factors for the negative appreciation of body size. Seeking emotional social support, positive reframing and use of instrumental support constituted a risk profile for development of lack of familiarity with one's body. Denial, focus on and venting of emotions, seeking instrumental social support positive reframing and humour are predictors of general body dissatisfaction.
Emotion-oriented coping had an adverse effect on body attitudes and body experience among patients with anorexia

Keywords*: body attitudes, weight dissatisfaction, coping, anorexia nervosa*

Body image is a multidimensional concept that is composed of affective, behavioural, cognitive, and perceptual components (Pruzinsky & Cash, 2002). The term body image represents a global conceptualization of attitudes, perceptions, and behaviours (Wood-Barcalow, 2006). Attitudinal features consist of a person's cognitions and affect related to the body. Behavioural features relate to a person's engagement in specific actions (e.g., dieting, excessive exercise) and the potential avoidance of particular situations and/or environments (e.g., avoiding the beach). Finally, perceptual features refer to a person's ability to accurately estimate the actual size and shape of her/his body (Wood-Barcalow, 2006).

Body image disturbance is one of the relevant diagnostic criteria for eating disorders (in particular anorexia nervosa; DSM-IV-TR, APA, 2000). The pursuit of a very thin body and weight dissatisfaction are taken into consideration as important risk factors for the development of anorexia nervosa and bulimia nervosa (Striegel-Moore & Cachelin, 2001). Body image disturbance is a problem of processing self-referential information concerning body image rather than body image-related information per se (Benninghoven et al., 2007). Body image disturbance is generally divided into two distinct and independent categories: body–size distortion and body dissatisfaction. The first involves perceptual distortions concerning one's body size (and is also included as part of the diagnostic criteria for anorexia nervosa), whereas the second makes reference to the cognitive, affective, or attitudinal nature of negative body image (Bergstrom & Neighbors, 2006).

Disturbed body image occurs when thoughts (about weight loss and weight gain), feelings (being dissatisfied with one's body), perceptions (body size distortion, overestimating one's body size and shape), and behaviours (exercising excessively, binging and purging, fasting to lose weight) related to one's own body become distorted (Botta, 2003).

According to Perpiñá, Botella and Bańos (2000) disturbances of the estimation of body size and shape, changed attitudes, beliefs and regarding the body, and behavioural disturbances make up the characteristics of body image disturbances in anorexia and bulimia nervosa (Figure 1).

The authors distinguishes six features in disturbances of the estimation of body size and shape:

(a) body size overestimation – the overestimation of body size does not seem to be a consistent phenomenon and universal feature of anorexia nervosa (a number of patients

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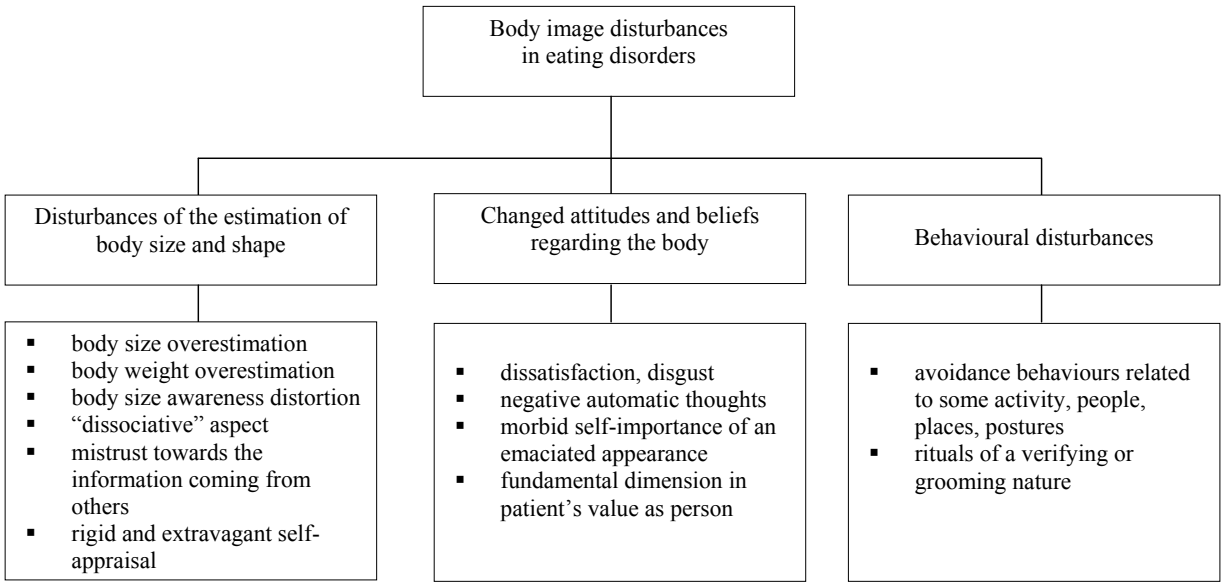

Figure 1 Characteristics of body image disturbances in anorexia nervosa and bulimia nervosa on the basis of Perpiñá, Botella and Baños (2000).

do not overestimate) as well as pathognomonic of eating disorders (many women do overestimate); nevertheless, it does represent one of the most common distortions in this type of patients;

(b) body weight overestimation – the overestimation involves body shape and size, the "number" being equivalent to the body weight that the patient thinks and/or feels she has;

(c) body size awareness distortion – lack of acknowledgment of patient's state of emaciation despite the evidence of patient's body form or patient's weight;

(d) "dissociative" aspect – the discrepancy between the mental image and the objective image or having a fragmented body image and schemata;

(e) mistrust towards the information received from someone else's opinion – the patient only trusts her own judgment;

(f) rigid and extravagant self-appraisal – the patient's body is attributed to be a measure of her global value and impossible comparisons are made (e.g., to another person's body).

Changed attitudes and beliefs regarding body shape and weight consist of:

(a) dissatisfaction, disgust – feelings of repulsion, distress, as well as anxiety;

(b) negative automatic thoughts – presenting negative body language loaded with very generalizing and especially disdainful adjectives;

(c) morbid self-importance (appreciation) of an emaciated appearance – in the case of some patients, overestimation does not occur and they feel self-satisfied with their thin figure;

(d) fundamental dimension of the patient's value as person – attributing patient's self-concept, self-esteem, and value as a person to physical appearance.

Behavioural disturbances consist of eating and body problems. Both avoidance behaviours (relating to some activity, people, or places) and rituals of a verifying or grooming nature are presented in people with eating disorders (Perpiñá, Botella, & Bańos, 2000).

In their model of body image disturbances, Kearney-Cooke and Striegel-Moore (1997) assume that people project their overpowering internal states onto their bodies as a coping mechanism. For instance, if a women cannot manage her own emotions, she may "use" her body to cope with them by applying strategies such as dieting or restricting food intake. This process may contribute to relief in the short-term but is maladaptive in the long-term because it does not include appropriate coping techniques.

Intentional efforts to manage affective arousal in threatening situations or to change the situation may be made by directly solving the problem (problem-focused coping) or accommodating the concern without bringing about a solution (emotional-focused coping) (D'Anastazi & Frydenberg, 2005). Problem-focused strategies (also referred to as "palliative" coping) are aimed at directly addressing the problematic situation through positive action (e.g., making a decision, seeking further information, solving the problem; Sandler et al., 1997 as cited in D'Anastazi & Frydenberg, 2005), whereas emotion-focused strategies (also referred to as "instrumental" coping) are aimed at managing or reducing emotional distress (e.g., redefining the situation and focusing on the positive aspects of the

situation; Lazarus and Folkman, 1984 as cited in D'Anastazi & Frydenberg, 2005).

Most studies have emphasized the relationship between maladaptive coping strategies and eating disorder symptoms (Ghaderi & Scott, 2000; Engler, Crowther, Dalton, & Sanftner, 2006; van Boven & Espelage, 2006; Lobera et al., 2009). Because research in the area of coping and eating disorders within the context of body image is relatively infrequent, the present study aimed to determine which individual coping[1] strategies influence body attitudes in young women with anorexia nervosa. The following hypotheses were posed:

H1: Emotion-oriented coping strategies will play a significant role in subjective body experience and attitude towards one's body in women with anorexia nervosa.

H2: Emotion-oriented coping strategies will be positively connected with body attitudes in patients with anorexia nervosa.

H3: Significant differences will be found among women with anorexia nervosa and women without a current eating disorder on body images variables.

H4: Significant differences will be found between the clinical group and control group on coping strategies variables.

Method

Participants

The clinical sample was comprised of 34 female patients diagnosed with anorexia nervosa (DSM-IV-TR, APA, 2000), and included: 12 patients with a restrictive type of anorexia nervosa and 22 patients with a purging type of anorexia nervosa. 44 university students without a current eating disorder constituted the control group.

Participants ranged in age from 18 to 26 (M = 19.68, SD = 2.64). The mean age was 20.13 years (SD = 3.55) in women diagnosed with anorexia nervosa and 20.27 years (SD = 1.04) in women without a current eating disorder.

The participants' current Body Mass Index (BMI = weight [kg] / height [m]^2) ranged from 14.15 to 24.78 (M = 19.29, SD = 2.47). The average BMI was 17.02 kg/m^2 (SD = 1.99) in patients suffering from anorexia nervosa and 20.57 kg/m^2 (SD = 1.20) in normal weight control group, respectively. The mean duration of disease was 3.83 years (SD = 2.52).

Procedure

The following criteria were used in the present study:

1. Only female participants were recruited, as research suggests that anorexia nervosa is among the most common of psychiatric disorders among young women, and females are ten times more likely to develop eating disorders than males (Westerberg-Jacobson, 2010). The prevalence of anorexia nervosa is from 0.3% to 2.2% in women (Hoek & van Hoeken, 2003; Favaro, Ferrara, & Santonastaso, 2004; Keski-Rankhonen et al., 2007) and from 0.16% to 0.3% in men (Ricciardelli & McCabe, 2004; Hudson, Hiripi, Pope, & Kessler, 2007), respectively. In the present study males suffering from anorexia nervosa were excluded due to their rarity.

2. The clinical group met criteria for anorexia nervosa as defined in the revised 4th edition of the Diagnostic and Statistical Manual of Mental Disorders (APA, 2000).

3. Participants were at least eighteen years of age and at most twenty five years of age.

4. Women without a current eating disorder cannot have a BMI greater than 25 kg/m^2 because these principal cut-off points point to overweight (according to the World Health Organization's classification, 1997), which is mostly connected with obesity.

Material

All participants were assessed with the Body Attitude Test (BAT), the Figure Rating Scale (FRS) and the Brief Coping Orientation to Problems Experienced Scale - situational version (Brief COPE).

Body image variables

Because attitudinal measures have a greater capacity to distinguish between a clinical and non-clinical population, compared with size distortion measures (Cash & Deagle, 1997), the Body Attitude Test (Probst, Vandereycken, van Coppenolle, & Vanderlinden, 1995) was used in the present study. The BAT is a 20-item self-report questionnaire used to evaluate subjective body experience and attitude towards one's body. The questionnaire has been developed for female eating disorder patients. It consists of three factors: negative appreciation of body size (e.g., "I feel my body as a burden"), lack of familiarity with one's own body (e.g., "My body appears as if it's not mine") and general body dissatisfaction (e.g., "When I compare myself with my peers' bodies, I'm dissatisfied with my own"). The questionnaire uses a 6-point Likert scale, ranging from "always" to "never". Items are scored from 5 to 0, with two reverse-scored items. Total scores range from 0 to 100, with higher scores indicating more deviated body experience. The BAT shows good reliability (internal consistency and test-retest) and validity (convergent and discriminant) (Probst et al., 1995). The questionnaire is generally used in Europe (van Hout, Fortuin, Pelle, & van Heck, 2008), for instance in Czech, France, Germany, Hungary, Italy, Spain, and Sweden. In the present study the

[1] In the present study coping is defined as the way that a person carries out responses to perceived threats, both external and internal (Carver, Scheier, & Weintraub, 1989).

English version of BAT was first translated into Polish (with the first author's permission), and then back-translated into English.

The Figure Rating Scale (Stunkard, Sorenson, & Schlusinger, 1983) is composed of nine silhouettes of female body size ranging from very thin to very overweight. Participants were asked to select the silhouette that most looks like their current body size ("Please circle the silhouette that presents your current body size") as well as to select the silhouette that most looks like their ideal body size, one which they would most prefer ("Please circle the silhouette that presents your ideal body size"). Weight dissatisfaction was calculated as the difference between the participants' current body silhouette and the ideal body size silhouette. The discrepancy between current and ideal body size is a valid measure of body weight dissatisfaction (Thompson & van Den Berg, 2002). The FRS has good test-retest reliability and moderate correlations with other measures of body image dissatisfaction, eating disturbance, and overall self-esteem (Thompson & Altabe, 1991). In addition, Thomson and Altabe (1991) notice that the Figure Rating Scale is a suitable tool for the assessment of body image disturbance.

Coping strategies variables

The Brief Coping Orientation to Problems Experienced Scale - situational version (Carver, 1997) assesses different ways of coping with stress: problem-focused coping and emotion-focused coping strategies. This inventory was derived from the original COPE (Carver et al., 1993 in Carver, 1997) which was based on the Lazarus and Folkman coping model (1984) and from the Carver and Scheier model of behavioural self-regulation (1981, 1990 in Carver, 1997). The Brief COPE which includes 14 distinct coping strategies (of two items each) shows good reliability coefficients: active coping (α = .68), planning (α = .73), seeking emotional social support (α = .71), seeking instrumental social support (α = .64), focus on and venting of emotions (α = .50), behavioural disengagement (α = .65), self-distraction (α = .71), positive reframing (α = .64), humour (α = .73), denial (α = .54), acceptance (α = .57), religion (α = .82), substance use (α = .90) and self-blame (α = .69). In the Polish version (Juczynski & Oginska-Bulik, 2009) this scale consists of 13 distinct coping strategies (of two items each) which exclude "self-blame". For each strategy response options are rated on 4-point scales from "never" to "always". Higher scores indicated more use of the listed coping strategy.

Statistical analysis

The statistical analysis, which focused on body image variables and coping strategy variables, was carried out on Statistical Package for the Social Sciences (SPSS version 19.0 for Windows). In the present study chi-squared (χ^2) tests were used to evaluate differences in proportions of categorical variables. The Student's t-test for independent sample was used to determine whether women with anorexia nervosa (AN) and the normal weight control group (CG) had significantly different scores on the measured variables. The Pearson's correlation coefficient was used to investigate the relationship between body attitudes and coping strategies and body image variables among patients with anorexia nervosa. Multiple linear regression analysis was conducted to identify determinants of body attitudes in women with anorexia nervosa. Results were considered significant when $p < .05$.

Results

Mean scores (and standard deviations) of actual weight, ideal weight, Body Mass Index, current body size, ideal body size, and weight dissatisfaction for two groups (clinical and control) are presented in Table 1.

As was to be expected, significant differences were found between the clinical group and control group on body images variables. Current body size ratings differed between women with anorexia nervosa and women without a current eating disorder, $\chi2(7) = 23.54$; $p < .001$. Patients

Table 1 Mean (standard deviation) of analysis variables in women with anorexia nervosa and women without a current eating disorder.

Group	Actual weight	Ideal weight	Body Mass Index	Current body size	Ideal body size	Weight dissatisfaction
AN	48.53 (5.48)	43.50 (5.08)	17.92 (1.99)	5.20 (1.99)	1.53 (0.77)	3.67 (2.18)
* AN-R	44.80 (4.44)	43.80 (7.06)	16.54 (1.41)	3.90 (1.66)	1.90 (1.10)	2.00 (2.21)
* AN-P	50.40 (5,05)	43.35 (3.96)	18.62 (1.90)	5.85 (1.84)	1.35 (.48)	4.50 (1.67)
CG	56.07 (5.02)	52.70 (3.94)	20.57 (2.20)	4.47 (1.35)	3.70 (.95)	.77 (1.33)

Note: AN = women with anorexia nervosa, AN-R = women with restrictive type of anorexia nervosa, AN-P = women with a purging type of anorexia nervosa, CG = Control group (women without a current eating disorder).

Table 2 Statistically significant Pearson's correlational analysis between body attitudes and body image and coping strategy variables in patients with anorexia nervosa.

Negative appreciation of body size	
Weight dissatisfaction	r = .584, $p < .05$
Current body size	r = .551, $p < .05$
Seeking instrumental social support	r = -.398, $p < .05$
Lack of familiarity with one's own body	
Substance use	r = .397, $p < .05$

with anorexia nervosa perceived themselves as larger than the comparison women. Analyses of ideal body size ratings found significant main effects for the group, $\chi 2(5) = 19.89$; $p < .001$. Women with anorexia nervosa reported a significantly smaller ideal body than women who did not have an eating disorder. Weight dissatisfaction differed among the groups, $\chi 2(11) = 55.89$; $p < .001$. Patients with anorexia nervosa were more dissatisfied with their weight than were comparison women.

Our study demonstrated that women with anorexia nervosa presented negative body experiences. They had more negative appreciation of their body size (M_{AN} = 24.83 ± 8.48; M_{CG} = 10.97 ± 5.63; $p < .001$), greater lack of familiarity with their bodies (M_{AN} = 21.07 ± 5.41; M_{CG} = 12.39 ± 3.92; $p < .001$) and higher levels of general body dissatisfaction (M_{AN} = 14.03 ± 3.89; M_{CG} = 8.48 ± 4.03; $p < .01$) in comparison with the control group.

In comparison with women without a current eating disorder, patients with anorexia nervosa less frequently used strategies focused on active coping (M_{AN} = 4.96 ± 1.28; M_{CG} = 5.43 ± .99; $p < .05$) as well as on positive reframing (M_{AN} = 4.52 ± 1.46; M_{CG} = 5.25 ± 1.49; $p < .05$). These patients more frequently used strategies based on denial (M_{AN} = 4.15 ± 1.34; M_{CG} = 3.13 ± 1.03; $p < .001$).

The statistically significant correlations between body attitude and body image variables as well as coping strategy variables in patients with anorexia nervosa are illustrated in Table 2.

As seen in Table 2, correlations revealed positive significant relationships between negative appreciation of body size and weight dissatisfaction as well as current body size. At the same time, lack of familiarity with one's own body significantly positively correlated with the coping strategy focused on substance use. In addition, negative appreciation of body size presented merely a negative significant correlation with the coping strategy concentrated on use of instrumental support.

The results of the multiple regression analysis, which was conducted to identify individual coping strategies that influence subjective body experience and attitude towards one's body in women with anorexia nervosa, are summarized in Figure 2.

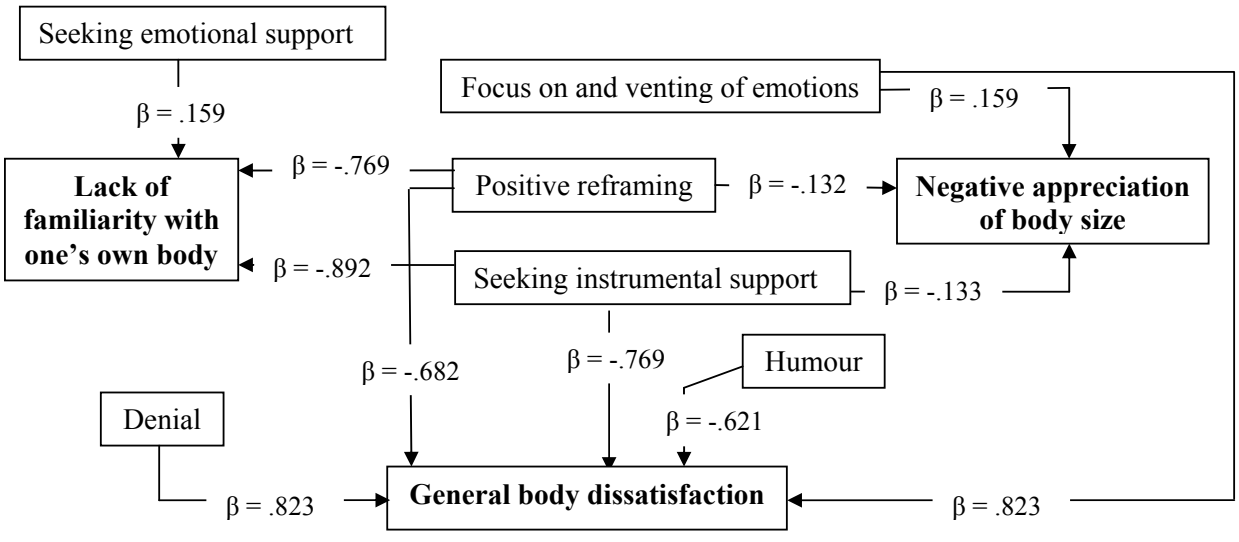

Figure 2 Coping strategies determining body attitudes in women with anorexia nervosa.

The regression analysis revealed that:

(a) coping strategies based on focus on and venting of emotions ($p < .05$), positive reframing ($p < .01$) and seeking instrumental social support ($p < .01$) made a significant contribution to negative appreciation of body size in women with anorexia nervosa. Together these variables accounted for 69% of the total variance, adjusted R squared = .69; $p < .05$.

(b) seeking emotional social support ($p < .001$), positive reframing ($p < .001$) and seeking instrumental social support ($p < .001$) constituted a risk profile for development of lack of familiarity with one's own body. Together these variables predicted 78% of the total variance, adjusted R squared = .782; $p < .01$.

(c) denial ($p < .001$), focus on and venting of emotions ($p < .001$), seeking instrumental social support ($p < .01$), positive reframing ($p < .01$) as well as humour ($p < .05$) were predictors of general body dissatisfaction. Together these variables predicted accounted for 60% of the total variance, adjusted R squared = .602; $p < .05$.

Discussion

Our results partially confirmed the first hypothesis that emotion-oriented coping strategies played a significant role in subjective body experience and attitude towards one's body in women with anorexia nervosa. The current results revealed that coping strategies based on focus on and venting of emotions (emotion-oriented coping), positive reframing (emotion-oriented coping) and seeking instrumental social support (problem-oriented coping) were deciding factors in understanding predictors of negative appreciation of body size in patients with anorexia nervosa. Use of both emotional and instrumental support (emotion-oriented coping vs. problem-oriented coping) as well as positive reframing predicted the occurrence of lack of familiarity with one's own body in women with anorexia nervosa. Denial (emotion-oriented coping), focus on and venting of emotions, seeking instrumental social support, positive reframing as well as humour constituted a risk profile for development of general body dissatisfaction. It is necessary to take into account the fact that two coping strategies (positive reframing and seeking instrumental social support) determine each of three attitudes towards one's body. Making the best of the situation by growing from it or viewing it in a more favorable light as well as seeking assistance, information, or advice about how to handle stressful situations were negatively predictive of eating disorder patients' negative appreciation of body size, lack of familiarity with their body and general body dissatisfaction. In contrast, an increased awareness of emotional distress and an accompanying tendency to discharge those feelings (focus on and venting of emotions) was positively correlated with both negative appreciation of body size and general body dissatisfaction in patients with anorexia nervosa. The received results might be useful in psychotherapeutic intervention, which should focus on change of inappropriate coping mechanisms in relation to body image disturbance among women with anorexia nervosa. Halvarsson (2000) suggests that the protective effect of problem-focused coping should be examined relative to eating disturbances as well, because "problem-oriented coping has been suggested as an important component in the treatment of eating disorders as well as in preventive work" (p. 20). An increase in adaptive coping skills would help avoid or overcome eating disordered behaviour[2]. Nevertheless, we ought to be aware of the fact that having knowledge of the use of adaptive coping strategies does not always mean that person will utilize them in every circumstance (Halvarsson, 2000).

The results demonstrated that the second hypothesis was partially confirmed and presented a positive correlation between emotion-oriented coping strategies and body attitudes in patients with anorexia nervosa. As hypothesized, current data supported that body attitude, in particular lack of familiarity with one's own body, was associated with emotion-focused coping in patients with anorexia nervosa. Our results showed a link between negative appreciation of body size and the less frequent utilization of the coping strategy focused on use of instrumental support (less problem-oriented coping). We might suppose that women who are inclined to evaluate their body attributes more negatively do not seek instrumental support for fear of negative social comments (from family, friends, others) about their own body size. In addition, the current results showed that lack of familiarity with one's own body was significantly positively related to the coping strategy focused on substance use (e.g., alcohol) among women with anorexia nervosa (more emotion-oriented coping). We might believe that patients who do not experience knowledge of their own bodies consume alcohol or drugs to reduce a sense of emotional emptiness. Perhaps, by means of intake of these substances, they desire to forget about the lack of this familiarity with their body or they want to reduce distress.

There are not many comparative studies of relationships between coping and eating disorders (Denisoff, 2000), particularly in the context of body image disturbance. Some studies have suggested an association between eating pathology and an increased use of coping strategies like coping avoidance and emotionally focused approaches (as

[2] People become involved in the strategies ranging from cognitive to behavioural efforts that help reduce the stress that results from body dissatisfaction (Cash & Fleming, 2002). Avoidance (efforts to shun threats to one's body image), appearance fixing (attempts to change one's appearance by hiding or correcting a physical feature perceived as flawed), and positive rational coping strategies (mental and behavioural activities that stress the use of positive self-care or rational self-talk that make reference to the acceptance of one's experiences) tend to overcome appearance dissatisfaction (Cash, Santos, & Williams, 2005).

cited in Halvarsson, 2000). In the late nineties, the research conducted by Koff and Sangani (1997) reported that increased use of emotion-oriented coping was related to a more negative body image. General body dissatisfaction and body size distortion were positively correlated with emotion-oriented coping. This study also suggested that lower weight dissatisfaction was connected with a more positive body image and with lower psychological distress. It was also proposed that the use of emotion-oriented coping might be a risk factor for eating disturbance (Koff & Sangani, 1997).

Patients with anorexia and bulimia nervosa use inadequate coping strategies in attempts to deal with a fixation on slender body image and food (Denisoff, 2000), whereas in a non-clinical sample of women stress led to an increased level of weight preoccupation (Denisoff & Endler, 2000). The authors found that emotion-oriented coping was related to more weight preoccupation, while task-oriented coping was associated with less weight preoccupation. This suggested that predominant use of emotion-oriented coping may be a predictor for the development of weight preoccupation.

Different patterns of coping with body image threats or challenges were found between patients with anorexia and those with bulimia (Hrabosky et al., 2009). Participants with bulimia nervosa were more likely to cope with body image-related stress by eating (or overeating), as patients with anorexia were characterized by extreme caloric restriction (Fairburn & Harrison, 2003). Therefore, the latter group may be more likely to try to fix or camouflage their perceived imperfections or attempt to ignore distressing thoughts or emotions in an effort to cope with body image-related triggers rather than eat (Hrabosky et al., 2009). Regardless, these maladaptive coping strategies are potential expressions of the self-evaluative appearance investment or overvaluation, which subsequently reinforce eating disordered attitudes (Hrabosky et al., 2009).

Our third hypothesis was confirmed. We found significant differences between women with anorexia nervosa and women without a current eating disorder regarding body image variables. Patients with anorexia nervosa reported significantly slimmer ideal body size as well as perceived their current body size as larger than the women without a current eating disorder (in spite of the fact that patients' BMI indicate an underweight status, precisely, mild thinness). These patients have difficulty in accurately perceiving their body shape and size, they estimate their silhouette larger than it actually is (which points to perceptual distortion). The same results were received by Tovée et al. (2003). Researchers found that patients with anorexia nervosa as well as patients with bulimia nervosa reported a significantly smaller ideal body shape than the control group. In contrast to our results, Striegel-Moore et al. (2004) found that women with anorexia nervosa reported significantly smaller current body size ratings than the comparison group.

Additionally, in our study women with anorexia exhibited more weight dissatisfaction than women without a current eating disorder. Furthermore, they showed more concern about body shape and feelings of being overweight, greater lack of familiarity with their bodies and higher levels of body disparagement (general body dissatisfaction) in comparison with the control group. Other studies also showed that women with anorexia nervosa presented greater body image distortion (i.e. disturbance in the cognitive and affective components of body image) than the normal population (e.g. Fairburn & Harrison, 2003; Striegel-Moore et al., 2004; Hrabosky et al., 2009). Striegel-Moore et al. (2004) notice that girls with anorexia nervosa are particularly affected by their relative weight (i.e. weight adjusted for height) in terms of their current body image and dissatisfaction with their body size.

The fourth hypothesis was also confirmed. As predicted, we found differences in the use of coping strategies between patients with anorexia and those who manifested no disturbance in eating attitudes and habits. Women with anorexia nervosa less often used strategies focused on active coping as well as on positive reframing than with women without a current eating disorder. However, these patients more frequently used strategies based on denial. We realise that women with anorexia nervosa infrequently take action or exert efforts to remove or manage the stressor as well as they do not often try to interpret a stressful situation in a positive way (they do not look for its positive aspects). At the same time, these patients are frequently willing to attempt to reject the reality of the stressful event. We might find, therefore, that these women are less likely to use problem-oriented coping (in order to deal with the cause of their problem). The research studies show that emotion-oriented coping styles are related to negative health outcomes (Halvarsson, 2000). The research carried out by Tropp et al. (1998 as cited in Denisoff, 2000) indicate that women with eating disorders were less effective in their coping than women without eating disorders.

Because the relationship between body image disturbances and coping strategies may be dependent on other factors (such as self-esteem, depression, anxiety) a follow-up study of these potential factors may be carried out. Further research is also needed to explore the effects that coping strategies have on body-image disturbance using randomized clinical trials in both clinical and nonclinical populations. Body image disturbance causes considerable difficulties in the course of eating disorders treatment and that is why a further step of future research should be to examine how body size overestimation can be influenced therapeutically (Skrzypek, Wehmeier, & Remschmidt, 2001). Even if our results cannot be generalized, due to the clinical sample size of eating disorder cases, our conclusions open the way for future research in the field of therapeutic treatment among patients with anorexia nervosa.

References

American Psychiatric Association (2000). Diagnostic and Statistical Manual of Mental Disorders. Fourth Edition Revised. Washington, DC: APA.

Benninghoven, D., Raykowski, L., Solzbacher, S., Kunzendorf, S., & Jantschek, G. (2007). Body images of patients with anorexia nervosa, bulimia nervosa and female control subjects: a comparison with male ideals of female attractiveness. *Body Image*, *4*, 1, 51–59.

Bergstrom, R. L, & Neighbors, C. (2006). Body image disturbance and the social norms approach: an integrative review of the literature. *Journal of Social and Clinical Psychology*, *25*, 9, 975–1000.

Botta, R. A. (2003). For your health? The relationship between magazine reading and adolescents' body image and eating disturbances. *Sex Roles*, *48*, 9/10, 389–399.

Carver, C. S. (1997). You want to measure coping but your protocol's too long: consider the Brief COPE. *International Journal of Behavioral Medicine*, *4*, 1, 92–100.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, *56*, 2, 267–283.

Cash, T. F., & Fleming, E. C. (2002). Body image and social relations. In T. F. Cash & T. Pruzinsky (Eds.), *Body image: a handbook of theory, research, and clinical practice* (pp. 277–286). New York: The Guilford Press

Cash, T. F., Santos, M. T., & Williams, E. F. (2005). Coping with body-image threats and challenges: validation of the Body Image Coping Strategies Inventory. *Journal of Psychosomatic Research*, *58*, 2, 191–199.

D'Anastasi, T., & Frydenberg, E. (2005). Ethnicity and coping: what young people do and what young people learn. *Australian Journal of Guidance & Counselling*, *15*, 1, 43–59.

Denisoff, E. (2000). The relationships among stress, coping, eating disorders, anxiety, and depression. Dissertation. Toronto, Ontario: Library of York University.

Denisoff, E., & Endler, N. S. (2000). Life experiences, coping, and weight preoccupation in young adult women. *Canadian Journal of Behavioural Science*, *32*, 2, 97–103.

Engler, P. A., Crowther, J. H., Dalton, G., & Sanftner, J. L. (2006). Predicting eating disorder group membership: an examination and extension of the sociocultural model. *Behavior Therapy*, *37*, 1, 69–79.

Favaro, A., Ferrara, S., & Santonastaso, P. (2004). The spectrum of eating disorders in young women: a prevalence study in a general population sample. *Psychosomatic Medicine*, *65*, 4, 701–708.

Fairburn, C. G., & Harrison, P. J. (2003). Eating disorders. *Lancet*, *361*, 9355, 407–416.

Ghaderi, A., & Scott, B. (2000). Coping in dieting and eating disorders: a population-based study. *Journal of Nervous and Mental Disease*, *188*, 5, 273–279.

Halvarsson, K. (2000). Dieting and eating attitudes in girls: development and prediction. Dissertation. Uppsala: Acta Universitatis Upsaliensis.

Hrabosky, J. I., Cash, T. F., Veale, D., Neziroglu, E., Soll, E. A., Garner, D. M., Strachan-Kinser, M., Bakke, B., Clauss, L. J., & Phillips, K. A. (2009). Multidimensional body image comparisons among patients with eating disorders, body dysmorphic disorder, and clinical controls: a multisite study. *Body Image*, *6*, 3, 155-163

Hoek, H. W., & van Hoeken, D. (2003). Review of the prevalence and incidence of eating disorders. *International Journal of Eating Disorders*, *34*, 4, 383–396.

Hudson, J. I., Hiripi, E., Pope, H. G. Jr, & Kessler, R. C. (2007). The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. *Biological Psychiatry*, *61*, 3, 348-358.

Juczyński, Z., & Ogińska-Bulik, N. (2009). Narzędzia pomiaru stresu i radzenia sobie ze stresem. Warszawa: Pracownia Testów Psychologicznych.

Kearney-Cooke, A., & Striegel-Moore, R. (1997). The etiology and treatment of body image disturbance. In D. M. Garner & P. E. Garfinkel (Eds.), *Handbook of treatment for eating disorders* (pp. 295–306). New York: The Guilford Press.

Keski-Rahkonen, A., Hoek, H. W., Susser, E. S. Linna, M. S., Sihvola, E., Raevuori, A., Bulik, C. M., Kaprio, J., & Rissanen, A. (2007). Epidemiology and course of anorexia nervosa in the community. *American Journal of Psychiatry*, *164*, 8, 1259–1265.

Koff, E., & Sangani, P. (1997). Effects of coping style and negative body image on eating disturbance. *International Journal of Eating Disorders*, *22*, 1, 51–56.

Lobera, I. J., Estébanez, S., Fernández, M. J. S., Bautista, E. A., & Garrido, O. (2009). Coping strategy in eating disorders. *European Eating Disorders Review*, *17*, 3, 220–226.

Perpiñá, C., Botella C., & Bańos, R. M. (2000). Body image in eating disorders. Virtual reality, assessment and treatment. Valencia: Promolibro.

Probst, M., Vandereycken, W., van Coppenolle, H., & Vanderlinden, J. (1995). The Body Attitude Test for patients with an eating disorder: psychometric characteristics of a new questionnaire. *Eating Disorders: Journal of Treatment and Prevention*, *3*, 2, 133–145.

Pruzinsky, T., & Cash, T. F. (2002). Understanding body images: historical and contemporary perspectives. In T. F. Cash & T. Pruzinsky (Eds.), *Body image: a handbook of theory, research, and clinical practice* (pp. 3–12). New York: The Guilford Press.

Ricciardelli, L., & McCabe, M. (2004). A biopsychosocial model of disordered eating and the pursuit of muscularity in adolescent boys. *Psychological Bulletin*, *130*, 179-205.

Skrzypek, S., Wehmeier, P. M., & Remschmidt, H. (2001). Body image assessment using body size estimation in recent studies on anorexia nervosa. A brief review. *European Child & Adolescent Psychiatry*, *10*, 4, 215–221.

Striegel-Moore, R. H., & Cachelin, F. M. (2001). Etiology of eating disorders in women. *Counseling Psychologist*, *29*, 5, 635–661.

Striegel-Moore, R. H., Franko, D. L., Thompson, D. T., Barton, B., Schreiber, G. B., & Daniels, S. R. (2004). Changes in weight and body image over time in women with eating disorders. *International Journal of Eating Disorders*, *36*, 3, 315–327.

Stunkard, A. J., Sorenson, T., & Schlusinger, F. (1983). Use of the Danish adoption registers for the study of obesity and thinness. In: S. S. Kety, L. P. Rowland, R. L. Sidman & S. W. Matthysse (Eds.), *The genetics of neurological and psychological disorders* (pp. 115–120). New York: Raven Press.

Thompson, J. K., & Altabe, M. N. (1991). Psychometric qualities of the Figure Rating Scale. *International Journal of Eating Disorders*, *10*, 5, 615–619.

Thompson, J. K., & van Den Berg, P. (2002). Measuring body image attitudes among adolescents and adults. In T. F. Cash & T. Pruzinsky (Eds.), *Body image: a handbook of theory, research, and clinical practice* (pp. 142−154). New York: The Guilford Press.

Tovée, M. J., Benson, P. J., Emery, J. L., Mason, S. M., & Cohen-Tovée, E. M. (2003). Measurement of body size and shape perception in eating-disordered and control observers using body-shape software. *British Journal of Psychology*, *94*, 4, 501–516.

Westerberg-Jacobson, J. (2010). Wish to be thinner. Development and prediction of disturbed eating: a longitudinal study of Swedish girls and young women. Dissertation. Uppsala: Acta Universitatis Upsaliensis

Wood-Barcalow, N. L. (2006). Understanding the construct of body image to include positive components: a mixed-methods study. Dissertation. Columbus: The Ohio State University.

World Health Organization (1997). Obesity: preventing and managing the global epidemic [report of a WHO Consultation on Obesity]. Geneve: WHO.

Van Boven, A. M., & Espelage, D. L. (2006). Depressive symptoms, coping strategies, and disordered eating among college women. *Journal of Counseling & Development*, *84*, 3, 341–348.

Van Hout, G. C. M., Fortuin, F. A. M., Pelle, A. J. M, & van Heck, G. L. (2008). Psychosocial functioning, personality, and body image following vertical banded gastroplasty. *Obesity Surgery*, *18*, 1, 115–120.