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COMPARATIVE STRUCTURAL STUDY OF THE CONFIGURATION OF COPING STRATEGIES AMONG FEMALE PATIENTS WITH EATING DISORDERS AND A NON-CLINICAL CONTROL GROUP

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SUMMARY

Background: *The aim of this research was to assess the relationship between coping mechanisms and eating disorders as well as to determine coping strategies as predictors of eating disorders pathology.*

Subjects and methods: *Participants included 52 females meeting the DSM-IV criteria for anorexia nervosa and bulimia nervosa and 55 university students. Assessment tools were the Brief Coping Orientation to Problems Experienced Scale and the Stress Coping Questionnaire.*

Results: *Eating disorders were positively related to substance use, substitute gratification, avoidance, aggression, and drug use. Additionally, significant negative correlations were found between eating disorders and relaxation, planning, using instrumental support, acceptance as well as venting. The regression analysis revealed that eating disorders were positively associated with coping strategies focused on substance use and religion, and negatively associated with using emotional support, positive self-instructions and positive reframing. The non linear principal components analysis allowed for exploring similarities and differences in the latent structure of the configuration of coping strategies between the clinical group and the control group.*

Conclusions: *Since women with anorexia and bulimia nervosa apply emotion-focused coping strategies to manage their stress, psychotherapeutic intervention with these patients should focus on changing inappropriate coping mechanisms.*

Key words: *eating disorders - coping strategies – stress - optimal scaling*

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INTRODUCTION

Richard Lazarus and Susan Folkman (1984) define stress as a specific relationship between an individual and the environment perceived as threatening or exceeding one's own resources and negatively affecting the individual's well-being. Due to the significance of mutual influence in this relationship (the person and the environment affect one another), the authors use the term of transaction.

The term of coping was used for the first time by Richard Lazarus in 1960s (Lazarus 1966). However, from a historical perspective, the notion of coping with stress was related to the concept of defense mechanisms, characteristic of psychoanalysis, dynamic psychology and ego psychology (end of 19th century) and to the concept of adaptive mechanisms used in biology, ethnology and animal psychology (second part of 20th century) (Bruchon-Schweitzer 2001). Since the 1960s-70s, the term of coping has been used in the research focused on defense mechanisms, in order to indicate the most mature defense mechanisms (e.g. sublimation, humor) (Bruchon-Schweitzer 2001), that are partially under conscious control, whereas the archaic defense mechanisms described by the psychodynamic tradition are unconscious.

The term coping is used when someone undertakes cognitive or behavioural efforts with the aim of managing specific external and/or internal demands perceived as too strenuous and exceeding one's resources (Lazarus & Folkman 1984). Thus, the transactional concept of coping with stress is not characteristic of a situation or an individual but designates processes implicating mutual actions between the human being and the environment. This refers to strategies developed in order to attempt overcoming and/or decreasing psychic discomfort caused by them. This definition strongly emphasizes that coping with stress is a process (constantly changing and specific) that cannot be analyzed in a linear way. It also helps distinguishing between strategies of coping with stress and their consequences. Thus, a coping strategy cannot be regarded a priori as adaptive or maladaptive (Bruchon-Schweitzer 2001). The same strategy can prove effective in certain situations and ineffective in other cases. Coping means making efforts based on the cognitive appraisal of a personal with regard to his relationship with the environment. Primary appraisal involves subjective evaluation and interpretation of a specific event, it establishes the significance of a particular situation. The person assesses a stressful situation (primary appraisal) as well as her own coping resources (secondary appraisal). A change in the relationship between a human being and the environment may lead to a reappraisal of a particular situation and of the available resources.

There are different forms of coping with stress. Actions taken by human beings in order to handle a specific situation can be based on: cognition (e.g. appraisal of a stressful situation, evaluation of one's own abilities, searching for information), emotion (e.g. expressing or suppressing fear, anger.) or behaviour (e.g. solving a problem, looking for help) (Bruchon-Schweitzer 2001). The purpose of the strategy of coping with stress is to enable the human being to control, reduce or overcome disturbances caused by a stressful event or situation.

According to Richard Lazarus and Susan Folkman (1984), coping strategies have two main functions: they can modify a problem whose source is stress or increase resources of the human being in order to better cope with it (problem-focused strategies e.g. planning a problem solution, active coping with stress, search for social support) or they can control emotional replies related to a stress evoking situation (strategies of coping with stress based on emotions e.g. looking for emotional support, disorganization of behavior, denial, positive revaluation, withdrawal, using psychoactive substances).

As a number of research studies (e.g. Brytek-Matera 2009, Ghaderi & Scott 2000, Lobera et al. 2009, Schiltz & Brytek-Matera 2009) indicate that individuals with eating disorders seldom adopt strategies of active coping with stress, the authors made an attempt to assess the relationship between strategies of coping with stress and eating disorders (with the aim of identifying specific strategies accompanying eating disorders) and to establish which of the stress coping strategies determine prevalence of eating disorders.

The following hypotheses were proposed:

H 1: Emotion-oriented coping strategies will be positively associated with eating disorders pathology and can be considered as risk factors for their prevalence.

H 2: Patients with eating disorders and women without a current eating disorder will differ on the configuration of current coping strategies. Multidimensional analysis will show typical patterns of functioning in relationship with coping mechanisms.

H 3: The coping strategies of patients with eating disorders will be more dysfunctional with regard to their capacity to reduce stress.

SUBJECTS AND METHODS

Subjects

52 women with eating disorders participated in the research. They were qualified for the clinical group on the basis of the diagnostic criteria for anorexia nervosa and bulimia nervosa set in the DSM-IV-TR (APA 2000). The control group consisted of 55 women without a current eating disorder (female students). All participants agreed to take part in the present study (an oral informed consent was obtained from all the participants). The research was approved by the Bioethical Commission at the Karol Marcinkowski Medical University in Poznan (Poland).

The average age in the research group was 19.63 years (SD=2.56) and 20.19 years (SD=1.03) in the control group. The average Body Mass Index (BMI) in women with eating disorders was 18.08 kg/m^2 (SD=2.48), which according to the norms set by the World Health Organisation (WHO 2000) indicates underweight (17.00-18.49 kg/m²), whereas, in the healthy women, the average BMI reached 20.52 kg/m^2 (SD=2.40), which according to the WHO norms indicates a normal weight (18.50–24.99 kg/m²). The mean duration of disease was over 3.5 years (M=43.12 moths).

Methods

For the assessment of coping strategies in a stressful situation, the situational version of the Brief Coping Orientation to Problems Experienced Scale (Brief COPE; Carver 1997) and the Stress Coping Questionnaire (SVF120; Janke et al. 1997) were applied.

The Brief COPE (Carver 1997) measures different ways of coping with stress: problem-focused and emotion-focused coping strategies. This inventory was derived from the original COPE which was based on the Lazarus and Folkman coping model (1984) and from the Carver and Scheier model of behavioral self-regulation (Carver 1997). The Brief COPE which consists of 14 distinct coping strategies shows good reliability coefficients: active coping (α=0.68), planning (α=0.73), seeking emotional social support (α=0.71), seeking instrumental social support (α=0.64), focus on and venting of emotions (α=0.50), behavioral disengagement (α=0.65), self-distraction (α=0.71), positive reframing (α=0.64), humor (α=0.73), denial (α=0.54), acceptance (α=0.57), religion (α=0.82), substance use (α=0.90) and self-blame (α=0.69). In the Polish version of the Brief COPE (Juczynski & Oginska-Bulik 2009) the split-half reliability for 14 subscales amounts to 0.86.

Each item is evaluated according to a four-item scale (never - sometimes - often - always) ranging from 1 to 4 points. The minimum score for each strategy is 2 points and the maximum score is 8 points. Low scores prove that an individual does not usually use a specific strategy in order to handle stress, whereas the high score means that an individual uses a particular strategy.

Another tool adopted by the authors is the Stress Coping Questionnaire (Stressverarbeitungsfragebogen, Janke et al. 1997). In the standard SVF120 version following the situation-independent approach the participants were asked to define their own reactions to different stress situations ("When I am disturbed, irritated, or upset by something or someone..."). The Stress Coping Questionnaire is composed of 20 subscales: (1) minimization; (2) self-aggrandizement by comparison with others; (3) denial of guilt; (4) distraction; (5) substitute gratification; (6) search for self-affirmation; (7) relaxation; (8) situation control; (9) reaction control; (10) positive self-instructions; (11)

escape; (12) social withdrawal; (13) rumination; (14) resignation; (15) self-pity; (16) self-blame; (17) need for social support; (18) avoidance; (19) aggression and (20) drug use. These subscales examine a tendency for using positive and negative strategies for coping with stress.

Positive strategies (POS) include first ten subscales (from "minimization" to "positive self-instructions") that are adopted for stress reduction. In addition, these strategies can be combined into three categories: POS1 devaluation/defense (from minimization to denial of guilt), POS2 distraction (from distraction to relaxation), and POS3 control (from situation control to positive self-instructions) (Janke & Erdmann 1997). Subsequent six subscales (from escape to self-blame) are classified as negative strategies (NES) because they increase stress. The four last subscales (from need for social to drug use) cannot unequivocally be assigned to one of the broad categories (Weyers et al. 2005). The SVF120 consists of 120 items to be scored on a 5-point scale (from "definitely not" to "very probable"). The total score for each strategy ranges from 0 to 30 points.

The SVF120 standard version showed quite high internal consistency scores (Cronbach's α) and split-half reliabilities (odd-even split-half, Flanagan corrected) for all subscales (Ising et al. 2006). In the SVF120 retest reliability coefficients are above 0.70 (for all subscales); however split-half reliabilities of the categories (POS, NES) scored 0.90 and more (Ising et al. 2006).

Statistical Analyses

The Student's t-test for independent samples (comparative analysis of the results), the Pearson's correlation coefficient (correlation analysis between eating disorders and coping strategies), the multiple linear regression analysis (in order to determine coping strategies as predictors of eating disorders), as well as the Non Linear Principal Components Analysis (PRINCALS) (an alternative to factor analysis, allowing to extract latent dimensions with small groups and data belonging to a mixed level of measurement) were used to make a statistical analysis of the given research results. Results were considered significant when $p<0.05$. The statistical analysis was carried out on the Statistical Package for the Social Sciences (SPSS version 19.0 for Windows).

RESULTS

Comparative study

Between the two examined groups, there were statistically significant differences in the strategies of coping with stress (Table 1).

The comparison of average results for the coping strategies, both positive (POS) and negative ones (NOS), revealed significant differences ($p<0.05$; $p<0.001$) between the examined patients with eating disorders ($M_{POS}=10.51\pm2.08$; $M_{NOS}=15.97\pm3.19$) and the healthy population ($M_{POS}=15.05\pm2.46$; $M_{NOS}=12.07\pm3.61$).

In the examined clinical group significant correlations were observed between the prevalence of eating disorders and substance use ($r=0.832$, $p<0.01$), substitute gratification ($r=0.342$, $p<0.05$), avoidance ($r=0.338$, $p<0.05$), aggression ($r=0.316$, $p<0.05$) as well as drug use ($r=0.362$, $p<0.05$). In addition, the results of the analysis showed a significant inversely proportional correlation between eating disorders and relaxation ($r=-0.309$, $p<0.05$), planning ($r=-0.435$, $p<0.05$), seeking instrumental social support ($r=-0.438$, $p<0.05$), as well as acceptance ($r=-0.505$, $p<0.01$).

Due to a stepwise regression the coping strategies which are risk factors in the prevalence of eating disorders have been distinguished (Table 2).

Table 1. Coping strategies in clinical and control groups: statistical significance

Variable	ED n=52		CG n=55		t	p
	M	SD	M	SD		
SVF 120						
Minimization	10.88	4.65	13.78	3.79	-2.86	0.006
Denial of guilt	9.44	3.77	12.06	2.95	-3.23	0.002
Relaxation	9.56	4.99	12.75	4.41	-2.64	0.006
Positive self-instructions	11.41	4.52	15.88	3.94	-4.41	0.001
Escape	15.32	5.98	11.75	5.55	2.60	0.011
Social withdrawal	15.05	5.42	8.63	4.47	5.41	0.001
Resignation	14.76	4.65	11.88	4.33	2.70	0.009
Self-pity	13.93	4.64	11.31	4.67	2.38	0.020
Self-blame	16.73	4.94	11.34	4.49	4.81	0.001
Drug use	6.12	6.06	3.47	3.89	2.15	0.035
Brief COPE						
Positive reframing	4.39	1.51	5.36	1.45	-2.64	0.010
Humor	2.87	0.64	4.42	1.62	-5.08	0.001
Substances use	3.39	1.80	2.84	1.56	2.62	0.011

Note: ED – patients with eating disorders; CG – control group

Table 2. Multiple regression analyses for predicting coping strategies in eating disorders pathology

Variable	β	p
Substance use	0.774	0.001
Religion	0.247	0.001
Seeking emotional social support	-0.119	0.001
Positive self-instructions	-0.171	0.001
Positive reframing	-0.235	0.001

Table 3. Component Loadings (Cronbach's total Alpha: 0.972) – patients with eating disorders (n=52)

Variable	Dimension 1	Variable	Dimension 2	Variable	Dimension 3
Resignation	0.870	Substitute gratification	0.937	Rumination	0.693
Self-pity	0.782	Positive self-instruction	0.844	Behavioural Disengagement	0.560
Drug use	0.770	Distraction	0.773	Situation control	0.510
Aggression	0.726	Minimization	0.685	Planification	-0.616
Social withdrawal	0.704	Self aggrandizement by comparison with others	0.616	Focus and venting on emotions	-0.654
Escape	0.643	Relaxation	0.534		
Positive self-instruction	-0.507	Search for self-affirmation	0.506		
Seeking emotional social support	-0.510	Substance use	0.501		
Denial	-0.534	Self-blame	-0.547		
Positive reframing	-0.545				
Acceptance	-0.548				
Search for self-affirmation	-0.745				

Table 4. Component Loadings (Cronbach's total Alpha: 0.967) – women without eating disorders (n=55)

Variable	Dimension 1	Variable	Dimension 2	Variable	Dimension 3
Social withdrawal	0.836	Self-pity	0.753	Seeking instrumental social support	0.741
Self-blame	0.657	Search for self-affirmation	0.678	Seeking emotional social support	0.695
Escape	0.656	Rumination	0.591	Focus on and venting of emotions	0.657
Aggression	0.598	Self distraction	0.586	Planification	0.643
Drug use	0.557	Acceptance	0.577	Avoidance	-0.544
Resignation	0.547	Resignation	0.551		
Humor	-0.540	Denial of guilt	0.510		
Situation control	-0.599	Self blame	0.509		
Minimization	-0.630	Substitute gratification	0.505		
Positive self-instructions	-0.635				
Reaction control	-0.651				
Self-aggrandizement by comparison with others	-0.757				

The coping strategies presented in Table 2 predicted 89% of the variance ($F_{(5, 27)}$=47.12, p<0.001, R=0.947, R^2=0.897).

Multidimensional study: PRINCALS

We show the three dimensional solution that meets the eigenvalue criterion > 1/N (Bühl & Zöfel 1994) in patients with eating disorders (Table 3) and in women without a current eating disorders (Table 4).

Proposed denominations of dimensions in patients with eating disorders are:

Dimension 1: overwhelming by emotions/modify-cation of cognitions and situation;

Dimension 2: restoration of narcissism/ acceptance of personal responsibility;

Dimension 3: focus on the past / focus on the future.

Proposed denominations of dimensions in women without eating disorders are:

Dimension 1: overwhelming by emotions/ cognitive restructuring;

Dimension 2: restoration of narcissism combined with ambivalence as to the responsibility;

Dimension 3: active strategies / passive endurance.

Dimension 1 is similar in the two subgroups. Dimensions 2 and 3 show a greater flexibility and variability of approaches in the subgroup of healthy women, whereas the members of the clinical subgroup display a greater rigidity and exclusiveness in their preferred coping strategies. In the prior subgroup, cognitive restructuring techniques tend to dominate the psychic functioning, whereas emotional arousal plays a greater part in the configuration of usual coping strategies in the latter subgroup.

DISCUSSION

The presented research suggests that the female patients with eating disorders in comparison to the healthy women less frequently adopt positive strategies which are meant to reduce stress (minimization, relaxation, positive self-instructions). On the other hand, they far more frequently employ negative strategies increasing the stress level (escape, social withdrawal, resignation, self-pity, self-blame) and emotion-oriented coping strategies (frequent substance use and infrequent reappraisal in a new positive light). The obtained data confirm previous research results. Ghaderi & Scott (2000) claim that people suffering from current or past eating disorders less frequently look for social support or a deliberate solution to the problem. However, they more frequently employ strategies related to escape or avoidance in comparison with individuals who had never had eating disorders (suppression). The research studies conducted by Lobera et al. (2009) suggest that patients with eating disorders more frequently employ coping strategies based on self-criticism, social withdrawal, inappropriate suppression of emotions (people with eating disorders are more likely to avoid feelings rather than to accept and control their emotions) and, in general, inappropriate control. Nevertheless, in comparison with the control group they less frequently use strategies based on problem solving, looking for social support, cognitive restructuring, appropriate control focused on problems, and, in general, appropriate control. The perception of one's own effectiveness in the clinical group is also lower. The authors (Lobera et al. 2009) emphasize that there is a tendency for self-accusation caused by the occurrence of a stressful situation or its insufficient control. It may be related to the high level of dissatisfaction with one's own body that is characteristic of patients with eating disorders or, what other research studies indicate, to the employment of inadequate coping strategies. The tendency for social withdrawal and, resulting from it, the lack of support can be related to the prevalence of bulimic behaviours (Corstorphine et al. 2007, Freeman & Gil 2004, Juli 2012, Whitesidea et al. 2007). The social withdrawal can constitute an important psychological factor in eating disorders and may increase as a consequence of stressful events (Simmons et al. 2002).

The presented studies reveal that the strongest correlation is observed between using emotion based coping strategies, which are related to using psychoactive substances (alcohol, drugs, medicines), and eating disorders. It is estimated that the overuse of psychoactive substances in people with anorexia nervosa ranges from 12% to 18% and in people with bulimia nervosa from 30% to 37% (APA 2000a). It is assumed that alcohol consumption and taking drugs are used to reduce or avoid negative emotions (Sherwood et al. 2000). The results of the presented research also show that there is also a relationship between eating disorders and rarer use of positive strategies focused on anxiety reduction (rare relaxation) or on the situation (rare planning of problem solving, rare search for social support). Besides, frequent avoidance of discomfort, display of aggressive behaviors and rare acceptance of a problem do not facilitate stress reduction and negatively influence mental health of the examined individuals.

In the discussed group of patients frequent taking of psychoactive substances, increasing involvement in a religious activity, rare search for support in others (advice, information, tips, advice on what should be done to overcome a specific problem), rare use of positive self-suggestion and rare search for positive aspects of a particular situation or assessing it in a positive light (positive reappraisal) constitute a risk factor in the prevalence of eating disorders. This indicates that the employment of inappropriate strategies (i.e. those which do not aim at solving a problem through focusing on it) can pose a risk factor for the discussed disorders. What a reader might find surprising is the fact that using the strategies of coping with stress concerning religious activity determines development of eating disorders. These strategies concern mainly focusing on a prayer or meditation but not the very fact of being religious. Hence, these activities can be regarded as a kind of 'replacement' because the examined people, instead of confronting a problem, choose a prayer or meditation, (suppression) rather than taking actions that might lead to a change of a specific situation.

The limitations of our study are linked to its transversal approach. The interaction of coping strategies and eating disorders over time could only be explored with the help of a longitudinal research design. Possible risk factors for eating disorders, assessed with the help of regression analysis, should always be checked that way. The results of the Non

Linear Principal Components Analysis are merely exploratory and cannot be generalized on a statistical level. They should be checked by other studies based on independent samples (clinical and control group), using a sequential research design.

It would also be pertinent to draw out a hierarchy in the constellation of negative or harmful coping strategies; in relationship with special psychopathological configurations like anorexia nervosa or bulimia nervosa. This attempt could open promising tracks for future research.

CONCLUSIONS

In Sassaroli's and Ruggiero's (2005) view, stress is an essential element leading to eating disorders. Some studies suggest that the role of coping strategies in eating disorders is not clear (Wolff et al. 2000) whereas other studies show that these strategies mainly concern focusing on one's own emotions. The results of our study, and especially those of the Non Linear Principal Components Analysis, suggest that patients suffering from eating disorders could differ by the rigidity and exclusivity of their constellation of preferred coping strategies, as well as by their relative incapacity to reduce stress.

Knowledge of coping strategies in patients with eating disorders is essential, not because of its theoretical aspect but, first of all, because of its therapeutical implications. Learning new, more adaptive forms of coping with problems and emotions is necessary in the therapy of these patients (Peterson et al. 2004). Knowledge of more functional strategies for coping with stress-evoking situations can help patients with eating disorders in obtaining and gathering new resources and improving one's own skills and self-confidence, as well as in setting objectives for oneself which would pose a personal challenge and contribute to one's own development.

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