Psychoeducation in Affect Regulation for Patients with Eating Disorders: A Randomized Controlled Feasibility Study

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This study examined the effects of a psychoeducational training program in affect regulation for patients with eating disorders. Nineteen female patients completed measures of affect regulation (ACS-90), alexithymia (TAS-26), and eating behavior (EDE-Q). Data were assessed at baseline and at 3 and 12 months posttreatment. Dependent on date of entering hospital, the patients were allocated consecutively to the control group (n=11), which received inpatient treatment as usual, or to the treatment group (n=8), which received training in addition to usual inpatient treatment. At follow-up, the training was associated with statistically significant improvement in the skill of down-regulating negative affect and with a tendency towards less dietary restraint. Regarding alexithymia no clear results were found. Despite the small sample size, results showed that in addition to the general improvement due to the treatment usually provided in the clinical setting, the training program resulted in specific benefits for the patients with regard to their affect regulation skills.

KEYWORDS: eating disorder; affect regulation; alexithymia; Zurich Resource Model; psychoeducation

INTRODUCTION

Eating disorders are seen as self-perpetuating and difficult to treat (Fairburn & Harrison, 2003). Eating disorder symptomatology can change over

time, which frequently leads to changing diagnoses. The instability of eating disorders diagnoses has been the focus of attention and systematic analysis only in recent years. Studies could demonstrate that the overarching diagnosis of "eating disorder" was relatively stable but that there was considerable flux among three specific eating disorder diagnoses—anorexia nervosa (AN), bulimia nervosa (BN), and eating disorders not otherwise specified (EDNOS)[1] (American Psychiatric Association, 1994; Milos, Spindler, Schnyder, & Fairburn, 2005; Eddy et al., 2008). The shared psychopathology of AN, BN, and EDNOS, and the frequent movement of patients among the diagnoses, strengthens the view that these disorders have so much in common that they might best be viewed as a single entity. Sassaroli et al. (2005) found that eating disorders are correlated with increased negative affectivity. Meanwhile, a new wave of theories about eating disorders is focusing on how certain eating disorder symptoms act as affect regulation strategies. Bingeing–vomiting and restriction can be used to manage negative emotional states (for a review, see Fox & Power, 2009). Hayaki (2009) found that there is "burgeoning evidence for the role of emotion regulation in disordered eating" (p. 555) and stressed the clinical value of incorporating emotion regulation training into eating disorder treatment.

In order to develop a training of this kind, we based our considerations on Personality Systems Interactions (PSI) theory (Kuhl, 2000, 2001). According to Kuhl, self-regulation of behavior depends on the interaction of four systems that are reciprocally modulated by negative and positive affect. The systems are: intention memory, extension memory, intuitive behavior control, object recognition system. Persisting negative affect, as it is the case in patients with eating disorders, activates the object recognition system, a system located in the left cerebral hemisphere. It focuses on the explicit identification and recognition of elementary sensations and is specialized in detecting discrepancies from previously held expectations or standards. Uncontrolled rumination and perfectionism are indicators of excessive operations of object recognition (Kuhl & Baumann, 2000).

According to the framework of PSI theory, the core psychopathology in eating disorders exists in chronically elevated negative affectivity accompanied by a lack of affect regulation skills. The inability to down-regulate negative affect is called "preoccupation," and it can be assessed by the Action-Control Scale ([ACS] Kuhl, 1994). As a consequence of enduring

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[1]The following abbreviations are used in this paper: AN = anorexia nervosa, BN = bulimia nervosa, EDNOS = eating disorders not otherwise specified.

elevated negative affect, information processing is dominated by the object–recognition system, which, in turn, causes the orientation to detail that is a well known characteristic of patients with eating disorders (Holliday, Tchanturia, Landau, Collier, & Treasure, 2005; Kensinger, 2007).

On the basis of these assumptions, we made use of a self-management training program that teaches affect regulation skills, the Zurich Resource Model (ZRM) (Storch, 2004; Storch & Krause, 2007; Storch & Krause, in press). The ZRM is organized according to the person's explicit thinking and implicit needs. It not only focuses on consciously generated emotions, but also tries to influence a second route of emotion generation—the implicit, automatic, affective one that occurs outside of conscious awareness. This strategy is in accordance with the findings of Fox and Power (2009), who criticized therapeutic work with emotions of patients with eating disorders within a mere verbal format, which addresses only the conscious level of affective processing. Fox and Power (2009) claimed that after treatment for eating disorders that focuses only on behavioral change and the conscious level of emotions (e.g., negative thoughts), patients may still have a feeling of disgust towards their bodies because the feelings are is activated by the implicit, automatic route of emotion generation.

The effectiveness of ZRM training is undergoing continuous scientific evaluation. It was shown that in trained, healthy subjects, ZRM training lowered cortisol levels during confrontation with a psychosocial stressor in a laboratory stress test (Storch, Gaab, Küttel, Stüssi, & Fend, 2007). Compared to meditation or relaxation response practices used in classic cognitive-behavioral stress management, the ZRM training has potentially advantageous elements, since working with resource-activating methods may have a beneficial impact on the sustainability of intrinsic motivation, thus improving clients' long-term commitment. Future research will have to test ZRM training against other methods.

The difficulty in teaching affect regulation to patients with eating disorder is the fact that 48% to 77% of patients with AN and 40% to 66% of patients with BN are alexithymic (Taylor, 2004; Speranza, Loas, Wallier, & Corcos, 2007). Research has shown that the affective components of alexithymia (problems in identifying and expressing emotional states) are relevant to persons with eating disorders, whereas the cognitive element of alexithymia (poor externally oriented thinking) is not (Lawson, Emanuelli, Sines, & Waller, 2007). As Speranza et al. (2007) pointed out, the "Difficulty Identifying Feelings" factor of the Toronto Alexithymia Scale is a significant predictor of negative treatment outcome in patients with eating disorders.

The ZRM training overcomes this difficulty by using automatic affective evaluation signals called "somatic markers" (Damasio, 1994) as an access to the implicit, preverbal level of affective processing. In Damasio's theory of somatic markers, the limbic system evaluates every event in a person's life and associates it with a somatic marker. The dual system of somatic markers assesses situations as "good" or "bad" with regard to the person's psychological well-being. People can perceive these somatic markers through bodily signals and/or feelings. Damasio's studies showed that somatic makers play a decisive role in decision-making situations. Bodily signals or emotions, as the theory goes, provide the crucial "stop" and "go" signals in motivational processes.

Damasio (1994) claimed that not all people perceive their somatic markers, even though they can be measured physiologically, for example, through changes in skin conduction. A key to a psychological counseling in helping people successfully regulate their affective states lies in directing clients' attention to the emergence of somatic markers. The aim is to enhance the proprioception of somatic markers in patients with eating disorders. In ZRM training this is done by working with newly developed preverbal methods that are able to address the implicit mode of affective information processing (see details in section 2.4.).

In the present feasibility study, we tested the following hypothesis:

If ZRM training is effective, it will result in statistically significant positive changes in patients with eating disorders who are trained in perception of affect, affect-regulation skills, and eating behaviors when compared to those in a control group who received customary, stationary treatment for eating disorders (see details in section 2.3).

The aim of this study was to analyze the effect of the addition of ZRM training with an inpatient group at a hospital eating disorders unit when compared to a group of inpatients in the same hospital unit who did not receive the ZRM training intervention.

METHODS

PARTICIPANTS

The participants were recruited in June and July 2006 at the Psychiatric Polyclinic of the University of Zurich, Zurich, Switzerland. Inclusion criteria were a current DSM-IV eating disorder diagnosis, female sex, minimum age of 17 years, and ability to speak German with adequate fluency. Exclusion criteria were BMI > 30, suicidal tendency, life threatening physical state, somatic vital endangerment, and prior knowledge of ZRM. All patients were informed about the procedures and aims of the

study both in writing and verbally. Twenty-two patients agreed to take part in the study. Three patients were excluded from the analyses because some of the questionnaires were missing. The sample investigated in this study thus comprised 19 participants: 8 in the treatment group and 11 in the control group.

The inpatient treatment at the Eating Disorder Center of the Psychiatric Department of University Hospital Zurich consists of interdisciplinary therapy lasting from 4 to approximately 20 weeks for patients with severe ED (anorexia nervosa, bulimia nervosa, and EDNOS; patients who are overweight are not treated at this unit). In addition to an interdisciplinary medical assessment, the therapeutic program includes ED-specific cognitive behavior therapy, systemic therapy, and interpersonal therapy elements. Body perception therapy, art therapy, and coaching in social training complete the treatment. Most of these therapies are conducted in individual and group settings.

There were 15 AN patients (mean BMI = 15.17; SD = 1.97) and 4 BN patients (mean BMI = 20.13; SD = 1.54). Ten cases of AN were of the restrictive type, and 5 were of the binge-eating/purging type. All of the 4 BN cases were of the purging type. There was no EDNOS participant. Six patients had the following conditions in addition to eating disorder: 1 social phobia, 1 personality disorder, 3 depressive disorders, and 1 combination of personality and depressive disorder. The mean age of the participants was 23 years (SD = 4.76). The average age of eating disorder onset as remembered by the participants was 17.05 years (SD = 3.17). The mean stay in the clinic was 70.53 days (SD = 38.90). Statistical analysis of group differences between treatment group and control group revealed no significant differences between the two groups.

PROCEDURES

The assignment to the two groups took place consecutively, dependent on the date of the person's entry into the clinic for psychiatry and psychotherapy. The first 12 patients were assigned to the control group and the next 10 patients to the treatment group. At baseline, the participants completed a set of questionnaires (see Measures). The treatment group started the Zurich Resource Model for patients with eating disorders (ZEM ED) as soon as 10 patients had been screened and had completed the questionnaires. Three experienced ZRM trainers conducted the ZRM ED sessions following the ZRM ED Training Manual (Fischer, Weber, & Wiesmann, 2006). Three training sessions were held on consecutive Monday afternoons; each training session lasted 4 hours. During

the same time period, the attention-placebo control group received work training for their reintegration in everyday life. Eight weeks after the ZRM ED training, all participants in the study attended a booster session that lasted 2 hours. The booster session for the treatment group focused on ZRM issues; the booster session for the control group discussed general topics on life. Follow-up assessments took place 3 months and 12 months after the booster sessions.

CUSTOMARY STATIONARY TREATMENT AT THE HOSPITAL UNIT

The unit exclusively houses inpatients with severe eating disorders, mostly anorexia nervosa, age 17 years and older. The treatment program has different phases and can have a duration of lasting from a few weeks up to a maximum of six months. Main goals of the treatment are: to ameliorate the eating behavior, to normalize body weight, to treat comorbid psychiatric problems, to better the patient's relationship with their bodies, and to aid reintegration into daily life. The unit has several cognitive behavioral elements implemented in a therapeutic community; the patients' families are often involved in the treatment. The principal therapeutic elements of the unit, besides the common structured meals, are: verbal therapeutic groups, psycho-education with special regard to the normalization of the eating behavior, body perception therapy, art therapy, nutritional counseling. The majority of the therapies occur in a group setting. All patients attend before the start of the inpatient therapy one (or more) preliminary consultation(s). During this session the patient has to demonstrate a minimal readiness and motivation for the inpatient therapy. The therapy motivation is assessed by clinical evaluation. Discharge planning begins at the time of admission to the hospital, and discharge goals are established together by the interdisciplinary treatment team, the patient, and the family.

TRAINING INTERVENTION WITH ZRM ED

ZRM training is a psychoeducational training program that teaches affect regulation skills. ZRM ED training consists of five phases (for further details, see Storch, 2004; Storch & Krause, 2007; Storch & Krause, in press):

(1) The first phase is designed to activate personal resources, which are understood as positive and adaptive schemes. To activate these resources, participants are presented with a set of pictures showing positive content (flowers, friendly encounters, beautiful landscapes, animals, and so on). They are encouraged to select the picture that quickly evokes an automatic positive affective evalu-

ation (somatic marker). Then the participants are asked to explore consciously why the respective picture produced this positive affective response. This process is facilitated through group participation in the form of brainstorming.

(2) In the second step, personal ZRM goals are developed on the basis of the activated positive schemes. The ZRM goals are formulated based on their positive affective valence, their controllability by the subjects, their motivational properties, and the degree of perceived congruence with central personal identity issues. Following the implications of multiple code theory (Bucci, 2001, 2002) concerning access to the experiential and preverbal code of the implicit self, the ZRM goals use metaphoric language and focus on attitudes rather than on concrete behavior. These goals purposely do not address concrete behavior, as is usually recommended within the frame of behavior therapy approaches. Examples of ZRM goals are: I let my inner sun shine; I feel the fire; I am embedded in calming, deep blue.

(3) Once a ZRM goal has been established, resource-activating tools—which encompass a selection of methods that focus on the implicit mode of information-processing, such as memory aids with newly developed techniques of affective priming (Koole & Coenen, 2007), embodiment techniques (Storch, Cantieni, Hüther, & Tschacher, 2007), and implementation intentions (Gollwitzer & Sheeran, 2006)—are sought and selected according to their usefulness and applicability to achieve the personal goal. On the conscious level, the participants are provided with knowledge about the correct handling of their resource-activating tools.

(4) In Phase 4, the use of these resource-activating tools is prepared and practiced in predictable and unpredictable situations. The aim is to start goal-oriented action not only through conscious reasoning but also via newly built implicit automatisms.

(5) In the last phase, the contents and results of ZRM ED training are reviewed and discussed. Also, observed changes are discussed in small groups of two persons, with the aim to integrate these changes into training participants' explicit self-concepts and to promote transfer in daily life.

Group-based Booster Session

In the booster session for the treatment group, the trainers answered any questions about ZRM, checked the correct use of the somatic markers

and the ZRM techniques once again, and provided an opportunity to practice some future situations. In the booster session for the control group, the trainers asked participants some questions about their lives outside the clinic, their feelings, and challenges. The booster sessions lasted for 2 hours.

Measures

The Action Control Scale (ACS-90) (Kuhl, 1994) questionnaire assesses affect regulation skills with the two scales preoccupation (PS) and hesitation (HS). The PS refers to the competence of down-regulating negative affect. An example item on the PS is:

When I am told that my work has been completely unsatisfactory
    a) I don't let it bother me for too long.
    b) I feel paralyzed.

In this example item, option "b" reflects the preoccupation response alternative. Participants are classified as low on the skill of down-regulating negative affect and high on preoccupation if their score is below the median of the norm values (Md = 4, range 0–12; see Kuhl & Kazén, 2002). The HS assesses the skill of activating positive affect to overcome hesitation in starting an action. An example item on the HS is:

When I know that I have to finish something soon
    a) I push myself to get started.
    b) I find it easy to get it over and done with.

In this example, item option "a" reflects the hesitation response alternative. Participants are classified as low on the skill of activating positive affect and high on hesitation if their score is below the median of the norm values (Md = 5, range 0–12).

The Toronto Alexithymia Scale ([TAS-26] Taylor, Ryan, & Bagby, 1985; Taylor, Bagby, Ryan, & Parker, 1990) is known worldwide as a valid assessment of alexithymia; it has been used in many psychosomatic and psychophysiological studies. It has adequate internal consistency and test-retest reliability. From the German version of the TAS-26 (Kupfer et al., 2000), we used two subscales that are relevant to the affect regulation issue of our study: difficulties in identifying feelings (DIF) and difficulties in describing feelings (DDF). An example item for DIF is: "I often don't realize that I am angry." An example item for DDF is: "I have difficulties describing my feelings towards other persons." Items are rated on a 5-point Likert scale. Higher scores on each of the subscales indicate higher levels of alexithymic traits.

The Eating Disorder Examination Questionnaire ([EDE-Q] Fairburn

& Beglin, 1994) is a self-report version of the interview-based Eating Disorders Examination. It measures four dimensions of eating disorder attitudes: dietary restraint (RS), eating concerns (ECS), weight concerns (WCS), and shape concerns (SCS). The EDE-Q has good psychometric properties (Carter, Aime, & Mills, 2001).

Data analysis

Initial differences between treatment group and control group were analyzed using t-tests for continuous variables and chi-square tests for categorical variables. Analysis of variance with repeated measurement and Greenhouse-Geisser correction was performed for all outcome variables to investigate whether the treatment group improved significantly better than the control group from baseline to the two follow-up assessments at 3 and 12 months after the booster sessions. There were two persons with missing values at the 3-month follow-up (one in the treatment group, one in the control group). In a conservative approach, the respective baseline values were imputed.

RESULTS

Table 1 shows the descriptive statistics and the results of the analysis of variance. Inspection of the main effect time shows that there is an overall improvement on all scales except subscale DDF of the TAS-26. The expected result concerning a differential course for the treatment and the control group can be confirmed on the PS subscale of the ACS-90 (i.e., the control group stays at about the same level, and the treatment group improves). For the HS subscale, the interaction effect is not significant, which is the case also for the subscales of the TAS-26. There is a slight tendency for more improvement for the treatment group with regard to the EDE-Q on the RS subscale (p=.122) but not for the other subscales.

DISCUSSION

The study set out to evaluate the effectiveness of ZRM ED, a psycho-educational training program in affect regulation skills for patients with eating disorders. The participants in the treatment group improved significantly on the skill of down-regulating negative affect (PS) as compared to the control group, which received customary treatment and an attention placebo. The treatment group also showed, as a tendency, less dietary restraint (RS) than the participants in the control group. The difference between the treatment group and the control group concerning the other

Table 1. DESCRIPTIVE STATISTICS AND RESULTS OF THE ANALYSIS OF VARIANCE FOR THE OUTCOME VARIABLES AT BASELINE, 3 MONTHS, AND 12 MONTHS AFTER TREATMENT FOR THE TREATMENT GROUP (TG) AND THE CONTROL GROUP (CG)

Instrument	Group	Baseline Mean (SD)	3-Month Follow-Up Mean (SD)	12-Month Follow-Up Mean (SD)	Effect Group		Effect Time		Group × Time	
					F	p	F	p	F	p
ACS-90										
PS	CG	2.9 (1.9)	3.1 (2.4)	2.9 (3.3)	0.06	.81	4.57	.029	4.25	.035
	TG	1.5 (1.6)	3.8 (3.9)	4.5 (3.5)						
HS	CG	4.0 (3.0)	4.0 (3.4)	5.5 (4.8)	0.52	.48	4.04	.028	1.30	.286
	TG	3.9 (1.8)	6.1 (3.4)	6.4 (2.7)						
TAS-26										
DIF	CG	21.8 (4.7)	19.3 (3.5)	19.1 (5.6)	0.00	.97	8.61	.004	1.04	.346
	TG	23.8 (3.2)	18.4 (3.7)	18.3 (4.8)						
DDF	CG	15.2 (3.5)	14.6 (1.7)	14.2 (2.0)	0.44	.51	1.26	.297	0.50	.607
	TG	16.0 (2.3)	14.5 (3.3)	15.4 (2.6)						
EDE-Q										
RS	CG	4.1 (1.4)	2.5 (1.6)	2.7 (2.1)	0.18	.68	16.39	.000	2.40	.122
	TG	5.2 (1.6)	1.8 (1.6)	1.7 (1.4)						
ECS	CG	4.2 (1.1)	2.5 (1.6)	2.6 (1.9)	0.71	.41	23.51	.000	1.22	.299
	TG	4.2 (1.4)	2.2 (1.8)	1.5 (1.2)						
WCS	CG	4.6 (0.7)	2.5 (1.5)	3.0 (1.8)	0.56	.47	12.53	.000	.69	.483
	TG	4.0 (1.5)	2.7 (1.7)	2.3 (1.7)						
SCS	CG	4.9 (1.0)	3.4 (1.2)	3.4 (2.0)	1.07	.32	15.72	.000	.53	.547
	TG	4.6 (1.2)	2.8 (1.7)	2.4 (1.7)						

subscales of the EDE-Q developed in the expected direction, although it is not statistically significant. In sum, the effects of ZRM ED training emerge 3 months after the training and are sustained 12 months after the treatment.

Nevertheless, the following limitations of the study warrant comment. First, due to the restrictions of the stationary setting, the two groups were conducted consecutively. This procedure seemed to have no influence regarding the population. No initial group differences can be observed between treatment group and control group, except for differences in the onset of the eating disorder. Second, whereas our research showed that the effects of ZRM ED training endured for 12 months whether the effects of this training last over a longer period of time, will have to be examined. Third, the statistical power to detect significant interaction effects with this sample size is low, even for moderate to large effect sizes. On the TAS, for example, although the DIF scale developed in the hypothesized direction,

no clear statistical results could be found. Therefore, a further study with a bigger sample is needed that would also allow the use of multiple regression analysis, in order to evaluate possible moderators for treatment success. A larger sample is also needed to use Baron's and Kenny's (1986) approach to mediation testing to determine whether the skill of down-regulating negative affect mediates the dietary restraint treatment outcome.

Another focus of future research will consist in testing the ZRM ED training with its focus on implicit information processing against mere cognitive oriented methods focusing on explicit information processing. Fairburn and Harrison (2003) point out a "pressing need for more treatment research, both in terms of developing more effective treatments and focusing on the full range of eating disorders (p. 414)." Altogether, the results of this feasibility study show that the ZRM ED training is a promising way of teaching patients with eating disorders to improve their affect regulation and, as a consequence, to have a beneficial effect on maladaptive eating behavior.

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