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Application of Prochaska's transtheoretical model of change to patients with eating disorders

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Abstract

Objective: Although eating disorders cause severe somatic and psychological sequelae, a majority of affected patients are not motivated for treatment. The aim of this study was to assess stages of change in patients with eating disorders and to analyze their correlations with clinical characteristics and treatment processes using Prochaska's transtheoretical model of change. **Methods:** A consecutive sample (N=88) including outpatients suffering from anorexia (n=29), bulimia (n=32), and eating disorders not otherwise specified (n=27) was recruited from an eating disorders clinic with a low-threshold access. The patients' readiness to change their eating behavior was assessed by a self-rating scale (URICA), and a score for each participant on each subscale (precontemplation, contemplation, action) was derived from the scale. Patients were introduced to a set of eight treatment processes over the course of four treatment sessions. During the four sessions, therapists rated whether or not patients appeared to be using each of the treatment processes. **Results:** While diagnostic subtype, age, illness duration, and previous treatments were not associated with motivational stages, self-referral was positively correlated to treatment motivation. Emotional involvement, specific behavioral change processes, and beginning a continuing treatment were correlated with more advanced stages of change. **Conclusion:** This study supports the notion of the stages of change as an independent dimension that is relevant for the treatment of eating disorders. The lack of impact of previous, presumably nonspecific treatments on the stages of change underlines the importance to assess and to improve specifically patients' motivation. Therapeutic work towards the mobilisation of emotions with regard to their eating problem as a means to improve readiness to change should be examined in future studies.

Keywords: Eating disorders; Motivation for treatment; Psychotherapy; Transtheoretical model of change

Introduction

One of the most striking phenomena in patients with eating disorders is their lack of motivation for treatment. Even when confronted with the potentially severe sequelae of their disturbed eating behavior such as retardation of emotional development or osteoporosis, a majority do not show cognitive insight or emotional reactions concerning their physical and psychological health [1]. The impact of this lack of motivation is serious: it is estimated, for example, that over 90% of bulimic subjects are not under adequate treatment [2], whereas anorexic patients were found to be even less motivated and more often referred by others for treatment than patients with nonanorexic types of eating disorders [3]. Motivation for treatment appears to shift over the course of illness, increasing with age, illness' duration and years of treatment [3]. Although there is a convergence of recommendations for enhancing motivation in the scientific literature including psychoeducation, examination of advantages and disadvantages and exploration of personal values [3], only a few attempts have been made to evaluate those strategies [4,5]. Prochaska's transtheoretical model of change [6] was proposed as one of the most promising theoretical frameworks to develop and test specific techniques aimed at enhancing motivation for change [7].

The transtheoretical model of change [6] is a higher order theory of psychotherapy and recognizes that people do not make a black or white decision to change their behavior. It rather holds that behavior change is a gradual process, divided into phases. These are termed the ''stages'' of change

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or ''the when to change''. The ''processes'' of change or the ''how to change'', are the overt and covert activities an individual engages in to modify thinking, behavior or affect in relation to a problem. Finally, the ''level'' of change or the ''what to change'' describes the kind of psychological problems that are targeted by the processes of change comprising symptoms, maladaptive cognitions, interpersonal and intrapersonal conflicts.

The transtheoretical model has been successfully applied to a variety of health behaviors such as smoking cessation [8], panic disorder [9], weight control [10], fat intake [11], and exercise acquisition [12]. While the concept of the stages of change applies to a variety of health behaviors, no single trajectory of change processes was observed for all health behaviors, and, therefore, process–stage relationships should be examined for each health problem separately [13].

Patients with eating disorders show different levels of motivation to change different aspects of the eating disorder. They may be highly motivated to stop binge eating but not at all prepared to consider changing their strict dieting behavior; this complicates the application of the transtheoretical model of change to eating disorders and the measurement of readiness to change of eating disorders [4,14,15]. Furthermore, the treatment may modify stage–process relationships: a randomised controlled trial on treatment of cognitive–behavioral (CBT) versus interpersonal therapy (IPT) for patients with bulimia nervosa found stage of change as a predictor of the response to IPT, but not to CBT, possibly due to motivation enhancement through directly addressing eating disorder symptoms across the 19 CBT sessions [16]. Interestingly, stage of change did not predict dropout.

The aim of this study was to test whether scores on the various stages of change correlate with use of specific processes of change (e.g., self-reevaluation, feedback, stimulus control) in patients with eating disorders treated in a psychiatric primary care setting. Because treatment has been found to influence the use of change processes [16], we assessed change processes observed under a defined treatment condition. We hypothesized that (1) advanced stages of change would be positively associated with bulimic symptoms, patients' age, illness duration, previous treatment experiences and self-referral to treatment, and (2) the stages of change would be associated with specific processes of change as predicted by Prochaska et al. [17].

Method

Setting

Subjects were recruited from the eating disorders clinic of the Psychiatric Department of the University Hospital of Zurich, Switzerland. Although this is a specialised facility, a referral by a physician or a psychiatrist is not required to provide a low-threshold access. Patients are typically ambivalent with regard to treatment; they are frequently encouraged or even urged by their parents, siblings, teachers, superiors or friends to seek professional help. To strengthen their motivation, they are requested to schedule an appointment for an intake assessment by themselves through a telephone call. The waiting time for the first appointment ranges from 1 to 4 weeks. Treatment costs are fully covered by health insurance, which is mandatory for Swiss residents.

During the first session patients were asked to participate in a four-session program comprising evaluation and treatment components, regardless of their clinical status (in case of emergency they would be referred to their family doctor or to the Emergency Department of the Zurich University Hospital). They were informed that after this program some would not need any further treatment, some would need continuing outpatient treatment, and some would be admitted for inpatient treatment. Patients were also informed that our facility is able to provide both outpatient and inpatient treatment for a limited number of patients (circa 50%) and that we collaborate with other specialised clinics and external therapists to provide adequate treatment for all patients. All patients were aware of the nature of the study and written informed consent was obtained from all participants during the first session.

Sample

We collected a consecutive sample of 96 subjects who went through a routine intake evaluation between June and December 2001. Exclusion criteria were the absence of an eating disorder (two subjects), and insufficient proficiency in German (three subjects). Three subjects refused to participate in the study. Thus, the final sample comprised a total of 88 subjects. For the diagnostic procedure we used a structured interview (see measures) and DSM-IV criteria [18].

Measures

For the *diagnostic evaluation*, two psychiatric residents experienced in the assessment of eating disorders applied a short version of the semistructured therapist interview at the beginning (TIB) developed by experts on the basis of existing measures (EDE, SCID, Disc, SIAB) for the Europe-wide COST Action B6 Project [19]. *Stages of change* were assessed using the 24-item self-report University of Rhode Island Change Assessment Scale (URICA) [20], an instrument designed to measure the precontemplation, contemplation and action stages on scales ranging from 1 to 5. This is a measure developed for use with any problem behavior. In an introduction we explained to the patient that the expression ''problem'' in the questionnaire referred to the disturbed eating behavior of the individual patient. The English version was translated into German. The psychometric characteristics of the German version of the URICA are described in Ref. [21]. Because of the complexity of eating disorders patients usually have several problems concerning their

eating behavior and may thus be in different motivational stages at the same time [22]. Therefore, we decided to use each patient's precontemplation, contemplation and action scores for our analyses instead of assigning subjects to one single stage.

During the short therapeutic process (see Procedure), the therapists continuously assessed the processes of change they had observed. Based on Prochaska's transtheoretical model of change [6], we developed a scale of objectively observable behaviors that covered the processes described in the treatment protocol (see Procedure):

1. reading a book (at least 20 pages) or participating in an information event on eating disorders (education);
2. writing a diary on the eating behavior over at least 3 days (self-reevaluation);
3. getting emotionally involved while dealing with the eating disorder (emotional involvement);
4. undergoing one or more sessions of diet counselling (feedback);
5. discussing issues on the disturbed eating behavior with at least one family member or a friend (social support);
6. making a tangible step toward normalization of the disturbed eating behavior (behavior change);
7. changing the environment to improve the eating behavior (stimulus control);
8. complying with the therapist's recommendations by making an appointment for a continuing treatment with the same psychiatrist, with an external therapist, or with a psychiatrist responsible for inpatient treatment (continuing treatment).

Each process was rated as either present or absent. The number of present processes was summed up to a total score ranging from 0 to 8. Because of the lack of empirical evidence regarding the relative importance of various processes of change, all processes received the same weighting. The reliability of the process scale turned out to be good (Cronbach's alpha = .73).

The two resident psychiatrists including one of the authors (G.H.) responsible for the rating met once a week to discuss rating problems. Six patients were rated by both psychiatrists, i.e., following the regular procedure by one psychiatrist, the other psychiatrist reevaluated the psychiatric diagnosis and re-rated the processes of change based on the patient's records and a personal interview. There were no differences with regard to psychiatric diagnoses between the two raters; the interrater match for the processes of change scale was .93 (kappa).

Statistical analysis

Data were analysed using SPSS for Windows version 11.0. Characteristics of patients in different diagnostic subgroups were compared by chi-square tests and analyses of variance. Given the nonnormal distribution of the URICA scores in our population, statistical analyses concerning treatment motivation were performed using nonparametric tests (Spearman correlations, Kruskal–Wallis test, Mann–Whitney test).

Procedure

Readiness to change was assessed by the URICA in the waiting room, immediately preceding the first session. All subjects underwent a standard intake assessment including the semistructured diagnostic interview of the COST Action B6 Project. In a second step, patients were introduced to a set of treatment processes following a protocol based on Treasure's self-help programs [23,24]. It includes eight therapeutic processes that are all used within the first four sessions: (1) psychoeducation, (2) self-reevaluation, (3) emotional engagement, (4) feedback, (5) communication, (6) change of eating behavior, (7) stimulus control, and (8) continuing treatment. Diagnostic examinations and subsequent treatments were conducted by two resident psychiatrists at the end of their professional education and experienced in the treatment of eating disorders.

Table 1
Characteristics of patients in the total sample and in the diagnostic subgroups

	Total sample ($N = 88$)	Anorexia ($n = 29$)	Bulimia ($n = 32$)	EDNOS ($n = 27$)	Analysis
Female gender	82 (93.2%)	27 (93.1%)	32 (100%)	23 (85.2%)	$\chi^2 = 5.06$, ns
Self-referral	41 (46.6%)	15 (51.7%)	15 (46.9%)	11 (40.7%)	$\chi^2 = 0.68$, ns
Comorbid condition	40 (45.5%)	12 (41.4%)	11 (34.4%)	17 (63.0%)	$\chi^2 = 5.12$, ns
Previous treatment	41 (46.6%)	15 (51%)	15 (46.9%)	11 (40.7%)	$\chi^2 = 0.68$, ns
	Mean (S.D.)	Mean (S.D.)	Mean (S.D.)	Mean (S.D.)	
Age	27.2 (9.7)	26.8 (11.8)	25.3 (6.2)	30.0 (10.2)	$F = 1.81$, ns
Age at onset	17.5 (5.5)	16.7 (4.6)	16.1 (3.5)	19.9 (7.4)	$F = 3.77$, $P<.05$
Duration of illness	10.5 (10.6)	11.9 (10.5)	8.9 (7.4)	11.3 (10.2)	$F = 0.59$, ns
BMI	23.9 (9.6)	16.8 (2.0)	24.6 (6.4)	30.8 (12.1)	$F = 22.8$, $P<.01$

Figures are numbers (%) of patients for gender, self-referral, previous treatment and comorbid condition; mean values (S.D.) for age, age at onset, duration of illness and BMI. The term "comorbid condition" refers to a medical or psychiatric disorder in addition to the eating disorder.

The treatment protocol comprised the following steps:

- First session: (1) patient education on the pathogenesis and consequences of eating disorders as well as recommendation to read one of Treasure's self-help programs [23,24], and (2) instruction to record in a diary all eating behaviors as well as associated emotions and cognitions.
- Second session: discussion of the rhythm of the eating behavior and the links among emotional states, cognitions and eating behavior on the basis of the diary, (3) focussing on the patient's emotional reactions activated during the therapy sessions when confronted with his or her eating disorder and its consequences, and (4) offering additional one to four sessions of diet counselling to discuss the diary.
- Third session: (5) brief communication skills training focused on improving the quality of relationships with family members, partners and friends and attempts to include them into the treatment process; instruction to behavioral change techniques including (6) concrete small changes of the eating behavior based on the patient's diary and (7) stimulus control.
- Fourth session: evaluation and reinforcing of the change processes, inclusion of family members and (8) consulting and support concerning a continuing treatment.

At the end of the forth session, the treating psychiatrist assessed which processes of change had been present during the treatment. Twenty patients (22.7%) did not complete the four sessions of the therapeutic process; they were evaluated according to their status at the last session. Completers (68 patients, 77.3%) and noncompleters did not differ with regard to their precontemplation, contemplation and action scores.

Results

Thirteen patients (14.8%) met diagnostic criteria for anorexia nervosa, restricting type, 16 (18.2%) met diagnostic criteria for anorexia nervosa, binge-eating/purging type; 7 (8.0%) had bulimia nervosa, nonpurging type, 25 (28.4%) had bulimia nervosa, purging type; 10 (11.4%) had an eating disorder not otherwise specified (EDNOS) and met the research criteria [18] for binge-eating disorder, 17 (19.3%) had an EDNOS without binge-eating. Table 1 shows the characteristics of the patients in the total sample and in the diagnostic subgroups. The three diagnostic subgroups did not differ significantly with respect to age, gender, illness duration, way of referral, and previous treatments, but there were significant differences with regard to BMI and age of onset. Among the previously treated patients, 31 (35.2%) reported previous outpatient treatment focused on eating disorders, and 10 (11.4%) had been previously hospitalised.

The average scores for the total sample ($N = 88$) were 1.58 (S.D. = 0.53) for the precontemplation, 4.44 (S.D. = 0.47) for the contemplation, and 4.08 (S.D. = 0.62) for the action subscale (range 1–5). With regard to all three stage scores, a Kruskal–Wallis test revealed no significant differences between diagnostic subgroups (anorexia, bulimia, and eating disorders not otherwise specified). Two-tailed Spearman correlations between stage scores and age as well as illness duration did not yield any significant results. In addition, a two-tailed Mann–Whitney test showed no significant difference in the stages of change scores between subjects with and without previous treatment experience. However, self-referred patients showed significantly lower precontemplation and higher action scores than patients referred by others (Table 2).

Table 3 shows two-tailed Spearman correlations between stage scores (ranging from 1 to 5) and processes of change (ranging from 0 to 1). Overall, correlations were in the low to medium range. Only a few statistically significant correlations were found: Emotional involvement was positively correlated to the action score. Stimulus control was also correlated to the action score. Engagement in continuing treatment was negatively correlated to the precontemplation and positively correlated to the contemplation score. The total process score was negatively correlated with precontemplation, and positively correlated with contemplation.

Table 2
Stage score differences between self-referred subjects and subjects referred by others ($N = 88$)

	Self-referred		Referred by others		Mann–Whitney Test (2-tailed)	
	M	S.D.	*M*	S.D.	*U*	*P*
Precontemplation	1.37	0.34	1.77	0.60	532.500	.001
Contemplation	4.55	0.38	4.35	0.53	735.500	.104
Action	4.24	0.51	3.94	0.67	670.500	.029

Table 3
Correlations between stage scores and processes of change (N=88)

Process of change	Precontemplation	Contemplation	Action
Education	−.14	.05	.01
Self-reevaluation	−.00	.03	−.07
Emotional involvement	−.19	.17	.21*
Feedback	−.04	.02	.07
Social support	−.17	.13	.13
Behavior change	−.12	.18	.18
Stimulus control	−.09	.16	.34**
Continuing Treatment	−.26*	.26*	.04
Total process score	−.22*	.22*	.19

Spearman correlations (rho), two-tailed.
* $P<.05$.
** $P<.01$.

Discussion

Advanced stages of change were not associated with type of eating disorder, age, illness duration, and previous treatments. This result is in line with the notion of the stages of change as an independent temporal dimension supplementing the symptom-oriented concepts of psychiatry and psychotherapy [17]. However, the lack of impact of the eating disorder subtype on motivational stages contradicts the results of previous studies [14,25], where bulimic patients were found to be in more advanced stages than anorexic patients. Given the fact that self-referral was associated with stage of change differences found in previous studies may be explained by different proportions of self-referred subjects in different diagnostic subgroups, whereas the proportion of self-reported subjects was very similar across diagnostic subgroups in the present study. In addition, the differences found in previous studies may be due to the use of different modified versions of the URICA [4], and more specific instructions (e.g., binge eating, vomiting, dieting) given to the participants may have increased differences between diagnostic subgroups in the present study.

Patients with a history of previous treatment did not show a higher readiness for change according to their stage scores than patients who were seeking treatment for the first time. This is against our expectation based on previous studies [4,5], which had found an increase in action scores after both motivational enhancement therapy and cognitive behavioral therapy. This result may be attributable to confounding variables such as patient characteristics, or to the rather spiral than linear progression through the stages of change [17]. Moreover, it cannot be ruled out completely that the treatments the patients received did not focus sufficiently on motivational problems. In contrast, self-referral was associated with advanced motivational stages and can therefore be seen as a criterion for readiness to change.

Our second hypothesis received partial support: some processes of change were in fact associated with certain stages of change. Interestingly, processes such as education, self-reevaluation, feedback, social support and the rather unspecific process "behavior change" were unrelated to the stages of change. This result may be explained by the patients' superficial adaptation to the treatment protocol.

According to the transtheoretical model of change [6], the specific behavioral change process "stimulus control" was positively correlated to the action score. In addition, the number of processes and the emotional involvement increased along the stages of change. Interestingly, in line with previous studies [4,16], stage scores did not predict dropout with respect to the treatment protocol, but they predicted to some extent the continuation of treatment in a new setting. These correlations provide clues for therapists to appraise patients' motivation on the basis of their clinical impression: Self-referral, emotional involvement and the presence of several change processes, particularly of specific changes in the patient's environment, may be candidate indicators of the truly motivated patient. Future research should focus on therapeutic work towards the expression of emotions in order to reinforce the patients' readiness for change.

The strengths of this study include the recruitment method including subjects in an early treatment phase of their chronic psychosomatic condition, where motivational aspects are supposed to be important [26]; the use of broad inclusion criteria makes the results of this study relevant for routine clinical practice. To our knowledge, there is no previous study that examined the presence of processes of change in eating disorders during a four-session psychosocial intervention, in relation to treatment motivation.

This study has a number of methodological shortcomings: The consecutive recruitment using the broad inclusion criteria of having an eating disorder provided a heterogeneous sample with regard to eating disorder pathology. Compared to other samples of outpatients treated for eating disorders [4,27,28], the anorectic and bulimic patients of this study had slightly milder disorders and lower rates of previous treatments. The BMI and frequency of binge-eating in the EDNOS group was higher than in other EDNOS samples [29]. Because of the psychopathological heterogeneity we could not apply a brief outcome measure for symptom reduction that would be equally applicable to all patients in this sample.

The application of the URICA to patients with eating disorders has been criticised by many authors [4,22,30] because it refers to the disturbed eating behavior as a "problem" and does not specifically address behaviors such as binge eating and weight-control practices. Based on the fact that the URICA tends to overestimate the patients' readiness to change [22], we assumed that patients interpret "problem" as the specific eating behavior they are motivated most to change, or, speaking in terms of the transtheoretical model [6]—according to their "level" of change. Therefore, both stages and processes of change were assumed to address the same behavior. Moreover, no validated observer-rating instrument was available for the assessment of the processes of change; we chose to develop a new scale that covered the processes specifically targeted by our intervention. Also, no attempts were made to check the protocol fidelity, for example by independently assessing video-recorded sessions; at least, regular supervision for the treatments was provided. And finally, given that the correlations reported are modest, and only one is at the .01 level, the overall results of this study should be interpreted with caution.

In sum, this study supports the notion of the stages of change as an independent dimension that is relevant for the treatment of eating disorders. Self-referral, emotional involvement and the presence of several processes of change, particularly of specific changes in the patient's environment, may be candidate indicators of the truly motivated patient. The lack of impact of previous, presumably nonspecific treatments on the stages of change underlines the importance to assess and to improve specifically

patients' motivation. The relationship between pretreatment stage of change and treatment outcome including continuation of treatment, symptom change, and functional improvement should be examined in future studies.

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