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ORIGINAL ARTICLE

Experiential acceptance, motivation for recovery, and treatment outcome in eating disorders

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Abstract

Purpose This study sought to test whether the relationship between experiential acceptance (EA) and treatment outcome among eating disorder (ED) patients was mediated by motivation.

Methods Upon admission to a residential ED treatment facility, female patients completed measures of EA, motivation, and baseline ED symptom severity (covariate); symptom severity was reassessed at discharge.

Results Higher levels of baseline EA predicted significantly greater symptom reduction during treatment. Moreover, results from bootstrapped mediation analyses indicated that the relationship between EA and treatment outcome was partially mediated by motivation: increased EA was associated with greater motivation to give up ED behaviors at the beginning of treatment, and this led to greater symptom reduction from admission to discharge.

Conclusions Motivation appears to be one mechanism by which EA facilitates improved treatment outcomes in EDs. Further development of interventions that promote EA as a means for improving motivation and subsequent ED treatment response may be warranted.

Keywords Motivation · Experiential acceptance · Anorexia · Bulimia

Introduction

Treatment resistance remains a problem among individuals with both anorexia nervosa and bulimia nervosa, more so than for many other psychiatric illnesses [1]. Evidence suggests that this resistance is partially attributable to characteristically high ambivalence toward recovery and low motivation to abstain from disordered eating behaviors among patients [2, 3]. Higher levels of motivation are linked to more favorable treatment response [4], even among patients who have a longer duration of illness [5]. Furthermore, greater motivation has been shown to predict improved long-term maintenance of treatment gains [2]. A better understanding of factors that contribute to increased motivation for recovery is critical to inform the development of interventions designed to enhance patient motivation and improve treatment outcomes.

Low motivation in eating disorders (EDs) may stem from the ego-syntonic and reinforcing nature of symptomatic behaviors (e.g., anxiolytic or reward-inducing effect of dietary restriction, bingeing, purging, and excessive exercise) [6–9]. Converging evidence from ecological momentary assessment and functional assessment research has demonstrated that disordered eating behaviors facilitate temporary relief or distraction from aversive emotions [10, 11]; behaviors are therefore thought to be self-reinforcing by producing an immediate (though short-lived) reduction in negative affect following symptom use [10]. Individuals who use ED behaviors to avoid negative or distressing emotions are presumed to exhibit high levels of experiential avoidance [12]. Indeed, empirical results suggest that experiential avoidance likely contributes to the maintenance of eating pathology [13, 14]. On the other hand, experiential *acceptance* (EA; willingness to tolerate or even embrace aversive emotional experiences [15]) may

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serve to reduce reliance on eating disorder (ED) behaviors as a means of coping with negative affect. With increased acceptance, patients may be more willing to endure negative emotions without attempting to modulate their experience in maladaptive ways, and will therefore more readily abstain from disordered eating behaviors [16].

Experiential acceptance is considered a core target for behavior change in emerging "third wave" cognitive behavioral treatments for eating disorders [13]; for example, it is considered to be of particular importance in Acceptance and Commitment Therapy (ACT) [13, 16, 17]. ACT therapies aim to increase the extent to which a patient behaves in line with his/her personal values, rather than acting in service of short-term avoidance of emotional or psychological discomfort [15, 16]. Empirical evidence supports the clinical relevance of EA during ED treatment; EA is negatively associated with baseline severity of ED symptoms [3, 18], and increases in acceptance during treatment are associated with greater improvement in ED symptoms [19]. Moreover, results from the few pilot studies to date that have directly targeted experiential acceptance are promising: ED severity appears to decline concurrently with increases in EA [20, 21].

Although few studies have examined the means by which EA may promote change, it is possible that EA may function by enhancing motivation and subsequent engagement in treatment. This may be of particular importance early on in treatment. When abstaining from symptomatic behaviors during the beginning stages of recovery, patients must learn to tolerate an inevitable increase in negative affective experience, which had previously been relieved (even if temporarily) through symptom use. Healthy alternative coping skills are eventually learned, but this requires substantial time and practice. If a patient exhibits greater acceptance of negative affective experience at the outset of treatment, he/she may tolerate the distress associated with abstinence from ED behaviors more readily [16]. In turn, this would correspond to increased willingness/motivation to give up these behaviors, despite the functional purpose they serve for the patient. This enhanced motivation to change (or perhaps, decline in resistance to change) could subsequently lead to better engagement with treatment, and thus, greater symptom reduction over time [22]. If this theory holds validity for ED patients, EA may be a particularly important target for more severe and treatment-resistant individuals with characteristically low motivation.

To our knowledge, no studies have tested the extent to which the relationship between EA and treatment outcome can be explained by motivation level among ED patients. The goal of the present study, therefore, was to replicate previous results demonstrating that early-treatment EA predicts more favorable ED treatment outcomes, and to test the potential indirect effect of motivation. We hypothesized that: (1) greater EA at baseline would predict greater reductions in ED symptoms during treatment, and (2) the relationship between EA and treatment outcome would be partially mediated by motivation. We sought to test these hypotheses in a sample of eating disorder patients with severe ED psychopathology, who require long-term 24-h care.

Method

Participants and procedures

Female patients ($n = 53$) were recruited for participation after admission to a residential facility, located in the Northeast region of the United States, which specializes in the treatment of AN ($n = 27$), BN ($n = 15$), and ED-NOS (DSM-IV diagnostic criteria, $n = 11$). The comprehensive treatment program included nutritional therapy (with refeeding as necessary), cognitive-behavioral and feminist-relational group therapy, individual psychotherapy, and complementary programs (e.g., movement therapy, cooking groups, etc.). Participant ages ranged from 18 to 63 years (M = 30.17; SD = 12.10). A majority of participants identified as White/Caucasian (90.5 %); the remainder of the sample were multiracial (3.8 %), Asian (3.8 %), or Hispanic/Latino (1.9 %). Participants were recruited for this study as part of a larger exploratory investigation of potential mechanisms of treatment response, which would yield results intended to inform the development and/or enhancement of future acceptance-based behavioral treatments for eating disorders.

Participants were approached by researchers and offered the option to participate within 2 weeks of admission to the facility. Due to the constraints of conducting research within a private residential treatment facility (e.g., needing to accommodate patient and/or program logistics), some participants completed the measures more than 14 days post-admission. However, everyone completed the measures relatively early on in treatment (days between admit and participation: M = 8.80; SD = 9.43). At baseline, participants completed measures of ED symptoms, EA, and motivation for recovery. ED symptoms were re-assessed at end-of-treatment, as part of the routine assessment battery administered upon discharge from the facility. All research activities were approved by the Drexel University Institutional Review Board and the internal institutional review board housed within the treatment facility.

Measures

Experiential acceptance

The Acceptance and Action Questionnaire (AAQ-II) is a seven-item self-report measure of willingness to experience distressing emotions without attempting to control or

suppress them [23]. The scale is widely used to study the role of EA in psychopathology and demonstrated good internal consistency within our sample ($\alpha = 0.77$). To facilitate interpretation of mediation models, full-scale scores were reverse scored, with higher scores reflecting greater acceptance of internal experiences.

Eating disorder symptoms

The Eating Disorders Examination-Questionnaire (EDE-Q) Global severity scale is a widely used measure of ED symptom severity [24]. The scale assesses self-reported symptoms over the past 28 days, with items rated on a seven-point Likert-style scale. Global scores had high internal consistency ($\alpha = 0.77$ and 0.87 for the present sample, at admission and discharge, respectively).

Motivation for recovery

The Anorexia Nervosa Stages of Change Questionnaire (ANSOCQ) and Bulimia Nervosa Stages of Change Questionnaire (BNSOCQ) are each 20-item measures which ask participants to identify their current level of motivation to reduce each of several ED behaviors [25, 26]. The two scales differ in that the BNSOCQ includes items addressing bulimic symptoms, whereas the ANSOCQ does not. Internal consistency was excellent for both the ANSOCQ and the BNSOCQ ($\alpha = 0.95$ and 0.90, respectively). All participants received a copy of both measures, and were asked to complete the measure they perceived to be most consistent with their symptoms. Most participants ($n = 37$) completed the ANSOCQ; 73 % of BN patients, 36 % of ED-NOS patients, and one AN (binge-purge subtype) patient selected the BNSOCQ.

Analyses

Statistical analyses were conducted using SPSS v.22.0 (IBM Corp., 2013). Bootstrapped mediation analyses were conducted using the PROCESS macro (available at http://www.processmacro.org), according to procedures outlined by Preacher and Hayes [27]. Mediation analyses utilized simple mediation models and 10,000 bootstrap re-samples. An indirect effect was considered significant if the 95 % bias-corrected confidence interval for the estimate of the indirect effect did not contain zero [27].

Results

Overall symptom reduction

Results from a dependent samples t test revealed significant improvement in EDE-Q Global scores [$t(52) = 9.790$,

$p < 0.001$, $d = 1.345$) from admission (M = 3.953; SD = 1.569) to discharge (M = 2.279; SD = 1.477). Average length of stay was 28.862 days (SD = 13.905).
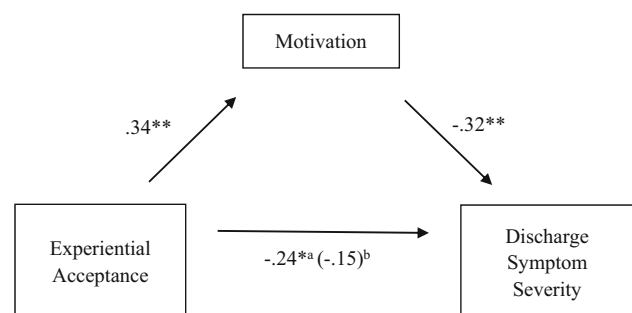
Experiential acceptance and treatment outcome

To test the hypothesis that baseline EA would predict treatment outcome, EDE-Q Global severity scores (measured at discharge) were regressed on AAQ-II scores using linear regression, covarying for baseline EDE-Q Global scores. The results indicated that higher levels of EA at baseline significantly predicted lower severity of ED symptoms at discharge ($\beta = -0.243$, $p = 0.042$; R^2 change = 0.045).

Indirect effect of motivation

Mediation analysis was conducted to evaluate the indirect effect of EA (IV) on treatment outcome (DV) through motivation (mediator), controlling for baseline symptom severity. Significant effects of the IV on the mediator [$b = 0.560$, SE = 0.240, 95 % CI (0.079, 1.041), $p = 0.023$] and the mediator on the DV [$b = -0.029$, SE = 0.011, 95 % CI (-0.052, -0.007), $p = 0.011$] were detected. The direct effect of the IV on the DV was not significant [95 % CI (-0.065, 0.015), $p = 0.21$], but the total effect of the IV on the DV was [$b = -0.042$, SE = 0.020, 95 % CI (-0.082, -0.002), $p = 0.042$]. Moreover, the 95 % confidence interval for the estimate of the indirect (mediation) effect did not include zero [95 % CI (-0.042, -0.002)], indicating the presence of a significant indirect effect. In summary, those with higher levels of baseline acceptance tended to exhibit greater motivation for recovery, and subsequently experienced greater reductions in ED symptoms (see Fig. 1).

Because motivation and acceptance were assessed concurrently, it was necessary to test an alternative model in

Fig. 1 Final mediation model: motivation mediates the relationship between experiential acceptance and treatment outcome. Note: numeric values represent standardized regression weights. *$p < 0.050$, **$p < 0.010$, *superscript a* total effect, *superscript b* direct effect

which acceptance mediated the relationship between motivation and treatment outcome [27]. Bootstrapped mediation results revealed no significant indirect effect for this model [95 % $CI_{indirect\ effect} = (-0.014, 0.005)$], providing further evidence that our hypothesized model represents the best fit for the data.

Discussion

The current study investigated whether motivation to change disordered eating symptoms explained the relationship between EA and treatment outcome in an intensive ED treatment program. Prior research has found that greater acceptance predicts better treatment outcome, but the degree to which EA is related to motivation to change, and the resulting impact of motivation on outcome, has not been studied. The results obtained here suggest that greater acceptance of uncomfortable internal experiences was associated with improved treatment outcome, and this association was partially explained by an indirect effect of motivation to reduce or abstain from disordered eating behavior. Results support the initial hypothesis that higher EA would be related to increased motivation, and that increased motivation would promote greater symptom reduction during treatment.

If replicated, the observed pattern of results suggests that acceptance could be an important intervention target, especially among those with low motivation for recovery. These results extend upon the extant literature by identifying a mechanism through which EA may promote better treatment response. Research on enhancing motivation for recovery to date has found mixed and inconsistent support for interventions that focus solely on explicit motivation [2]. It is possible that modifying underlying psychological processes (such as EA) could subsequently enhance motivation for change, and perhaps more consistently so. Enhancing EA may be of particular importance at the beginning of treatment; if patients are more accepting of emotional experience early on, they may be more willing to give up ED behaviors, and explore development of healthy alternative coping strategies. This may have the added benefit of facilitating greater motivation and consequent engagement in the difficult behavior change required throughout the recovery process. Indeed, acceptance-based interventions for EDs have been piloted in recent years, with promising results for particularly treatment-resistant patients [17, 28]. It is possible that these treatments function through enhanced EA and subsequently increased motivation.

The results from this study must be considered in the context of its limitations. The sample size was relatively small, comprised only of women, and primarily Caucasian,

which limits generalizability to other populations. Additionally, the study took place in a highly structured, residential treatment environment, and results may not generalize to other treatment settings (intensive day treatment, outpatient, etc.). Replication in larger, more diverse patient samples is recommended.

In addition to methodological limitations, statistical limitations of the data also warrant discussion. Given the exploratory nature of this study, an a priori power analysis was not conducted to determine the minimum necessary sample size for this analysis. However, because we detected significant effects, this is less of a concern, and it is likely that the study was adequately powered. Moreover, use of bootstrapping, as opposed to other regression-base mediation analysis methods (e.g., Baron and Kenny or Sobel test) served to maximize power in our small sample [29]. This study is also limited by concurrent assessment of EA and motivation (both assessed at baseline) precluded evaluation of a temporal and truly causal relationship among variables. However, we evaluated an alternative mediation model assessed the indirect effect of EA on the direct relationship between motivation for change and treatment outcome and found the indirect effect to be non-significant. Nonetheless, establishment of temporal precedence in future studies would enhance confidence in the present results. Lastly, although our model predicted a significant proportion of variance in treatment outcomes, there remains a substantial portion of unexplained variance, suggesting that motivation and acceptance work in concert with other factors. Given these statistical limitations, replication with a larger sample size is recommended.

Overall, this study takes an important step forward in understanding the relationship between experiential acceptance, motivation for change, and treatment outcome. Further investigation is needed to determine how these results might be applied to improve treatment response. For example, future studies could examine whether direct targeting of EA during the early stages of treatment has a subsequent effect on motivation and ultimate treatment outcome. If this is the case, further development and extension of existing EA-focused interventions would be recommended, particularly for individuals low in motivation. Additionally, further research is warranted to determine whether the effect of EA-focused interventions on treatment outcome is moderated by illness duration, or may have a particularly strong effect for patients who exhibit low initial levels of motivation for behavior change.

Additionally, future work should examine whether the mediating effect of motivation is specific to a particular type of motivation. The present study examined motivation in the context of the transtheoretical stages of change model [25, 26], but others have utilized motivation self-report measures based in "pro" versus "con" models [6,

30] or multidimensional scales of motivation (i.e., autonomous and controlled dimensions) [4, 31]. Given that different measures of motivation appear to relate differentially to treatment outcome, it is essential to examine whether the mediation model obtained here might apply to other theoretical models of motivation in eating disorders.

Compliance with ethical standards

Conflict of interest The authors declare no conflict of interest.

Ethical approval The authors affirm that this research complied with the Helsinki declaration and was approved by the researchers' Institutional Review Board and the treatment facility's internal Institutional Review Board.

Informed consent Informed consent was obtained from all individual participants included in the study.

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