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## Readiness to change as a moderator of outcome in transdiagnostic treatment

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### Abstract

Initial symptom severity is a client characteristic associated with psychotherapy outcome, although this relationship is not well-understood. Readiness to change is a factor that may influence this relationship. This study tested readiness as a moderator of the relationship between initial severity and symptom change. Data were derived from an RCT examining the efficacy of a transdiagnostic CBT treatment. Readiness was assessed with the URICA, and symptom and functioning outcomes were assessed. Multiple regression models indicated that severity was associated with less overall change, yet readiness moderated this relationship. At higher levels of readiness, the effect of initial severity on outcome was essentially reversed; for clients with higher initial readiness, higher levels of severity were associated with greater change.

### Keywords

stage of change; anxiety treatment; psychotherapy outcome

A profusion of research has shown that psychotherapy is effective in the treatment of a variety of psychiatric disorders and problems areas (Barlow, 2004; Lambert & Ogles, 2004; Nathan & Gorman, 2007). Furthermore, a recent review of relevant meta-analyses demonstrated convincing evidence for the efficacy of cognitive-behavioral (CBT) oriented interventions in the treatment of anxiety (Olatunji, Cisler, & Deacon, 2010). However, much remains to be learned regarding the predictors of treatment response (and non-response) and mechanisms of change in CBT for anxiety disorders. It is clear that clients vary in their response to treatment, including CBT (Newman, Crits-Christoph, Connolly Gibbons, & Erickson, 2006), yet little is known about the client characteristics (i.e., individual differences) that potentially moderate outcome in CBT. In fact, the identification of client factors that influence treatment response has become a strategic priority of the National Institute of Mental Health (NIMH; <http://www.nimh.nih.gov/about стратегичн-планинг-репорти/index.shtml>)

Transtheoretical and transdiagnostic (i.e., relevant across different forms of treatment and problem areas) client characteristics may function as moderators of treatment outcome. Perhaps the most consistent client-level predictor of treatment outcome in CBT for anxiety is baseline symptom severity; clients who enter treatment with a higher degree of severity typically demonstrate poorer response (Newman et al., 2006). The precise nature of the influence of baseline symptom severity on treatment outcome for anxiety is not well-understood; however, recent research on psychotherapy outcomes for depression indicates

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that this relationship may be influenced by other relevant patient variables, such as readiness or stage of change (SOC).

Using latent class analysis to examine trajectories of change in depressive symptoms, studies have demonstrated that baseline symptom severity can be associated with distinct groups of symptom responders (e.g., Nordberg, Castonguay, Fisher, Boswell, & Kraus, 2008; Stulz, Lutz, Leach, Lucock, & Barkham, 2007). Nordberg et al. (2008) found two groups that evidenced equally high baseline symptom severity, yet differed significantly in their average response trajectory. One group was labeled “high symptom rapid responders” while the other was labeled “high symptom non-responders.” This finding suggests that the relationship between baseline severity and treatment response may be moderated by other factors, and readiness to change has been suggested as one such factor (Boswell et al., in press; Nordberg et al., 2008). Readiness to change is a construct that represents the intentional aspect of change and presupposes that help-seeking individuals are not uniformly ready, or motivated, to pursue the change process (Prochaska & DiClemente, 2005). Readiness is the central component of the Stage of Change (SOC) dimension of the *Transtheoretical Model* (TTM), an integrative framework for understanding the process of behavior change (Prochaska & DiClemente, 1984; Prochaska & Norcross, 1992). In addition to overall readiness (or motivation), clients are assumed to enter treatment at a specific stage of readiness to change.

The SOC dimension includes five stages: *pre-contemplation, contemplation, preparation, action, and maintenance*. Individuals in the *pre-contemplation* stage do not perceive that they have a problem and do not currently intend to pursue change, while those in the *contemplation* stage are aware of a problem and are interested in information about the problem, yet they are still ambivalent and have not made a commitment to take action. Individuals in the *preparation* stage intend to take action in the near future and may have taken initial steps toward addressing their problem with little effect. Individuals in the *action* stage have decided that change is necessary and have already started to actively apply change strategies, while those in the *maintenance* stage have made significant changes, yet are experiencing some difficulty (or anticipate experiencing some future difficulty) maintaining these changes (i.e., seeking consolidation of previous gains and/or prevention of relapse). Although individuals can be categorically placed within a particular stage, dimensional scores for each stage are assessed simultaneously and overall readiness is determined by the combination of factor scores (Carbonari, DiClemente, & Zweben, 1994). A recent meta-analysis conducted by Norcross, Krebs, and Prochaska (2011), reported a mean effect size of  $d = .46$  between readiness to change and treatment outcome. The majority of SOC research has been conducted in the area of behavioral health (e.g., alcohol and substance abuse, eating disorders); however, some research has indicated that readiness/stage of change is an important factor in other areas of mental health (Brogan, Prochaska, & Prochaska, 1999; Smith, Mezydlo, Subich, & Kalodner, 1995).

Client motivation, in particular, has garnered increased clinical and empirical attention in recent years (Arkowitz, Westra, & Miller, 2007; Wilbourne & Levensky, 2006), and recent attempts have been made to integrate motivational enhancement strategies into CBT for anxiety disorders (e.g., Barlow et al. 2011; Kertes, Westra, Angus, & Marcus, 2010; Marcus, Westra, Angus, & Kertes, 2011; Westra, Arkowitz & Dozois, 2009). Associations between readiness to change (and/or a specific stage of change) and positive outcome have been observed in pharmacotherapy studies for panic disorder (Beitman et al., 1994; Reid, Nair, Mistry, & Beitman, 1996), generalized anxiety disorder (GAD; Wilson, Bell Dolan, & Beitman, 1997), and OCD (Pinto, Neziroglu, & Yaryura-Tobias, 2007), yet this remains an understudied construct in psychotherapy (Newman et al., 2006). Results from the few studies that have attempted to correlate client self-reported motivation with outcome in CBT

have been mixed. For example, small associations between motivation for treatment and outcome have been observed in CBT for panic disorder (Keijsers, Hoogduin, & Schaap, 1994a) and obsessive-compulsive disorder (OCD; de Haan et al., 1997; Keijsers, Hoogduin, & Schaap, 1994b). However, Vogel, Hansen, Stiles, and Gotestam (2006) failed to find such an association in a subsequent trial of CBT for OCD. Similarly, Kampman, Keijsers, Hoogduin, and Hendriks (2008) reported a lack of relationship between initial motivation for treatment and outcome in CBT for panic. Alternatively, Dozois, Westra, Collins, Fung, and Garry (2004) found CBT treatment responders for panic disorder scored significantly higher on the *contemplation* factor at baseline than treatment non-responders, indicating the importance of problem awareness at the beginning of treatment. One potential explanation for these mixed findings is that readiness should be studied in the context of other relevant treatment factors (e.g., severity).

## Specific Aims

Overall, the literature suggests that the relationship between specific client variables (such as initial severity and readiness) and psychotherapy outcome is complex and in need of further study. Studying the interactions between these factors may help account for this complexity and clarify mixed results. For example, the difference in treatment response between clients with equally high levels of initial severity may be, at least partially, explained by baseline readiness to change. Despite a high degree of distress, individuals who report a greater level of readiness may have positive expectations for change, potentially leading to enhanced engagement in treatment and better outcomes (thus, representing the “high symptom responders”). The present study was aimed at investigating readiness to change as a moderator of the effect of initial severity on treatment outcome in an innovative transdiagnostic CBT treatment for emotional disorders, the Unified Protocol (UP; Barlow et al., 2011; Farchione et al., 2012). In the primary outcome study (Farchione et al., 2012), the UP demonstrated high response rates, and resulted in significant improvement on measures of clinical severity, general symptoms of anxiety and depression, and daily functioning. However, much remains to be learned about the factors that affect change in this treatment. Specifically, we hypothesized that (a) initial severity would be negatively associated with the degree of overall change and (b) this relationship would be moderated by baseline readiness. Specifically, for clients who endorsed a higher level of readiness at the beginning of treatment, higher initial severity would be associated with a greater magnitude of symptom change.

## Method

A university-based institutional review board (IRB) approved all measures and procedures in the present study prior to its initiation. Data for this study were derived from a randomized controlled trial investigating the efficacy of the UP for heterogeneous anxiety and depressive disorder (Farchione et al., 2012), compared to a waitlist control/delayed treatment condition. Clients initially randomized to the delayed treatment condition subsequently received the same active treatment with the UP. No significant differences in initial severity or readiness scores were observed between the immediate and delayed treatment groups. As such, the sample in the present study included clients from both conditions.

## Participants

Participants were recruited from a pool of individuals from the community seeking routine treatment at a large university-based center specializing in the treatment of anxiety disorders. Inclusion criteria included: a principal (most interfering and severe) diagnosis of an anxiety disorder, as assessed using the Anxiety Disorders Interview Schedule for *DSM*-

*IV*—Lifetime Version (ADIS-IV-L; DiNardo, Brown, & Barlow, 1994); age of 18 years or older; fluency in English; ability to attend treatment sessions and assessments; and ability to provide informed consent. Exclusion criteria included: current *DSM-IV* diagnosis of bipolar disorder, schizophrenia, schizoaffective disorder, or organic mental disorder; clear and current suicidal risk; current or recent (within 3 months) history of substance abuse or drug dependence (with the exception of nicotine, marijuana, and caffeine).

A total of 37 clients consented to treatment and were randomized to either the immediate or delayed-treatment (waitlist) condition. The combined sample included 15 males and 22 females (mean age = 29.76 years,  $SD = 9.54$ , range = 19 – 52 years). The study sample was primarily Caucasian (94.5%). No differences were observed between groups on demographic variables (see Farchione et al., 2012). Principal diagnoses included: GAD ( $n=7$ ), social phobia ( $n=8$ ), OCD ( $n=8$ ), panic disorder with agoraphobia ( $n=8$ ), Anxiety Disorder NOS ( $n=2$ ), and posttraumatic stress disorder ( $n=1$ ). Three participants had co-principal anxiety diagnoses (a diagnosis of equal severity): social phobia and Anxiety Disorder NOS, GAD and social phobia, and OCD and panic disorder with agoraphobia. Participants had an average of 2.16 diagnoses at pre-treatment ( $SD = 1.19$ ; range = 1 – 5). Thirty-two out of 37 clients were considered treatment completers (see UP subsection below for a description) and 31 out of 37 clients completed the URICA at baseline. However, there was not perfect overlap in these measures. For analyses involving both baseline URICA scores and outcome variables, 29 clients completed both types of measures. With this sample size, assuming three predictor variables in a regression model and power = .80, a *beta* coefficient of .29 would be needed to reach statistical significance (*alpha* = .05). Previous research on initial severity and readiness has consistently demonstrated *r*-type effect sizes at or above this level.

Therapists for the study were three doctoral students with 2 to 4 years of clinical experience and one licensed doctoral-level psychologist with seven years of experience. All therapists underwent extensive training and certification prior to treating study clients and treatment adherence was monitored during weekly supervision meetings.

## Measures

**Clinical Diagnosis**—Baseline diagnoses were assessed with the Anxiety Disorders Interview Schedule for DSM-IV-Lifetime Version (ADIS-IV-L; Di Nardo et al., 1994). This semi-structured, diagnostic clinical interview focuses on *DSM-IV* diagnoses of anxiety disorders and their accompanying mood states, somatoform disorders, substance and alcohol use, medical history, and client and family psychiatric history. This measure has demonstrated excellent to acceptable interrater reliability (Brown, Di Nardo, Lehman, & Campbell, 2001).

**University of Rhode Island Change Assessment (URICA; McConnaughy et al., 1983, 1989)**—The URICA is the most commonly used measure of readiness to change in behavioral and mental health. This 32-item scale, with item responses ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), directly assesses four SOC factors: *precontemplation*, *contemplation*, *action*, and *maintenance*. The *preparation* stage is calculated by averaging the contemplation and action subscales. A sixth score, representing overall readiness to change, is calculated by summing the means of the contemplation, action, and maintenance subscales, and then subtracting the precontemplation mean (Carbonari, DiClemente, & Zweben, 1994). The factor structure and psychometric qualities of the URICA have been tested and replicated in a number of studies (Brogan, Prochaska, & Prochaska, 1999; Dozois et al., 2004; Prochaska & DiClemente, 2005). The internal consistency of the URICA in the present sample was *alpha* = .82. Multiple methods have

been used to categorize individuals, including the highest stage subscale mean (Dozois et al., 2004), which was the approach used in the present study. Continuous overall readiness to change scores are most frequently used when examining associations with treatment outcome, and individual subscale means can be used similarly in inferential analyses. This was the approach used in the present study.

**Hamilton Depression Rating Scale (HAM-D; Hamilton, 1960)**—The HAM-D was used to evaluate depressive symptoms and was administered in accordance with the Structured Interview Guide for the Hamilton Depression Rating Scale (SIGH-D; Williams, 1988). This commonly used clinician-rated measure has demonstrated good levels of interrater and test-retest reliability (Williams, 1988), as well as concurrent validity with similar clinician rated and self-report measures of depression symptoms (Bech et al., 1992). Clinical raters received extensive training, had to demonstrate a high degree of reliability prior to their participation in the trial, and received ongoing supervision and consultation (see Farchione et al., 2012). Ongoing reliability data were not collected during the trial; however, clinical ratings were highly correlated with relevant self-report measures, such as the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown., 1996) and ADIS-IV-L clinical severity ratings (CSR) for principal diagnoses. Pre-HAM-D ratings correlated highly with Pre-BDI-II scores ( $r = .746, p = .000$ ) and Pre-CSR ( $r = .545, p = .001$ ); Post-HAM-D ratings correlated highly with Post-BDI-II scores ( $r = .636, p = .000$ ) and Post-CSR ( $r = .457, p = .003$ ).

**Hamilton Anxiety Rating Scale (HAM-A; Hamilton, 1959)**—The HAM-A was used to assess anxiety symptoms and was administered in accordance with the Structured Interview Guide for the Hamilton Anxiety (SIGH-A; Shear et al., 2001). This commonly used clinician-rated measure has demonstrated good levels of interrater and test-retest reliability, as well as convergent validity with similar clinician rated and self-report measures of anxiety symptoms (Shear et al., 2001). Clinical raters received extensive training, had to demonstrate a high degree of reliability prior to their participation in the trial, and received ongoing supervision and consultation (see Farchione et al., 2012). As with the HAM-D, ongoing reliability data were not collected during the trial. However, clinical ratings were highly correlated with relevant outcome measures, such as the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988) and ADIS-IV-L CSRs for principal diagnoses. For example, Pre-HAM-A ratings correlated highly with Pre-BAI scores ( $r = .644, p = .000$ ) and Pre-CSRs ( $r = .491, p = .003$ ); Post-HAM-A ratings correlated highly with Post-BAI scores ( $r = .608, p = .000$ ) and Post-CSRs ( $r = .660, p = .000$ ).

**Work and Social Adjustment Scale-Self-Report (WSAS-SR; Marks, Connolly, & Hallam, 1973; Mundt, Marks, Shear, & Greist, 2002)**—The WSAS is a five-item client self-report scale used to assess functional impairment and interference in five domains: work, home management, private leisure, social leisure, and family relationships. The WSAS has demonstrated good internal consistency (present sample,  $\alpha = .65$ ), test-retest reliability, and convergent validity, as well as sensitivity to change and usefulness as an outcome measure (Mundt et al., 2002).

## Procedure

Upon consent, participants were randomized to either immediate or delayed treatment. Participants assigned to the immediate treatment condition were assessed at pre and post-treatment (self-report and clinician ratings). Delayed treatment participants were assessed at the beginning and end of the sixteen week wait-list period, the latter serving as this group's pre-treatment assessment. Participants in this group were assessed again at post-treatment.

**Unified Protocol (UP)**—Treatment with the UP consisted of a maximum of eighteen, 60 minute weekly individual psychotherapy sessions. The UP consists of five core treatment modules designed to target key aspects of emotional processing and regulation of emotional experiences. The core modules include: (a) emotion awareness training, (b) cognitive appraisal/reappraisal, (c) eliminating emotion avoidance and maladaptive emotion-driven behaviors, (d) facilitating awareness and tolerance of physical sensations in strong emotions, and (e) interoceptive and situational exposures. These five core modules are preceded by a module focused on enhancing motivation and treatment engagement, as well as an introductory module educating clients on the nature of emotions and providing a framework for understanding their emotional experiences. A final module involves a review of progress over treatment and discussion of relapse prevention strategies. The modules are flexibly linked to sessions in that, depending on the needs of the individual, more or less time can be spent on a given module. Thus, each module could conceivably be covered in a single session, which would result in a treatment that is less than 18 weeks in duration. A participant was considered a treatment completer after 8 sessions because all treatment modules could have been covered in this duration.

## Results

Mean scores for the individual URICA subscales and overall readiness are presented in Table 1, along with the percentages of individuals who would be categorically placed at that particular stage based on their relative mean scores. These results demonstrate that the majority of the sample appeared to be in the *contemplation stage* at the start of treatment, indicating that most clients recognized that a problem existed, yet they were still ambivalent about making a commitment to actively pursue change. The mean HAM-A score at pre-treatment was 15.34 ( $SD = 7.33$ ), and the mean HAM-A score at post-treatment was 7.93 ( $SD = 6.04$ ). The mean HAM-D score at pre-treatment was 9.74 ( $SD = 5.53$ ), and the mean HAM-D score at post-treatment was 5.76 ( $SD = 5.60$ ). The mean WSAS-SR score at pre-treatment was 13.23 ( $SD = 7.10$ ), and the mean WSAS-SR score at post-treatment was 5.34 ( $SD = 4.63$ )

A series of zero-order bivariate correlations were tested to investigate the associations between URICA subscale and readiness scores and symptom severity and functional impairment. Results are presented in Table 2. The URICA subscale means for pre-contemplation, contemplation, preparation, and action were unrelated to baseline symptoms or pre-post symptom change. However, higher initial maintenance subscale and readiness scores were significantly correlated with higher levels of initial severity and impairment, as well as an increased magnitude of improvement in symptoms and functioning over the course of treatment. Several of the URICA subscales were correlated with one another in theoretically consistent directions (e.g., pre-contemplation inversely related to readiness to change). As would be expected, overall readiness to change was significantly correlated with its constituent factors (e.g.,  $r = .786$  with maintenance). In the interest of statistical parsimony, and to avoid collinearity, the subsequent moderator analysis was conducted with readiness to change scores.

### Readiness as a Moderator of Change

An initial regression analysis demonstrated a significant association between initial symptom severity and overall change on the HAM-D ( $b = -.687$ ,  $SE = .188$ ,  $df = 28$ ,  $t = -3.65$ ,  $p = .001$ ), HAM-A ( $b = -.888$ ,  $SE = .155$ ,  $df = 28$ ,  $t = -5.71$ ,  $p = .000$ ), and WSAS-SR ( $b = -.996$ ,  $SE = .125$ ,  $df = 28$ ,  $t = -7.97$ ,  $p = .000$ ), with higher levels of initial severity being associated with less change. Prior to formally testing regression models to examine moderation, following the recommendations of Baron and Kenny (1986), we examined the

nature of the relationship between initial severity and symptom change across multiple levels of readiness in order to verify a linear relationship between the variables (versus a stepped relationship). This was done by examining the distributions of the variables and plotting the relationship between initial severity and symptom change at multiple standard deviations above and below the sample mean. This preliminary step suggested a linear association between the variables.

A series of multiple regression models were then conducted to test the hypothesis that readiness to change will moderate the effect of initial severity on overall symptom change. Main effects for initial severity and readiness, along with the interaction between initial severity and readiness (calculated using the cross product of the  $z$  scores), were entered simultaneously in each model. Results can be found in Table 3. Neither main effect nor the interaction term was significant in the model predicting change in functional impairment. In the models predicting symptom change on the HAM-A and HAM-D, main effects were observed for initial severity, indicating that higher initial severity was associated with less change. While no main effects were observed for readiness to change, a significant interaction effect was observed between initial severity and readiness, which held for both the HAM-A and HAM-D models. Results indicated that the relationship between initial severity and outcome was significantly influenced by readiness level. Specifically, higher initial severity was actually associated with greater overall change when readiness to change was also higher. In other words, when higher levels of readiness were present, the direction of the effect of initial severity on outcome was essentially reversed. Thus, differences in outcome between individuals who present with similarly high levels of initial severity may be partially explained by readiness to change at the start of treatment.

## Discussion

In order to improve understanding of the relationship between important client factors and outcome in psychotherapy, this study investigated readiness to change as a moderator of the relationship between initial symptom severity and symptom change. Consistent with study hypotheses, higher levels of symptom severity were associated with less change over the course of treatment, and readiness level moderated this relationship, with clients who presented with higher levels of severity demonstrating a greater magnitude of change when they also endorsed higher levels of readiness. These results provide additional support for the importance of initial readiness/motivation in CBT for anxiety disorders.

In general, treatment participants were characterized by an initially high degree of ambivalence about their ability to change and/or what method of change to pursue at the beginning of treatment. The absence of *pre-contemplators* in the sample (along with a relatively restricted range of pre-contemplation scores) is not surprising given that clients were voluntarily seeking treatment and had already gone through the initial steps of trial recruitment. The absence of *maintainers* at the onset of treatment is also not entirely unexpected as individuals who fall into the maintenance stage have already pursued and experienced change. Although the mean level of maintenance was relatively low in this sample, unlike pre-contemplation, there was variability in this subscale score across individuals, possibly indicating earlier attempts to change for some individuals.

Results from the primary study aim may shed light on the findings from previous research. For example, the inconsistent findings regarding the relationship between self-reported motivation and outcome in CBT could be partially explained by the failure of previous research to account for interaction effects. Although initial severity has often been negatively associated with treatment outcome (which is consistent with the significant main effect observed in the present study), individuals with similarly high levels of severity and

distress can evidence rather distinct response trajectories (Nordberg et al., 2008; Stulz et al., 2007). Results from this study showed that the degree of change experienced in individuals who enter treatment with higher levels of severity may depend upon their level of readiness to change at the beginning of treatment. In fact, the relationship between initial severity and outcome changed substantially when higher levels of readiness were also present.

Individuals who entered treatment with higher levels of severity, and who were also more motivated to change, demonstrated a greater magnitude of change over the course of treatment; thus, rather than being associated with less improvement, higher severity was associated with greater improvement at higher levels of readiness. These results are in line with the findings of Westra et al. (2009), who found that the benefit of adding motivational-interviewing (MI) to CBT for GAD was specific to those clients presenting with high initial symptom severity. For clients presenting with lower levels of initial severity, the MI intervention was unrelated to treatment outcome, while those with higher severity who received the MI intervention improved significantly.

Along with Westra et al. (2009), these findings suggest that motivation to change may be particularly important for those with high symptom severity. It is possible that a higher level of readiness/motivation indicates the presence of some level of hope, which may, in turn, result in increased treatment engagement. A client who is experiencing a high degree of distress and little motivation to change may be in a state of hopelessness, or perhaps pessimism, which may negatively impact treatment engagement. This mindset is not uncommon among individuals who report high levels of negative affect and behavioral inhibition (Brown, 2007). Conversely, a client who is experiencing a high degree of distress and is highly motivated to change may exhibit enhanced treatment engagement, and, consequently, better outcome. If this is indeed the case, then for clients presenting with a higher level of severity, clinicians should consider addressing motivation prior to the introduction of formal CBT interventions.

Study limitations included the relatively small sample size and degree of ethnic homogeneity, which may limit generalizability. In addition, several authors have highlighted potential limitations of the SOC model for understanding and assessing client motivation (see Littell & Girvin, 2002), including mixed data for discrete stage transition sequences and the efficacy of stage-matched interventions (Sutton, 2001), and inconsistent operationalization of the stages (Wilson & Schlam, 2004). Westra (2011) also demonstrated that observer-rated client motivation in therapy sessions was a better indicator of motivation than a client self-reported motivation scale. The observer-rated measure was a better predictor of homework compliance and worry reduction in CBT for GAD. Finally, the present study utilized clinician-rated outcome measures, and there is the potential for rater bias in clinical trials (see Roll et al., 2004). However, the present study was an open trial and used a combined, within-treatment sample. Thus, the potential for bias is judged to be minimal.

It is also worthy of mention that readiness/stage of change was not assessed following the motivational enhancement module of the UP; therefore, we could not conclude that this component of the intervention influenced subsequent motivation or treatment engagement. In cognitive-behaviorally oriented treatments, such as the UP, motivation and engagement may be particularly important given the emphasis placed on homework and repeated practice, as well as the significance of exposure in the latter phase of the current treatment. In addition to larger and more diverse samples, future research in this area would be enhanced by the inclusion of multiple motivation assessments. Repeated assessments would allow one to investigate if the motivational enhancement strategies lead to increased engagement in treatment tasks (e.g., homework compliance and quality).

These findings indicate that a client's initial readiness to change can influence outcome in CBT for heterogeneous anxiety disorders, particularly in individuals who present with a high degree of initial severity. Thus, we believe that more attention should be paid to this factor in CBT. Further, the impact of CBT could potentially be strengthened by the inclusion of motivation enhancement strategies for clients who present with high severity. These results add to the accumulating empirical literature in psychotherapy showing that initial severity is not a "one-size fits all" prognostic indicator. Higher symptom levels/distress does not necessarily mean a client is in high state of readiness to change; careful attention should be given to clients who enter treatment in a high degree of distress and limited readiness to change.

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**Table 1**  
University of Rhode Island Change Assessment (URICA) Subscale Means

	Mean	SD	Range	Percent in Stage
Pre-Contemplation	1.30	0.33	1.00 – 1.88	0.0%
Contemplation	4.63	0.43	3.50 – 5.00	80.6%
Preparation	4.38	0.38	3.38 – 4.94	9.7%
Action	4.12	0.48	2.50 – 4.88	9.7%
Maintenance	2.96	0.91	1.13 – 4.50	0.0%
Readiness to Change	10.40	1.51	7.00 – 12.88	

*Note.* Data include within treatment sample with baseline URICA scores ( $n = 31$ ).

URICA range = 1–5.

**Table 2**

Correlations between University of Rhode Island Change Assessment Subscale Scores and Symptom Measures.

	Pre-Contemplation	Contemplation	Preparation	Action	Maintenance	Readiness
Pre-Contemplation	1.0					
Contemplation	-.681 **	1.0				
Preparation	-.502 **	.828 **	1.0			
Action	-.199	.439 *	.867 **	1.0		
Maintenance	0.100	.312	.361 *	.301	1.0	
Readiness	-.465 **	.757 **	.835 **	.666 **	.786 **	1.0
Pre HAM-A	-.056	.152	.180	.151	.511 **	.404 *
Pre HAM-D	-.060	.206	.208	.147	.584 **	.462 *
Pre WSAS-SR	-.009	.131	.206	.213	.536 **	.422 *
HAM-A Change	.136	-.148	-.202	-.193	-.535 **	-.447 *
HAM-D Change	.037	-.138	-.294	-.343	-.560 **	-.487 *
WSAS-SR Change	.154	-.152	-.172	-.142	-.617 **	-.483 *

Note.

\*  
 $p < .05$ .

\*\*  
 $p < .01$ . Data include within treatment sample with both baseline URICA and complete outcome assessments ( $n = 29$ ).

## Results from Models Examining Readiness as a Moderator of Symptom Change

**Table 3**

	B	SE	t	CI Lower	CI Upper
HAM-A ( $R^2 = .696$ )					
Pre-HAM-A	-0.660	0.165	-3.99 **	-1.005	-0.315
Readiness	-0.941	0.782	-1.20	-2.571	0.689
Pre-HAM-A * Readiness	-2.320	1.027	-2.26 *	-4.461	-0.178
HAM-D ( $R^2 = .606$ )					
Pre-HAM-D	-0.616	0.177	-3.48 **	-0.985	-0.246
Readiness	-1.090	0.652	-1.67	-2.450	0.270
Pre-HAM-D * Readiness	-1.824	0.779	-2.34 *	-3.449	-0.199
WSAS-SR ( $R^2 = .807$ )					
Pre-WSAS-SR	-0.818	0.135	-6.06 **	-1.100	-0.537
Readiness	-0.577	0.555	-1.04	-1.735	0.582
Pre-WSAS-SR * Readiness	-1.888	1.031	-1.83	-4.039	0.263

Note. 95% Confidence Intervals used.

\* p < .05

\*\* p < .01. Data include within treatment sample with both baseline URICA and complete outcome assessments (n = 29).