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Predictors of treatment outcome and attrition in adults with hoarding disorder

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Abstract

While a number of hoarding disorder-specific therapeutic interventions have been developed over recent years, hoarding disorder (HD) remains difficult to treat. The purpose of this investigation is to inform HD treatment efforts by examining factors that influence treatment attrition and treatment response. Secondary data analysis of baseline and post-treatment data from two previously published psychotherapy treatment studies for hoarding were performed to identify predictors of hoarding symptom improvement and treatment attrition in 106 adults with HD. No demographic variables were associated with symptom improvement or treatment attrition. However, higher levels of avoidant coping (i.e., self-distraction combined with behavioral disengagement) significantly predicted symptom improvement. The maintenance stage of change along with high readiness for change also significantly predicted symptom improvement. Participants who dropped from treatment had significantly higher baseline levels of denial and clutter, both of which independently predicted treatment attrition. The findings from this study suggest that emotion-related constructs, such as managing stress and motivation for change, may play an important role in patients' response to and participation in HD treatment.

Keywords

Hoarding disorder; Exposure therapy; Attrition

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Declarations of interest

None.

1. Introduction

Hoarding disorder (HD) is a chronic and progressive obsessive-compulsive spectrum disorder characterized by persistent difficulty discarding possessions, urges to save items, and distress associated with discarding objects regardless of their value (American Psychiatric Association, 2013). While a number of HD-specific therapeutic interventions have been developed over recent years, HD remains difficult to treat (e.g., Tolin, Frost, Steketee, & Muroff, 2015). The purpose of this investigation is to inform HD treatment efforts by examining factors that influence treatment attrition and treatment response.

Early pioneers in HD research include Steketee and Frost (2007) who developed and evaluated a specialty multi-component Cognitive Behavioral Therapy (CBT) intervention for hoarding (Steketee, Frost, Tolin, Rasmussen, & Brown, 2010; Tolin, Frost, & Steketee, 2007). Several studies have since set out to further develop and refine treatments for HD in a number of different ways, such as delivering specialized CBT for HD in groups (Muroff et al., 2009), comparing individual CBT with home visits to group CBT without home visits (Gilliam et al., 2011), providing extra non-clinician home assistance in group CBT (Muroff, Steketee, Bratnotis, & Ross, 2012), using bibliobased and facilitated support groups (Frost, Pekareva-Kochergina, & Maxner, 2011; Frost, Ruby, & Shuer, 2012), incorporating cognitive retraining with individual therapy (Ayers et al., 2014), and using contingency management as an adjunct to CBT (Worden, Bowe, & Tolin, 2017). Despite these efforts, most current intervention methods for HD range from ineffective to relatively small gains (Bodryzlova, Audet, Bergeron, & O'Connor, 2019; Tolin et al., 2015).

Cognitive behavioral therapy is often considered the treatment of choice for a variety of mental health conditions. While CBT for HD has shown some positive results (Bodryzlova, Audet, Bergeron, & O'Connor, 2019; Tolin et al., 2015), symptom reductions are much lower than for outcomes for other obsessive-compulsive spectrum (Lewin et al., 2011), anxiety (Cuijpers et al., 2014; Wetherell, Lenze, & Stanley, 2005), and depressive disorders (Carter et al., 2013; Elkin et al., 1989; Teri, Logsdon, Uomoto, & McCurry, 1997, pp. P159–P166). Furthermore, no study of CBT for HD has lowered symptom severity below the clinical range threshold for HD symptoms on self-report and clinician administered measures (Ayers, Wetherell, Golshan, & Saxena, 2011; Frost et al., 2011; Gilliam et al., 2011; Muroff et al., 2009; Muroff, Steketee, Frost, & Tolin, 2014; Steketee et al., 2010; Steketee, Frost, Winze, Greene, & Douglass, 2000; Tolin et al., 2007; Turner, Steketee, & Nauth, 2010). To better understand the shortcomings of current behavioral interventions for HD and to improve response to treatment, it is important to understand factors that influence treatment attrition and treatment response.

2. Motivation and readiness for change

Motivation and readiness for change are considered important factors influencing success of treatment in individuals with HD (Tolin et al., 2007; Tolin, 2011; Worden, DiLoreto, & Tolin, 2014; and; Worden et al., 2017). These factors may keep many individuals with HD from seeking treatment altogether. Individuals with HD often only enter treatment because of external forces, such as a family member's insistence or civic pressure (Ayers et al., 2015;

Frost, Steketee, & Williams, 2000). One HD study reported that only 3% of the older adults enrolled were self-referred for treatment services (Kim, Steketee, & Frost, 2001).

Once engaged in treatment, motivation continues to be an important factor. Low motivation can impede successful treatment by leading to early dropout, inconsistent attendance, and poor treatment compliance, particularly with regards to homework adherence (Tolin, 2011). Even when individuals are self-referred, substantial support including repeated scheduling attempts, informal motivational interviewing, and problem solving by staff are often necessary to help participants engage (Ayers et al., 2015).

3. Insight

Limited insight may contribute to low treatment seeking, treatment engagement, and poor treatment outcomes in HD (Damecour & Charron, 1998; Frost, Tolin, & Maltby, 2010; Kashyap et al., 2012; Tolin et al., 2015). Clinical observations suggest that individuals with HD often display a marked lack of awareness of the severity of their behavior, sometimes denying the problem, and often resisting intervention attempts (Tolin, 2011). Ratings of insight were found to be inversely correlated with self-reported level of distress about one's problem (Tolin, Fitch, Frost, & Steketee, 2008). The degree to which a problem is recognized likely plays a substantial role in readiness to change behavior (Tolin, 2011). However, research suggests recognition of a problem with hoarding typically does not occur until at least a decade after onset (Grisham, Frost, Steketee, Kim, & Hood, 2006).

4. Attrition and response to treatment

To date, only a few studies have examined predictors of treatment attrition and response. Initial evidence suggests that homework noncompliance, perfectionism, and gender are predictive of poor treatment outcomes (Muroff et al., 2014; Tolin et al., 2007). In their meta-analysis, Tolin et al. (2015) found that a higher percentage of women enrolled in a trial significantly predicted larger reductions in overall hoarding severity, acquiring and clutter, and reduced difficulties with discarding. A higher percentage of younger adults enrolled in a trial also predicted greater reductions in overall hoarding severity and acquiring; a greater number of sessions predicted greater reductions in clutter and overall impairment; and similarly, a greater number of sessions taking place in the home predicted greater reductions with clutter, difficulties with discarding, and impairment. More recently, Levy et al. (2017) found that changes in maladaptive saving cognitions mediated symptom improvement in CBT for HD. This finding was partially replicated in a study of mediators of treatment response in group CBT for HD (Tolin et al., 2019).

Due to the high attrition rates in HD trials, research into predictors of treatment drop are warranted. Accordingly, this study aims to examine demographic and clinical predictors (particularly emotion-related factors) of treatment response and attrition. We will explore the relationship that demographic features, baseline symptom severity rates, emotion regulation, copying style and readiness for change have on treatment response and attrition.

5. Methods

5.1. Participants

Participants were adults recruited for two treatment studies conducted at the VA San Diego Healthcare System between December 2011 and May 2014 (Ayers, Dozier, Taylor, et al., 2018; Ayers, Dozier, Twamley, et al., 2018). One study involved individual treatment for older adults with HD (aged 60+; $n = 58$), and the other study involved group treatment for adults across the lifespan with HD (aged 18+ ; $n = 60$). Twelve adults in the group treatment study had already participated in the individual treatment study and were excluded from the current analyses; thus, the total sample used was 106 adults. Participants were recruited through clinician referral and flyers posted in the community. Inclusion criteria required that participants met criteria for HD as outlined in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5; American Psychiatric Association, 2013). Participants recruited before publication of the DSM-5 were diagnosed with HD using the proposed criteria (Mataix-Cols et al., 2010). Further recruitment and inclusion criteria is available in the parent articles (Ayers, Dozier, Taylor, et al., 2018; Ayers, Dozier, Twamley, et al., 2018). All participants provided written informed consent and all study procedures were approved by the Institutional Review Board of the VA San Diego Healthcare System .

5.2. Measures

Hoarding symptom severity was assessed via the Saving Inventory-Revised (SI-R; Frost, Steketee, & Grisham, 2004) and the Clutter Image Rating (CIR; Frost, Steketee, Tolin, & Renaud, 2008). The SI-R is a 23-item self-report assessment of hoarding symptoms comprised of three subscales: clutter, difficulty discarding, and acquisition. Items are rated on a 5-point scale and summed for a total and subscale scores. Elevated hoarding symptoms are indicated by higher SI-R scores. The SI-R has demonstrated good validity and reliability in middle-aged and older adult samples (Ayers, Dozier, & Mayes, 2017; Frost et al., 2008). Within the current sample, Cronbach's alpha for the SI-R Total was 0.89 (total score), and 0.74 (clutter), 0.72 (difficulty discarding), and 0.69 (acquisition) for the three subscales. The CIR is a three-item pictorial assessment of clutter in which a respondent selects the image that most closely resembles the clutter level in corresponding rooms in their home (kitchen, living room, and bedroom). The CIR has strong interrater reliability between participant and clinician raters (Dozier & Ayers, 2015; Frost et al., 2008). Internal consistency for baseline CIR scores was $\alpha = 0.82$.

The University of Rhode Island Change Assessment Questionnaire (URICA; McConaughy, Prochaska, & Velicer, 1983) is 32-item self-report assessment of readiness and motivation for change in psychotherapy. Items from four subscales (precontemplation, contemplation, action, and maintenance) are rated on a 5-point scale. A composite readiness score is calculated by subtracting the respondent's mean precontemplation score from the sum of the means from the three other subscales. Greater motivation to change is indicated by higher readiness scores. The URICA has demonstrated good construct validity (Field, Adinoff, Harris, Ball, & Carroll, 2009) and reliability (Dozois, Westra, Collins, Fung, & Garry, 2004). Internal consistency alphas in the current sample were .61 for the precontemplation subscale,

0.73 for the contemplation subscale, 0.84 for the action subscale, and 0.86 for the maintenance subscale.

The Brief COPE (Carver, 1997) is a 28-item self-report assessment of stress management strategies. Respondents indicate on a 4-point scale how much they use a particular coping strategy. Strategies are characterized by 10 subscales: self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame. Cronbach's alpha level for the subscales were consistent with those of the original validation paper: self-distraction: 0.51 (Carver (1997): 0.71), active coping: 0.77 (Carver (1997): 0.68), denial: 0.64 (Carver (1997): 0.54), substance use: 0.97 (Carver (1997): 0.90), use of emotional support: 0.80 (Carver (1997): 0.71), use of instrumental support: 0.72 (Carver (1997): 0.64), behavioral disengagement: 0.79 (Carver (1997): 0.65), venting: 0.65 (Carver (1997): 0.50), positive reframing: 0.71 (Carver (1997): 0.64), planning: 0.83 (Carver (1997): 0.73), humor: 0.88 (Carver (1997): 0.73), acceptance: 0.32 (Carver (1997): 0.57), religion: 0.91 (Carver (1997): 0.82), and self-blame: 0.78 (Carver (1997): 0.69). The denial subscale was used as a proxy for low insight because individuals with HD sometimes completely deny the problem indicating a strong lack of insight (Tolin et al., 2008).

The Emotion Regulation Questionnaire (ERQ; Gross & John, 2003) is a 10-item self-report assessment of two emotion regulation strategies: cognitive appraisal and expressive suppression. Respondents indicate on 7-item scale how much they agree with a given statement. Scores are summed separately for each of the two subscales. In the current sample, Cronbach's alpha level for the cognitive reappraisal and expressive suppression subscales were 0.86 and 0.74, respectively.

Anxiety and Depression were assessed using the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983). The HADS is a 14-item self-report questionnaire composed of two subscales: anxiety and depression. In the present study, internal consistency for the HADS anxiety ($\alpha = 0.85$) and depression ($\alpha = 0.77$) were adequate.

5.3. Data analysis

Secondary data analysis of baseline and post-treatment data were performed to identify predictors of hoarding symptom improvement and treatment attrition. Analyses were conducted on STATA version 15.0 (StataCorp, 2017). Difference scores from pre- and post-treatment were calculated to represent symptom improvement on the SI-R and CIR. Zero-order correlations and unpaired *t* tests were performed between CIR and SI-R difference scores and demographic variables (age, gender, race, education level, marital status, employment status, number of medical conditions, ability to move around inside the home (mobility) and baseline clinical variables (HADS anxiety and depression subscales; ERQ cognitive appraisal and expressive suppression subscales; Brief COPE self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame subscales; URICA precontemplation, contemplation, action, and maintenance subscales and composite readiness score). Significant variables were then entered into a multiple linear regression model to determine which factors uniquely

predicted hoarding symptom improvement. Associations between treatment attrition and demographic and clinical variables were assessed via t and X^2 tests. Significant variables were then entered into a multiple logistic regression model to determine which factors uniquely predicted treatment attrition.

6. Results

6.1. Descriptive statistics

Descriptive statistics of baseline study variables are presented in Table 1. The full sample included 77 women (72.64%) and 29 men (27.36%) with a mean age of 62.1 ($SD=9.43$, range=29 to 85). Participants were largely Caucasian (80%) with an average of 9.6 years of education ($SD=5.63$, range=1 to 21). The majority of participants were unemployed (62%), including those on disability (8.6%) or who were retired (43%). Descriptive statistics of the baseline, post-treatment, and change scores of the SI-R and CIR are presented in Table 2.

6.2. Predictors of symptom improvement

Exploratory analyses using baseline demographic and clinical variables were conducted to identify predictors of symptom improvement. Because the associations between predictor variables and change scores can be influenced by associations between baseline scores on the outcome variables, we first examined the data for any significant associations between predictor variables and baseline scores on the SI-R and CIR. At baseline, the SI-R was significantly associated with the HADS Anxiety ($r=0.41$, $p < .001$) and Depression ($r=0.50$, $p < .001$); the Brief COPE subscales self-blame ($r=0.43$, $p < .001$), behavioral disengagement ($r=0.46$, $p < .001$), self-distraction ($r=0.28$, $p=.009$); and the maintenance subscale of the URICA ($r=0.28$, $p=.009$). All other associations were non-significant (all $ps > .05$). At baseline, the CIR was significantly associated with the Brief COPE subscales behavioral disengagement ($r=0.41$, $p < .001$), emotional support ($r=-0.28$, $p=.010$) and active coping ($r=-0.24$, $p = .031$). No other associations were significant (all $ps > .05$). Correlation coefficients and t statistics are presented in Table 3 through 5. Change in CIR scores were significantly and positively associated with the self-distraction ($r=0.25$, $p=.025$) and behavioral disengagement subscales of the Brief COPE ($r=0.22$, $p=.046$). When entered into the regression analysis, the overall model for change in CIR scores was statistically significant ($F(2, 77) = 3.63$, $p=.031$), such that 9% of the variance in CIR change scores was explained by the predictor variables. Focused tests were non-significant ($ps > .05$; see Table 6).

Change in SI-R scores were positively and significantly associated with the maintenance subscale of the URICA ($r=0.29$, $p=.026$) as well as with readiness for change ($r=0.33$, $p=.011$). No other variables were significantly associated with SI-R change (all $ps > .05$). Because the readiness for change subscale is a composite score using the maintenance subscale, only the maintenance subscale of the URICA was entered into the final regression model. The overall regression model for change in SI-R scores was significant ($F(1, 58) = 5.24$, $p=.026$). Specifically, 8% of the variance in SI-R change scores was explained by the maintenance scale. The focused t -test was significant ($t=2.29$, $p=.026$; see Table 6).

6.3. Predictors of treatment attrition

Exploratory analyses using demographic and clinical variables collected at baseline were conducted to identify predictors of treatment attrition. Chi square and *t* statistics are presented in Table 3. No demographic variables were associated with treatment attrition. Among psychosocial variables, those who dropped from treatment scored significantly higher on the Brief COPE denial subscale at baseline ($t = -2.80, p = .006$). Furthermore, those with greater baseline clutter on the CIR were more likely to drop out of treatment ($t = -2.79, p = .006$). When baseline CIR and Brief COPE denial subscale scores were entered into a multiple logistic regression model predicting drop status, the overall model was significant ($X^2(2) = 13.86, p = .001$), as well as each individual predictor (both $ps < .05$; see Table 5). Predictor variables explained 13% of the variance in treatment attrition.

7. Discussion

This investigation is one of a few to examine predictors of treatment improvement and attrition in HD. In contrast with Muroff et al.'s findings (2014), gender and other demographic variables were not associated with symptom improvement or attrition in our investigation. Instead, higher levels of avoidant coping (i.e., self-distraction and behavioral disengagement) significantly predicted symptom improvement. The maintenance stage of change along with elevated readiness for change significantly predicted symptom improvement. Finally, higher baseline levels of denial and clutter independently predicted treatment attrition.

Avoidant coping has been shown to be ineffective at managing distress (Folkman & Moskowitz, 2004). Our finding that greater use of certain dysfunctional coping strategies (i.e., self-distraction and behavioral disengagement) at baseline was positively associated with and significantly predicted symptom improvement supports the inhibitory learning model of exposure-based treatments (Jacoby & Abramowitz, 2016). Others have also found that individuals who use avoidant coping strategies to deal with trauma before treatment may be particularly good candidates for interventions that encourage exposure to traumatic memories and benefit more from such therapies than those who do not rely as heavily on avoidant coping strategies (Liener, Kearns, Jackson, Astin, & Rothbaum, 2012). The psychotherapy in this study used exposure to target avoidance of sorting and discarding items. While in treatment, participants were no longer engaging in dysfunctional coping strategies and instead were asked to experientially learn that they can survive sorting and discarding. However, this is in contrast to the broader OCD literature that has shown an association between maladaptive coping and avoidance with poor insight (Moritz et al., 2018) and lower symptom change (Tolin, 2011).

Our findings that higher maintenance stage and composite readiness for change scores significantly predicted symptom improvement is consistent with prior treatment research for individuals with HD (Tolin, 2011; Tolin et al., 2007; Worden et al., 2014, 2017) as well as those with other obsessive-compulsive-spectrum disorders (Greenberg, Phillips, Steketee & Wilhelm, 2019; Pinto, Pinto, Neziroglu, & Yaryura-Tobias, 2007; Steketee et al., 2011). For an individual with HD, readiness for change may be spurred by internal motivation such as a desire to spend time with family or external motivation such as an intervention from code

enforcement. Change through psychotherapy is often difficult and emotionally taxing, requiring months of consistent effort. As such, it follows that a higher degree of motivation and readiness may be necessary for change. During the maintenance stage of change, individuals actively seek to maintain therapeutic skills and bolster treatment gains. Following some initial action, such as treatment engagement or completion, these individuals consistently engage in behaviors that are incompatible with relapse (Prochaska & Norcross, 2001). For HD, maintenance behaviors might involve scheduling time every day to sort and discard items. Integrating an intervention that targets increasing readiness for change, such as motivational interviewing (MI), with HD treatment might result in improved treatment response and should be explored in further research with HD. MI augmented behavior therapy has already been implemented with children and adults with OCD (Merlo et al., 2010; Simpson, Zuckoff, Page, Franklin & Foa, 2008) as well as in one trial with HD individuals (Tolin et al., 2019).

Treatment retention for HD is far from ideal (Ivanov et al., 2017). Limited insight and a belief that hoarding symptoms are normal behavior have been described as potential sources of interference with treatment completion (Christensen & Greist, 2001). Furthermore, hoarding severity is often associated with premature dropout and poor treatment prognosis (Christensen & Greist, 2001; Mataix-Cols, Marks, Greist, Kobak, & Baer, 2002). Dropout rates for HD are at or above what is found in CBT trials for OCD (Ayers et al., 2015; Ong, Clyde, Bluett, Levin, & Twohig, 2016), yet research into what predicts treatment drop is scarce. In addition to attrition, more research is needed to understand the rates, correlates, and predictors of other types of treatment noncompliance in HD. Consistent with the limited research, we found that participants who dropped from treatment had significantly higher baseline levels of denial and hoarding severity (as evidenced by degree of clutter), and both independently predicted treatment attrition.

These findings have important implications for HD treatment. An individual's unique coping style might influence their response to certain aspects of treatment. Incorporating psychoeducation around adaptive emotion regulation strategies including awareness and acceptance may also be indicated for individuals with HD who rely on maladaptive coping strategies (Taylor, Theiler, Nedeljkovic & Moulding, 2019). Motivation is integral to treatment success. MI and problem solving could improve initial engagement as well as treatment retention for those with low motivation and insight. Furthermore, determining a patient's stage of change might better inform treatment decisions, such that those who identify with an earlier stage of change might require pre-treatment or additional motivational enhancement. In addition, those with severe levels of clutter may require ancillary services to improve treatment response. Ultimately, an evidence-based means of tailoring HD treatment for the individual could improve modest outcomes.

This study is not without its shortcomings. Specifically, we examined a limited number of demographic variables and clinical measures, thus this investigation does not represent an exhaustive overview of predictors of treatment improvement and attrition in HD. We used the Brief COPE denial subscale which is an imperfect proxy for insight. The sample size was relatively small; larger, and more demographically diverse investigations need to occur before any firm conclusions can be drawn about the specific predictive variables which

affect treatment response and attrition. There is a significant limitation with our inability to determine if age or treatment modality (group or individual) impacted the results. Our method of examining change (i.e., a simple raw difference score) may have influenced the outcomes. Specifically, our finding that higher maintenance stage significantly predicted symptom improvement on the SI-R may have been influenced by the significant correlation between baseline scores on the SI-R and the maintenance subscale of the URICA. Likewise, our finding that behavioral disengagement predicted CIR change may have been affected by the significant association between baseline CIR scores and the behavioral disengagement subscale of the Brief COPE. Finally, due to the exploratory nature of these analyses, we elected not to control for multiple comparisons. Due to the large number of comparisons conducted in this investigation (99 main examinations for 7 significant findings), it cannot be ruled out that our findings are spurious and may not be replicable. Our hope is that future investigations will be able to use a more focused strategy to replicate our significant findings.

8. Conclusions

The findings from this study suggest that emotion-related constructs, such as managing stress and motivation for change, may play an important role in patients' responses to and participation in HD treatment. Furthermore, these results along with others suggest that we have not yet discovered an optimal treatment for HD. Additional work, including large randomized-controlled trials, is needed to further inform and improve treatment for HD.

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References

- American Psychiatric Association (2013). *Diagnostic and statistical manual of mental health disorders: DSM-5* (5th ed.). Washington, DC: American Psychiatric Publishing.
- Ayers CR, Dozier ME, & Mayes TL (2017). Psychometric evaluation of the saving inventory-revised in older adults. *Clinical Gerontologist*, 40, 191–196. 10.1080/07317115.2016.1267056. [PubMed: 28452663]
- Ayers CR, Dozier ME, Mayes TL, Espejo EP, Wilson A, Iqbal Y, et al. (2015). Treatment recruitment and retention of geriatric participants with hoarding disorder. *Clinical Gerontologist*, 38, 235–250. 10.1080/07317115.2015.1032467. [PubMed: 29386745]
- Ayers CR, Dozier ME, Taylor CT, Mayes TL, Pittman JOE, & Twamley EW (2018a). Group cognitive rehabilitation and exposure/sorting therapy: A pilot program. *Cognitive Therapy and Research*, 42, 315–327. 10.1007/s10608-01798781.
- Ayers CR, Dozier ME, Twamley EW, Granholm E, Saxena S, Mayes TL, et al. (2018b). Cognitive rehabilitation and exposure/sorting therapy for hoarding disorder among older adults: A randomized controlled trial. *Journal Of Clinical Psychiatry*, 79, 85–93. 10.4088/JCP.16m11072.
- Ayers CR, Saxena S, Espejo E, Twamley EW, Granholm E, & Wetherell JL (2014). Novel treatment for geriatric hoarding disorder: An open trial of cognitive rehabilitation paired with behavior therapy. *American Journal of Geriatric Psychiatry*, 22, 248–252. 10.1016/j.jagp.2013.02.010. [PubMed: 23831173]

- Ayers CR, Wetherell JL, Golshan S, & Saxena S (2011). Cognitive-behavioral therapy for geriatric compulsive hoarding. *Behaviour Research and Therapy*, 49, 689–694. 10.1016/j.brat.2011.07.002. [PubMed: 21784412]
- Bodryzlova Y, Audet JS, Bergeron K, & O'Connor K (2019). Group cognitive-behavioural therapy for hoarding disorder: Systematic review and meta-analysis. *Health and Social Care in the Community*, 27, 517–530. 10.1111/hsc.12598. [PubMed: 30033635]
- Carter JD, McIntosh VV, Jordan J, Porter RJ, Frampton CM, & Joyce PR (2013). Psychotherapy for depression: A randomized clinical trial comparing schema therapy and cognitive behavior therapy. *Journal of Affective Disorders*, 151, 500–505. 10.1016/j.jad.2013.06.034. [PubMed: 23870427]
- Carver CS (1997). You want to measure coping but your protocol's too long: Consider the brief cope. *International Journal of Behavioral Medicine*, 4, 92–100. 10.1207/s15327558ijbm0401_6. [PubMed: 16250744]
- Christensen DD, & Greist JH (2001). The challenge of obsessive-compulsive disorder hoarding. *Primary Psychiatry*, 8, 79–86.
- Cuijpers P, Sijbrandij M, Koole SL, Andersson G, Beekman AT, & Reynolds CF (2014). Adding psychotherapy to antidepressant medication in depression and anxiety disorders: A meta-analysis. *World Psychiatry*, 13, 56–67. 10.1002/wps.20089. [PubMed: 24497254]
- Damecour CL, & Charron M (1998). Hoarding. *Journal of Clinical Psychiatry*, 59, 267–272. 10.4088/jcp.v59n0512. [PubMed: 9632043]
- Dozier ME, & Ayers CR (2015). Validation of the clutter image rating in older adults with hoarding disorder. *International Psychogeriatrics*, 27, 769–776. 10.1017/S1041610214002403. [PubMed: 25391419]
- Dozois DJ, Westra HA, Collins KA, Fung TS, & Garry JK (2004). Stages of change in anxiety: Psychometric properties of the university of Rhode Island change assessment (URICA) scale. *Behaviour Research and Therapy*, 42, 711–729. 10.1016/S0005-7967(03)00193-1. [PubMed: 15081886]
- Field CA, Adinoff B, Harris TR, Ball SA, & Carroll KM (2009). Construct, concurrent and predictive validity of the URICA: Data from two multi-site clinical trials. *Drug and Alcohol Dependence*, 101, 115–123. 10.1016/j.drugalcdep.2008.12.003. [PubMed: 19157723]
- Folkman S, & Moskowitz JT (2004). Coping: Pitfalls and promise. *Annual Review of Psychology*, 55, 745–774. 10.1146/annurev.psych.55.090902.141456.
- Frost RO, Pekareva-Kochergina A, & Maxner S (2011). The effectiveness of a bibliobased support group for hoarding disorder. *Behaviour Research and Therapy*, 49, 628–634. <https://doi.org/10.1016/j.brat.2011.06.010>. [PubMed: 21831357]
- Frost RO, Ruby D, & Shuer LJ (2012). The buried in treasures workshop: Waitlist control trial of facilitated support groups for hoarding. *Behaviour Research and Therapy*, 50, 661–667. 10.1016/j.brat.2012.08.004. [PubMed: 22982080]
- Frost RO, Steketee G, & Grisham J (2004). Measurement of compulsive hoarding: Saving inventory-revised. *Behaviour Research and Therapy*, 42, 1163–1182. 10.1016/j.brat.2003.07.006. [PubMed: 15350856]
- Frost RO, Steketee G, Tolin DF, & Renaud S (2008). Development and validation of the clutter image rating. *Journal of Psychopathology and Behavioral Assessment*, 30, 193–203. 10.1007/s10862-007-9068-7.
- Frost RO, Steketee G, & Williams L (2000). Hoarding: A community health problem. *Health and Social Care in the Community*, 8, 229–234. 10.1046/j.1365-2524.2000.00245.x. [PubMed: 11560692]
- Frost RO, Tolin DF, & Maltby N (2010). Insight-related challenges in the treatment of hoarding. *Cognitive and Behavioral Practice*, 17, 404–413. 10.1016/j.cbpra.2009.07.004.
- Gilliam CM, Norberg MM, Villavicencio A, Morrison S, Hannan SE, & Tolin DF (2011). Group cognitive behavioral therapy for hoarding disorder: An open trial. *Behaviour Research and Therapy*, 49, 802–807. 10.1016/j.brat.2011.08.008. [PubMed: 21925643]
- Greenberg JL, Phillips KA, Steketee G, Hoepfner SS, & Wilhelm S (2019). Predictors of response to cognitive-behavioral therapy for body dysmorphic disorder. *Behavior Therapy*. 10.1016/j.beth.2018.12.008.

- Grisham JR, Frost RO, Steketee G, Kim H, & Hood S (2006). Age of onset of compulsive hoarding. *Journal of Anxiety Disorders*, 20, 675–686. 10.1016/j.janxdis.2005.07.004. [PubMed: 16112837]
- Gross JJ, & John OP (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal Of Personality and Social Psychology*, 85, 348–362. 10.1037/0022-3514.85.2.348. [PubMed: 12916575]
- Ivanov VZ, Nordsletten A, Mataix-Cols D, Serlachius E, Lichtenstein P, Lundstrom S, et al. (2017). Heritability of hoarding symptoms across adolescence and young adulthood: A longitudinal twin study. *PLoS One*, 12, e0179541 10.1371/journal.pone.0179541. [PubMed: 28658283]
- Jacoby RJ, & Abramowitz JS (2016). Inhibitory learning approaches to exposure therapy: A critical review and translation to obsessive-compulsive disorder. *Clinical Psychology Review*, 49, 28–40. 10.1016/j.cpr.2016.07.001. [PubMed: 27521505]
- Kashyap H, Fontenelle LF, Miguel EC, Ferr-o YA, Torres AR, Shavitt RG, et al. (2012). ‘Impulsive compulsivity’ in obsessive-compulsive disorder: A phenotypic marker of patients with poor clinical outcome. *Journal of Psychiatric Research*, 46, 1146–1152. 10.1016/j.jpsychires.2012.04.022. [PubMed: 22647523]
- Kim H, Steketee G, & Frost RO (2001). Hoarding by elderly people. *Health & Social Work*, 26, 176–184. 10.1093/hsw/26.3.176. [PubMed: 11531193]
- Leiner AS, Kearns MC, Jackson JL, Astin MC, & Rothbaum BO (2012). Avoidant coping and treatment outcome in rape-related posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, 80, 317–321. 10.1037/a0026814. [PubMed: 22229757]
- Levy HC, Worden BL, Gilliam CM, D'Urso C, Steketee G, Frost RO, et al. (2017). Changes in saving cognitions mediate hoarding symptom change in cognitive-behavioral therapy for hoarding disorder. *Journal of Obsessive–Compulsive and Related Disorders*, 14, 112–118. 10.1016/j.jocrd.2017.06.008. [PubMed: 29170732]
- Lewin AB, De Nadai AS, Park J, Goodman WK, Murphy TK, & Storch EA (2011). Refining clinical judgment of treatment outcome in obsessive-compulsive disorder. *Psychiatry Research*, 185, 394–401. 10.1016/j.psychres.2010.08.021. [PubMed: 20846725]
- Mataix-Cols D, Marks IM, Greist JH, Kobak KA, & Baer L (2002). Obsessive-compulsive symptom dimensions as predictors of compliance with and response to behaviour therapy: Results from a controlled trial. *Psychotherapy and Psychosomatics*, 71, 255–262. 10.1159/000064812. [PubMed: 12207105]
- Mataix-Cols D, Frost RO, Pertusa A, Clark LA, Saxena S, Leckman JF, et al. (2010). Hoarding disorder: A new diagnosis for DSM-V? *Depression and Anxiety*, 27, 556–572. 10.1002/da.20693. [PubMed: 20336805]
- McConaughy EA, Prochaska JO, & Velicer WF (1983). Stages of change in psychotherapy: Measurement and sample profiles. *Psychotherapy Theory Research and Practice*, 20, 368–375. 10.1037/h0090198.
- Merlo LJ, Storch EA, Lehmkuhl HD, Jacob ML, Murphy TK, Goodman WK, et al. (2010). Cognitive behavioral therapy plus motivational interviewing improves outcome for pediatric obsessive-compulsive disorder: A preliminary study. *Cognitive Behaviour Therapy*, 39, 24–27. 10.1080/16506070902831773. [PubMed: 19675960]
- Moritz S, Fink J, Miegel F, Nitsche K, Kraft V, Tonn P, et al. (2018). Obsessive-compulsive disorder is characterized by a lack of adaptive coping rather than an excess of maladaptive coping. *Cognitive Therapy and Research*, 42, 650–660. 10.1007/s1060.
- Murofif J, Steketee G, Bratitiotis C, & Ross A (2012). Group cognitive and behavioral therapy and bibliotherapy for hoarding: A pilot trial. *Depression and Anxiety*, 29, 597–604. 10.1002/da.21923. [PubMed: 22447579]
- Murofif J, Steketee G, Frost RO, & Tolin DF (2014). Cognitive behavior therapy for hoarding disorder: Follow-up findings and predictors of outcomes. *Depression and Anxiety*, 31, 964–971. 10.1002/da.22222. [PubMed: 24277161]
- Murofif J, Steketee G, Rasmussen J, Gibson A, Bratitiotis C, & Sorrentino C (2009). Group cognitive and behavioral treatment for compulsive hoarding: A preliminary trial. *Depression and Anxiety*, 26, 634–640. 10.1002/da.20591. [PubMed: 19569229]

- Ong CW, Clyde JW, Bluett EJ, Levin ME, & Twohig MP (2016). Dropout rates in exposure with response prevention for obsessive-compulsive disorder: What do the data really say? *Journal of Anxiety Disorders*, 40, 8–17. 10.1016/j.janxdis.2016.03.006. [PubMed: 27061971]
- Pinto A, Pinto AM, Neziroglu F, & Yaryura-Tobias JA (2007). Motivation to change as a predictor of treatment response in obsessive compulsive disorder. *Annals Of Clinical Psychiatry*, 19, 83–87. 10.1080/10401230701334747. [PubMed: 17612847]
- Prochaska JO, & Norcross JC (2001). Stages of change. *Psychotherapy: Theory, Research, Practice, Training* 38, 443–448. 10.1037/0033-3204.38.4.443.
- Simpson HB, Zuckoff A, Page JR, Franklin ME, & Foa EB (2008). Adding motivational interviewing to exposure and ritual prevention for obsessive-compulsive disorder: An open pilot trial. *Cognitive Behaviour Therapy*, 37, 38–49. 10.1080/16506070701743252. [PubMed: 18365797]
- StataCorp (2017). *Stata statistical software: Release 15*. College Station, TX: StataCorp LLC.
- Steketee G, & Frost RO (2007). *Compulsive hoarding and acquiring Therapist guide*. New York: Oxford University Press.
- Steketee G, Frost RO, Tolin DF, Rasmussen J, & Brown TA (2010). Waitlist-controlled trial of cognitive behavior therapy for hoarding disorder. *Depression and Anxiety*, 27, 476–484. 10.1002/da.20673. [PubMed: 20336804]
- Steketee G, Frost RO, Wincze J, Greene KA, & Douglass H (2000). Group and individual treatment of compulsive hoarding: A pilot study. *Behavioural and Cognitive Psychotherapy*, 28, 259–268. 10.1017/s135246580003064.
- Steketee G, Siev J, Fama JM, Keshaviah A, Chosak A, & Wilhelm S (2011). Predictors of treatment outcome in modular cognitive therapy for obsessive-compulsive disorder. *Depression and Anxiety*, 28, 333–341. 10.1002/da.20785. [PubMed: 21308884]
- Taylor JK, Theiler S, Nedeljkovic M, & Moulding R (2019). A qualitative analysis of emotion and emotion regulation in hoarding disorder. *Journal of Clinical Psychology*, 75, 520–545. 10.1002/jclp.22715. [PubMed: 30431647]
- Teri L, Logsdon RG, Uomoto J, & McCurry SM (1997). Behavioral treatment of depression in dementia patients: A controlled clinical trial. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 52B, P159–P166. 10.1093/geronb/52b.4.p159.
- Tolin DF (2011). Understanding and treating hoarding: A biopsychosocial perspective. *Journal of Clinical Psychology*, 67, 517–526. 10.1002/jclp.20795. [PubMed: 21360705]
- Tolin DF, Fitch KE, Frost RO, & Steketee G (2008). Family informants' perceptions of insight in compulsive hoarding. *Cognitive Therapy and Research*, 34, 69–81. 10.1007/s10608-008-9217-7.
- Tolin DF, Frost RO, & Steketee G (2007). An open trial of cognitive-behavioral therapy for compulsive hoarding. *Behaviour Research and Therapy*, 45, 1461–1470. 10.1016/j.brat.2007.01.001. [PubMed: 17306221]
- Tolin DF, Frost RO, Steketee G, & Murofif J (2015). Cognitive behavioral therapy for hoarding disorder: A meta-analysis. *Depression and Anxiety*, 32, 158–166. 10.1002/da.22327. [PubMed: 25639467]
- Tolin DF, Wootton BM, Levy HC, Hallion LS, Worden BL, Diefenbach GJ, et al. (2019). Efficacy and mediators of a group cognitive-behavioral therapy for hoarding disorder: A randomized trial. *Journal of Consulting and Clinical Psychology*. 10.1037/ccp0000405.
- Turner K, Steketee G, & Nauth L (2010). Treating elders with compulsive hoarding: A pilot program. *Cognitive and Behavioral Practice*, 17, 449–457. 10.1016/j.cbpra.2010.04.001.
- Wetherell JL, Lenze EJ, & Stanley MA (2005). Evidence-based treatment of geriatric anxiety disorders. *Psychiatric Clinics of North America*, 28, 871–896. 10.1016/j.psc.2005.09.006. [PubMed: 16325733]
- Worden BL, Bowe WM, & Tolin DF (2017). An open trial of cognitive behavioral therapy with contingency management for hoarding disorder. *Journal of Obsessive-Compulsive and Related Disorders*, 12, 78–86. 10.1016/j.jocrd.2016.12.005.
- Worden BL, DiLoreto J, & Tolin DF (2014). Insight and motivation. *Oxford Handbooks Onfr'ne* 10.1093/oxfordhb/9780199937783.013.017.
- Zigmond AS, & Snaith RP (1983). The hospital anxiety and depression scale. *Acta Psychiatrica Scandinavica*, 67, 361–370. [PubMed: 6880820]

Table 1

Descriptive statistics of baseline study variables.

	Full Sample (N = 106)	Completers (n = 83)	Drops (n = 23)	t/ χ^2 ; p value
Age, mean (SD)	62.08 (9.43)	61.84 (9.40)	62.96 (9.74)	t = -.5; p = .62
Gender – Female, n (%)	77 (72.64)	58 (69.88)	19 (82.61)	$\chi^2 = 1.47$; p = .23
Race – Caucasian, n (%)	84 (80.00)	68 (81.93)	16 (72.73)	$\chi^2 = .92$; p = .34
Education, mean (SD)	9.64 (5.63)	9.95 (5.70)	8.56 (4.98)	t = 1.05; p = .29
Marital Status – Married, n (%)	26 (24.76)	21 (25.3)	5 (22.73)	$\chi^2 = .06$; p = .80
Employment Status – Unemployed, n (%)	65 (62)	51 (61.45)	14 (63.64)	$\chi^2 = .04$; p = .85
Medical Illnesses, mean (SD)	2.72 (2.15)	2.65 (1.90)	2.96 (2.88)	t = -.60; p = .55
HADS-A, mean (SD)	9.94 (4.13)	9.57 (4.21)	11.36 (3.54)	t = -1.84; p = .07
HADS-D, mean (SD)	8.30 (4.5)	7.89 (4.16)	9.86 (5.45)	t = -1.84; p = .07
SI-R, mean (SD)	55.54 (10.32)	54.90 (9.76)	57.95 (12.16)	t = -1.24; p = .23
CIR, mean (SD)	4.18 (1.75)	3.95 (1.79)	5.06 (1.22)	t = -2.79; p = .01
ERQ Cognitive Reappraisal, mean (SD)	27.47(6.89)	27.41 (6.63)	27.74 (8.01)	t = -.18; p = .85
ERQ Expressive Suppression, mean (SD)	12.58 (4.75)	12.49 (4.66)	12.95 (5.20)	t = -.38; p = .71
URICA Precontemplation, mean (SD)	1.31 (.377)	1.32 (.399)	1.24 (.301)	t = .85; p = .40
URICA Contemplation, mean (SD)	4.60 (.409)	4.58 (.42)	4.68 (.389)	t = -.94; p = .35
URICA Action, mean (SD)	3.96 (.651)	3.40 (.607)	3.89 (.788)	t = .59; p = .56
URICA Maintenance, mean (SD)	3.51 (.884)	3.52 (.864)	3.45 (.964)	t = .31; p = .76
URICA Readiness, mean (SD)	10.74 (1.62)	10.76 (1.66)	10.68 (1.52)	t = .18; p = .86
BC Self-Distract	4.19 (1.57)	4.12 (1.63)	4.45 (1.34)	t = -.89; p = .38
BC Active Coping	3.46 (1.47)	3.45 (1.35)	3.5 (1.87)	t = -.15; p = .88
BC Denial	.952 (1.42)	.76 (1.15)	1.68 (2.01)	t = -2.80; p = .01
BC Substance Use	.514 (1.29)	.482 (1.27)	.636 (1.40)	t = -.50; p = .62
BC Use of Emotional Support	2.68 (1.62)	2.66 (1.53)	2.73 (1.96)	t = -.17; p = .87
BC Use of instrumental support	2.961 (1.68)	2.96 (1.57)	2.95 (2.08)	t = .02; p = .98
BC Behavioral Disengagement	2.22 (1.82)	2.05 (1.76)	2.86 (1.91)	t = -1.89; p = .06
BC Venting	2.48 (1.51)	2.45 (1.48)	2.59 (1.62)	t = -.40; p = .69
BC Positive Reframing	2.70 (1.77)	2.66 (1.76)	2.86 (1.83)	t = -.47; p = .64
BC Planning	4.15 (1.59)	4.18 (1.49)	4.05 (1.94)	t = .35; p = .72

	Full Sample (N = 106)	Completers (n = 83)	Drops (n = 23)	<i>t</i> / <i>s²</i> ; <i>p</i> value
BC Humor	1.94 (1.80)	1.95 (1.75)	1.91 (2.04)	<i>t</i> = .10; <i>p</i> = .92
BC Acceptance	3.63 (1.33)	3.60 (1.29)	3.73 (1.52)	<i>t</i> = -.39; <i>p</i> = .70
BC Religion	2.50 (2.17)	2.52 (2.16)	2.41 (2.26)	<i>t</i> = .21; <i>p</i> = .84
BC Self-Blame	3.78 (1.82)	3.67 (1.78)	4.18 (1.97)	<i>t</i> = -1.16; <i>p</i> = .25

Notes: Significant differences by completer status are represented in boldface. CIR = Clutter Image Rating; HADS = Hospital Anxiety and Depression Scale; SI-R = Saving Inventory-Revised.

Table 2

Descriptive statistics of baseline, post-treatment, and change scores for the SI-R and CIR.

	Baseline		Post-Treatment		Change	
	Mean	SD	Mean	SD	Mean	SD
Total SI-R	54.90	9.76	42.27	13.20	12.73	10.97
CIR	3.95	1.79	3.07	1.72	.897	1.22

Notes:

* $p < 0.05$;

** $p < 0.01$;

CIR = Clutter Image Rating; SI-R = Saving Inventory–Revised.

Table 3

Correlations, *t* tests, and chi square tests between SI-R and CIR change, treatment attrition, and demographic and clinical variables.

	SI-R Change	CIR Change	Drop Status
Age	$r = .02$	$r = .08$	$t = -.50$
Gender	$t = .77$	$t = .44$	$\chi^2 = 1.47$
Race	$t = 1.33$	$t = 1.30$	$\chi^2 = .92$
Education level	$r = -.21$	$r = -.07$	$t = 1.05$
Marital status	$t = .83$	$t = 1.72$	$\chi^2 = .06$
Employment status	$t = -.18$	$t = 1.57$	$\chi^2 = .04$
Number of medical illnesses	$r = -.01$	$r = -.19$	$t = -.60$
Mobility	$r = -.01$	$r = .15$	$t = -1.21$
HADS-A	$r = .12$	$r = .15$	$t = -1.84$
HADS-D	$r = .09$	$r = .09$	$t = -1.84$
Total SI-R	$r = .19$	$r = .14$	$t = -1.24$
CIR	$r = -.17$	$r = .41^{**} (p = .000)$	$t = -2.79^{**} (p = .006)$

Notes:

* $p < 0.05$;

** $p < 0.01$;

BC = Brief COPE; CIR = Clutter Image Rating; ERQ = Emotion Regulation Questionnaire; HADS = Hospital Anxiety and Depression Scale; SI-R = Saving Inventory-Revised; URICA = University of Rhode Island Change Assessment Questionnaire.

Table 4

Correlations and *t* tests between SI-R and CIR change, treatment attrition, and ERQ and URICA scores.

	SI-R Change	CIR Change	Drop Status
ERQ Cognitive Reappraisal	$r = .06$	$r = -.02$	$t = -.18$
ERQ Expressive Suppression	$r = .06$	$r = .00$	$t = -.38$
URICA Precontemplation	$r = -.20$	$r = -.02$	$t = .85$
URICA Contemplation	$r = .14$	$r = .01$	$t = -.94$
URICA Action	$r = .24$	$r = .16$	$t = .59$
URICA Maintenance	$r = .29^*$ ($p = .026$)	$r = .15$	$t = .31$
URICA Readiness	$r = .33^*$ ($p = .011$)	$r = .15$	$t = .18$

Notes:

*
 $p < 0.05$;

**
 $p < 0.01$;

CIR = Clutter Image Rating; ERQ = Emotion Regulation Questionnaire; SI-R = Saving Inventory-Revised; URICA = University of Rhode Island Change Assessment Questionnaire.

Table 5Correlations and *t* tests between SI-R and CIR change, treatment attrition, and Brief COPE (BC) scores.

	SI-R Change	CIR Change	Drop Status
BC Self-Distraction	$r = .16$	$r = .25^*$ ($p = .025$)	$t = -.89$
BC Active Coping	$r = -.03$	$r = -.03$	$t = -.15$
BC Denial	$r = .14$	$r = -.04$	$t = -2.80^{**}$ ($p = .006$)
BC Substance Use	$r = -.18$	$r = -.03$	$t = -.50$
BC Use of Emotional Support	$r = -.07$	$r = -.16$	$t = -.17$
BC Use of instrumental support	$r = -.06$	$r = -.15$	$t = .02$
BC Behavioral Disengagement	$r = .13$	$r = .22^*$ ($p = .046$)	$t = -1.89$
BC Venting	$r = -.05$	$r = .13$	$t = -.40$
BC Positive Reframing	$r = -.12$	$r = -.04$	$t = -.47$
BC Planning	$r = -.10$	$r = .02$	$t = .35$
BC Humor	$r = -.11$	$r = .03$	$t = .10$
BC Acceptance	$r = -.05$	$r = .06$	$t = -.39$
BC Religion	$r = .07$	$r = .13$	$t = .21$
BC Self-Blame	$r = -.04$	$r = .05$	$t = -1.16$

Notes:

*
 $p < 0.05$;**
 $p < 0.01$;

CIR = Clutter Image Rating; SI-R = Saving Inventory-Revised.

Table 6

Regression analyses evaluating predictors of symptom change and treatment attrition.

Outcome Variable	Predictor Variable	$R^2/Pseudo R^2$	β OR	SE	<i>t</i> / <i>z</i>	<i>p</i>	95% CI
SI-R Change	URICA Maintenance	0.08	3.75	1.64	2.29	.026	[-.471, -7.03]
CIR Change	BC Behavioral Disengagement	0.09	.117	.083	1.41	.163	[-.05, .28]
	BC Self-Distracton		.151	.086	1.75	.083	[-.02, .32]
Drop Status	Baseline CIR	0.13	1.47	.146	2.65	.008	 [.10, .67]
	BC Denial		1.54	.167	2.59	.010	 [.11, .76]

Notes: R^2 and *Pseudo R*² tests significant at $\alpha = 0.05$ are in boldface. CI = Confidence Interval; BC = Brief COPE; CIR = Clutter Image Rating; SI-R = Saving Inventory-Revised; URICA = University of Rhode Island Change Assessment Questionnaire.