
11-1-2012

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Recommended Citation

Frost, Randy O.; Ruby, Dylan; and Shuer, Lee J., "The Buried in Treasures Workshop: Waitlist Control Trial of Facilitated Support Groups for Hoarding" (2012). Psychology: Faculty Publications, Smith College, Northampton, MA.
https://scholarworks.smith.edu/psy_facpubs/48

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Published in final edited form as:

Behav Res Ther. 2012 November ; 50(11): 661–667. doi:10.1016/j.brat.2012.08.004.

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Abstract

Hoarding is a serious form of psychopathology that has been associated with significant health and safety concerns, as well as the source of social and economic burden (Tolin, Frost, Steketee, Gray, & Fitch, 2008a; Tolin, Frost, Steketee, & Fitch, 2008b). Recent developments in the treatment of hoarding have met with some success for both individual and group treatments. Nevertheless, the cost and limited accessibility of these treatments leave many hoarding sufferers without options for help. One alternative is support groups that require relatively few resources. Frost et al. (2009) reported significant declines in hoarding symptoms following a non-professionally run 13-week support group (The Buried in Treasures [BIT] Workshop). The BIT Workshop is a highly structured and short term support group. The present study extended these findings by reporting on the results of a waitlist control trial of the BIT Workshop. Significant declines in all hoarding symptoms measures were observed compared to a waitlist control. The treatment response rate for the BIT Workshop was similar to that obtained by previous individual and group treatment studies, despite its shorter length and lack of a trained therapist. The BIT Workshop may be an effective adjunct to cognitive behavior therapy for hoarding disorder, or an alternative when cognitive behavior therapy is inaccessible.

Keywords

Hoarding; Hoarding Disorder; Support Group; Bibliotherapy

The past 5 years have shown a remarkable growth in the number of studies of hoarding behavior. This work has prompted the American Psychiatric Association to consider hoarding for inclusion as a new disorder in DSM-5 (Mataix-Cols et al., 2010). Hoarding disorder is characterized by the acquisition of, and failure to discard, a large volume of possessions resulting in substantial clutter that impairs use of the living areas of the home

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(Frost & Hartl, 1996; Mataix-Cols et al., 2010). The consequences of hoarding can be severe, including the inability to maintain basic activities of living such as personal hygiene, sanitary living conditions, and ability to move about the home (Tolin, Frost, Steketee, Gray, & Fitch, 2008a). Both the health and safety of the sufferer as well as those living nearby can be put in jeopardy, and reports of death due to hoarding are not uncommon (Frost & Steketee, 2010). Financial costs can be high as well. The San Francisco Hoarding Task Force estimated financial costs of hoarding in San Francisco to be over 6 million dollars per year (San Francisco Task Force on Compulsive Hoarding, 2009). Family relationships and work environments are frequent casualties of serious hoarding problems (Tolin, Frost, Steketee, & Fitch, 2008b). The serious consequences of hoarding are magnified by the surprisingly high prevalence rates which range from 2.3 to nearly 6% of the population (Samuels et al., 2008; Timpano et al., 2011). More than 75 communities throughout the U.S. have developed hoarding task forces to deal with the problem (Bratitotis, Schmalisch, & Steketee, 2011). These groups are made up of officials from health, housing, elder, and other social service agencies, all of whom see large numbers of hoarding cases. Motivation for the development of such groups comes from the difficulties experienced in trying to change hoarding behaviors.

Early investigations of treatment response have indicated that hoarding symptoms are highly treatment-resistant (Steketee & Frost, 2003). Cognitive behavior therapy that has been successful in treating obsessive compulsive disorder (OCD) has not proven useful in treating hoarding (Abramowitz, Franklin, Schwartz, & Furr, 2003). However, individual cognitive behavior therapy tailored for hoarding has shown some promise. In an open trial of cognitive behavior therapy for hoarding, Tolin, Frost, and Steketee (2007a) reported significant improvement in 10 patients following 26 treatment sessions with monthly home visits. Half of the patients were rated “much” or “very much” improved by an assessor. Saving Inventory – Revised (SI-R) scores declined by 28% (19 points). Steketee, Frost, Tolin, Rasmussen, and Brown (2010) found this treatment to significantly improve hoarding symptoms compared to a waitlist, with two-thirds of the patients rated as “much” or “very much” improved by an assessor. SI-R scores declined by 28% (17 points), while the Hoarding Rating Scale (HRS) declined by 39% (11 points). Ayers, Wetherell, Golshan, and Saxena, (2011) reported less favorable outcomes with a sample of hoarding elderly, however. The SI-R decline with treatment in this open trial was only 20% (12 points).

One drawback of individual cognitive behavior therapy for hoarding is that it is lengthy and labor intensive. Several investigations have attempted to use group therapy for hoarding to reduce the cost. Muroff et al. (2009b) reported up to a 22% decline (14 points) on the SI-R following 16 group sessions with two home visits in a small open trial. Gilliam et al. (2011) reported a 27% decline in SI-R scores (17 points) following 16-20 sessions of group cognitive behavior therapy without home visits in an open trial with 35 patients. Muroff, Steketee, Bratitotis, and Ross (in press) compared 20 weekly sessions of group cognitive behavior therapy with or without four home visits to patients doing bibliotherapy on their own. The bibliotherapy group was given a self-help book, *Buried in Treasures: Help for compulsive acquiring, saving, and hoarding* (Tolin, Frost, & Steketee, 2007b) and instructed to study the book, but no further instructions or contact ensued until the posttest. Both treatment groups showed significant declines on the SI-R (23 - 30%) and the HRS (25-35%) while the bibliotherapy group did not change significantly from pre to post (9% decline). Home visits were not associated with greater improvement.

A drawback of both individual and group cognitive behavior therapy is that a specially trained therapist is needed to conduct the treatment. Few therapists have such training, making access to this specialized form of therapy spotty at best. Other attempts to find economical interventions have focused on internet support (Muroff, Steketee, Himle, &

Frost, 2009b) and support groups run by nonprofessionals (Frost, Pekareva-Kochergina, & Maxner, 2011). Self-help and support groups may provide effective adjuncts to cognitive behavior therapy or alternatives when cognitive behavior therapy is unavailable or unacceptable to the sufferer. It also offers an inexpensive way to address a problem that is more common among people with limited incomes (Samuels et al., 2008). In two open trials of a facilitated biblio-based support group, Frost et al. (2011) found significant improvement in hoarding severity over a 13-week period and one month follow-up. These groups differed from traditional support groups in that they were highly structured and facilitated by nonprofessionals whose function was to make sure the groups stayed focused on the topics and activities outlined in Tolin et al.'s (2007b) *Buried in Treasures: Help for compulsive acquiring, saving, and hoarding*. There were no home visits as part of the treatment. Hoarding symptoms (SI-R) declined by between 25 and 27% (15 – 16 points) during the 13 weeks of the program with over 70% of participants being judged “much” or “very much” improved by an assessor who visited their home. The Hoarding Rating Scale (Tolin, Frost, & Steketee, 2010) declined by 26% (5.5 points). The changes observed in this study were encouraging given that they were not substantially smaller than changes observed in individual and group treatments lasting significantly longer (16-26 sessions vs. 13 sessions) and including home visits. This was also one of the few studies to show changes in hoarding-related beliefs. The potential for a low cost, time-limited intervention that can be used independently or in conjunction with other treatments is enormous. Use of nonprofessional facilitators means that this approach can be widely disseminated.

While the open trial findings for the BIT Workshop were promising, they were based on single group pre-post quasi-experimental design. Based on our experiences running these groups, we have further refined the procedures and have revised the facilitators manual so that it is suitable for use by someone with a hoarding problem. The BIT Facilitator's Guide is available at ocfoundation.org. In the present study, we attempted to extend the findings on facilitated self-help for hoarding by comparing outcomes from participants in the BIT Workshop with a waitlist control.

Method

Participants

Fifty-three potential participants attended a community forum about the formation of a *Buried in Treasures* Workshop for hoarding and completed initial assessments of hoarding severity and related constructs. These individuals were recruited by local hoarding task forces in three communities in Western Massachusetts – Springfield, Northampton, and Greenfield – and from radio and newspaper announcements advertising a community forum for people interested in participating in the support groups. People were invited to participate if they had a significant hoarding problem, were not currently receiving treatment, and could meet scheduling requirements for the study. Hoarding severity was determined by a score greater than 14 on the Hoarding Rating Scale-Interview or a total score greater than 40 on the Saving Inventory Revised). Following a presentation describing the program, four individuals decided not to participate further, and 6 were excluded because they were already in treatment for hoarding or they could not meet the scheduling requirements for the study. The remaining 43 participants were randomly assigned to treatment (n=22) or a waitlist (n=21) using a random number table. Two participants dropped out of the treatment group after attending several sessions citing extenuating circumstances, both involving the death of a close relative. One participant dropped out of the wait list condition without explanation. Two other participants completed the treatment group but failed to provide post-test data despite repeated attempts by the investigators to obtain them. Consequently, 38 participants provided pre and post data for the waitlist control

trial, 18 in the treatment condition and 20 in the wait list condition. Nineteen of the waitlist participants completed the workshop after the waitlist period.

Demographic information is provided in table 1. There were no differences between the groups on age, income, gender, race, education, or employment status. The average age for the entire group was 57.0 (s.d. = 11.0) and ranged from 40 to 86, which is consistent with other studies indicating that people with hoarding disorder tend to be older than volunteers for other treatment studies. Over 90% of the participants were women, and the participants were highly educated with two-thirds having completed college. Hoarding severity scores at pretest indicated that these participants had severe hoarding problems (SI-R total = 60.1, s.d. = 11.2; HRS total = 22.0, s.d. = 5.0) and were roughly comparable in severity to those reported in other treatment studies (Frost et al., 2011; Steketee et al., 2010; Tolin et al., 2007a). There were no significant differences between the groups at pretest on the HRS, SIR total, SIR clutter, ADL, CIR, or SCI total and subscales. However, the waitlist participants had slightly but significantly lower scores at pretest on the SIR acquisition and difficulty discarding subscales, $t(36)=2.39$ and 2.20 , $p's < .05$.

No formal diagnostic interviews were conducted. However, the majority of participants (79%; 30/38) reported having had treatment for a mental health problem at some point in their lives. The most frequently described problem was depression. In fact, 61% (23/38) were taking medication for depression, anxiety, or ADHD at the time of the study (14 in the waitlist group and 9 in the treatment group). Taking medication was not associated with any change in hoarding symptoms from pre to post in the current study. Twelve of the participants (31.6%) had received some form of help for hoarding in the past, mostly in the form of support groups or Clutterers Anonymous. Five participants reported having been treated specifically for hoarding (3 in the waitlist; 2 in the treated group), but did not specify the nature of the treatment. None were receiving help during the study.

Measures

Saving Inventory-Revised (SI-R; Frost, Steketee, & Grisham, 2004). The SI-R is a 23-item self-report measure with 3 subscales assessing clutter, difficulty discarding, and excessive acquisition. The subscales and total score have shown good reliability and validity as well as sensitivity to treatment effects (Frost et al., 2004; Frost et al., 2011; Steketee et al., 2010). Internal reliabilities for the current study ranged from .88 to .94.

Hoarding Rating Scale – Interview (HRS-I; Tolin, Frost, & Steketee, 2010). The HRS-I is a 5-item semi-structured interview assessing severity of the different dimensions of hoarding: clutter, difficulty discarding, excessive acquisition, distress, and impairment. Items are rated on a 9-point scale from 0 (none) to 8 (extreme). The HRS-I has been found to be a reliable and valid measure of hoarding severity that is sensitive to treatment effects (Steketee et al., 2010). The HRS-I was administered by the assessor in participant's homes at both pre and post. Cronbach alphas for pre and post assessment were .69 and .88.

Clutter Image Rating (CIR; Frost, Steketee, Tolin, & Renaud, 2008). The CIR is a series of nine photographs each of a kitchen, living room, and bedroom with varying levels of clutter. Scores for each room range from 1 (least cluttered) to 9 (most cluttered). Participants selected the photograph with the level of clutter that most closely resembled their own in each of eleven possible rooms in their home. The measure has high internal consistency and test-retest reliability (Frost et al., 2008). Frost et al. (2008) also reported strong correlations between participant self-report in the clinic and experimenter ratings of the CIR in the home ($r = .74$), which suggests that people who hoard can reliably rate the severity of their clutter even when they are not at home. In the present study, a mean composite score was calculated for the three main rooms of the home for which the measure was validated:

bedroom, living room, and kitchen. Internal consistency was good for these three rooms (α s ranged from .72 to .83).

Activities of Daily Living for Hoarding (ADL-H; Frost et al., 2004; Frost, Hristova, Tolin, & Steketee, 2012). The ADL is a 15-item questionnaire designed to measure impairment in the ability to carry out normal daily activities due to hoarding. Items responses vary from 1 (“can do this activity easily”) to 5 (“unable to do this activity”). In contrast to the measures of hoarding severity, the ADL-H was designed to tap functional impairment resulting from hoarding behavior. The mean of the 15 individual items was used for the analysis. Internal reliabilities ranged from .84 to .88 for the current study.

The *Clinical Global Impression of Improvement* (CGI- I) ratings (Guy, 1976) were made by the assessor at a home visit as well as adapted for participant self-report. Improvement from pre-test to post-treatment, were rated from 1 (“very much improved”) to 7 (“very much worse”). Those rating themselves as “much” or “very much” improved at post-test were considered to be treatment responders.

Saving Cognitions Inventory (Steketee, Frost, & Kyrios, 2003). The SCI is a 24-item scale assessing maladaptive beliefs about, and emotional attachments to, possessions. It contains four subscales: emotional attachment, memory, control, and responsibility. These beliefs and attachments have been hypothesized to lead to the development of hoarding behavior. The measure has good internal reliability and convergent and discriminant validity (Steketee et al., 2003). For each item, participants evaluated the extent to which they had each thought when deciding to throw something away in the past week. The four subscales yielded acceptable alpha coefficients ranging from .90 to .95 in this sample.

Procedure

Participants in the treatment condition attended one of three groups for 13 sessions. Groups were composed of 7-8 members each. The groups met in community meeting rooms of local organizations (e.g., Housing Authority; Council of Government) in three communities in Western Massachusetts. The groups met once each week in each community during the same 13-week period. In order to insure enough members to fill the groups, several people who did not qualify for the study (e.g., were not available for randomization to both groups) attended the groups. The same facilitator was used for all groups. The facilitator suffered from hoarding problems and had used the exercises in Tolin et al. (2007b) to help with his own hoarding problem. He held a bachelors degree and participated in a semester-long undergraduate seminar on hoarding, but had no training as a therapist. However, he had received training in peer facilitation as part of the Wellness Recovery Action Planning movement (Copeland, 2004) and worked as a Peer Services Coordinator for a local behavioral health service. He received weekly supervision from the first author.

Each session focused on one or more chapters of Tolin et al.(2007b)'s *Buried in Treasures: Help for Compulsive Acquiring, Saving, and Hoarding*, a self-help book for hoarding. The first four sessions focused on education about hoarding and the cognitive behavioral model, including efforts to enhance motivation (chapters one through six). Acquisition problems were the topic for sessions five and six (chapter nine). During this portion of the workshop participants attempted non-acquiring trips in which they exposed themselves to progressively stronger acquiring triggers in order to learn to tolerate urges to acquire. Addressing acquiring in sessions 5 and 6 represented a change from the protocol used by Frost et al (2011) where acquiring was addressed later in the workshop. The following four sessions involved cognitive restructuring exercises and practice in imagined and actual discarding situations (chapters 7 and 8). Participants were assigned to complete daily sorting and discarding sessions. The final three sessions addressed difficult discarding and acquiring

issues and prepared participants to continue working on their hoarding after the end of the program (chapters 10 through 12).

Sessions each began with a check on homework progress and ended with a new homework assignment. The facilitator served to keep the meetings on track with the material in the book. This meant frequently having to keep the discussion from getting bogged down in complaints and emotional material not germane to the topic. A clinical psychologist trained in issues surrounding hoarding served as the clinical back-up. Participants were encouraged to contact him if they felt overwhelming distress. None did so. A manual detailing the instructions for facilitators is available at www.ocfoundation.org.

Results

Data Analysis

General linear model analyses for repeated measures were conducted to assess hoarding behavior change from pre-treatment to post-treatment for participants in the workshop and wait-list conditions. Effect sizes were reported as partial eta-squared (η^2) where small, medium, and large effect sizes correspond to .01, .06, and .14 (Cohen, 1973). Within group pre and post treatment scores are reported in table 2. Effect sizes for these comparisons were reported as Cohen's *d* where small, medium, and large effect sizes correspond to 0.2, 0.5, and 0.8 (Cohen, 1973). Two individuals did not complete post-treatment assessments and were excluded from the analyses. Other missing data were estimated where possible using the available items from the scale. We also calculated the number of participants who met criteria for clinically significant change (CSC; Jacobson & Truax, 1991) using the cutoffs recommended by Gilliam et al. (2011) of a change in SI-R total score of 14 points or greater and a post-test score of 42 or less.

Change in Hoarding Symptoms and Hoarding-Related Beliefs

Saving Inventory-Revised—SI-R subscales (Clutter, Difficulty Discarding, and Acquisition) were examined in a 2 (condition) by 2 (pre, post) by 3 (excessive acquisition, difficulty discarding, clutter subscales) between/within/within analysis for repeated measures. The results indicated a significant main effect for time ($F [1,36] = 14.2, p < .01, \eta^2 = .283$), as well as a significant interaction of time by condition ($F [1,36] = 18.6, p < .01, \eta^2 = .340$). There was no treatment by time by subscale interaction. Within condition comparisons indicated that for the SI-R total and for each subscale, there were significant declines in hoarding severity from pre- to post-test for participants in the BIT workshop, but no significant changes across time for participants in the waitlist group (see table 2). The effect sizes for workshop participants were large. Decreases in hoarding severity on the SI-R in the treatment group ranged from 27 to 35%, while waitlist participants showed slight increases from pre- to post-test. Because of pretest differences on the SI-R difficulty discarding and acquisition subscales, stepwise multiple regressions were conducted with pretest scores entered at step 1 followed by treatment condition (dummy coded) at step 2. Treatment conditions still accounted for significant ($p < .01$) variance in posttest scores for both difficulty discarding (standardized beta = .50) and acquisition (standardized beta = .43).

Hoarding Rating Scale—Analysis of the HRS revealed a significant effect for time, $F(1,36) = 8.5, p < .01, \eta^2 = .191$, as well as a significant time by condition interaction, $F(1,36) = 26.6, p < .01, \eta^2 = .425$. Within condition comparisons indicated that participants in the BIT workshop declined significantly from pre to post-treatment, while the wait list condition did not (see table 2). HRS scores for participants in the workshop declined by 30%, while waitlist participants' scores increased slightly.

Clutter Image Rating—There was a significant main effect for time for the assessor rated CIR, $F(1, 36) = 17.0, p < .001, np^2 = .321$, as well as a significant time by group interaction, $F(1, 36) = 7.66, p < .01, np^2 = .175$. BIT participants' assessor-rated CIR scores declined by 19% while waitlist participants declined only slightly (4%). The main effect for time was not significant for client-rated CIR, $F(1, 36) = 3.23, p = .081, np^2 = .082$. However, there was a significant time by group interaction, $F(1, 36) = 7.59, p < .01, np^2 = .174$. BIT participants' self-rated CIR declined by 16% while waitlist participants' ratings increased slightly. See table 2 for within group pre and post test scores.

Activities of Daily Living for Hoarding—Analysis of the ADL-H revealed a significant main effect for time ($F[1, 36] = 14.1, p < .001, np^2 = .281$), as well as significant interaction of time by group ($F[1, 36] = 10.8, p < .01, np^2 = .231$). Comparisons within groups indicated that BIT workshop participants' ADL-H scores declined significantly (30%), while the waitlist ADL-H scores declined by only 2%.

Saving Cognitions Inventory—Analysis of the SCI revealed significant main effects for time ($F[1, 36] = 21.0, p < .001, np^2 = .368$) and subscale ($F[3, 34] = 72.2, p < .001, np^2 = .864$). There was a significant time by treatment condition interaction ($F[1, 36] = 9.9, p < .005, np^2 = .216$) in addition to a significant time by treatment condition by subscale interaction ($F[3, 34] = 5.8, p < .01, np^2 = .340$). Separate analyses for each subscale indicated significant time by condition interactions for responsibility ($F[1, 36] = 11.1, p < .005, np^2 = .236$) and memory ($F[1, 36] = 18.4, p < .001, np^2 = .338$), but not for emotional attachment, $F(1, 36) = 2.6, p = .11, np^2 = .068$, or control, $F(1, 36) = 0.35, p > .05, np^2 = .010$. For the responsibility and memory subscales, the workshop group declined significantly while the waitlist group did not change (see table 2). For the emotional attachment subscale, both groups declined significantly from pre to post, while there was no decline on the control subscale for either group.

Clinical Global Impressions—Participants in the BIT workshop reported significantly more improvement ($M = 1.94, s.d. = 0.9, t(36) = 4.78, p = .001$), and were rated by the assessor as having more improvement, ($M = 2.11, s.d. = 0.8, t(36) = 6.81, p < .001$), than waitlist participants (M 's = 3.45 and 3.80, respectively). Among the BIT group, 11 out of 18 (61%) were rated by the assessor as “much” or “very much” improved, while 16 out of 18 (89%) BIT group participants rated themselves as “much” or “very much” improved. In comparison, only 3 out of 20 waitlist participants (15%) rated themselves as “much” or “very much” improved, and none were rated by the assessor in these categories.

Pre-Post Changes for the Combined Sample

Pre-post analyses using all 37 participants who completed the BIT workshop revealed significant improvement in hoarding symptoms and beliefs (see Table 3). The exception was the SCI control subscale for which the decline was not statistically significant. The effect sizes were large across all significant measures (d 's from .89 to 2.69). Changes in hoarding symptoms varied across dimension of hoarding with difficulty discarding, acquisition, and overall hoarding severity improvements ranging from 25 to 31%, while changes in clutter and the ADL were more modest (10-19%). Changes in hoarding related beliefs ranged from 22-29%, except for the Control subscale (6%). Sixty-two percent (23/37) of participants were judged by the assessor to be “much” or “very much” improved on the CGI. Eighty-four percent (31/37) rated themselves as “much” or “very much” improved.

Eleven out of the 37 BIT participants (30%) met criteria for clinically significant change using criteria recommended by Gilliam et al. (2011) of at least a 14 point reduction in SI-R total score and a post-treatment score of 42 or less.

Discussion

These findings build on earlier work (Frost et al., 2011) supporting the effectiveness of a carefully structured, nonprofessionally facilitated, bibliotherapy-based support group for people with hoarding problems. The present study utilized an array of outcome measures that included self-report, interview, and in-home observation, as well as measures of impairment and hoarding-related beliefs. The BIT Workshop participants showed significant improvement compared to waitlist participants on all measures.

For this 13 session workshop, the decline in SI-R total score was 14.7 points for the total group with an effect size of 1.84. This compares favorably to the findings from 20-session group CBT studies. For instance, Muroff et al. (2009) reported between 8.6 and 14.3 point SI-R reduction with effect sizes of 1.57 and 1.88. Gilliam et al. (2011) reported a drop of 17.1 points on the SI-R and an effect size of 1.31, while Muroff et al. (in press) reported an SI-R decrease of 14.8 points and an effect size of 2.0. Similarly, the effect size for the HRS in the current study (2.69) and the decrease in the HRS (6.3 points) is similar to that reported by Muroff et al. (in press; $d = 2.0$; 7.5 point decline). The BIT Workshop effect sizes were similar to those of individual CBT reported by Steketee et al. (2010), $d = 1.21$ for the SI-R and $d = 1.93$ for the HRS, although the point declines were somewhat larger for individual treatment (SI-R reduction = 18.6; HRS reduction = 12.2). The percentage of participants achieving clinically significant change (30%) was similar to that reported for group CBT and using the same criteria by Muroff et al. (in press; 21% without home visits; 36% with home visits) and Gilliam et al. (2011; 31%).

Theorizing about hoarding disorder has suggested that beliefs about and attachments to possessions, as measured by the SCI, are important etiological factors in hoarding disorder. To date, only the Muroff et al. (2009) and Frost et al. (2011) studies have examined changes in these beliefs as a function of group treatment. Consistent with the Frost et al. (2011) findings, the workshop group in the present study showed greater changes on the measures of hoarding-related thinking than did the waitlist control group. The SCI-total score declined by 22% for all participants. The reduction in the SCI total was similar to those observed in the Frost et al. (2011) study. It isn't clear whether changes in hoarding-related beliefs preceded changes in hoarding symptoms, however. Interestingly, both the treated and waitlist groups showed significant reduction in Emotional Attachment on the SCI. While the BIT group showed more than twice the decline of the waitlist group on this measure (12.4 vs. 6.1 points), the difference between the groups at posttest was only marginally significant ($p = .065$). It is possible that attention to hoarding behavior that may have been increased with the assessment visits to their home and anticipation that they would be starting the support group which could have resulted in changes in emotional attachments. However, no similar effect was observed for any other measure. There was no significant decrease on the SCI Control subscale. The SCI Control subscale showed decline in only one of the two studies in Frost et al. (2011) and appears to be more resistant to change than the other SCI subscales.

There are several limitations in the present study. This study used a waitlist control group that controls for the passage of time, but not for other potential confounding variables such as attention and placebo effects. Use of a more traditional support group and/or bibliotherapy control group in which participants use the self-help book on their own would provide additional evidence for the effectiveness of facilitated support groups. Muroff et al. (in press) used bibliotherapy only control in their study of group cognitive behavior therapy for hoarding. Their bibliotherapy group showed a non-significant decline of 9% on the SI-R. This was substantially below the decline among the treated participants in the current study.

Other limitations include the relatively small sample size of the current study and the absence of follow-up data. Also, participants in this study were all highly educated and primarily female, which may reduce the generalizability of these findings. Finally, there were more drop-outs in the present study than in Frost et al. (2011) which may have influenced the findings.

The *Buried in Treasures Workshop* appears to be a viable treatment option that improves access and reduces cost of treatment. The Frost et al. (2011) study used undergraduates as facilitators while the present study used a peer. Use of a peer facilitator offers a potentially low-cost form of dissemination. Some caution is warranted, however, since the peer facilitator in the present study had some training in facilitation and a college course focusing on hoarding. Subsequent research should determine the characteristics and training needed to successfully facilitate the BIT Workshop. Further research comparing the workshop to straight biblio-therapy or support groups is also needed, along with research integrating the BIT Workshop into a package that includes full cognitive behavior therapy that improve outcomes significantly.

Acknowledgments

This research was funded in part from pilot project funding obtained through grant #5G11HD043544 from the National Institute of Child Health and Human Development to Smith College (Phillip Peake, PI).

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Highlights

We examined changes in hoarding symptoms during a 13-week structured support group.

We compared support group changes with those of a waitlist control group.

The support group produced more symptom improvement than the waitlist.

The support group resulted in more change in hoarding beliefs than the waitlist.

Table 1
Demographic information and baseline symptom severity for hoarding participants assigned to waitlist (WL) versus treatment (TX) conditions

Variable	WL participants N = 20	BIT participants N = 18
Age	57.7 (12.6)	56.4 (9.2)
Age range	42 - 86	40 - 73
% female	90.0	94.4
% Caucasian	90	100
% employed ^a	45	44
% with BA or more	65.0	66.7

^aEmployed full-time or part-time.

BA, Bachelors of Arts degree

Table 2
Means (standard deviations), t-values, effect sizes, and % improvement of BIT and waitlisted hoarding participants

Measure	Pre	Post	t (df)	p	Cohen's d	%
SIF-R Total						
TX	62.94 (10.73)	43.30 (20.34)	4.06 (17)	.01	1.97	31%
WL	57.58 (11.28)	58.90 (10.82)	-0.87 (19)	NS	0.40	-02%
SIF-R Clutter						
TX	24.44 (5.62)	17.93 (11.60)	3.02 (17)	.01	1.45	27%
WL	26.33 (4.86)	26.81 (5.34)	-0.70 (19)	NS	0.16	-02%
SIF-R Discarding						
TX	20.72 (3.37)	13.87 (5.67)	4.26 (17)	.01	2.07	33%
WL	18.15 (3.78)	18.74 (3.56)	-0.63 (19)	NS	0.14	-03%
SIF-R Acquiring						
TX	17.78 (5.24)	11.50 (5.26)	4.20 (17)	.01	2.04	35%
WL	13.10 (6.66)	13.35 (5.93)	-0.41 (19)	NS	0.09	-02%
HRS						
TX	22.50 (5.50)	15.83 (7.94)	5.04 (17)	.01	2.45	30%
WL	21.60 (4.71)	23.45 (4.56)	-1.82 (19)	NS	-0.83	-09%
CIR Assessor						
TX	3.62 (1.60)	2.94 (1.66)	3.94 (17)	.01	1.91	19%
WL	3.43 (0.97)	3.29 (0.94)	1.29 (19)	NS	0.59	04%
CIR Client						
TX	3.65 (1.38)	3.06 (1.58)	3.80 (17)	.01	1.84	16%
WL	3.66 (1.23)	3.78 (1.42)	-0.61 (19)	NS	0.59	-03%
ADL Total						
TX	1.83 (0.71)	1.29 (0.29)	3.71 (17)	.01	1.80	30%
WL	1.74 (0.43)	1.70 (0.51)	0.55 (19)	NS	0.25	02%
SCI Total						
TX	105.13 (25.18)	73.33 (32.49)	4.27 (17)	.01	2.07	30%
WL	105.82 (23.44)	99.93 (28.08)	1.46 (19)	NS	0.67	06%
SCI Responsibility						
TX	25.50 (6.59)	17.17 (7.79)	4.03 (17)	.01	1.96	33%

Measure	Pre	Post	t (df)	p	Cohen's d	%
WL	25.16 (8.32)	25.29 (8.16)	-0.09 (19)	NS	-0.04	-01%
SCI Memory						
TX	23.61 (5.76)	14.39 (8.32)	4.40 (17)	.01	2.13	39%
WL	22.50 (7.13)	23.60 (6.71)	-0.86 (19)	NS	-0.40	-05%
SCI Emotional Attach						
TX	40.13 (15.62)	27.72 (13.87)	3.52 (17)	.01	1.71	31%
WL	42.23 (13.07)	36.14 (13.37)	3.20 (19)	.01	1.47	14%
SCI Control						
TX	15.89 (4.74)	14.06 (5.75)	2.00 (17)	.07	0.97	12%
WL	15.92 (4.76)	14.90 (5.43)	1.05 (19)	NS	0.48	06%

ADL, Activities of Daily Living; CIR, Clutter Image Rating; HRS, Hoarding Rating Scale; SCI, Saving Cognitions Inventory; SI-R, Saving Inventory-Revised

Table 3
Means (standard deviations), t-values, effect sizes, and % improvement of all 37 BIT participants

Measure	Pre	Post	t (df)	p	Cohen's d	%
SI-R Total	60.95 (10.94)	46.26 (16.65)	5.51 (36)	.001	1.84	24%
SI-R Clutter	25.52 (5.50)	20.68 (9.46)	4.22 (36)	.001	1.41	19%
SI-R Discarding	19.75 (3.59)	14.77 (5.02)	5.16 (36)	.001	1.72	25%
SI-R Acquiring	15.68 (5.89)	10.81 (5.20)	5.37 (36)	.001	1.79	31%
HRS	22.95 (5.04)	16.73 (6.65)	8.06 (36)	.001	2.69	27%
CIR Assessor	3.45 (1.31)	3.00 (1.35)	4.09 (36)	.001	1.36	13%
CIR Client	3.72 (1.40)	3.33 (1.36)	2.67 (36)	.02	0.89	10%
ADL Total	1.85 (0.63)	1.59 (0.50)	2.71 (36)	.01	0.90	14%
SCI Total	102.38 (26.88)	79.71 (32.17)	5.00 (36)	.001	1.67	22%
SCI Responsibility	25.45 (7.45)	19.00 (8.13)	4.76 (36)	.001	1.59	25%
SCI Memory	23.46 (6.21)	16.62 (8.61)	5.55 (36)	.001	1.85	29%
SCI Emot Attach	38.22 (14.57)	29.82 (15.03)	3.72 (36)	.001	1.24	22%
SCI Control	15.24 (5.08)	14.27 (5.52)	1.54 (36)	ns	0.51	6%

ADL, Activities of Daily Living; CIR, Clutter Image Rating; HRS, Hoarding Rating Scale; SCI, Saving Cognitions Inventory; SI-R, Saving Inventory-Revised