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# Treating hoarding disorder with compassion-focused therapy: A pilot study examining treatment feasibility, acceptability, and exploring treatment effects

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**Objectives.** Hoarding disorder (HD) was recognized as a psychiatric disorder in 2013. Existing literature suggests room for improvement in its treatment. The current pilot study aimed to provide an initial evaluation on the potential of compassion-focused therapy (CFT) as an intervention for HD, with the primary aim being assessing its feasibility and acceptability, and the secondary being evaluating its effects.

**Design.** Both CFT and a second round of the current standard of treatment and cognitive behavioural therapy (CBT) were investigated in the current study as follow-up treatment options for individuals who had completed CBT but were still significantly symptomatic.

**Methods.** Forty eligible individuals were enrolled (20 in each treatment). Treatment feasibility and acceptability were assessed by quantitative and qualitative measures. To explore treatment effects, HD symptom severity, HD-related dysfunctions, and their underlying mechanisms were assessed pre-treatment and post-treatment.

**Results.** Retention rates were 72% for CFT and 37% for CBT. All participants and 79% of the participants rated CFT and CBT, respectively, as good or excellent. After receiving CFT as a follow-up treatment, HD symptom severity dropped below the cut-off point for clinically significant HD for 77% of the treatment completers, and 62% achieved clinically significant reduction in symptom severity. In contrast, after completing a second course of CBT, 23% had HD symptom severity dropped below the cut-off threshold, and 29% achieved clinically significant symptom reduction.

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**Conclusions.** The current study showed satisfactory feasibility and acceptability of CFT. Moreover, it also found promising effects of CFT in addressing hoarding-related mechanisms that may not have been sufficiently addressed by CBT. The results suggest promising potential of CFT as a treatment for HD. Further investigation on this intervention is needed.

## Practitioner points

- CFT may be a promising treatment option, particularly for those who do not respond well to CBT.
- Improving emotion regulation and negative self-perception by applying CFT interventions may help relieve hoarding symptoms.
- Generalization of the findings should be applied with caution given the small convenience sample of the current study.
- Statistical comparison on treatment effect measures between CFT and CBT as follow-up treatments was not available due to small sample size. Therefore, the comparative conclusions based on this pilot study should be made with caution.

Hoarding disorder (HD) is characterized by persistent difficulty discarding, excessive acquiring, presence of clutter, and is associated with impairments in self-care, social functioning, and significant safety hazards due to cluttered homes (American Psychiatric Association, 2013). It is a chronic disorder with a lifetime prevalence of 2–4% and an even higher prevalence among older populations (Best-Lavigniac, 2006; Grisham, Frost, Steketee, Kim, & Hood, 2006; Kessler *et al.*, 2005; Kim, Steketee, & Frost, 2001). Given its tremendous personal and social costs, effective treatment for HD is of enormous clinical and public health importance.

Cognitive behavioural therapy (CBT) is the current standard of care for HD. A meta-analysis (Tolin, Frost, Steketee, & Muroff, 2015; $N = 232$) showed that although CBT significantly alleviated HD symptom severity (Hedges' $g = .82$), only 35% of the individuals treated achieved clinically significant improvement. Consistently, a recent study, help for hoarding (HFH; Mathews *et al.*, 2018) found that although the existing CBT-based group treatments, clinician-led group CBT (Steketee & Frost, 2014) and peer-led Buried in Treasure groups (Tolin, Frost, & Steketee, 2014), yielded an average 27.6% reduction in HD symptom severity, less than a third (31%) of the overall sample achieved remission, defined in the study as ≥14 point reduction and a post-treatment score of <42 on the Saving Inventory-Revised (SI-R; Frost, Steketee, & Grisham, 2004). These findings suggest that there may be aspects of HD-related dysfunctions that are not addressed sufficiently by CBT.

The cognitive behavioural model for HD (Frost & Hartl, 1996) has identified four domains of HD-related dysfunctions: (1) Avoidance, characterized by postponing sorting and decision-making about discarding; (2) Information-processing difficulties, including decision-making, memory, organization, and categorization; (3) Emotional attachment to possessions due to seeing them as an extension of self, a source of safety or comfort; and (4) Hoarding-related beliefs, such as beliefs about one's responsibility for, and the need to control possessions, due to expected catastrophic consequences of losing them. Critical influences of these dysfunctions on the maintenance and progressive course of HD symptoms have been reported (e.g., Ayers, Castriotta, Dozier, Espejo, & Porter, 2014; Moulding, Nedeljkovic, Kyrios, Osborne, & Mogan, 2016; Wheaton, Fabricant, Berman, & Abramowitz, 2013). Additionally, the mechanisms underlying some of these HD-related dysfunctions have been increasingly studied. For example, anxiety sensitivity and distress

intolerance, defined, respectively, as beliefs that anxiety-related sensations are dangerous, and inability to tolerate psychological distress, have been suggested to contribute to avoidance, and, in turn, HD symptoms (Ayers *et al.*, 2014; Shaw, Llabre, & Timpano, 2015; Timpano, Shaw, Cougle, & Fitch, 2014; Williams, 2012). Similarly, self-ambivalence (i.e., uncertainty about one's self-worth) has been associated with emotional attachment to possessions (Frost, Kyrios, McCarthy, & Matthews, 2007; Kyrios, Frost, & Steketee, 2004); self-criticism and shame have been associated with emotional attachment and hoarding-related beliefs, especially sense of responsibility (Chou *et al.*, 2018).

The above findings suggest the importance of targeting these HD-related dysfunctions and mechanisms in the treatment for the disorder. However, evidence and clinical observation from the HFH study (Mathews *et al.*, 2018) suggests the potentially limited effect of CBT on some of these areas. For example, after receiving group CBT, emotional attachment and hoarding-related beliefs measured by the Saving Cognitions Inventory (SCI; Steketee, Frost, & Kyrios, 2003), remained less than 0.5 standard deviation below the mean of the clinical population of HD (C-.Y. Chou, personal communication, 28 June 2017). When asked to review their progress at the end of CBT, over 80% of the HFH study participants reported that avoidance was the biggest problem they still experienced. Moreover, secondary analyses showed that CBT did not yield significant effect in addressing self-criticism ($p = .23$) in the HFH study sample (C-.Y. Chou, personal communication, 22 February 2019). To examine other treatment options that may address the above-mentioned areas that may be undertreated by CBT, the current study pilot tested potential benefits of compassion-focused therapy (CFT; Gilbert, 2010) for HD. We chose CFT because of its focus and evidence-supported effects in improving emotion regulation and self-perception.

CFT originated from Dr. Paul Gilbert's clinical observations that when individuals were using cognitive reappraisal, the emotional texture of the reappraisal may be hostile. Hence, although the content of the coping thought may be helpful, the emotional texture may be a contributor to more psychological distress (Gilbert, 2010). CFT emphasizes evolutionary psychology theories, in particular, that humans, like most mammals, evolved to be regulated through caring connections and to have neurophysiological and physiological systems that are very responsive to caring stimuli (Kirby, Doty, Petrocchi, & Gilbert, 2017; Klimecki, Leiberg, Ricard, & Singer, 2013). One of the core themes of CFT is that if people are unable to access these basic physiological systems that evolved to help regulate threat-based processing, they may struggle with purely behavioural or cognitive interventions. Accordingly, the therapy utilizes a range of interventions to stimulate and integrate compassion motivation and emotion into the therapeutic process.

Introducing CFT techniques to standard CBT programmes has yielded significantly greater treatment effects than the latter alone in treating eating disorders and post-traumatic stress disorder (PTSD; Beaumont, Galpin, & Jenkins, 2012; Gale, Gilbert, Read, & Goss, 2014). Moreover, effects of CFT in improving distress tolerance, self-perception, and disorder-specific cognitions have been found across multiple disorders, including major depressive disorder, personality disorders, and psychotic disorders (Ashworth, Gracey, & Gilbert, 2011; Beaumont *et al.*, 2012; Gale *et al.*, 2014; Gilbert & Procter, 2006; Judge, Gleghorn, McEwan, & Gilbert, 2012; Laithwaite *et al.*, 2009; Lucre & Corten, 2013). Compassion training techniques applied in CFT have also demonstrated impacts in biological measures such as changes in activity in brain regions associated with emotional regulation (Begley, 2007; Davidson *et al.*, 2003; Longe *et al.*, 2010), heart rate variability, and cortisol levels in directions suggesting improved emotion regulation (Rockliffe, Gilbert, McEwan, Lightman, & Glover, 2008).

Considering the above, the current study aimed to examine CFT as a follow-up treatment to CBT for HD, with the primary aim being assessing its feasibility and acceptability. The hypotheses were that CFT would be both *feasible* and *acceptable* by (1) having ≥70% of the participants complete the treatment, as defined by attending ≥13 out of the 16 sessions (feasibility), and (2) having an overall treatment evaluation of 'extremely positive' or 'positive' (i.e., four or three on a 4-point Likert scale) by ≥80% of the participants (acceptability).

The secondary aim of the study was to explore the effect of CFT in treating HD. To this end, we examined the extent of change in HD symptom severity and its related dysfunctions and mechanisms yielded by CFT, in contrast to receiving the current standard of treatment, CBT, in a second round. We hypothesized that CFT would show promising *treatment effects* by (1) having ≥40% of the participants' symptom severity no longer exceeding the cut-off point of clinically significant HD symptoms (i.e., <41 points on the SI-R; Frost *et al.*, 2004; Tolin, Meunier, Frost, & Steketee, 2011), and (2) ≥50% of participants achieve clinically significant reduction in HD severity (i.e., ≥14 points of reduction on the SI-R).

The hypothesized percentages for the feasibility and acceptability measures, and the treatment effects were targeted objectives set with consideration of findings from previous studies (e.g., Mathews *et al.*, 2018; Tolin *et al.*, 2015). They were set to help evaluate whether CFT is a promising treatment option for HD.

## Methods

### *Participants' recruitment and study procedures*

Individuals were eligible for participation if they were ≥18 years old, able to give informed consent, met the DSM-5 diagnosis criteria for HD, had participated in a clinician-led group CBT for HD through the HFH study >1 year prior, and had an SI-R score of >41 at enrolment for this study. The exclusion criteria included imminent suicide risk, cognitive impairment as a result of brain injury or known dementia, and history of receiving CBT- or CFT-based treatments in the past 12 months. Recruitment for this study was sequential rather than parallel due to available study resources throughout the trial. Specifically, resources available at the beginning of the study were only sufficient for a single-arm trial and we initially recruited participants for the CFT arm. When additional funding became available later, we expanded the study by adding the CBT arm. Both treatments were presented as the only option during their specific period of recruitment.

The study took place at a research and teaching medical centre, and was approved by the medical centre's Institutional Review Board. All participants completed self-report measures pre-treatment and post-treatment. All treatment groups were facilitated by a post-doctoral trainee in clinical psychology, supervised by a licensed clinical psychologist specializing in CBT and HD, and another licensed clinical psychologist specializing in CFT. Treatment acceptability was evaluated for both treatments at the end of every session. At the last session of the CFT groups (but not the CBT groups), participants were asked to provide qualitative feedback comparing CFT with the CBT treatment that they received in the HFH study. No financial compensation was provided for study participation.

### *Measures*

#### *Diagnosis and symptom severity*

The diagnosis for HD was established by clinical interview using the Structured Interview for Hoarding Disorder (Nordsletten *et al.*, 2013). Symptoms of other Axis I Disorders and

suicide risk were assessed using the Mini International Neuropsychiatric Interview (Sheehan *et al.*, 1998). HD symptom severity was evaluated with the SI-R (Frost *et al.*, 2004; Tolin *et al.*, 2011), whereas depression and anxiety symptoms were assessed with the Beck Depression Inventory (Beck, Steer, Ball, & Ranieri, 1996) and Beck Anxiety Inventory (Beck, Epstein, Brown, & Steer, 1988).

### *Hoarding-related dysfunctions*

A number of measures were used to assess the four areas of dysfunctions related to HD. Information processing, specifically decision-making and memory concerns, was assessed by the Frost Indecisiveness Scale (Frost & Shows, 1993) and the memory subscale of the SCI (Steketee *et al.*, 2003), respectively. *Avoidance* was assessed by three subscales (i.e., self-distraction, behavioural disengagement, and denial) in the Brief COPE (Carver, 1997; Oxman, Hegel, Hull, & Dietrich, 2008). *Emotional attachment* was assessed using the emotional attachment subscale of the SCI (Steketee *et al.*, 2003) as the primary measure and the Possessions Comfort Scale (PCS; Frost, Hartl, Christian, & Williams, 1995) as the secondary measure. *Hoarding beliefs*, desire to control and responsibility for possessions, specifically, were estimated by the control and responsibility subscales of the SCI (Steketee *et al.*, 2003), respectively.

### *Emotion regulation and self-perception*

Constructs associated with emotion regulation and self-perception were assessed using multiple measures. For emotion regulation, *distress tolerance* was measured by the Distress Tolerance Scale (Simons & Gaher, 2005). For self-perceptions, *self-ambivalence*, ambivalence about one's self-worth, was assessed by the Self-Ambivalence Measure (Bhar & Kyrios, 2000), and *characterological shame*, shame about oneself as a person, was assessed by the Experience of Shame Scale (ESS; Andrews, Qian, & Valentine, 2002). Moreover, measures of self-perceptions in response to mistakes were explored. These included *behavioural shame*, shame related to making mistakes, assessed by the ESS (Andrews *et al.*, 2002), *self-reassurance*, and *self-criticism* – the ability to retain a positive view of oneself versus the tendency to criticize or attack oneself, respectively, when things go wrong. Self-reassurance was assessed by the Reassured-self subscale, whereas self-criticism was measured by the average score of the Inadequate-self and Hated-self subscales of the Forms of Self-Criticising/Attacking and Self-Reassuring Scale (Baião, Gilbert, McEwan, & Carvalho, 2015; Gilbert, Clark, Hempel, Miles, & Irons, 2004).

### *Treatment acceptability*

Treatment acceptability was assessed by a questionnaire developed for this study. This questionnaire included nine items asking participants to evaluate (1) the overall quality of treatment, (2) how easy it is to understand the treatment content, (3) how helpful the treatment is for HD, (4) the extent of new knowledge or insights gained, (5) how helpful the treatment is for self-compassion development, (6) how likely they would apply the learned techniques in daily life, (7) how likely they would recommend the techniques to others with HD, (8) how appropriate is the treatment for their age range, and (9) racial or ethnic background. These items were assessed using a 4-point Likert scale with a greater number indicating a more positive evaluation. Treatment completers in the CFT arm were

also asked two open-ended questions: 'How was CFT *better than* CBT?' and 'How was CFT *worse than* CBT?'.

### *Treatments*

#### *CFT*

Group CFT followed a treatment protocol developed for this study. This protocol was tailored for individuals with HD and consisted of 16 weekly 2-hr sessions. To facilitate committed participation of the treatment, participants were informed of the attendance policy at the recruitment stage, specifically, that they would be dropped from the group, and be given information about alternative treatment resources, if they missed more than three sessions. As shown in Table 1, group CFT adopts an evolutionary perspective to formulate psychological problems, which is intended to facilitate de-shaming through recognizing that there is an underlying dimension to HD which many humans share, and that this is not one's fault. In addition, recognition of one's areas of suffering due to HD, and treatment goals were established following an imagery exercise on better life conditions that a compassionate other or the compassionate part of oneself would hope for the individual. Mindfulness training and Soothing Rhythm Breathing were introduced to facilitate mental and emotional capacity to be aware and to contain emotions that surfaced. Halfway through the treatment, more advanced emotion regulation, compassionate mind, and compassionate self-perception trainings were emphasized. The interventions included compassion letter writing, compassionate self-developing, imageries of compassion flowing in and out, and chair work, which involves enacting different parts of the self. They were designed to equip participants to be able to activate the physiological mechanisms, particularly the parasympathetic nervous system, that underpin settling, soothing, and caring psychological states. Some of these interventions were incorporated with exposure techniques and behavioural interventions to provide a buffer or counter to threatening emotions. During the final third of the treatment, individuals were paired as 'compassionate buddies' to provide weekly phone check-ins following a semi-structured interview procedure designed to remind their partner to embody their own compassionate self in dealing when difficulties and obstacles were encountered.

#### *CBT*

Group CBT followed a protocol modified based on the group CBT procedures in the HFH study (Mathews *et al.*, 2018; Uhm *et al.*, 2016). The main difference between the current and HFH CBT protocols was the omission of home visits in the current study due to limited research resources. This reduced the number of the 2-hr treatment sessions to 15, as opposed to 16 in the HFH protocol, since introduction, debriefing, and discussion of the home visit experience were removed from the treatment. As for CFT, participants in the CBT groups were informed at recruitment that they would be dropped from the group if they missed more than three sessions. As shown in Table 1, group CBT adopted a biopsychosocial model of HD and emphasized the effects of pathological beliefs on HD-related behaviours and emotions. Participants were motivated through the process of imagining and listing pros and cons of having versus not having clutter, and guided to set measurable and reasonable treatment goals. Functional analysis and a set of common HD-related beliefs were introduced in the treatment to facilitate restructuring of maladaptive thinking patterns. *In vivo* exposure of discarding and non-acquiring, a set of rules and

**Table 1.** Treatment aims and techniques of group CFT and CBT

| | CFT | CBT |
|---|---|---|
| Psychoeducation and case formulation | • An evolutionary model for hoarding<br>• Understanding the distinction between different motivational systems: their associated emotions, thinking patterns, and behaviours | • A biopsychosocial model for hoarding<br>• Understanding the relationships between thoughts, behaviours, and emotions |
| Motivation and goal setting | • Identify sources of suffering<br>• Compassion-focused imagery | • Clutter and non-clutter imagery |
| Awareness enhancement | • Mindfulness training: recognizing feelings and bodily sensations under different states of mind<br>• Chair work: enacting inner dialogue between different parts (e.g., anxious vs. angry; critical vs. compassionate) of the self | • Functional analysis<br>• Familiarizing and training to recognize hoarding-related beliefs |
| Symptom intervention and wellness improvement | • Soothing skills training<br>• Compassionate mind training: giving and receiving compassion, imagery of a compassionate other and the compassionate self<br>• Compassion-focused exposure<br>• Compassion letter writing<br>• Compassionate buddy | • Cognitive restructuring<br>• Rules and questions for acquiring and saving<br>• Exposure<br>• Pleasure activity planning<br>• Information-processing skill training (i.e., decision-making, sorting, and organizing)<br>• Planning and problem solving<br>• De-clutter buddy |

questions for discarding and acquiring, and strategies for sorting and organization were introduced to help improve decision-making and de-cluttering. As in CFT, a buddy system was included in group CBT. However, the primary purpose of the de-cluttering buddy in group CBT was to provide accountability and moral support.

### *Analytical strategies*

To examine the similarity between different subgroups of the sample, several comparisons were conducted between treatment completers and dropouts in each treatment condition, and between treatment conditions (CFT vs. CBT) among treatment completers. Specifically, Pearson's chi-square tests were used to examine differences in gender distributions, whereas independent-samples *t*-tests were applied to examine differences in age, HD symptom severity at the completion of group CBT in the HFH study (Mathews *et al.*, 2018), HD symptom severity, hoarding-related dysfunctions, emotion regulation, and self-perception mechanisms prior to entering the current study. Retention rates were calculated by dividing the number of completers by that of individuals enrolled in each treatment. The proportion of participants who rated the highest and second highest levels on the 4-point Likert scale for each acceptability question was calculated separately for each treatment. For treatment completers, percentages of participants who achieved a clinically significant change in HD symptom severity (i.e., ≥14 points of reduction on the SI-R), and whose post-treatment HD symptom severity level dropped to or below the cut-off point for clinically significant hoarding (i.e., 41 on the SI-R), were calculated.

As exploratory analyses, paired-sample *t*-tests and effect size calculations were conducted to examine the magnitude of change in HD symptom severity associated with CFT or CBT, as well as change in the four areas of hoarding-related dysfunctions, emotion regulation, and self-perception mechanisms before and after receiving either treatment. A within-subject formula, Cohen's $d_{\mathrm{rm}} = \left(M_{\mathrm{diff}} / \sqrt{SD_1^2 + SD_2^2 - 2 * r * SD_1 * SD_2}\right) * \sqrt{2(1-r)}$, where $M_{\mathrm{diff}}$ is the difference in means, $SD_1$ and $SD_2$ are the standard deviations of these means, and $r$ is the correlation between pre- and post-treatment measures, was chosen to calculate the effect sizes (Lakens, 2013). The inductive content analyses (Erlingsson & Brysiewicz, 2017) were applied to the qualitative feedback from completers of group CFT. Following the methods, two of the authors independently reviewed the content and each generated two lists of candidate codes, categories, and themes (one for the question 'How was CFT *better than* CBT?' and the other for 'How was CFT *worse than* CBT?'). The lists were discussed and consolidate to a final version based on consensus of the two authors and consultation with another author who has expertise in content analysis.

## Results

### *Recruitment*

As shown in Figure 1, 56 individuals who had completed the CBT treatment in the HFH study (Mathews *et al.*, 2018) at least a year prior to the initiation of this study were contacted by email about CFT groups in the current study. Twenty responded to the email, and 18 were enrolled in two CFT groups. Two individuals were not enrolled because they did not meet the HD symptom severity criterion. For the CBT groups, individuals who did not respond to the earlier email, plus another 19 individuals (total

number = 55) who subsequently met the time requirement (i.e., completing CBT in the HFH study >1 year prior) after the CFT recruitment period were contacted by email and by phone. Twenty responded; about half ($n$ = 9) were those who were contacted about the study for the first time. Overall, 19 individuals were enrolled in two CBT groups; one was not eligible because they did not meet the HD symptom severity criterion. As a whole, 65% of the group CBT treatment completers in the HFH study (Mathews *et al.*, 2018) were re-contacted for either CFT or CBT in the current study. The rest were not contacted because they did not meet the timeframe requirement for inclusion.

### *Retention rates*

For the CFT groups, 13 (72%) completed the treatment, three dropped out of the groups within the first three sessions, and two were dropped at session 15 for missing three prior sessions as well as session 15. For the CBT groups, 7 (37%) completed the treatment, 5 (26%) did not attend any sessions, four dropped out during the first third, whereas three dropped out during the last third of the treatment. Among the seven CBT group completers, four were from those who were newly added and contacted for the first time during the CBT recruitment phase. The current study did not formally measure adverse events, except checking-in with all participants in each group session, and phone check-ins when they missed groups. To our knowledge, there were no adverse events during the course of the study.

### *Sample characteristics*

Basic demographic information, co-occurring diagnoses, and descriptive data by treatment completion status for the CFT groups are summarized in Table 2. The percentage of males was significantly higher among the treatment completers than dropouts (53.8% vs. 0%; $\chi^2(1) = 4.4$, $p = .04$). Between treatment completers and dropouts, no statistically significant differences were found for age, HD symptom severity when they completed CBT in the HFH study ($M = 44.2$, $SD = 11.3$ for completers, $M = 43.2$, $SD = 18.6$ for dropouts, $p = .89$), or any of the pre-treatment measures in the current study ($t(16) = 1.8$, $p = .08$).

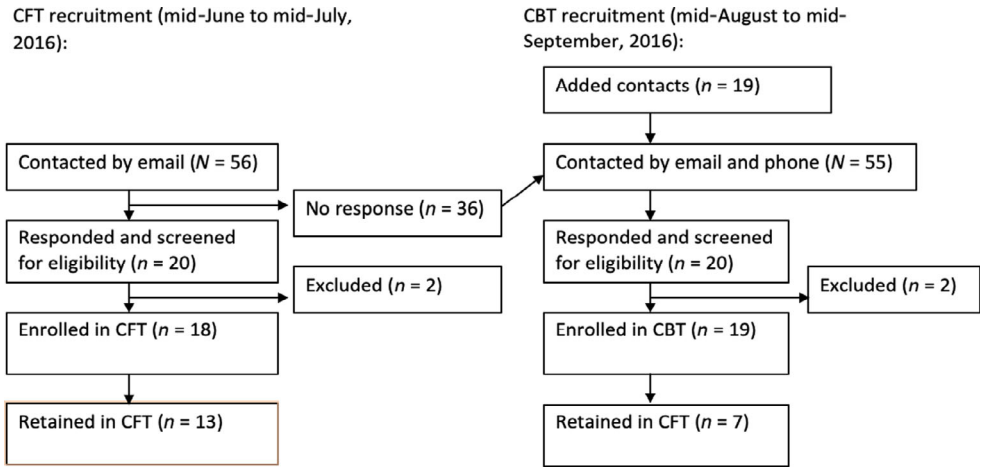


**Figure 1.** Recruitment procedures.

Basic demographic information, co-occurring diagnoses, and descriptive data by treatment completion status for the CBT groups are summarized in Table 3. There were no significant differences between treatment completers and dropouts for gender (0% vs. 16.7% male; $\chi^2(1) = 1.3$, $p = .25$). No statistically significant differences were found in age, HD symptom severity when at completion of the parent HFH study ($M = 46.9$,

**Table 2.** Descriptive data of treatment completers and dropouts in CFT

| | Dropouts ($n = 5$) | Treatment completers ($n = 13$) |
|---|---|---|
| Biographics and co-occurring diagnoses | | |
| Gender | 0 males | 7 males |
| Age: *M* (*SD*), range (years) | 62 (13.5), 40–75 | 63 (9.2), 46–85 |
| Co-occurring diagnoses | | |
| Agoraphobia | | $n = 3$ |
| Generalized anxiety disorder | | $n = 2$ |
| Major depressive disorder | | $n = 1$ |
| Post-traumatic stress disorder | | $n = 1$ |
| Social phobia | | $n = 1$ |
| Substance abuse disorder | $n = 1$ | |
| Bipolar disorder NOS | $n = 1$ | |

| | Pre-treatment *M* (*SD*) | Pre-treatment *M* (*SD*) | Post-treatment *M* (*SD*) | Pre- versus post-treatment Cohen's $d_{rm}$ |
|---|---|---|---|---|
| Symptom severity | | | | |
| Overall HD symptom severity | 56.8 (10.6) | 61.2 (14.7) | 41.1 (12.7) | 1.45 |
| Difficulty discarding | 19.0 (5.3) | 20.5 (4.2) | 14.7 (3.7) | 1.37 |
| Excessive acquiring | 12.4 (6.4) | 15.5 (5.3) | 8.3 (4.4) | 1.45 |
| Clutter | 25.4 (3.4) | 25.2 (6.6) | 18.2 (6.9) | 1.15 |
| Depression symptom severity | 12.6 (13.0) | 15.0 (10.4) | 11.3 (9.4) | 0.71 |
| Anxiety symptom severity | 13.0 (16.3) | 10.8 (9.8) | 10.7 (8.4) | 0.02 |
| Hoarding-related dysfunctions | | | | |
| Avoidance | 1.9 (1.0) | 2.5 (0.8) | 1.9 (0.6) | 1.04 |
| Information-processing | | | | |
| Decision-making | 3.1 (0.8) | 3.6 (0.7) | 2.3 (0.7) | 3.63 |
| Memory | 4.2 (2.2) | 4.5 (1.8) | 4.1 (1.9) | 0.27 |
| Emotional attachment | | | | |
| Emotional attachment | 3.1 (1.7) | 3.8 (1.3) | 3.4 (1.5) | 0.38 |
| Comfort from possessions | 3.3 (1.5) | 4.1 (1.4) | 3.8 (1.6) | 0.29 |
| Hoarding cognitions | | | | |
| Desire to control | 5.5 (1.0) | 4.8 (1.3) | 4.4 (1.9) | 0.48 |
| Sense of responsibility | 3.6 (1.6) | 3.8 (1.4) | 3.2 (1.7) | 0.60 |
| Emotion regulation and self-perceptions | | | | |
| Distress tolerance | 3.5 (1.6) | 3.0 (1.4) | 3.5 (1.1) | −0.85 |
| Self-ambivalence | 1.4 (1.0) | 2.0 (0.6) | 1.7 (0.7) | 0.72 |
| Shame as a person | 1.8 (1.0) | 2.7 (0.9) | 2.3 (0.8) | 0.70 |
| Shame for mistakes | 2.2 (1.2) | 3.0 (0.6) | 2.5 (0.6) | 2.07 |
| Self-reassurance | 2.3 (1.1) | 2.0 (1.0) | 2.4 (1.0) | −0.86 |
| Self-criticism | 1.4 (1.1) | 1.8 (0.8) | 1.3 (0.8) | 0.84 |

*SD* = 9.9 for completers, *M* = 49.2, *SD* = 17.2 for dropouts, $p = .75$), or any of the pre-treatment measures in the current study (largest $t(14) = 1.7$, $p = .12$).

Among treatment completers, the percentage of females was significantly higher in CBT than CFT ($\chi^2(1) = 5.8$, $p = .02$). There was no significant age differences between the two treatment conditions ($p = .80$). The groups did not differ significantly in their HD symptom severity at HFH study completion (*M* = 44.2, *SD* = 11.33 for CFT, *M* = 46.9, *SD* = 9.9 for CBT, $p = .61$). Similarly, none of the pre-treatment measures was significantly different between treatment completers in the two treatment conditions (largest $t(17) = 1.6$, $p = .12$).

**Table 3.** Descriptive data of treatment completers and dropouts in CBT

| | Dropouts (*n* = 12) | Treatment completer (*n* = 7) |
|---|---|---|
| Biographics and co-occurring diagnoses | | |
| Gender | 2 males | 0 males |
| Age: *M* (*SD*), range (years) | 64 (14.5), 40–81 | 64 (6.4), 57–75 |
| Co-occurring diagnoses | | |
| Major depressive disorder | *n* = 4 | |
| Generalized anxiety disorder | *n* = 1 | *n* = 2 |
| Bipolar disorder NOS | | *n* = 1 |

| | Pre-treatment *M* (*SD*) | Pre-treatment *M* (*SD*) | Post-treatment *M* (*SD*) | Pre- versus post-treatment Cohen's $d_{rm}$ |
|---|---|---|---|---|
| Symptom severity | | | | |
| Overall HD symptom severity | 59.5 (13.6) | 55.4 (9.1) | 47.3 (10.9) | 0.89 |
| Difficulty discarding | 18.7 (2.9) | 18.4 (2.1) | 16.3 (3.5) | 0.46 |
| Excessive acquiring | 16.1 (6.2) | 12.3 (2.0) | 8.3 (4.4) | 2.22 |
| Clutter | 24.7 (7.5) | 24.7 (5.1) | 22.7 (8.2) | 0.67 |
| Depression symptom severity | 23.0 (11.5) | 15.7 (6.4) | 14.5 (11.3) | 0.25 |
| Anxiety symptom severity | 15.3 (16.4) | 11.7 (7.0) | 12.3 (8.0) | −0.09 |
| Hoarding-related dysfunctions | | | | |
| Avoidance | 1.95 (0.5) | 2.3 (0.7) | 1.9 (0.5) | 0.49 |
| Information-processing | | | | |
| Decision-making | 3.4 (0.6) | 3.3 (0.3) | 2.2 (0.5) | 2.90 |
| Memory | 3.8 (1.5) | 3.9 (1.8) | 3.6 (1.9) | 0.24 |
| Emotional attachment | | | | |
| Emotional attachment | 4.0 (1.3) | 2.8 (1.3) | 3.2 (0.6) | −0.35 |
| Comfort from possessions | 4.0 (1.1) | 3.6 (1.1) | 3.3 (0.6) | 0.57 |
| Hoarding cognitions | | | | |
| Desire to control | 5.8 (1.2) | 5.8 (1.0) | 5.3 (1.5) | 0.86 |
| Sense of responsibility | 3.9 (1.8) | 3.8 (1.4) | 3.1 (0.9) | 0.94 |
| Emotion regulation and self-perceptions | | | | |
| Distress tolerance | 3.2 (0.9) | 3.4 (0.6) | 3.8 (0.8) | −1.01 |
| Self-ambivalence | 2.2 (0.8) | 1.8 (0.6) | 1.6 (0.6) | 0.50 |
| Shame as a person | 2.9 (0.8) | 2.7 (0.6) | 2.3 (0.6) | 1.46 |
| Shame for mistakes | 2.9 (0.8) | 2.8 (0.8) | 2.5 (0.8) | 0.36 |
| Self-reassurance | 2.0 (1.0) | 2.4 (0.6) | 2.3 (0.9) | 0.27 |
| Self-criticism | 1.7 (1.1) | 1.7 (0.5) | 1.5 (0.6) | 1.49 |

*Note*. Two data points from the dropout group were missing for all measures except those measuring HD symptom severity.

### *Treatment acceptability*

Among the individuals who participated in at least one group session of either treatment, 100 and 79% rated the overall quality of the CFT and CBT sessions, respectively, as either good or excellent. Rating distributions for each item of the treatment acceptability questionnaire are shown in Figure 2.

### *Treatment effects*

After completing CFT, 77% of the participants were treatment responders, meaning that their symptom severity scores dropped below the cut-off for clinically significant HD (i.e., <41 points on the SI-R) and 62% of the sample achieved a clinically significant reduction in HD symptom severity (≥14 points of reduction on the SI-R). In contrast, after completing a second course of CBT, 23% of the participants had S-R scores below the cut-off threshold, and 29% achieved clinically significant reduction in HD severity.

The pre- versus post-treatment HD symptom severity (SI-R) scores for all treatment completers in both groups is shown in Figure 3. Exploratory analyses separately comparing HD symptom severity pre- and post-treatment in each treatment condition showed that: CFT significantly decreased HD symptom severity in both overall ($t(11) = 5.16, p < .001$) and every symptom domain ($t(11) = 4.88, p < .001$ for difficulty discarding, $t(11) = 5.18$, $p < .001$ for excessive acquiring, $t(11) = 4.15$, $p < .01$ for clutter; see Figure 4). In contrast, only a marginal effect of CBT on reducing overall HD symptom severity ($t(5) = 2.34$, $p = .06$) was found. While CBT significantly reduced symptoms of excessive acquiring ($t(5) = 3.74$, $p < .05$), its effect on reducing difficulty discarding ($t(5) = 1.20$, $p = .28$) or clutter ($t(5) = 1.25$, $p = .26$) was not significant

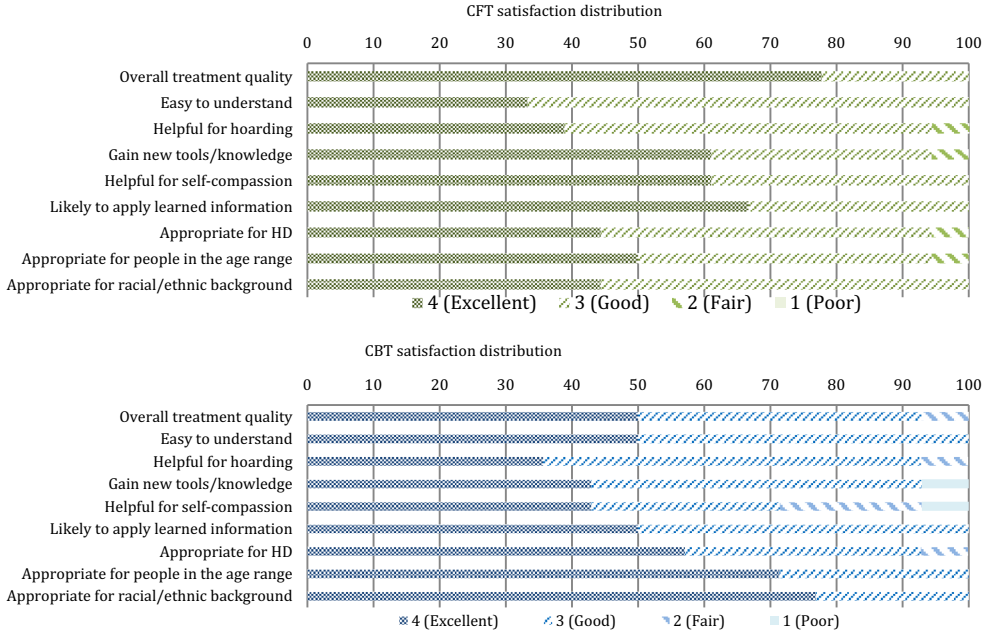


**Figure 2.** Treatment satisfaction ratings by group.

(see Figure 3). Descriptive data and effect sizes of the pre- versus post-treatment levels of HD symptom severity and those of the measures of underlying mechanisms (i.e., hoarding-related dysfunctions, emotion regulation, and self-perceptions) are summarized in Tables 2 and 3.

### *Effects on improving hoarding-related dysfunctions, emotion regulation, and self-perception*

Exploratory analyses showed that, among the four areas of hoarding-related dysfunctions, CFT significantly decreased avoidance ($t(11) = 3.38$, $p < .01$) and improved decision-making ($t(11) = 12.40$, $p < .001$). However, its effect in reducing concerns about memory, emotional attachment to possessions, and hoarding beliefs was not statistically significant (largest $t(11) = 1.51$, $p = .16$). For emotion regulation and self-perception, CFT significantly reduced self-ambivalence ($t(11) = 2.60$, $p < .05$), shame about oneself as a person ($t(11) = 2.22$, $p < .05$) and shame when making mistakes ($t(11) = 5.11$, $p < .001$). CFT also significantly decreased self-criticism ($t(11) = 2.60$, $p < .05$) and increased the capacity to provide self-reassurance when things go wrong ($t(11) = -2.87$, $p < .05$), and improved distress tolerance ($t(11) = -2.45$, $p < .05$). On the other hand, only decision-making ($t(5) = 6.53$, $p < .001$) and shame about oneself as a person ($t(5) = 3.37$, $p < .05$) were significantly improved after CBT. None of the rest of the hoarding-related dysfunctions, emotion regulation, and self-perception measures showed a statistically significant difference pre- versus post-treatment in CBT (largest $t(5) = 2.19$, $p = .08$).

### *Treatment feedback*

As shown in Table 4, two sets of themes were derived from CFT treatment completers' feedback on how CFT was for them compared to CBT. Overall, CFT was appreciated for its emphases on internal processes (as opposed to the external

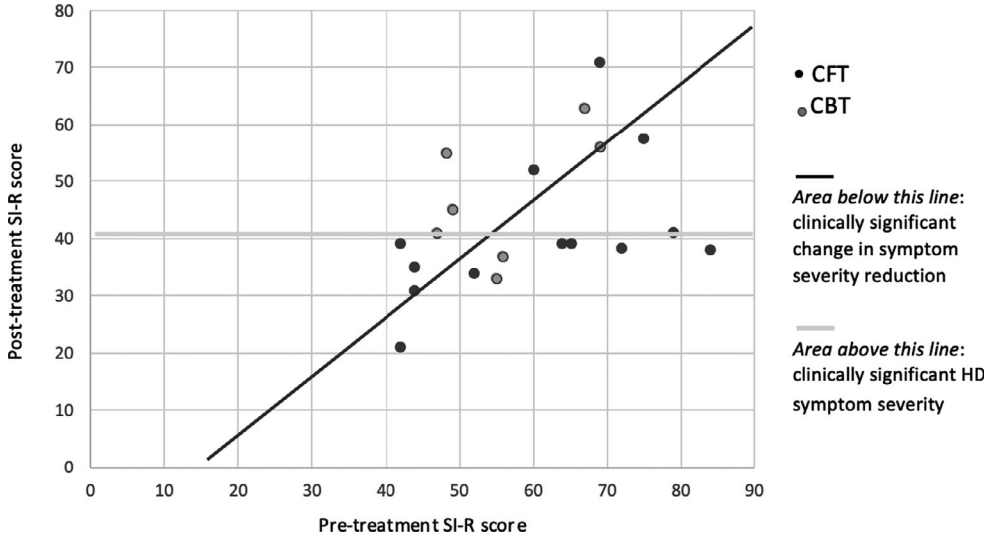


**Figure 3.** Scatter plot of pre- versus post-treatment SI-R scores by group.

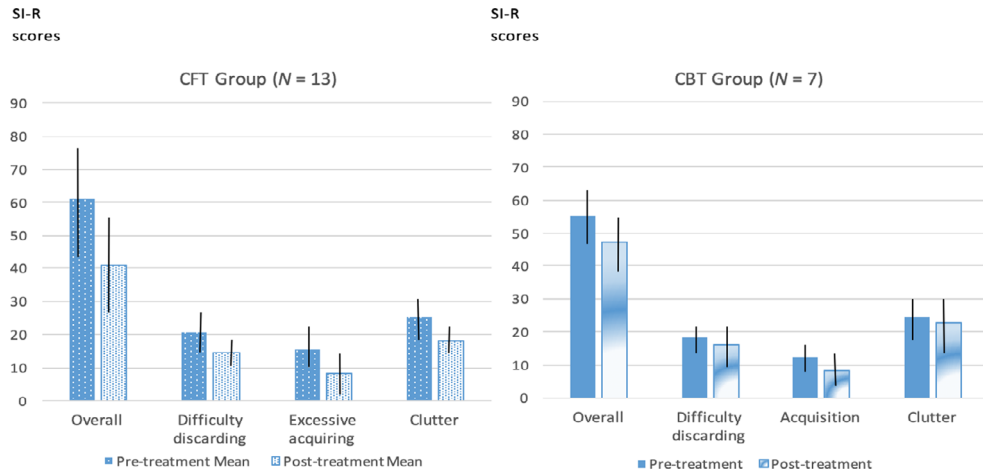


**Figure 4.** Means and standard deviations of pre- and post-treatment HD symptom severity by group.

problems or behaviours of hoarding), emotions, and self-perceptions associated with HD. While a number of individuals reported that they did not think CFT was worse than CBT, others suggested that CFT's clinical focuses and less goal-oriented approaches on addressing the clutter issues could be a limitation.

## Discussion

Our findings suggest satisfactory feasibility, acceptability, and promising effects of CFT as a potential treatment option for HD. Specifically, CFT was both *feasible* and *acceptable* as a follow-up treatment for HD, as indicated by having a satisfactory treatment completion rate of 72%, and an overall evaluation of the treatment as 'extremely positive' or 'positive' by 100% of the participants. Moreover, promising treatment effects were supported by findings that (1) 77% of the CFT completers had post-treatment severity scores below the cut-off for clinically significant HD; (2) the mean post-treatment severity levels for all symptom domains dropped to near or just above the clinically significant cut-offs (i.e., 14 for difficulty discarding, 17 for clutter, and nine for excessive acquiring on the SI-R; Frost *et al.*, 2004; Tolin *et al.*, 2011) after CFT; and (3) 62% of the sample achieved a clinically significant reduction in HD symptom severity. The current study recruited individuals who did not achieve remission >1 year after completing CBT. These positive findings may partially be associated with the effect of the previous CBT experience. Nevertheless, comparing the effect sizes of CFT with those of CBT, the data suggest greater effects of CFT that are beyond the residual effects of CBT and even a second round of it. Overall, the findings suggest beneficial effects of CFT as a potential intervention for HD.

The effects of CFT may be associated with its effects on HD-related dysfunctions (Frost & Hartl, 1996) and mechanisms, for example, emotion regulation and self-perception, that have been suggested to be underlying these dysfunctions (Chou *et al.*, 2018; Frost *et al.*, 2007; Shaw *et al.*, 2015). In terms of the HD-related dysfunctions, we found that CFT significantly improved self-reported information processing (especially decision-making) and avoidance. The latter is especially valuable. It has been our clinical observation that even when a decision of discarding has been made, the action of discarding can still be difficult because of avoidance. The symptom domain of HD, clutter, therefore has been

**Table 4.** Themes and quotes of participant feedback comparing CFT to CBT

| | Example quotes |
|---|---|
| Question 1: How is CFT better than CBT? | |
| Theme 1: CFT addresses deeper internal processes | |
| Digs into deeper roots of hoarding ($n = 4$) | • The CFT approach is more exact in its description of deeply ingrained causes of hoarding<br>• CFT digs deeper to 'root' of emotional issue |
| Internal processes over external tasks ($n = 4$) | • With CBT the focus is on 'success' or 'failure' in the ongoing struggle with clutter. With CFT the focus is on the negative self-talk and the on neutralizing it. This leads to a healthier (long term) attitude toward the clutter problem |
| Theme 2: CFT focuses more on emotions | |
| More focus on feelings and emotions ($n = 8$) | • CFT acknowledges that emotion is the main problem, not acquiring<br>• Better focus on feelings/emotion |
| Useful emotion regulation tools ($n = 4$) | • CFT helped me become less anxious with the meditation exercise<br>• The breathing and relaxation techniques that we practiced enabled me remind myself of what my most compassionate, wise, strong, warm and committed self would do in any given situation of discomfort or distress, and to gain a broader perspective on my troubled mind or emotional state |
| CFT acknowledges that hoarding is illogical ($n = 3$) | • CFT recognizes that discarding is not a logic decision. CBT had a list of logic questions, which could never affect my emotions (except make me angry when I got no progress) in de-cluttering |
| Theme 3: CFT addresses self-perceptions | |
| CFT improves positive self-perceptions ($n = 5$) | • CFT is better than CBT in helping my clutter problem because the emphasis on self-compassion helped teach me the tools to soothe and be compassionate to myself<br>• CFT builds confidence |
| CFT reduces negative self-perceptions ($n = 3$) | • CFT is beneficial because it directly deals with the issues of shame and concealment that are associated with hoarding |
| CFT improves acceptance ($n = 2$) | • CFT helps us learn to accept and deal with the feelings of guilt and lack of self-worth<br>• CFT takes you where you are rather than pushing you to be somewhere else |
| Question 2: How is CFT worse than CBT? | |
| Theme 1: CFT focuses more on internal processes | |
| CFT focuses more on the self ($n = 4$) | • The self-examination may be more uncomfortable in the group interaction<br>• CFT does not have as much rational work. There is more self kindness emotional work |

*Continued*

**Table 4.** (*Continued*)

| | Example quotes |
|---|---|
| Internal processes take longer to improve ($n = 4$) | • CFT is less measurable and more internal. So a lot of work can't be seen even though it's in the works. It goes much more slowly and needs a long run |
| Theme 2: CFT focuses less on clutter | |
| CFT focuses less on clutter ($n = 4$) | • CFT has very little focus on the 'stuff' during the first half or 2/3<br>• CFT is worse for me because I didn't focus as much on my clutter issues as I did on personal healing. It's only been the last weeks that I'm really making progress on de-cluttering |
| CFT is less rational or goal-oriented ($n = 4$) | • *CBT has appeal to me because I think of myself as a rational individual and the methods taught in the CBT class were easy to put into use*<br>• CFT works on the holistic individual. But for me, the CBT was better because it was more specific, more goal setting, more focused |
| CFT misses some useful behavioural tools ($n = 2$) | • CFT lacks some of the useful tools of CBT: daily de-cluttering sessions with a timer; 'rules' of acquiring and saving |
| Theme 3: CFT is not worse than CBT | |
| CFT is not worse than CBT ($n = 3$) | • I can't think of any ways that the CFT group is worse than the CBT group. Although the CBT group went through a period of teaching feedback techniques I don't recall much of the specific things that I learned about CBT or how to use CBT in the future. In contrast, I feel there are many specific tools that I gained from CFT that will be useful to me |
| It was good that CBT came before CFT ($n = 4$) | • CFT is not worse than CBT – however, CBT was better to come first just because it's about the physical-ness of hoarding issues – i.e., clutter<br>• I believe CFT needs CBT as a first step – then wait about 6 months, then do CFT to take the whole thing to a more advanced level. CBT is the 'intro' course. CFT is the next step |

the least improved in most of the existing treatment studies (Tolin *et al*., 2015). The current findings on CFT's effect in reducing avoidant behaviours (i.e., self-distraction, behavioural disengagement, and denial) as well as significant effect in reducing the severity of clutter show promise for its clinical applications. On the other hand, CFT did not show significant effects in reducing memory concerns, emotional attachment, and hoarding-related beliefs such as strong senses of responsibility for possessions. These negative findings may be related to the treatment approach and emphases. Specifically, CFT acknowledges these seemingly illogical beliefs and emphasizes exploring their origins, as opposed to correcting them. The aims are to improve awareness of these beliefs and their impacts, and to develop psychological capacity to take constructive compassionate actions, despite the existence of these beliefs.

For mechanisms underlying the HD-related dysfunctions, we found that CFT significantly improved one's capacity to bear distress and self-reassure in difficult situations, reduced self-criticism, shame, and self-ambivalence. It is possible that, CFT achieved the aforementioned effect on avoidance through addressing these emotion regulation and self-perception related mechanisms, since difficulties in decision-making and avoidance have been associated with overwhelming emotions and feelings of shame and self-criticism in HD (Chou *et al*., 2018; Fernández de la Cruz *et al*., 2013). As a next step, it would be of interest to more directly examine the effect of CFT on common emotions associated with HD, and interpersonal functioning, since it is another significantly impaired area among individuals with HD (Grisham, Martyn, Kerin, Baldwin, & Norberg, 2018).

Overall, the promising outcomes suggest potential clinical value to further develop CFT for HD. The current 16-session CFT protocol was designed to be a follow-up treatment for individuals who had previously received group CBT, and under the assumption that participants were familiar with, and could access cognitive behavioural techniques, without revisiting them again in session. Initial evaluation by the participants who had experienced CBT and then CFT in the current study suggested that CFT's emphases on internal processes (as opposed to the external behavioural problems) and its approaches in addressing emotion and self-perception issues were desirable and helpful. However, since some participants suggested that the CFT approach may be less acceptable for individuals who prefer more goal-oriented and symptom-focused methods, it may be helpful to incorporate cognitive behavioural techniques, especially in the initial phase of treatment, before gradually proceeding to address psychological mechanisms that may require more guidance and preparation for some individuals. These notions should be taken into consideration in future development and application of CFT for HD.

Limitations of the current study included the small convenience sample, as well as the lack of randomization to the two treatments. Specifically, as a pilot study with a small sample, more sophisticated analytic strategies, such as those that could address potential confounding factors, were not possible. Moreover, the 37 enrolled individuals were recruited sequentially from the HFH study sample (Mathews *et al*., 2018) into CFT and subsequently into CBT. Participants of the CFT groups were individuals who responded promptly to the recruitment emails during the first period of recruitment. They may have been more motivated, more open to a new or existing treatment, or more high-functioning than those in the CBT groups. This limitation may have contributed to the differences in retention rates, satisfaction ratings, and treatment effects between the two treatment conditions. In addition, the study may not be broadly generalizable since the participants were individuals who had volunteered to receive treatments for HD in the context of a large clinical trial, the HFH study (Mathews *et al*., 2018), which involved multiple

additional research components. The small sample size and the participant characteristics associated with the above-mentioned recruitment source, such as their level of motivation, mental, and physical capacity to commit to study participation, may limit generalizability of the current study findings. Moreover, since the number of treatment completers in the CBT group was much smaller than that of the CFT group, we were not able to explore and compare treatment effects statistically between the two interventions. The lack of randomization in treatment assignment and the difference in the gender distribution between the two groups further limited comparative examination of the treatments, which was a secondary aim of the study. The lack of a treatment fidelity measure was another limitation. However, regular supervision provided by experts in each treatment was designed to ensure that delivery of the treatments was in alignment with established standards. Moreover, participants' feedback shown in Table 4 supported significant differences in the treatment focuses and approaches between the two treatments recognizable by the treatment receivers.

In sum, HD is a costly and newly defined psychiatric disorder. While the current standard of treatment, CBT, yields positive treatment outcomes and yet room for improvement (Tolin *et al*., 2015), the field may benefit from alternative treatment options. The current study pilot tested CFT for this concern and suggested potential of this approach to address mechanisms not sufficiently focused on in CBT, and promising treatment effects on HD. These initial findings will contribute to future development of CFT and other therapies for HD. Further investigation on CFT for HD as an independent treatment option, as opposed to a follow-up treatment after CBT, is of research interest.

## References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.

Andrews, B., Qian, M., & Valentine, J. D. (2002). Predicting depressive symptoms with a new measure of shame: The Experience of Shame Sale. *British Journal of Clinical Psychology*, *41*, 29–42. https://doi.org/10.1348/014466502163778

Ashworth, F., Gracey, F., & Gilbert, P. (2011). Compassion focused therapy after traumatic brain injury: Theoretical foundations and a case illustration. *Brain Impairment*, *12*, 128–139. https://doi.org/10.1375/brim.12.2.128

Ayers, C. R., Castriotta, N., Dozier, M. E., Espejo, E. P., & Porter, B. (2014). Behavioral and experiential avoidance in patients with hoarding disorder. *Journal of Behavior Therapy and Experimental Psychiatry*, *45*, 408–414. https://doi.org/10.1016/j.jbtep.2014.04.005

Baião, R., Gilbert, P., McEwan, K., & Carvalho, S. (2015). Forms of self-criticising/attacking & self-reassuring scale: Psychometric properties and normative study. *Psychology and Psychotherapy: Theory, Research and Practice*, *88*, 438–452. https://doi.org/10.1111/papt.12049

Beaumont, E., Galpin, A., & Jenkins, P. (2012). 'Being kinder to myself': A prospective comparative study, exploring post-trauma therapy outcome measures, for two groups of clients, receiving either Cognitive Behaviour Therapy or Cognitive Behaviour Therapy and Compassion Mind Training. *Counselling Psychology Review*, *27*, 31–43.

Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology*, *56*, 893–897.

Beck, A. T., Steer, R. A., Ball, R., & Ranieri, W. (1996). Comparison of beck depression inventories – IA and II in psychiatric outpatients. *Journal of Personality Assessment*, *67*, 588–597. https://doi.org/10.1207/s15327752jpa6703_13

Begley, S. (2007). *Train your mind, change your brain*. New York, NY: Ballantine Books.

Best-Lavigniac, J. (2006). Hoarding as an adult: Overview and implications for practice. *Journal of Psychosocial Nursing Mental Health Services*, *44*, 48–51.

Bhar, S., & Kyrios, M. (2000). Ambivalent self-esteem as meta-vulnerability for obsessive-compulsive disorder. In R. Craven & H. W. Marsh (Eds.), *Proceedings from International Conference in self concept: Theory, research and practice: Advances for the New Millennium*. Sydney, Australia: Self Research Centre.

Carver, C. (1997). You want to measure coping but your protocol's too log: Consider the brief COPE. *International Journal of Behavioral Medicine*, *4*, 92–100. https://doi.org/10.1207/s15327558ijbm0401_6

Chou, C.-Y., Tsoh, J., Vigil, O. R., Bain, D., Uhm, S. Y., Howell, G., Chan, J., Eckfield, M., Plumadore, J., Chan, E., Komaiko, K., Smith, L., Franklin, J., Vega, E., Delucchi, K., . . . Mathews, C. A. (2018). Contributions of self-criticism and shame to hoarding. *Psychiatry Research*, *262*, 488–493. https://doi.org/10.1016/j.psychres.2017.09.030

Davidson, R. J., Kabat-Zinn, J., Schumacher, J., Rosenkranz, M., Muller, D., Santorelli, S., . . . Sheridan, J. F. (2003). Alterations in brain and immune function produced by mindfulness meditation. *Psychosomatic Medicine*, *65*, 564–570. https://doi.org/10.1097/01.PSY.0000077505.67574.E30

Erlingsson, C., & Brysiewicz, P. (2017). A hands-on guide to doing content analysis. *African Journal of Emergency Medicine*, *7*, 93–99. https://doi.org/10.1016/j.afjem.2017.08.001

Fernández de la Cruz, L., Landau, D., Iervolino, A. C., Santo, S., Pertusa, A., Singh, S., & Mataix-Cols, D. (2013). Experiential avoidance and emotion regulation difficulties in hoarding disorder. *Journal of Anxiety Disorders*, *27*, 204–209. https://doi.org/10.1016/j.janxdis.2013.01.004

Frost, R. O., & Hartl, T. L. (1996). A cognitive-behavioral model of compulsive hoarding. *Behavioural Research and Therapy*, *34*, 341–350. https://doi.org/10.1016/0005-7967(95)00071-2

Frost, R. O., Hartl, T. L., Christian, R., & Williams, N. (1995). The value of possessions in compulsive hoarding: Patterns of use and attachment. *Behaviour Research and Therapy*, *33*, 897–902. https://doi.org/10.1016/0005-7967(95)00043-W

Frost, R. O., Kyrios, M., McCarthy, K. D., & Matthews, Y. (2007). Self-ambivalence and attachment to possessions. *Journal of Cognitive Psychotherapy: An International Quarterly*, *21*, 232–242. https://doi.org/10.1891/088983907781494582

Frost, R. O., & Shows, D. L. (1993). The nature and measurement of compulsive indecisiveness. *Behaviour Research and Therapy*, *31*, 683–692. https://doi.org/10.1016/0005-7967(93)90121-A

Frost, R. O., Steketee, G., & Grisham, J. (2004). Measurement of compulsive hoarding: Saving inventory-revised. *Behavioural Research and Therapy*, *42*, 1163–1182. https://doi.org/10.1016/j.brat.2003.07.006

Gale, C., Gilbert, P., Read, N., & Goss, K. (2014). An evaluation of the impact of introducing compassion focused therapy to a standard treatment program for people with eating disorders. *Clinical Psychology and Psychotherapy*, *21*, 1–12. https://doi.org/10.1002/cpp.1806

Gilbert, P. (2010). *Compassion focused therapy*. East Sussex and New York, NY: Routledge.

Gilbert, P., Clark, M., Hempel, S., Miles, J. N. V., & Irons, C. (2004). Criticising and reassuring oneself: An exploration of forms, styles and reasons in female students. *British Journal of Clinical Psychology*, *43*, 31–50. https://doi.org/10.1348/014466504772812959

Gilbert, P., & Procter, S. (2006). Compassionate mind training for people with high shame and self-criticism: A pilot study of a group therapy approach. *Clinical Psychology and Psychotherapy*, *13*, 353–379. https://doi.org/10.1002/(ISSN)1099-0879

Grisham, J. R., Frost, R. O., Steketee, G., Kim, H. J., & Hood, S. (2006). Age of onset of compulsive hoarding. *Journal of Anxiety Disorder*, *20*, 675–686. https://doi.org/10.1016/j.janxdis.2005.07.004

Grisham, J. R., Martyn, C., Kerin, F., Baldwin, P. A., & Norberg, M. M. (2018). Interpersonal functioning in Hoarding Disorder: An examination of attachment styles and emotion regulation in response to interpersonal stress. *Journal of Obsessive-Compulsive and Related Disorders*, *16*, 43–49. https://doi.org/10.1016/j.jocrd.2017.12.001

Judge, L., Gleghorn, A., McEwan, K., & Gilbert, P. (2012). An exploration of group-based compassion focused therapy for a heterogeneous range of clients presenting to a community mental health team. *International Journal of Cognitive Therapy*, *5*, 420–429. https://doi.org/10.1521/ijct.2012.5.4.420

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, *62*, 593–602. https://doi.org/10.1001/archpsyc.62.6.593

Kim, H. J., Steketee, G., & Frost, R. O. (2001). Hoarding by elderly people. *Health and Social Work*, *26*, 176–184. https://doi.org/10.1093/hsw/26.3.176

Kirby, J., Doty, J., Petrocchi, N., & Gilbert, P. (2017). The current and future role of heart rate variability for assessing and training compassion. *Frontiers. Public Health*, *5*, 40. https://doi.org/10.3389/fpubh.2017.00040

Klimecki, O. M., Leiberg, S., Ricard, M., & Singer, T. (2013). Differential pattern of functional brain plasticity after compassion and empathy training. *Social, Cognitive and Affective Neuroscience*, *9*, 873–879.

Kyrios, M., Frost, R. O., & Steketee, G. (2004). Cognitions in compulsive buying and acquisition. *Cognitive Therapy and Research*, *28*, 241–258. https://doi.org/10.1023/B:COTR.0000021543.62799.32

Laithwaite, H., O'Hanlon, M., Collins, P., Doyle, P., Abraham, L., Porter, S., Gumley, A. (2009). Recovery after psychosis (RAP): A compassion focused program for individuals residing in high security settings. *Behavioural and Cognitive Psychotherapy*, *37*, 511–526. https://doi.org/10.1017/S1352465809990233

Lakens, D. (2013). Calculating and reporting effect sizes to facilitate cumulative science: A practical primer for t-tests and ANOVAs. *Frontiers in Psychology*, *26*, https://doi.org/10.3389/fpsyg.2013.00863

Longe, O., Maratos, F. A., Gilbert, P., Evans, G., Volker, F., Rockliffe, H., Rippon, G. (2010). Having a word with yourself: Neural correlates of self-criticism and self-reassurance. *NeuroImage*, *49*, 1849–1856. https://doi.org/10.1016/j.neuroimage.2009.09.019

Lucre, K. M., & Corten, N. (2013). An exploration of group compassion-focused therapy for personality disorder. *Psychology and Psychotherapy*, *86*, 387–400. https://doi.org/10.1111/j.2044-8341.2012.02068.x

Mathews, C. A., Mackin, R. S., Chou, C.-Y., Uhm, S. Y., Bain, L. D., Stark, S. J., Gause, M., Vigil, O. R., Franklin, J., Salazar, M., Plumadore, J., Smith, L. C., Komaiko, K., Howell, G., Vega, E., Chan, J., Eckfield, M. B., Tsoh, J. Y., . . . Delucchi, K. (2018). Randomised clinical trial of community-based peer-led and psychologist-led group treatment for hoarding disorder. *British Journal of Psychiatry*, *4*, 285–293.

Moulding, R., Nedeljkovic, M., Kyrios, M., Osborne, D., & Mogan, C. (2016). Short-term cognitive-behavioural group treatment for hoarding disorder: A naturalistic treatment outcome study. *Clinical Psychology and Psychotherapy*, *24*, 1–10. https://doi.org/10.1002/cpp.2001

Nordsletten, A. E., Fernández de la Cruz, L., Pertusa, A., Reichenberg, A., Hatch, S. L., & Mataix-Cols, D. (2013). The structured interview for hoarding disorder (SIHD): Development, usage and further validation. *Journal of Obsessive-Compulsive and Related Disorder*, *2*, 346–350. https://doi.org/10.1016/j.jocrd.2013.06.003

Oxman, T. E., Hegel, M. T., Hull, J. G., & Dietrich, A. J. (2008). Problem-solving treatment and coping styles in primary care for minor depression. *Journal of Consulting and Clinical Psychology*, *76*, 933–943. https://doi.org/10.1037/a0012617

Rockliffe, H., Gilbert, P., McEwan, K., Lightman, S., & Glover, D. (2008). A pilot exploration of heart rate variability and salivary cortisol responses to compassion-focused imagery. *Journal of Clinical Neuropsychiatry*, *5*, 132–139.

Shaw, A. M., Llabre, M. M., & Timpano, K. R. (2015). Affect intolerance and hoarding symptoms: A structural equation modeling approach. *International Journal of Cognitive Therapy*, *8*, 222–238. https://doi.org/10.1521/ijct_2015_8_05

Sheehan, D. V., Lecrubier, Y., Harnett-Sheehan, K., Amorim, P., Janavs, J., Weiller, E., Hergueta, T., Baker, R., & Dunbar, G. (1998). The M.I.N.I. International Neuropsychiatric Interview (M.I.N.I.): The development and validation of a structured diagnostic psychiatric interview. *Journal of Clinical Psychiatry*, *59*, 22–33.

Simons, J. S., & Gaher, R. M. (2005). The Distress Tolerance Scale: Development and validation of a self-report measure. *Motivation and Emotion*, *29*, 83–102. https://doi.org/10.1007/s11031-005-7955-3

Steketee, G., & Frost, R. O. (2014). *Compulsive hoarding and acquiring. Therapist guide* (2nd ed.). New York, NY: Oxford University Press.

Steketee, G., Frost, R. O., & Kyrios, M. (2003). Cognitive aspects of compulsive hoarding. *Cognitive Therapy and Research*, *27*, 463–479. https://doi.org/10.1023/A:1025428631552

Timpano, K. R., Shaw, A. M., Cougle, J. R., & Fitch, K. E. (2014). A multifaceted assessment of emotional tolerance and intensity in hoarding. *Behavior Therapy*, *45*, 690–699. https://doi.org/10.1016/j.beth.2014.04.002

Tolin, D. F., Frost, R. O., & Steketee, G. (2014). *Buried in treasures, help for compulsive acquiring, saving, and hoarding* (2nd ed.). New York, NY: Oxford University Press.

Tolin, D. F., Frost, R. O., Steketee, G., & Muroff, J. (2015). Cognitive behavioral therapy for hoarding disorder: A meta-analysis. *Depression and Anxiety*, *32*, 158–166. https://doi.org/10.1002/da.22327

Tolin, D. F., Meunier, S. A., Frost, R. O., & Steketee, G. (2011). Hoarding among patients seeking treatment for anxiety disorders. *Journal of Anxiety Disorders*, *25*, 43–48. https://doi.org/10.1016/j.anxdis.2010.08.001

Uhm, S. Y., Tsoh, J. Y., Mackin, R. S., Gause, M., Chan, J., Franklin, J., Eckfield, M., Salazar, M., Vigil, O., Bain, D., Stark, S., Vega, E., Delucchi, K. L., . . . Mathews, C. A. (2016). Comparison of a peer facilitated support group to cognitive behavior therapy: Study protocol for a randomized controlled trial for hoarding disorder. *Contemporary Clinical Trials*, *50*, 98–105. https://doi.org/10.1016/j.cct.2016.07.018

Wheaton, M. G., Fabricant, L. E., Berman, N. C., & Abramowitz, J. S. (2013). Experiential avoidance in individuals with hoarding disorder. *Cognitive Therapy and Research*, *37*, 779–785. https://doi.org/10.1007/s10608-012-9511-2

Williams, A. D. (2012). Distress tolerance and experiential avoidance in compulsive acquisition behaviours. *Australian Journal of Psychology*, *64*, 217–224. https://doi.org/10.1111/j.1742-9536.2012.00055.x

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