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ABSTRACT

Hoarding Disorder (HD) is characterized by a difficulty discarding possessions and leads to the accumulation of clutter, causing marked distress and impairment (Mataix-Cols, et al., 2010). HD has been an increasing area of research and public interest, though little is known about how it develops or factors that influence its expression (Mataix-Cols, Fernandes de la Cruz, Nakoa, & Pertusa, 2011; Frost, Steketee, & Tolin, 2011). High frequency of trauma among people with hoarding behavior has been reported (Saxena et al. 2011; Cromer, Schmidt, & Murphy, 2007; Hartl, Duffany, Allen, Steketee, & Frost, 2005), but none have examined it in detail. The current study included 211 HD diagnosed participants from Frost et al.'s (2011) study of comorbidity, 105 of whom had experienced a traumatic life event and 106 who had not. Severity of acquisition and clutter (SI-R) were elevated among those who had experienced a traumatic life event, while difficulty discarding was not. Interference in the activities of daily living due to hoarding (ADL-H) was greater in participants with a trauma history, as were Clutter Image Ratings. Saving Cognitions Inventory subscales of Emotional Attachment, Responsibility, and Control were higher for participants with versus without trauma. Age of hoarding onset was earlier for participants who had experienced trauma, and participants with trauma histories more often reported lower levels of family warmth and security as well as higher levels of uncertainty. Trauma in hoarding was associated with greater attention deficit disorder symptoms, more anxiety, greater anxiety sensitivity, and more symptoms of obsessive-

compulsive disorder. However, trauma was not associated with depression, social anxiety or perfectionism. Participants with histories of trauma had more current Axis I diagnoses, but not over the course of a lifetime. MDD was more frequent in HD participants with trauma, as was GAD. Social Phobia and OCD comorbidity did not significantly differ between participants with and without traumatic life experiences.

THE ROLE OF TRAUMA IN HOARDING DISORDER

A project investigating the role of trauma in the expression of Hoarding Disorder as well as features associated with hoarding. This project was submitted in partial fulfillment of the requirements for the degree of Master in Social Work.

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CHAPTER I

Introduction

Hoarding Disorder (HD) is characterized by a difficulty discarding possessions and leads to the accumulation of clutter, causing marked distress and impairment (American Psychiatric Association, 2013; Mataix-Cols, et al., 2010). HD affects approximately 2-5% of the population (Iervolino, et al., 2009; Mueller, Mitchell, Crosby, Glaesmer, & De Zwaan, 2009; Samuels, et al. 2008) and has been an increasing area of research and public interest (Frost, Steketee, & Tolin, 2011; Mataiz-Cols, Fernandes de la Cruz, Nakoa, & Pertusa, 2011). Researchers have reported that hoarding onset most commonly occurs between the ages of 11 and 15 (Grisham, Frost, Steketee, Kim, & Hood, 2006; Samuels et al., 2008; Seedat & Stein, 2002; Tolin, Meunier, Frost & Steketee, 2010). Though research on hoarding is increasing, little is known about how HD develops and factors influencing its expression. Several investigations have reported high rates of trauma among people with hoarding behavior (Cromer, Schmidt, & Murphy 2007; Hartl, Duffany, Allen, Steketee, & Frost, 2005; Saxena et al. 2011), but none have examined how this relates to the expression of hoarding and related behaviors. Higher hoarding severity among participants with a history of trauma has been shown in several studies (Cromer et al., 2007; Hartl, et al. 2005; Landau et al., 2011). Individual features of hoarding—acquisition, difficulty discarding, and clutter—have also been examined in samples reporting stressful and traumatic life events (Cromer et al., 2007; Timpano, Keough, Traeger & Schmidt, 2011b), though findings varied. While past studies have contributed to the knowledge base on hoarding, most have relied

on hoarding participants drawn from OCD samples, and none have examined hoarding severity or features of hoarding in a HD diagnosed population. Further, no studies have compared hoarding participants with histories of trauma to participants without trauma. Hoarding cognitions and various features thought to be associated with hoarding have also been examined in relationship to trauma (Hartl, et al., 2005; Saxena, et al., 2011). While significant associations were found, further research is needed within a clinically diagnosed hoarding population in order to clarify the role of trauma in Hoarding Disorder.

The current study compared individuals with HD who had versus had not experienced traumatic life events. Two hundred and eleven of the participants from Frost et al.'s (2011) study of comorbidity in hoarding were interviewed about their history of traumatic life events as part of their diagnostic interview. As reported in Frost et al. (2011), 105 had experienced a traumatic life event while 106 had not. Frequency of trauma, hoarding severity, features of hoarding, and saving cognitions were examined between trauma and non-trauma HD groups. The influence of trauma on age of hoarding symptom onset was also explored. Next, comorbidity differences and relationships between features thought to be associated with hoarding were examined.

CHAPTER II

Literature Review

Hoarding

Hoarding Disorder (HD) is characterized by excessive acquisition and difficulty discarding possessions that interferes with daily functioning, interpersonal relationships, and causes marked distress (Mataix-Cols, et al., 2010). Though formerly considered a symptom of Obsessive Compulsive Disorder (OCD), and classified under Obsessive Compulsive Personality Disorder (OCPD) in the Diagnostic and Statistical Manual (DSM IV-TR), HD has recently been recognized as a discrete condition, and reclassified in the DSM-5 (American Psychiatric Association, 2013). Hoarding consists of three primary features: acquisition, difficulty discarding, and clutter. Together they cause considerable distress and interference with daily functioning (Frost & Hartl, 1996). Acquisition is often associated with compulsive buying or indiscriminate accumulation of free items (Frost et al., 1998; Frost & Gross, 1993). Researchers have suggested that acquisition is a central component to HD due to its high frequency among people with hoarding problems, and its association with higher symptom severity, distress, and interference (Frost, Tolin, Steketee, Fitch, & Selbo-Bruns, 2009). Difficulty discarding refers to the inability to make decisions about whether to keep or get rid of items regardless of their level of utility or value. Problems in this domain are often attributable to a person's inflated beliefs about their responsibility for, control over, or emotional attachment to such items (Frost, Hartl, Christian, & Williams, 1995). The third domain, clutter, results from problems associated with

the two aforementioned domains, and causes marked interference with daily functioning. Difficulties with decision-making and inattention can lead to severe levels of disorganization, which may cause or exacerbate clutter (Frost, Tolin, Steketee, & Oh, 2011). Cumulative effects of clutter also pose risks of health and safety hazard (Frost, Steketee, & Williams, 2000). According to the cognitive-behavioral model of HD, both acquisition and difficulty discarding are associated with anxiety symptom avoidance brought on by indecision, while compulsive saving is said to be a maintenance behavior reinforced by feelings of comfort or security derived from possessions (Frost & Hartl, 1996).

HD affects approximately 2-5% of the population (Iervolino, et al., 2009; Mueller, et al., 2009; Samuels, et al. 2008), and has been an increasing area of research and public interest (Frost, et al., 2011; Mataiz-Cols, et al., 2011). Researchers examining hoarding onset reported that among a sample of 751 participants with hoarding problems, onset most commonly occurred between the ages of 11 and 15, with nearly 70% of the sample reporting symptoms before age 21 (Tolin, et al., 2010). These findings are consistent with previous research among smaller samples, showing onset to most commonly occur between the ages of 11 and 13 (Grisham, et al., 2006; Samuels et al., 2008; Seedat & Stein, 2002). Family members and communities can also be negatively affected by hoarding. Hoarding can pose increased risk of fire, as well as sanitation and contamination problems that can lead to significant health risks (Adair, 1997; Frost, Steketee, Youngren, & Mallya, 1999; Patronek, 1999). In a survey of one state's local health departments, community hoarding complaints were reported by 64% of health officers (Frost, Steketee, & Williams, 2000). Though researchers are contributing to the knowledge base on hoarding, little is still known about how HD develops and the factors influencing its expression.

Saving Cognitions

Cognitions related to hoarding and saving behavior have been hypothesized to play a role in the development and maintenance of hoarding, and have been the subject of several investigations. One study sought to explore patterns of use, emotional value, and responsibility for hoarded items among two samples: sample 1 was comprised of undergraduate students at a women's college, and sample 2 consisted of participants recruited from local newspapers who self-identified as "chronic savers" or "packrats" and randomly selected staff members at a women's college (Frost, et al., 1995). Researchers found that participants with higher hoarding symptom scores had less frequent usage of items, and were more concerned about maintaining control over items than participants with low or absent hoarding symptoms in both samples. Responsibility to be prepared for future needs, and a responsibility for the well-being of items were also higher among participants with elevated hoarding scores across samples 1 and 2. For responsibility of items related to environmental consciousness, findings differed between the two samples; responsibility was higher in self-identified hoarding participants compared to community controls, but was not correlated with hoarding symptoms in the undergraduate sample (Frost, et al., 1995). Steketee, Frost, & Kyrios (2003) developed the Saving Cognitions Inventory to examine beliefs associated with possessions that might lead to hoarding behavior. Their factor analysis revealed four distinct cognitive factors: memory, involving saving behavior that serves to remind or cue a memory; control, describing a need to maintain control over items; responsibility, involving a sense of obligation to find a utilitarian purpose for items; and attachment, describing a sense of comfort and security derived from possessions. Attachment accounted for the largest portion of variance among the study sample. Hoarding cognitive factors were also correlated with hoarding severity as measured by the Saving Inventory—

Revised (SI-R; Frost, Steketee, & Grisham, 2004). In a similar vein, researchers examined compulsive acquisition in relation to cognitions, finding saving behavior to be related to beliefs that acquisition would compensate, reward or neutralize negative feelings associated with self-esteem (Kyrios, Frost, & Steketee, 2004). Cognitions relating to emotional attachment, security, and maintaining control were associated with compulsive buying. This study focused solely on acquisition however, and did not explore relationships in other hoarding domains. Additionally, the sample was not formally assessed for hoarding symptoms. No studies have examined whether the experience of trauma affects hoarding cognitions.

Comorbidity & Associated Features

Comorbidity studies and research on features thought to be associated with hoarding have contributed to the understanding of HD. Much of the early research on hoarding was conducted among OCD populations. However, more recent research has indicated that hoarding and OCD differ substantially (Mataix-Cols et al., 2010) and has led to the inclusion of hoarding as a new disorder in DSM-5 (APA, 2013). In the first comorbidity study of HD, Frost et al. (2011) found that only 18% of diagnosed HD cases met criteria for OCD. Major depressive disorder (MDD), generalized anxiety disorder, and social anxiety disorder were all more frequent in HD than was OCD. In fact, MDD was diagnosed in over half of HD participants, which was significantly more frequent than in participants with OCD. High frequencies of each of these disorders in HD suggest that they may provide important information about the expression of hoarding.

Interestingly, HD was not associated with elevated frequencies of post traumatic stress disorder.

The cognitive behavioral model of hoarding (Frost & Hartl, 1996) has posited a variety of factors that contribute to the development of hoarding, including information processing deficits such as attention deficit problems. Several studies have confirmed an association between

ADHD symptoms and hoarding. Hartl and colleagues (2005) found both inattentive and hyperactive ADHD symptom domains to be higher in hoarding participants than community controls. Frost et al. (2011) found higher rates of ADHD symptoms among HD participants compared to those with OCD. Other studies have confirmed the association (Hall, Tolin, Frost, & Steketee, 2013; Sheppard et al., 2010; Tolin & Villavicencio, 2011).

The cognitive behavioral model also suggests that perfectionism plays a role in the development and maintenance of hoarding problems. Frost and Gross (1993) first reported an association in both clinical and non-clinical samples. Other research has shown greater perfectionism in hoarding cases (Timpano et al., 2011a) and in related samples of compulsive buyers (Kyrios, et al., 2004).

Relatively little research has examined childhood conditions or characteristics that may contribute to hoarding. Frost, Kyrios, McCarthy and Mathews (2007) examined early attachment and family environment among an undergraduate sample at a women's college. Contrary to predictions, levels of family warmth and security were not associated with hoarding behavior. However, uncertain attachment was correlated with hoarding and acquiring symptoms in this sample.

Trauma

Trauma has been examined in relationship to hoarding in several studies, and significant results have been found linking the two. However, due to the evolving understanding of HD, the way hoarding has been defined and the samples in which it has been examined have varied. Cromer et al. (2007) sought to explore relationships between traumatic life events (TLE) and compulsive hoarding among an adult OCD clinical sample. A hoarding sub-sample was determined using SI-R symptom severity [those who fell within the top 25%], endorsement of

Yale Brown Obsessive Compulsive Scale hoarding questions (Y-BOCS-SC), and predominant self-report of hoarding behavior during the OCD section of the Structured Clinical Interview Diagnostic (SCID). The non-hoarding group fell in the bottom 25% of SI-R symptom severity, and did not endorse hoarding on Y-BOCS and SCID questions. A range of participants fell in-between the cut-offs for the hoarding and non-hoarding group criteria, and comprised a mixed group. The hoarding group experienced more TLEs than both the mixed and non-hoarding groups. Further analyses showed TLEs to be positively associated with hoarding symptom severity (SI-R). Hierarchical regression analyses showed TLEs to be more specifically related to hoarding than depressive (BDI), anxiety (SCID), or general OC (Y-BOCS) symptoms. Correlations between TLEs and SI-R subscales showed clutter to be most strongly associated with TLE, followed by difficulty discarding, and acquiring among this sample.

A recent study by Landau and colleagues examined the frequency of traumatic life events (TLE) and symptom severity scores of hoarding and OCD among four study groups: participants with hoarding only, hoarding participants with co-morbid OCD, OCD participants without hoarding symptoms, and non-clinical controls (Landau et al., 2011). Hoarding was assessed by either in-person or telephone interview, using criteria derived from the work of previous researchers (Frost & Hartl, 1996; Pertusa et al., 2008); this set of criteria significantly overlaps with the HD criteria for DSM-5 (American Psychiatric Association, 2013; Mataix-Cols et al., 2010). Results showed that both hoarding groups (hoarding only and hoarding + OCD) reported a significantly higher number of TLEs than OCD and non-clinical control groups, even after controlling for age, education, gender, depressive symptoms (BDI), and OC symptoms (OCI-R). A two-tailed Spearman Rho revealed significant positive correlation between hoarding severity (SI-R) and frequency of traumatic life events. Conversely, TLEs were not correlated with OCD

symptoms as measured on the OCI-R, and were negatively correlated with Global Dimensional Yale Brown Obsessive Compulsive Scale (DY BOCS; Rosario-Campos, et al. 2006) scores (Landau et al., 2011).

Frost, et al. (2011) examined the relationship between hoarding and trauma among a large HD clinical sample (n=217) with comparison to an OCD diagnosed group (n=96). Of the studies discussed, this is the only one to determine hoarding status using DSM-5 criteria. The findings of this study were consistent with previous research revealing that trauma occurred more frequently in HD than OCD among the study population. Additionally, HD participants were more likely to have experienced a trauma during childhood than OCD participants. Despite the findings of high trauma frequency among HD participants, PTSD comorbidity did not differ between study groups. As suggested by study researchers, it is possible that hoarding might prevent posttraumatic symptom experiences, and ultimately deter PTSD development (Frost, et al., 2011). Further research is needed to explore the influence of trauma on HD and its etiological implications.

Several studies have explored the variation in type of trauma among participants with hoarding problems. Samuels et al. (2008) examined traumatic childhood adversities, as well as other possible correlates of hoarding using the Hopkins Epidemiology of Personality Disorder Study data (1982). A 25% random sample was selected from the original participant pool, 742 of whom completed personality examinations (International Personality Disorder Examination) between 1997 and 1999, and were included in the study sample. Participants were assessed for hoarding by interviewers who structured questions from the hoarding criterion for OCPD as specified in DSM-IV. A sample consisting of 27 participants were rated as having pathological hoarding without OCD. Traumatic childhood experiences were assessed by masters level

clinical psychologists who inquired about occurrence of one or more of the following events before the age of 16: parental death, parental separation/divorce, conflict between parents, not being raised by both parents, inappropriate sexual contact, and lack of security from break-ins. Childhood adversities including parental psychopathology, lack of security from break-ins, and excessive physical discipline were found significantly related to hoarding.

Hartl, et al., (2005) compared trauma and ADHD symptoms in a sample of participants with hoarding behavior recruited from community agencies and a clutter self-help organization, and a community control sample. Hoarding status was determined via telephone screenings; eligible participants reported that they had difficulty discarding items, a large amount of clutter in the home, and distress or impairment caused by their level of clutter. On the Traumatic Events Scale- Lifetime (TES-L; Gershuny, Cloitre, & Otto, 2003), hoarding participants reported more frequency and variation in type of trauma than community controls, with physical and sexual abuse being the most frequently reported types of trauma. Further comparative analyses revealed that hoarding participants were more frequently victims of personal theft by threat or force, physical assault or battery, and forced sexual activity than control participants. To measure emotional experiences related to possessions among people who hoard, the Possessions Comfort Scale (PCS) was developed and distributed to study participants. When the PCS was examined in relationship to trauma, researchers found that hoarding participants with a history of physical and sexual abuse trauma had stronger feelings of attachment, security, and comfort in possessions. This finding suggests there may be a link between trauma and cognitions related to hoarding behavior (Hartl et al., 2005).

A number of other factors have been examined that support the literature suggesting trauma may play a role in HD, and further, how cognitions might influence this association.

Functional impairment is required for diagnosis of HD in DSM-5 (APA, 2013). An earlier study by Saxena et al., (2011) examined quality of life and functional impairment in relationship to hoarding with comparison to a non-hoarding OCD diagnosed group. Hoarding status was determined significant if participants endorsed hoarding symptoms causing distress and impairment on the Y-BOCS, met criteria for Frost & Hartl's 1996 definition of compulsive hoarding, and endorsed associated symptoms of indecisiveness, disorganization, procrastination and avoidance during a clinical interview. Researchers found that participants with hoarding problems had significantly less satisfaction with their levels of safety than the non-hoarding OCD group, were more often victims of violent and non-violent crimes, felt less safe in their neighborhoods, and less protected against attack. Global Assessment of Functioning (GAF) scores were lower among hoarding participants, and were not accounted for by symptoms of anxiety and depression (Saxena, et al., 2011). It is to be noted that of the six studies described above, three implemented comprehensive assessments of hoarding that either closely matched or directly utilized criteria for HD in the DSM-5, whereas three did not. While the samples have varied, findings suggesting an association between HD and trauma have remained consistent across studies. Therefore, it appears clear that there is an association between hoarding and traumatic events. However, the impact of traumatic events on hoarding and its development has yet to be studied.

Research on trauma has suggested that it may change the way people think about their world. For instance, Foa and colleagues showed victims of assault to have greater negative worldview than accident type trauma individuals (Foa, Ehlers, Clark, Tolin, & Orsillo, 1999). It could be posited that trauma resulting in negative worldview could lead to hoarding as a safety seeking behavior. The case of "Bernadette" in *Stuff: Compulsive Hoarding and the Meaning of*

Things (Frost & Steketee, 2010) illustrates the impact of trauma on one's worldview and hoarding behavior. After she was raped by an intruder in her home, Bernadette expressed the view that "the world was not a safe place for her" (Frost & Steketee, 2010, p. 89). Perhaps to buffer feelings of insecurity, Bernadette's acquiring behavior increased. She filled the room where the trauma occurred, then the clutter spread throughout her house causing her significant distress (Frost & Steketee, 2010). The values and beliefs associated with various hoarded items might serve to foster a sense of safety and security among this population. Early researchers suggested that people with hoarding behaviors experience a sense of safety and security from being in close proximity to their collected items (Frankenburg, 1984; Fromm, 1947). Researchers have also studied "safety signals", suggesting items can serve as indicators of safety that aid in avoidance of unwanted anxiety symptoms (Rachman, 1984; Sartory, Master & Rachman, 1989). This too could be the case for people who hoard—their collected items serving to signal safety, and in some cases avoid anxiety symptoms associated with trauma. Based on theories of trauma that describe hyperarousal and re-experiencing symptom responses to trauma (Foa & Kozak, 1986), it seems plausible that people exposed to trauma may develop hoarding as a means of symptom avoidance, and to foster feelings of safety—further avoiding hyperarousal and re-experiencing symptoms. Such an analysis might explain the absence of PTSD diagnoses in HD even though there are more experienced traumas. The research supporting numerous relationships between trauma and HD demonstrate a need for further research aimed at determining the influence of trauma and its possible etiological effects on HD.

Current Study

The first aim of the current study was to examine whether hoarding severity was elevated among HD participants with a history of trauma and if so, for what features. Based on findings

linking greater levels of life stress to acquisition and clutter, but not difficulty discarding (Timpano, et al., 2011b), we predicted domains of clutter and acquisition to be elevated among the HD-trauma group. Secondly, we aimed to examine relationships between hoarding cognitions and trauma. Based on the literature suggesting an association between trauma and higher levels of security derived from control over and attachment to possessions (Hartl et al., 2005), we hypothesized that cognitive domains of emotional attachment and control would be more frequently endorsed among those who have experienced trauma. Next, we examined the hypothesis that trauma was associated with later onset of HD. This hypothesis was based on Grisham et al.'s (2006) findings that participants who reported a stressful life event at the time of hoarding symptom onset had later age of onset than those who did not experience a stressful life event. Finally, comorbidity differences and various factors thought to be associated with hoarding, including perfectionism, uncertainty, family warmth and security, and attention-deficit problems were explored. Axis I diagnoses shown to be most prevalent in HD (Frost et al., 2011) were examined as well, including MDD, GAD, OCD, and Social Phobia. Symptom measures for selected diagnoses were used to further clarify associations.

CHAPTER III

Methodology

Procedure

This study employed existing data from Frost et al's. (2011) comprehensive study on hoarding comorbidity. IRB approval was obtained for each of the three study sites: Smith College, Northampton, MA; Hartford Hospital, Hartford, CT; Boston University, Boston, MA. Study participants were recruited on the basis of their interest and self-reported experiences with hoarding symptomology by way of newspaper advertisement, informational websites, investigator media announcements, and personal or mental health clinic referral. Individuals who expressed interest in study participation were screened and assessed for lifetime diagnosis using structured diagnostic interviews, including the Anxiety Disorders Inventory Schedule for DSM-IV Lifetime version (ADIS-IV-L; Brown, DiNardo & Barlow, 1994). Trained clinical staff members using the Hoarding Rating Scale-Interview and supplemental diagnostic questions determined HD diagnosis in accordance with the HD diagnostic criteria for DSM-5.

HD diagnosis was required for study enrollment. Participants were determined ineligible if they lacked the target diagnosis, or fulfilled one or more rule-out criteria including suicidal ideation, psychotic symptoms, substance abuse or dependence within the past three months, or severe cognitive impairment. Once participants were enrolled in the study, they were assigned a four digit participant number. This participant number was attached to their data, and all identifying information was removed. Files were made for each participant, and stored in locked

filing cabinets. Informed consent forms were obtained, and stored in a discrete location separate from participant files.

Using a cross-sectional research design, study participants were asked to fill out a battery of self-report measures, complete clinician administered measures, and answer interview questions measuring hoarding, obsessive-compulsive symptoms, anxiety, depression, emotional tolerance, distress tolerance, perfectionism/uncertainty, and ADHD. Information about the incidence and type of trauma was collected using the PTSD section of the ADIS-IV-L. Participants indicated whether or not they had experienced trauma, and were then asked about specific types of trauma. A total of ten trauma types were included: traumatic event as a child, sexual assault, childhood sexual abuse, accidents, disasters, nonsexual assault, non-sexual childhood abuse or neglect, combat/war/terrorism, witnessing death/injury, and illness/unspecified injury (see Table. 1). Participants occasionally skipped or chose not to answer survey and interview questions. These questions were coded as “missing”, and are the reason for varying sample sizes across the measures. Participant data were entered in to a secure, password-protected database. Information contained in participant files and computerized databases are only accessible by authorized study researchers. Given the vulnerability of conducting research with a clinically diagnosed and trauma surviving population, therapeutic resources were offered to study participants in order to mitigate the possibility of unintended negative mental health effects.

Participants

The final sample consisted of 211 HD participants who reported on the experience of trauma. The sample was split in to two groups: a HD non-trauma group, and a HD-trauma group. The HD non-trauma group consisted of 106 participants, and the HD-trauma group

consisted of 105 participants. The mean age for participants was 52.63 (SD = 10.26; range = 19 – 78). The sample was 77% female, and 1.8% Hispanic by ethnicity. The sample identified as 88.3% White/Caucasian, 8.8% Black/African American, 1.4% Asian/Asian-American, .9% American Indian/Alaskan Native, and .5% “other”. The sample was highly educated, with 9.4% having earned a high school diploma, 25.6% receiving an Associates degree or having attended “some college”, 32.5% having earned a Bachelors degree, and 30.5% attended and/or completed a graduate level program. The mean annual income was between 40,000 – 50,000 dollars (range = “10,000 or less” –“70,000+”).

Measures

The *Hoarding Rating Scale Interview (HRS-I; Tolin, Frost, & Steketee, 2010)* is a Likert-type scaled measure ranging from 0 (none) to 8 (extreme) on five interview questions pertaining to accumulation of clutter, difficulty discarding, excessive acquisition, distress, and impairment. The HRS-I is a highly reliable and valid measure of hoarding, which discriminates hoarding from non-hoarding with high specificity and sensitivity (Tolin, et al., 2010). The HRS-I was used to diagnose HD as per the proposed criteria for DSM 5.

The *Saving Inventory Revised (SI-R; Frost, et al., 2004)* is a 23-item self-report measure of hoarding where items are answered on a 5-point scale. This measure includes three subscales assessing severity of clutter, difficulty discarding, and acquisition. The SI-R is a well-established measure of hoarding, with high internal consistency ($\alpha = .97$) and test-retest reliability (.78-.90). The clinical cut-off for the SI-R total is 41 (Frost & Hristova, 2011).

The *Hoarding Timeline, (Grisham, et al., 2006)* is a comprehensive interview that inquires about participant’s course of hoarding behavior in order to determine age of mild, moderate, and severe hoarding onset on domains of acquisition, clutter, and difficulty discarding.

Participants are asked to recall two important events or life changes that occurred during each decade of their lives. The event recall serves to facilitate access to memories associated with the time period, and more accurate symptom reporting. The events and ages at which they occurred are recorded, and participants are asked to rate problems on each hoarding domain using a 0 (none) to 3 (severe) scale. This process is repeated for each decade.

The *Clutter Image Rating (CIR; Frost, Steketee, Tolin, & Renaud, 2008)* is an assessment used to objectively measure a person's level of clutter in the home using three standardized images demonstrating varying levels of clutter in three separate rooms: the kitchen, the living room, and the bedroom. Each room is shown with nine levels of clutter ranging from 1, depicting no clutter, to 9 showing a room cluttered from floor to ceiling. Participants are asked to rate the level of clutter in their homes using the images as a visual scale. A mean of the three room ratings is used to indicate severity of clutter. The CIR is a reliable and valid measure of clutter; it has good internal consistency, and convergent validity with other measures of clutter (Frost, et al., 2008).

The *Saving Cognitions Inventory, (SCI; Steketee, et al., 2003)* is a 24-item measure assessing attachments and beliefs associated with hoarded items. Items are rated on a seven point Likert-type scale. Factor analysis of the SCI revealed four dimensions: emotional attachment, memory concerns, desire for control, and responsibility for possessions. Internal consistency from the subscales are high, and discriminate hoarding from OCD individuals and community controls (Steketee, et al., 2003).

The *Obsessive-Compulsive Inventory Revised (OCI-R; Foa, et al., 2002)* is a shortened version of the Obsessive Compulsive Inventory (OCI; Foa, Kozak, Salkovskis, Coles, & Amir, 1998) consisting of 18 self-report items measuring OCD symptoms. The OCI-R includes

subscales of checking, hoarding, neutralizing, obsessing, ordering, and washing. Items are Likert-scaled, with responses ranging from 0 (not at all) to 4 (extremely) on distress. The OCI-R has been shown by researchers to have good test-retest reliability, and internal consistency (Foa et al., 2002). For the current study, the hoarding subscale was removed to measure OC symptoms not confounded by HD diagnosis.

The *Obsessive Beliefs Questionnaire, short form (OBQ-44; Obsessive Compulsive Cognitions Working Group, 2005)* is a 44-item self-report measure of beliefs related to appraisal of intrusive thoughts that serve to maintain OCD. This measure consists of three factor analytically derived scales measuring (1) Responsibility/Threat Estimation, (2) Importance/Control of Thoughts, and (3) Perfectionism/Uncertainty. The Obsessive Compulsive Cognitions Working Group found all three subscales to have high internal consistency (2005). Scaled responses range from 1 (disagree very much) to 7 (agree very much). For this study, the 16 items that comprised the domain of perfectionism and uncertainty were collected and examined.

The *Anxiety Disorders Interview Schedule for DSM-IV Lifetime version (ADIS-IV-L; Brown, et al., 1994)* is an interview diagnostic tool for the assessment of anxiety, mood, somatoform, and substance use disorders. The ADIS-IV-L has been shown to have strong reliability for most DSM-IV diagnostic categories (Brown, DiNardo, Lehman, & Campbell, 2001). This measure was used to determine current and lifetime diagnoses, as well as incidence and type of trauma as coded from the ADIS-IV-L PTSD interview section.

The *Anxiety Sensitivity Index (ASI; Peterson & Reiss, 1987)* is a 16-item questionnaire measuring individual's attunement and distress related to physiological symptoms of anxiety. Items are rated on a 5-point scale ranging from 0 (very little) to 4 (very much). Researchers have

shown the ASI to have high internal consistency and satisfactory test-retest reliability (Maller & Reiss, 1992).

The *Beck Depression Inventory-II (BDI-II; Beck, Steer & Brown, 1996)* is a 21-item questionnaire measuring symptoms and behaviors associated with depression. Respondents rate current mood over the past two weeks on a 4-point Likert scale, where higher scores reflect greater levels of depressive symptoms. The BDI is a reliable and validated measure of depressive symptomology (Steer, Ball, Ranieri, & Beck, 1997).

The *Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988)* is a 21-item measure of state anxiety symptoms, where respondents rate anxiety symptoms within a two week period on a scale ranging from 0 (not at all) to 3 (severely). The BAI has been shown to have strong internal constancy, reliability, and discriminate validity, in both clinical and non-clinical samples (Beck & Steer, 1993; Osman, Kopper, Barrios, Osman, & Wade, 1997; Steer, Ranieri, Beck, & Clark, 1993).

The *Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998)* is a 20-item measure of social anxiety symptoms in the context of interpersonal interaction. Items measure the level of anxiety associated with initiation and maintenance of social interaction. Scaled responses range from 0 (not at all) to 4 (extremely). The SIAS demonstrates good internal consistency in both clinical and community samples (Mattick & Clarke, 1998; Osman, Gutierrez, Barrios, Kopper, & Chiros, 1998).

The *Early Developmental Influences Inventory (EDII; Kyrios, 1998)* is a 21-item self-report measure designed to assess early childhood experiences, attachment styles, and perceptions about identity. Two subscales have been identified including uncertainty about one's relationships with others and memories of family warmth and security. The uncertainty

subscale reflects attachment while the warmth subscale reflects the recollected childhood environment. Both subscales have adequate reliability and validity (Frost, Kyrios, McCarthy, & Matthews, 2007).

The *Activities of Daily Living in Hoarding Scale (ADL-H; Frost, Hristova, Steketee & Tolin, 2013)* is a 15-item measure that asks individuals to rate the extent to which clutter, or hoarding problems interfere with abilities to carry out various daily activities, and pose health or safety hazards. The response range is between 1 (can do it easily) and 5 (unable to do). Studies that examined psychometric properties of the ADL-H found it to have strong reliability, with an internal consistency of .91 among a sample of participants who self-identified hoarding behavior, and .92 among an HD diagnosed group. Inter-rater and test-retest reliabilities were also determined ($r = .71, p < .001$; $r = .79, p < .001$) showing strong support for the reliability of the ADL-H (Frost et al., 2013).

The *Attention Deficit Hyperactivity Disorder Symptoms Scale (ADHDSS; Barkley & Murphy, 1998)* is an 18-item questionnaire that measures inattention and hyperactivity symptoms at two time-points: within the past two months (current), and childhood (5-12 years of age). The items are the same for both time-points, and reflect DSM-IV criteria for ADHD. The ADHDSS has shown good inter-rater reliability between individuals and their parents and spouses (Murphy & Barkley, 1996). The ADHDSS was used to assess both inattention and hyperactive type ADHD in adulthood.

CHAPTER IV

Findings

Hoarding Severity

Results for measures of hoarding severity were largely in accordance with research predictions (see Table 2.). SI-R total scores were significantly higher among the HD-trauma group. This remained consistent with SI-R subscales of clutter and acquisition, but not difficulty discarding. On the HRS-I, hoarding symptom scores were marginally higher for HD-trauma participants than HD non-trauma participants. A mean clutter severity score was calculated using Clutter Image Ratings (CIR) for participants' kitchen, bedroom, and living room. Results revealed clutter to be higher among participants who had experienced trauma. The Activities of Daily Living in Hoarding (ADL-H) total scores were also higher among HD participants with trauma.

Saving Cognitions

SCI subscales of emotional attachment and responsibility were significantly higher in HD-trauma participants compared to those without a trauma history (see Table 3.). The SCI control subscale was marginally higher in HD-trauma participants ($p < .10$), while there was no difference in SCI memory between HD-trauma and HD non-trauma groups. The difference in SCI total was marginally higher in HD participants with trauma ($p < .10$).

Age of Onset

The overall age of onset for hoarding symptoms was significantly lower among HD participants with trauma (Table 4.). When hoarding domains were examined individually, age of onset for symptoms of mild acquisition and difficulty discarding remained significantly lower for HD-trauma participants, but this was not the case for clutter. To further examine these associations, a series of one-way ANOVA analyses were conducted to assess onset differences between HD participants with adulthood trauma, HD participants with childhood trauma, and HD participants without trauma. Differences between groups were significantly different for overall age of onset [$F(2, 164) = 5.1, p = .007; n = 157, M = 15.66 (11.15)$]. Tukey B post hoc comparisons revealed that overall age of onset was significantly earlier for HD participants with childhood trauma [$M = 11.34 (8.56)$] than for HD participants with no trauma [$M = 17.79 (12.11)$], while there were no significant differences between either group and HD participants with adult trauma [$M = 15.89 (10.32)$]. Onset differences for features of hoarding were examined individually between the three groups. A significant effect was found for the onset of mild acquisition symptoms between groups [$F(2, 162) = 3.84, p = .023; M = 19.43 (13.69)$]. Post hoc multiple comparisons for acquisition onset revealed that HD participants with childhood trauma [$M = 15.02 (11.34)$] had significantly earlier onset than those without trauma [$M = 21.98 (14.53)$], but differences were not significant between participants with adult trauma [$M = 18.61 (13.12)$] as compared to both childhood trauma and non-trauma participants. Onset for symptoms of mild difficulty discarding were also found significantly different between groups on an ANOVA analysis [$F(2, 164) = 3.12, p = .047; M = 19.26 (13.84)$]. However, when post hoc comparisons were conducted, no significant differences were indicated between the three

groups. Clutter onset was not significantly different between the three groups [$F(2, 165) = 1.95$, $p = .145$; $M = 20.6 (12.72)$].

Comorbidity & Associated Features

Comorbidity analyses revealed that current Axis I diagnoses were more frequent among HD-trauma participants than HD non-trauma participants, while the number of lifetime Axis I diagnoses did not significantly differ between groups (Table 5.). Relationships between selected Axis I diagnoses and trauma were further examined using chi square analyses (Table 6.). Both current and lifetime MDD diagnoses were more frequent in HD cases with trauma than without. Despite high levels of depression among HD-trauma participants, depressive symptom scores (BDI) were not significantly different between trauma and non-trauma HD groups (Table 7.). Lifetime GAD diagnosis was also more frequent among HD-trauma participants, while current GAD diagnosis was only marginally associated with trauma. Anxiety symptoms, as measured by both the Beck Anxiety Inventory (BAI) and the Anxiety Sensitivity Index (ASI), were significantly higher in the HD-trauma group. Differences in comorbidity rates for OCD were not influenced by trauma; however, Obsessive Compulsive symptoms (OCI-R) were significantly higher among HD-trauma participants. Frequency of Social Phobia diagnosis was not significantly different between HD-trauma and HD non-trauma groups. This was similarly reflected by absence of differences between groups on social anxiety symptom scores (SIAS).

When features thought to be associated with hoarding were examined, both inattentive and hyperactive symptoms of adulthood ADHD (ADHDS) were found significantly higher in the HD-trauma group than in participants with HD alone (see Table. 8). On a measure of perfectionism (OBQ), no significant differences were found between study groups. Participant reports on factors influencing their early development (EDII) revealed that HD-trauma

participants had significantly lower ratings of *family warmth and security* and higher levels of *uncertainty*. To further explore this association, a one-way ANOVA analysis was conducted comparing HD participants who experienced trauma during childhood, HD participants with trauma in adulthood, and HD participants with no trauma, on EDII domains of *family warmth and security* and *uncertainty*. Ratings of uncertainty initially appeared significantly different between the three groups [$F(2, 153) = 3.42, p = .035; M = 24.92 (8.4)$], however no significant differences were found after post hoc multiple comparisons. Participant reports of *family warmth and security* were significantly different among the trauma groups [$F(2, 159) = 3.8, p = .024; M = 21.47 (10.4)$]. These differences were clarified by multiple comparisons, revealing that HD participants with trauma in childhood [$M = 17.98 (8.9)$] had significantly lower ratings of *family warmth and security* than participants without trauma histories [$M = 23.17 (10.7)$]. The HD group with trauma in adulthood did not significantly differ on ratings between either childhood or non-trauma groups [$M = 21.69 (10.6)$].

CHAPTER V

Discussion

As predicted, hoarding symptom severity scores were found significantly higher among HD participants who had experienced trauma on most measures of hoarding (SI-R, CIR, ADL-H), and marginally higher on another (HRS-I). This finding is consistent with previous research (Cromer et al., 2007; Hartl et al., 2005; Laundau et al., 2011) suggesting that trauma may influence the expression of hoarding symptoms. It is unclear why HRS scores only revealed a marginal association to trauma. It is possible that certain measures of hoarding might better capture the symptom experiences of people with HD and trauma. When features of hoarding (SIR) were examined, HD participants with trauma had higher levels of acquisition and clutter but not difficulty discarding. Clutter severity was also higher in the HD-trauma group when measured by CIR. It is possible that trauma leads to increases in acquiring as a means of anxiety avoidance and an attempt to buffer feelings of insecurity that often follow traumatic events. Increases in acquisition can elevate levels of clutter, which may create “bunkers and cocoons” that offer a sense of comfort and security; this is a frequent theme reported by people with HD (Frost & Steketee, 2010). Failure to find differences in difficulty discarding is puzzling and inconsistent with the idea that these objects provide a sense of comfort that would be absent if they were discarded.

As previously mentioned, researchers have theorized that individuals who hoard and have experienced trauma may acquire possessions in order to signal safety (Hartl, et al., 2005);

possessions may serve as visual cues that notify HD individuals that their environment is safe. Similarly, possessions may offer a sense of comfort and protection; HD individuals have reported feeling safe when surrounded by their possessions (Frost & Steketee, 2010). Analyses of saving cognitions (SCI) supported this theory; thoughts related to emotional attachment and responsibility were more frequent among HD participants who had experienced trauma. Elevated levels of emotional attachment to possessions may reflect the comfort and security derived by individuals who have experienced trauma. If possessions signal safety for such individuals, they may provide a sense of emotional well-being. Little is known about the associations between HD, trauma, and cognitions related to responsibility. Researchers have previously shown responsibility related cognitions to be associated with a desire to be prepared for unknown future events (Frost et al., 1995). Perhaps HD individuals with trauma histories experience heightened levels of responsibility to be prepared for and/or safe from future traumas. An under-explored area that was not within the scope of the current study is how specific types of trauma influence hoarding cognitions. One could speculate that traumatic loss might lead to a heightened sense of responsibility to keep the belongings of lost loved ones, or that physical/sexual assault and violence might heighten one's feelings of responsibility to be prepared for self-defense against such events in the future. Continuing research should explore how trauma types influence cognitions related to hoarding, as well as HD symptom presentations. These findings could have implications for specialized treatments that aid in the management of post-traumatic symptoms as they co-occur or increase during HD interventions.

Contradicting past findings (Grisham, et al., 2006; Landau et al., 2011), the average age of onset for hoarding symptoms was significantly earlier for HD participants with histories of trauma than those without trauma. However, when participants were divided in to three groups

based on trauma status, earlier onset was most closely associated with participants who had experienced a trauma during childhood, while there were no significant onset differences between those with adulthood trauma and no trauma nor between childhood trauma and adult trauma. More specifically, symptom onset for features of acquisition and difficulty discarding appeared earlier for HD participants with trauma. On another set of analyses, this was only true for acquisition—which maintained most significantly associated with childhood trauma group. Findings linking childhood trauma to earlier overall hoarding onset suggest that for some individuals, early trauma might lead to earlier symptom onset. It is possible that inconsistencies across studies regarding hoarding onset might be attributable to reporting errors because of difficulties recalling earlier memories, as well as interpretation biases. As suggested by Foa and colleagues (1999), certain types of trauma may lead to greater negative world-view. Individuals with trauma histories may interpret or remember prior events and experiences as more severe, thereby impacting the accuracy of symptom recollection and reporting. More specific information about the timing of traumatic events would help to clarify associations between trauma and hoarding onset. Future studies examining age of onset should consider using a comprehensive trauma assessment that takes timing of events into account.

An exploration of comorbidity symptoms among study groups revealed a mixed pattern with respect to depression and OCD. While the trauma group had a higher frequency of MDD, their BDI scores were not elevated compared to non-trauma participants. For OCD, while there was no difference in the frequency of OCD diagnosis, the OCI-R scores of trauma participants was significantly higher than that of non-trauma participants. Neither social anxiety diagnoses nor social anxiety symptoms differentiated between HD and HD-trauma groups. However, anxiety symptoms as measured by the BAI and ASI were higher among HD participants with

trauma than those without trauma. Elevated general anxiety might be expected as individuals often experience increases in anxiety in response to trauma. It is possible that in this population anxiety manifests as hypervigilance and hyperarousal, as often seen post-trauma, while hoarding behavior serves to aid in the avoidance of these unwanted symptom experiences. This hypothesis is in accordance with research on trauma and behavioral avoidance (Rauch & Foa, 2006; Foa & Kozak, 1986).

Inattentive and hyperactive symptoms of adulthood ADHD were found higher among HD participants with trauma than HD participants without trauma. Researchers have shown ADHD to be associated with compulsive hoarding behavior—and more specifically the domain of clutter (Hartl et al., 2005). Perhaps symptomatic responses to trauma among individuals with ADHD lead to increased difficulties with decision-making and disorganization. Another possibility is that derealization and dissociation in response to trauma are sometimes mistaken for inattentive symptoms. It is possible that ADHD individuals with HD who are exposed to trauma might face unique challenges; clutter and disorganization might increase in severity, causing greater interference and debilitation.

It is possible that trauma might worsen a number of symptoms and/or maladaptive behaviors among individuals with HD, raising existing conditions to a clinically significant level. This hypothesis could explain the higher prevalence of comorbid current Axis I diagnoses among HD participants with trauma. The marginal difference found between groups for lifetime Axis I diagnosis might also reflect this hypothesis, suggesting that psychopathology may not differ between HD diagnosed people with and without trauma in the course of a lifetime, but rather that trauma elevates probability of psychological disorders that continue to impact people with HD. The ways in which trauma specifically influences co-occurring diagnosis is unclear; perhaps it

prolongs the duration of Axis I disorders, re-triggers the onset of a disorder which is episodic in nature, or significantly increases sub-clinical symptoms. Any of these hypotheses could be applied as an explanation for the high rates of GAD and MDD among HD participants with trauma. Interestingly, lifetime GAD comorbidity was more highly associated with trauma and HD than was current GAD diagnosis. Perhaps hoarding behavior serves to decrease worry thoughts, thereby lowering GAD symptom severity and sometimes elevating HD symptoms. Future research should explore onset, duration, and severity of comorbid disorders, and how the timing of trauma influences these variables.

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Tables

Table 1.

Summary of Endorsed Traumas by Type among an HD sample

Trauma Type	Frequency (n = 204)	Percent
Traumatic event as a child	67	33%
Sexual assault	28	14%
Childhood sexual abuse	27	13%
Accidents	36	18%
Disasters	9	4%
Nonsexual assault	28	14%
Nonsexual childhood abuse/neglect	12	6%
Combat/war/terrorism	5	2%
Witnessing death or Injury	56	27%
Illness or unspecified injury	6	3%

Note. Participants were able to select one or more trauma types. Trauma type was assessed using the *Anxiety Disorders Inventory Schedule for DSM-IV Lifetime version* (ADIS-IV-L; Brown, DiNardo & Barlow, 1994).

Table 2.

Summary of Mean Scores and t-Test Results Comparing Trauma and Non-trauma Hoarding Groups with Measures of Hoarding Severity

Measure	Traumatic Event(s)	<i>n</i>	<i>M</i> (<i>SD</i>)	<i>t</i> (<i>df</i>)	<i>p</i>
HRS-I	no	104	24.9 (4.6)	1.73 (204)	.085
	yes	102	26.2 (5.7)		
SI-R Total	no	98	59.13 (13.7)	2.90 (193)	.004
	yes	97	64.75 (13.2)		
SI-R Acquisition	no	99	14.67 (14.6)	2.72 (195)	.007
	yes	98	16.91 (16.9)		
SI-R Clutter	no	100	25.17 (25.1)	2.77 (195)	.006
	yes	97	27.56 (27.5)		
SI-R Difficulty Discarding	no	99	19.15 (19.1)	1.37 (195)	.172
	yes	98	20.09 (20.0)		
CIR	no	94	3.41 (1.4)	2.41 (185)	.017
	yes	93	3.99 (1.8)		
ADL-H	no	81	1.88 (.61)	3.33 (155)	.001
	yes	76	2.26 (.79)		

Note. HRS-I = Hoarding Rating Scale—Interview; SI-R = Saving Inventory—Revised; CIR = Clutter Image Ratings; ADL-H = Activities of Daily Living in Hoarding; boldface type indicates statistical significance.

Table 3.

Summary of Mean Scores and t-Test Results Comparing Trauma and Non-trauma Hoarding Groups with a Measure of Cognitions Related to Saving

Measure	Traumatic Event(s)	n	M(SD)	t(df)	p
SCI Total	no	100	91.75 (29.8)	1.89 (198)	.060
	yes	100	99.94 (31.4)		
SCI Memory	no	101	19.98 (8.0)	182 (200)	.855
	yes	101	20.18 (8.1)		
SCI Responsibility	no	101	21.11 (8.0)	2.06 (199)	.040
	yes	100	23.48 (8.1)		
SCI Control	no	100	15.26 (4.2)	1.91 (200)	.057
	yes	101	16.39 (4.1)		
SCI Emotional Attachment	no	100	35.43 (15.2)	2.135 (199)	.034
	yes	101	40.16 (16.7)		

Note. SCI = Saving Cognitions Inventory. Boldface type indicates statistical significance.

Table 4.*Summary of Mean Scores and t-Test Results Comparing Trauma and Non-trauma Hoarding**Groups with Age of Onset for Hoarding Symptoms*

Measure	Traumatic Event(s)	<i>n</i>	<i>M(SD)</i>	<i>t(df)</i>	<i>p</i>
Age of Onset	no	85	17.79 (12.1)	2.14 (172)	.034
	yes	89	14.08 (10.7)		
Acquisition Onset	no	85	21.98 (14.5)	2.30 (170)	.023
	yes	87	17.11 (13.2)		
Difficulty Discarding Onset	no	86	21.6 (14.8)	2.03 (172)	.044
	yes	88	17.28 (13.2)		
Clutter Onset	no	86	22.36 (13.9)	1.64 (172)	.104
	yes	88	19.2 (11.8)		

Note. “Age of Onset” refers to the earliest presence of hoarding symptoms in one or more domains of hoarding. Boldface type signifies statistical significance.

Table 5.

Mean Scores and t-Test Results Comparing Trauma and Non-trauma Hoarding Groups with Number of Lifetime and Current Axis I Diagnoses

Measure	Traumatic Event(s)	<i>n</i>	<i>M (SD)</i>	<i>t(df)</i>	<i>p</i>
Lifetime Axis I Diagnosis	no	106	1.69 (1.16)	-1.39 (209)	.166
	yes	105	1.9 (.98)		
Current Axis I Diagnosis	no	106	1.3 (1.01)	-2.46 (209)	.014
	yes	105	1.64 (.96)		

Note. Boldface type signifies Statistical Significance.

Table 6.*Crosstabulation of Selected Axis I Diagnoses and Trauma Versus Non-trauma Hoarding Status*

Endorsed Diagnosis	Trauma		χ^2	<i>p</i>
	No (n)	Yes (n)		
Lifetime MDD	67	81	4.891	.027
Current MDD	47	61	3.995	.046
Lifetime GAD	20	32	3.827	.050
Current GAD	20	31	3.268	.071
Lifetime OCD	21	20	.020	.889
Current OCD	19	19	.001	.974
Lifetime SP	30	30	.002	.965
Current SP	23	27	.471	.493

Note. MDD = Major Depressive Disorder; GAD = Generalized Anxiety Disorder; OCD = Obsessive Compulsive Disorder; SP = Social Phobia. Boldface type indicates statistical significance.

Table 7.*Summary of Mean Scores and t-Test Results Comparing Trauma and Non-trauma Hoarding**Groups with Measures of Mood and Anxiety*

Measure	Traumatic Event(s)	<i>n</i>	<i>M(SD)</i>	<i>t(df)</i>	<i>p</i>
BDI	no	101	16.8 (11.2)	1.52 (194)	.130
	yes	95	19.4 (11.9)		
BAI	no	94	9.8 (9.1)	3.43 (183)	.001
	yes	91	15.0 (11.5)		
ASI	no	95	20.8 (12.1)	2.62 (186)	.010
	yes	93	25.4 (12.0)		
OCI-R*	no	100	8.4 (6.9)	3.24 (195)	.001
	yes	97	12.6 (10.6)		
SIAS	no	101	27.4 (15.1)	1.01 (196)	.316
	yes	97	29.6 (15.3)		

Note. BDI = Beck Depression Inventory; BAI = Beck Anxiety Inventory; ASI = Anxiety Sensitivity Index; OCI-R* = Obsessive-Compulsive Inventory Revised, * = hoarding subscale was removed; SIAS = Social Interaction Anxiety Scale. Boldface type signifies statistical significance.

Table 8.*Summary of Mean Scores and t-Test Results Comparing Trauma and Non-trauma Hoarding**Groups with Measures of Associated Features*

Measure	Traumatic Event(s)	<i>n</i>	<i>M(SD)</i>	<i>t(df)</i>	<i>p</i>
ADHDS: Inattention	no	99	11.2 (5.9)	2.10 (189)	.039
	yes	92	12.9 (6.0)		
ADHDS: Hyperactivity	no	97	7.1 (4.4)	3.87 (189)	<.001
	yes	94	10.3 (6.6)		
OBQ	no	101	63.3 (24.7)	1.45 (193)	.149
	yes	94	68.3 (22.7)		
EDII: Uncertainty	no	82	23.3 (8.5)	2.58 (160)	.011
	yes	80	26.2 (8.3)		
EDII: Family Warmth & Security	no	86	23.2 (10.7)	2.42 (167)	.017
	yes	83	19.4 (9.7)		

Note. ADHDS = Attention Deficit Hyperactivity Disorder Scale; OBQ = Obsessive Beliefs Questionnaire; EDII = Early Developmental Influences Inventory. Boldface type signifies statistical significance.

STATEMENT OF INFORMED CONSENT

Interview Study of Compulsive Hoarding

Principal Investigator: Gail Steketee, PhD
Boston University, 617-353-0815

Study Location: Center for Anxiety and Related Disorders, 648 Beacon St. 6th floor, (in Kenmore Square) Boston, MA, 02215, 617-353-9610.

PURPOSE OF THE STUDY

You are being asked to participate in a research study that aims to understand the features of compulsive hoarding, including problems with clutter, difficulty discarding items, and excessive acquiring of items. People with hoarding problems will be compared with clinic outpatients who have obsessive compulsive disorder (OCD) and with people without psychiatric problems. The study will focus on personal and family history of symptoms and their relationship to other psychiatric symptoms. The study will also use multiple ways of measuring the severity of hoarding symptoms to determine which methods are the most accurate. The researchers hope to learn more about why hoarding symptoms develop, how this problem is related to other psychiatric disorders, and how to best assess the problem. This information may be helpful for identifying effective pharmacological and psychological treatments.

PROCEDURES

You will be interviewed at Boston University about hoarding symptoms including clutter, saving items and acquiring new items by a research staff person trained in the field of mental health. The first part of the assessment will take place in the clinic and will require 2 to 4 hours for a diagnostic interview about mental health symptoms. You will also be asked to complete several questionnaires about various psychiatric symptoms including hoarding, and about your functioning. You will receive a report of these assessment findings if you desire. Completing these questionnaires which will take approximately 45 minutes. Your participation in the study cannot be confirmed until after this initial assessment is completed. If the researchers determine that you cannot participate in the study, you will be compensated for your time up to that point. You will also be provided with information about treatment if you desire this.

If it is determined that you are eligible for the study, you will be interviewed on a second occasion for 2 hours in your home. At this time the interviewer will ask questions about various behaviors, thoughts and emotions you experience in relation to saving, acquiring and clutter. Questions will also focus on your family history, your personality traits, and the extent to which you may experience certain other behavioral problems. The interviewer will also walk through your home with you to determine the amount of clutter in each room of your home, and will take photographs. The purpose of the photographs is to determine whether the interviewer's rating of clutter is similar to the rating by another research team member who only looks at the photographs. You will also be asked to rate the extent of clutter in your home.

AUDIOTAPING AND PHOTOGRAPHS

All of the interviews for this study will be audiotaped to enable the researchers to determine whether the interviews were administered correctly and to more closely study what participants say during the interviews. Audiotapes will be retained by the investigators after the study ends for these purposes and also to train new interviewers for the study. The tapes will be heard only by the researchers from this research project and not by anyone outside the project. Tapes will be stored in locked files. Photographs will also be stored in locked files and will be destroyed at the end of the study after all ratings have been completed.

RISKS AND BENEFITS:

The risks and benefits of the study are as follows:

A. Benefits to participants:

There is no direct benefit to you from participating in this study. You will receive information about the findings of the diagnostic evaluation that may be of interest to you.

B. Benefits to others:

This study is expected to help researchers better understand compulsive hoarding problems and their relationship to other psychiatric conditions. This information may contribute to the development of effective treatments.

C. Risks: There are no known risks for the assessment procedures used in this study, beyond temporary discomfort. However, if you become anxious or upset during any of the procedures, one of the study staff members will be available to talk to you about your concerns. You can reach Dr. Gail Steketee at 617-353-0815 or other research staff members at 617-353-9610 if you need assistance.

PAYMENT:

You will receive payment at the rate of \$20 per hour for your time. In most cases the initial clinic interview plus questionnaires will take 3 to 5 hours, and the home appointment will require 1 to 3 hours of time. Thus, the total amount of time for the study may range from 4 hours to 8 hours and the payment may range from \$80 to \$160 depending on the time required.

OFFER TO ANSWER QUESTIONS ABOUT THE STUDY:

If you have any questions regarding the research or your participation in it, either now or any time in the future, you should feel free to ask them of Dr. Gail Steketee or any other research staff member. You may obtain information about your rights as a research subject by calling David Berndt, who is the Coordinator of the Institutional Review Board for Human Subject Research of the Boston University Charles River Campus, at 617-353-4365. If any problems arise as a result of your participation in this study, including research-related injuries, you can call the Principal Investigator, Dr. Gail Steketee, at 617-353-3785, immediately.

You are free to withdraw your consent or discontinue your participation in this study at any time by simply informing Dr. Steketee or a research staff member. Your withdrawal from the study will not influence the availability of future care at Boston University.

This research project and treatment program will be conducted and administered in compliance with all applicable state and federal laws. In the event injury occurs resulting from the research procedures, medical treatment will be available at area hospitals. However, no special provision will be made for you solely because of your participation in this experiment. This paragraph is a statement of Boston University's policy and does not waive any of your legal rights.

CONFIDENTIALITY

All of the information you provide will be used only for research purposes and your name will never be publicly disclosed at any time. You will be assigned a research number which will be used on all written and tape recorded materials. You will not be identifiable in any research publication or presentation resulting from this study. Information contained in your files will be locked and available only to the research project staff, unless you ask to give this information to someone else and sign a written consent form. It will be kept confidential to the degree permitted by law.

CONSENT TO PARTICIPATE IN THE STUDY:

I have read the above STATEMENT OF INFORMED CONSENT. The content and meaning of this information have been explained to me and my questions have been answered to my satisfaction. I hereby voluntarily consent and offer to participate in the study. I have received a copy of this consent form.

Signature of Participant

Signature of Person Obtaining Consent

Date

Participant Copy. Please detach and keep for your records.

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Interview Study of Compulsive Hoarding

Principal Investigator: Gail Steketee, PhD
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CONFIDENTIALITY

All of the information you provide will be used only for research purposes and your name will never be publicly disclosed at any time. You will be assigned a research number which will be used on all written and tape recorded materials. You will not be identifiable in any research

publication or presentation resulting from this study. Information contained in your files will be locked and available only to the research project staff, unless you ask to give this information to someone else and sign a written consent form. It will be kept confidential to the degree permitted by law.

CONSENT TO PARTICIPATE IN THE STUDY:

I have read the above STATEMENT OF INFORMED CONSENT. The content and meaning of this information have been explained to me and my questions have been answered to my satisfaction. I hereby voluntarily consent and offer to participate in the study. I have received a copy of this consent form.

Signature of Participant

Signature of Person Obtaining Consent

Date

NOTICE OF APPROVAL

TO: RANDY FROST
FROM: LAUREN DUNCAN, ACTING CHAIR, USE OF HUMAN SUBJECTS IN RESEARCH
COMMITTEE, SMITH COLLEGE
SUBJECT: HUMAN SUBJECTS PROPOSAL.
DATE: 8/17/2004

PROPOSAL TITLE: PYSCHOPATHOLOGY OF HOARDING

PROJECT NUMBER: 0405-004

APPROVAL DATE: 08/13 /04

The Use of Human Subjects in Research Committee of the Psychology Department at Smith College has reviewed and approved the research protocol referenced above. Please note the following requirements:

Amendments: If you wish to change any aspect of the study (such as design, procedures, consent forms or subject population), you must submit these changes to the Committee.

Renewal: You are required to apply for renewal of approval every year for as long as the study is active.

Completion: You are required to notify the Director's Office when your study is completed (data collection finished).

Consent Forms: All subjects should be given a copy of the consent form. You must retain signed consent documents for at least three years past completion of the research activity.

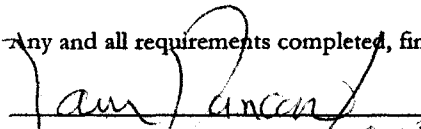
Additional Requirements: None

Be sure to use the project number provided above in all subsequent correspondence to this committee.

Contact me at 585-3763 or lduncan@smith.edu if you have any questions.

(For Committee Use)

Any and all requirements completed, final approval given:



Acting Chair, Use of Human Subjects in Research

8/13/04

Date

NOTICE OF IRB APPROVAL FOR CONTINUATION OF PROTOCOL

TO: RANDY FROST
FROM: PHILIP PEAKE, CHAIR, INSTITUTIONAL REVIEW BOARD, SMITH COLLEGE
SUBJECT: HUMAN SUBJECTS PROPOSAL
DATE: JUNE 25, 2013

PROPOSAL TITLE: PSYCHOPATHOLOGY OF HOARDING
REVIEW TYPE: EXPEDITED REVIEW
PROJECT NUMBER: 0405-004
APPROVAL DATE: Continuation approval date: 10-10-12 (Original approval date: 8-13-04)

The Institutional Review Board at Smith College has reviewed and approved the continuation of the research protocol referenced above. **Please note the following requirements:**

Amendments: If you wish to change any aspect of the study (such as design, procedures, consent forms or subject population), you must submit these changes to the IRB by filling out and submitting a Change of Protocol form.

Adverse Event Reporting/Deviations from Approved Procedures: Should any adverse events occur during the conduct of your research, you should report them immediately to the chair of the IRB. Additionally, any procedural deviations from your approved proposal must be reported. Explanations of these events and related forms can be found on the IRB website.

Renewal: You must promptly return annual Research Project Continuation Forms sent by the IRB in order to continue to be authorized to conduct research.

Completion: When you have completed your study (i.e. data collection is finished), you are required inform the IRB by submitting a signed Research Project Continuation Form with appropriate box checked.

Consent Forms: All subjects should be given a copy of the consent form. You must retain signed consent documents for at least three years past completion of the research activity.

Additional Requirements: None.

Be sure to use the project number provided above in all subsequent correspondence to the Institutional Review Board at Smith College. Please contact me at 413-585-3914 or ppeake@smith.edu if you have any questions.

For Committee Use Only:
Any and all requirements completed, final approval given:



Chair, Institutional Review Board