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Indecisiveness and Hoarding

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> Hoarding behavior and the problems associated with it have been the subject of an increasing amount of research. Early theorizing has suggested that problems with decision-making constitute a core feature, yet relatively few studies have examined this in depth. In the present study, indecisiveness was examined in large samples of adults who self-identified as having significant hoarding problems (n = 887), adult children of such individuals (n = 295), and spouses of such individuals (n= 120). People with hoarding problems reported more decision-making problems than children or spouses, and considerably more than community controls from other studies. Adult children of people with hoarding reported more indecisiveness than spouses, suggesting that this characteristic runs in families. Among the hoarding group, decision-making problems were correlated with all three core features of hoarding (excessive acquisition, difficulty discarding, clutter/disorganization), and the associations were independent of depression, anxiety, and obsessive-compulsive (OC) symptoms. Higher indecisiveness scores were also associated with earlier age of onset of hoarding independent of hoarding severity. Depression was associated mainly with the negative consequences of hoarding, while OC symptoms were related to the excessive acquisition of free things. Indecisiveness may be an important marker or nonhoarding endophenotype for hoarding and deserves closer examination.

Hoarding has recently been identified as an important yet under-studied form of psychopathology (Steketee & Frost, 2003). It represents a serious and sometimes lifethreatening behavior (Frost, Steketee, & Williams, 2000), particularly for the elderly (Kim, Steketee, & Frost, 2001), and poses significant economic and family burdens

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(Tolin, Frost, Steketee, & Fitch, 2008; Tolin, Frost, Steketee, Gray, & Fitch, 2008). Phenomenological studies suggest that hoarding consists of three major features—excessive acquisition, difficulty discarding, and clutter or extreme disorganization (Frost & Hartl, 1996; Steketee & Frost, 2003).

Frost and Hartl (1996) suggested that the core features of hoarding stem, in part, from impaired decision-making capacity. This conceptualization is consistent with results of neuropsychological studies showing significant impairments in sustained attention and executive functions (Grisham, Brown, Savage, Steketee, & Barlow, 2007; Tolin, Kurtz, Meunier, & Carlson, 2009), as well as in verbal and nonverbal memory (Hartl et al., 2004). In contrast, such deficits are not reliably evident in obsessive-compulsive disorder (OCD) patients (e.g., Simpson et al., 2006). The obtained patterns of neuropsychological impairment are congruent with neuroimaging research suggesting abnormal neural activity in regions associated with information processing (An et al., 2008; Saxena et al., 2004; Tolin, Kiehl, Worhunsky, Book, & Maltby, 2009).

These information-processing and decision-making problems can be understood phenomenologically under the broad label of *indecisiveness*. In epidemiologic research, self-reported indecisiveness is significantly more prevalent among people meeting criteria for hoarding than among nonhoarding community controls (Timpano, Exner, Rief, Brähler, & Wilhelm, 2010) and OCD patients (Samuels et al., 2007). In the latter study, relatives of hoarding probands were rated as having more problems with indecisiveness than were the relatives of nonhoarding probands, suggesting that indecisiveness may be part of a hoarding endophenotype.

Unfortunately, these epidemiologic surveys do not permit strong conclusions about the specific relationship between hoarding and indecisiveness beyond the impact of OCD, depression, or other forms of psychopathology. Further, hoarding cases drawn from OCD populations (e.g., Samuels et al., 2007) may not provide a representative sample of hoarding in the population, given recent evidence that only a minority of people with hoarding problems meet diagnostic criteria for OCD (Frost, Steketee, & Tolin, 2011). An additional problem concerns the association of depression, decision making, hoarding, and OCD. Hoarding is associated with higher rates of depression than is OCD (Frost et al., 2000; Frost et al., 2011), and depression has been linked with decision-making problems (Cella, Dymond, & Cooper, 2010). Thus, comparisons of hoarding vs. nonhoarding individuals without accounting for OCD and depressive symptoms (e.g., Timpano et al., 2010) make interpretation of results difficult.

Recent studies of nonclinical populations have shown strong *rs* (.49–.53) correlations between hoarding symptoms and indecisiveness (Frost, Kyrios, McCarthy, & Mathews, 2007; Hayward & Coles, 2009); notably, these correlations were stronger than the relationship between indecisiveness and OCD symptoms (Hayward & Coles, 2009). Using a sample solicited for hoarding symptoms, Steketee, Frost, and Kyrios (2003) reported that people who hoard scored significantly higher on indecisiveness than did nonhoarding OCD patients or community controls. Furthermore, indecisiveness predicted hoarding severity independent of depression, anxiety, OCD symptoms, and hoarding-related beliefs. However, the investigators did not examine the relationship between indecisiveness and the specific dimensions of hoarding (e.g., excessive acquisition, difficult discarding, clutter/disorganization). Kyrios, Frost, and Steketee (2004) found compulsive buyers had more decision-making problems than people without compulsive buying, but no studies have examined this in the context of hoarding.

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In the present study, we examined a large sample of individuals with self-identified hoarding problems, as well as self-identified adult children and spouses of people with hoarding problems. We hypothesized that among hoarding individuals, decisionmaking problems would be correlated with overall hoarding severity, each of the three core features of hoarding (excessive acquisition, difficulty discarding, disorganization/ clutter), and work impairment due to hoarding. Furthermore, since both depression and OCD (Olley, Malhi, & Sachdev, 2007) are associated with decision-making problems, we predicted that the relationship between the features of hoarding and indecisiveness would be independent of depression and OCD symptoms. Furthermore, if high levels of indecisiveness reflect greater genetic loading for hoarding, an earlier age of symptom onset might be expected among individuals with greater indecisiveness (Samuels et al., 2007). Based on the findings of Samuels et al., we hypothesized that decision-making problems would characterize the children of those with hoarding, and that such problems would be less evident among nonbiological relatives (i.e., spouses) of those who hoard.

METHOD

Participants

The present sample was recruited from a database of over 8,000 individuals who had contacted the researchers for information about hoarding after several national media appearances. Potential participants were sent an e-mail invitation to participate in the study, and were also allowed to forward the invitation to others with similar concerns. Data collection occurred from November 14, 2006, to January 15, 2007. Consistent with current recommendations (Kraut, Olson, & Banaji, 2004), prior to analysis the data were checked for apparent duplicates (i.e., a participant completing the survey more than once). Of 2,271 respondents, 887 adults who self-identified with hoarding problems ("hoarding participants") completed the main study measures (93% female, 91% White, average age = 49.2, range 18–85). Among the full sample of hoarding participants, 37.8% met or exceeded the cutoff for clinically significant OCD (score of 4) based on the OCI-R obsessing subscale (Foa et al., 2002). In addition, 685 "family informants" reported on acquisition and hoarding behavior of a family member who hoarded ("hoarding family members"), as well as their own hoarding and indecisiveness. Of these cases, 120 spouses and 295 adult children of people with hoarding problems were included in this study.

Materials

Diagnosis and severity of compulsive hoarding was determined using a self-report version of the Hoarding Rating Scale–Interview (HRS-I; Tolin, Frost, & Steketee, 2010), termed the Hoarding Rating Scale–Self-Report (HRS-SR). Like the interview, the HRS-SR consists of five Likert-type ratings from 0 (*none*) to 8 (*extreme*) of clutter, difficulty discarding, excessive acquisition, distress, and impairment. The HRS-I has shown high internal consistency and interrater reliability, correlated strongly with other measures of hoarding, and reliably discriminated hoarding from nonhoarding participants (Tolin, Frost, Steketee, & Fitch, 2008).

For the purposes of this study, the first three items of the HRS-SR were combined as the core phenomenological features of hoarding (HRS-3; clutter, excessive acquisition, difficulty discarding). Items 4 and 5 reflect distress and interference which, while important, are consequences of the phenomenological core. For selected analyses, individual items from the HRS were examined. Hoarding participants were considered to meet criteria for clinically significant hoarding if they described moderate (rating of 4 on the scale) or greater clutter *and* difficulty discarding, as well as either moderate (4) or greater distress *ar* impairment caused by hoarding on the HRS-SR. Although the cutoff of 4 is arbitrary, it is consistent with diagnostic strategies used for other disorders on similar rating scales (Brown, DiNardo, & Barlow, 1994). All participants completed the HRS-SR for their own symptoms. In a separate sample of 31 participants (Tolin, Frost, Steketee, & Fitch, 2008), the HRS-I and HRS-SR correlated strongly (r = .92, p < .001), with individual item correlations ranging from .74 to .91. Hoarding diagnostic status (see above) showed 73% agreement between self and interviewer report.

The Compulsive Acquisition Scale (CAS; Frost et al., 2002) is an 18-item Likerttype scale (from 1 = not at all or rarely to 7 = very much or very often) that measures the extent to which individuals acquire and feel compelled to acquire possessions. Two subscales were used: CAS-Buy and CAS-Free. The 12-item CAS-Buy subscale is a broad measure of compulsive buying behavior and its consequences. Two items refer to interference of buying in financial, social, or work functioning, and the remaining items focus on reasons for acquiring possessions, including four questions on the frequency of inappropriate buying, two on feeling compelled to buy, and four on emotional reactions to buying. The CAS-Free, a six-item subscale, measures the excessive acquisition of free objects. Both the CAS-Buy and CAS-Free have been found to be reliable (Frost et al., 2002; Kyrios et al., 2004). Both have been found to be correlated with buying-related cognitions, OCD symptoms, perfectionism, and indecisiveness. In addition, CAS-Buy discriminates compulsive buyers from controls (Frost et al., 2002; Kyrios et al., 2004). Reliability in the present sample was satisfactory ($\alpha s =$ 0.90 and 0.73, respectively). In the present sample the two subscales were significantly correlated (r = .50).

The Frost Indecisiveness Scale (FIS; Frost & Shows, 1993) is a 15-item scale measuring difficulties with decision making, and comprises two subscales: (1) Fears about Decision-Making (FIS-Fears) consisting of nine items, and (2) Positive Attitudes toward Decision-Making (FIS-Positive) consisting of six items. The FIS demonstrated adequate reliability and validity in undergraduate samples (Frost & Shows, 1993). Both subscales demonstrated satisfactory reliability ($\alpha s = 0.86$ and 0.81, respectively) in the present study.

The Obsessive Compulsive Inventory–Revised (OCI-R; Foa et al., 2002) is an 18-item self-report measure of OCD symptoms. In a large clinical sample, the measure showed good internal consistency, test-retest reliability, and convergent validity with other measures of OCD symptoms (Foa et al., 2002). In the present study, the OCI-R total score minus the hoarding items was used. The internal consistency of this total was acceptable ($\alpha = .88$).

The short form version of the Depression Anxiety Stress Scale (DASS) is a 21-item version of the original DASS (DASS-21; Lovibond & Lovibond, 1995) and contains three subscales: Depression, Anxiety, and Stress. Psychometric analyses indicate that the short form is a reliable and valid instrument (Henry & Crawford, 2005). In the present sample, reliabilities ranged from .85 to .93.

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For the hoarding participants, age of onset of hoarding problems was assessed by asking participants to report the extent to which hoarding was a problem (*no*, *mild*, *moderate*, or *severe*) at each 5-year interval beginning from birth (e.g., 0-5, 6-10, 11-15, etc.). The midpoint of the interval when hoarding severity first became (1) mild (noticeable) and (2) moderate (clinically significant), representing two indices of onset (Tolin, Meunier, Frost, & Steketee, 2010), were used as data points in statistical analyses.

For all statistical analyses, alpha level was set at p < .01.

Procedure

The present study was approved by the Institutional Review Boards at Hartford Hospital, Smith College, and Boston University. Human subjects' protection was consistent with current recommendations for web-based studies (Kraut et al., 2004). Prior to data collection, participants read an informed consent page and indicated consent by clicking an icon on the page. No protected health information was collected and it was not possible to link study data to an individual or computer. As incentive, participants were given an e-mail address to enroll in a raffle to receive one of 10 copies of a self-help book on compulsive hoarding. Participants responded to the survey by computer. They were allowed to skip any questions they wished, or to complete only portions of the survey. Data were stored on a password-protected server. A summary of aggregate research results was e-mailed to all individuals in the original database. Other findings from this sample are reported elsewhere (Tolin, Frost, Steketee, & Fitch, 2008).

RESULTS

One-way analyses of variance comparing the three groups on the HRS-3 and individual items followed by multiple comparisons (Tukey's *B*) indicated that, as expected, the hoarding group had significantly higher scores than family members on each measure (see Table 1). Hoarding participants also differed from the other two groups on buying and acquisition of free things (CAS). Interestingly, spouses had significantly higher scores than did children on clutter (item #1), distress (item #4), and interference (item #5), but not on difficulty discarding (item #2) or excessive acquisition (item #3). On the CAS, adult children of those who hoard had significantly higher scores than spouses on compulsive buying, but not on excessive acquisition of free things. Scores on these measures suggested that spouses' higher HRS clutter scores were likely due to their spouses' hoarding behavior and not their own hoarding.

As predicted, the hoarding group had significantly greater FIS-Fears and less FIS-Positive than did either of the family groups. Of the hoarding group members who completed the FIS, 665 met criteria for clinically significant hoarding based on their responses to the HRS, though all 887 participants reported hoarding behavior that had a negative impact on their lives. Among this group, 95% (630/665) had scores on the FIS-Fears subscale that exceeded the mean (M = 18.7, SD = 6.04) of a community control sample from a previous study (Kyrios et al., 2004), and 84% (557/665) had scores in excess of one standard deviation above the mean for community controls (>24.74).

	Group					
Variable	Hoarding (<i>n</i> = 887)	Adult Children (n = 295)	Spouses (<i>n</i> = 120)	F(2,1295-1298)		
HRS-3	16.2 (4.8)ª	4.12 (4.3) ^b	8.00 (4.4) ^c	822.3*		
HRS 1	5.38 (2.0) ^a	1.45 (2.1) ^b	5.56 (2.3)ª	405.6*		
HRS 2	5.82 (1.8)ª	1.49 (1.7) ^b	1.45 (1.9) ^b	821.1*		
HRS 3	5.08 (2.3)ª	1.18 (1.6) ^b	1.08 (1.6) ^b	506.0*		
HRS 4	6.35 (1.8)ª	2.00 (2.3) ^b	2.75 (2.9) ^c	580.0*		
HRS 5	5.79 (2.1)ª	1.15 (1.8) ^b	2.95 (3.1) ^c	554.0*		
FIS-Fears	30.9 (7.8)ª	20.4 (7.7) ^b	18.1 (6.7) ^c	301.5*		
FIS-Positive	15.9 (4.9) ^a	19.3 (5.4) ^b	20.2 (5.3) ^b	753.0*		
CAS-Buy	49.3 (16.9)ª	26.3 (12.7) ^b	23.2 (10.4)c	330.6*		
CAS-Free	23.0 (8.9)ª	10.9 (6.1) ^b	9.7 (5.8) ^b	332.8*		
OCI-R	13.84 (10.7)ª	8.07 (7.9) ^b	5.57 (6.1) ^c	62.8*		
DASS-Depression	17.5 (11.7)ª	8.2 (9.5) ^b	9.0 (9.5) ^b	94.6*		
DASS-Anxiety	9.92 (9.3) ^a	4.3 (6.3) ^b	4.7 (6.4) ^b	59.4*		
DASS-Stress	17.3 (10.7)ª	11.3 (8.9) ^b	10.8 (9.1) ^b	49.7*		

TABLE 1. Group Means (SDs) and One-Way ANOVAs on Study Variables

Note. HRS-3 = Hoarding Rating Scale sum of items 1-3; CAS = Compulsive Acquisition Scale; CIR = Clutter Image Rating; DASS = Depression Anxiety Stress Scales; FIS = Frost Indecisiveness Scale; OCI-R = Obsessive Compulsive Inventory-Revised minus hoarding items. *p < .001.

Also as predicted, children of those who hoard reported significantly greater fears of making decisions than did spouses, supporting the hypothesis that decision-making deficits are a familial characteristic in hoarding. The hoarding group differed from the two family groups on all OCI-R and DASS subscales. Children of hoarding participants had significantly higher scores than did spouses on the OCI-R, but not on any of the DASS subscales.

Among the hoarding participants, the FIS-Fears subscale was significantly and positively correlated with all hoarding related measures (HRS-SR, CAS Buy, CAS Free) (see Table 2). In addition to the correlation with hoarding-related measures, the FIS-Fears subscale was also significantly and positively correlated with the OCI-R total score (minus hoarding), as well as all three DASS subscales. The FIS-Positive subscale was significantly and negatively associated with each as well, though the correlations were smaller in magnitude.

To determine whether indecisiveness was related to hoarding independent of depression and OCD symptoms, regression analyses were conducted with the 887 hoarding participants to predict hoarding symptoms (HRS, CAS). Measures of affect (DASS subscales) and OCD (OCI-R total minus hoarding) were entered at step 1 followed by FIS subscales at step 2. The standardized betas from step 2 of each analysis are displayed in Table 3. For the HRS-3, at step 1, both OCI-R and DASS–Depression were significant predictors. At step 2, DASS-Depression, FIS-Fears, and FIS-Positive all significantly and independently predicted HRS-3. Interestingly, although the correlation between FIS-Positive and HRS-3 was negative, the standardized beta was positive suggesting that overlap with other constructs in the equation suppressed this relationship in the correlational analyses.

Regressions for each of the individual HRS items showed similar outcomes: Fear of Decision-Making contributed significantly for each item after controlling for mood and OCD symptoms, while Positive Decision-Making contributed significantly but weakly only to HRS clutter (#1), acquisition (#3), and impairment (#5). DASS-De-

		-		
	Fears of Decision-Making	Positive Decision-Making		
HRS-3	.31**	10*		
HRS 1	.22**	05		
HRS 2	.28**	13*		
HRS 3	.23**	05		
HRS 4	.35**	15**		
HRS 5	.33**	12*		
CAS-Buy	38**	16**		
CAS-Free	.42**	25**		
OCI-R	.32**	14**		
DASS-Depression	.39**	25**		
DASS-Anxiety	.35**	21**		
DASS-Stress	.42**	25**		

TABLE 2. Correlations between FIS Indecision Subscales and Study Variables

Note. HRS-3 = Hoarding Rating Scale sum of items 1-3; CAS = Compulsive Acquisition Scale; CIR = Clutter Image Rating; DASS = Depression Anxiety Stress Scales; FIS = Frost Indecisiveness Scale; OCI-R = Obsessive Compulsive Inventory-Revised minus hoarding items. *p < .01; **p < .01

pression also contributed significantly at step 2 for HRS clutter (#1), distress (#4), and impairment (#5) items, but not the difficulty discarding (#2) or acquisition (#3) items.

At step 1 of the regression predicting compulsive buying on the CAS, DASS-Depression ($\beta = .11$), DASS-Stress ($\beta = .18$), and OCI-R total ($\beta = .13$) significantly predicted compulsive buying. At step 2, only FIS-Fears and FIS-Positive predicted compulsive buying. Like the HRS-3 analysis, the standardized beta for FIS-Positive was positive. Analysis of the CAS acquisition of free things revealed a slightly different pattern. At step 1, OCI-R total ($\beta = .23$) and DASS-Stress ($\beta = .15$) predicted acquisition of free things. At step two, only OCI-R total and FIS-Fears did so.

Fear of making decisions was significantly and negatively correlated with the onset of both mild (r = -.16, p < .001) and moderate (r = -.13, p < .001) hoarding symptoms. Positive decision making was positively correlated with age of onset of both mild and moderate symptoms, although the correlations were small (rs = .10and .09, respectively, ps < .05). In separate regressions predicting the onset of mild and moderate symptoms in which hoarding severity and the indecisiveness subscales were entered as predictors, only fears of making decisions significantly predicted both onsets ($\beta s = -.14$ and -.12, respectively).

DISCUSSION

Comparisons across the groups in this study confirm the severity of hoarding among the self-identified hoarding participants. The mean HRS total score was nearly two standard deviations higher than the recommended cut off for significant hoarding problems (Tolin, Frost, & Steketee, 2010). Seventy-five percent of the self-identified hoarding participants met proposed criteria for hoarding disorder (American Psychiatric Association, 2010; Frost & Hartl, 1996).

The hoarding group differed from each of the other groups on both indecisiveness subscales as well as each of the study measures. As predicted, hoarding participants were, on average, more indecisive than their children and spouses. Furthermore,

TABLE 5. Standardized betas reducting hoarding variables at step 2 in the Regressions								
	DASS-D	DASS-A	DASS-S	OCI-R	FIS-Fears	FIS-Positive		
HRS-3	.13*	.04	01	.07	.30**	.13*		
HRS #1	.18**	.07	02	01	.22**	.13*		
HRS #2	.04	.01	.00	.08	.24**	.04		
HRS #3	.06	.01	01	.11*	.24**	.12*		
HRS #4	.20**	.04	.04	.05	.27**	.09		
HRS #5	.26**	.04	02	.00	.29**	.12*		
CAS buy	.05	.08	.12	.10	.32**	.11*		
CAS free	05	.01	.07	.19**	.36**	.01		

TABLE 3. Standardized Betas Predicting Hoarding Variables at Step 2 in the Regressions

Note. HRS-3 = Hoarding Rating Scale sum of items 1-3; CAS = Compulsive Acquisition Scale; CIR = Clutter Image Rating; DASS = Depression Anxiety Stress Scales; FIS = Frost Indecisiveness Scale; OCI-R = Obsessive Compulsive Inventory-R minus hoarding items. *p < .01; **p < .001

among the hoarding participants the indecisiveness measures were correlated with hoarding severity and predicted each of the core features of hoarding (acquiring, difficulty discarding, clutter/disorganization) above and beyond the variance in common with depression, anxiety, and OCD symptoms. Although there are no established cutoff scores to determine clinically significant levels of indecisiveness, the vast majority of those with clinically significant hoarding in this sample reported problems making decisions. Nearly 85% of the hoarding group had indecisiveness scores that exceeded one standard deviation above the mean of the nonclinical sample. This is consistent with theorizing about the role of decision making in hoarding problems (Frost & Hartl, 1996; Saxena, 2008; Steketee & Frost, 2003) and previous research linking hoarding with indecisiveness (Frost & Gross, 1993; Samuels et al., 2002, 2007). Overall, the findings suggest that decision-making problems have a unique role in hoarding and deserve further scrutiny.

Previous research using a compulsive buying sample (Kyrios et al., 2004) found compulsive buying severity to be associated with indecisiveness, but that the association was eliminated when depression and OCD symptoms were controlled. Results of the present study demonstrated a significant association between both compulsive buying and the excessive acquisition of free things in a sample of people with hoarding problems, and the association was independent of depression and OCD symptoms. Thus, the link between compulsive buying and acquisition and indecisiveness may be somewhat unique among people with hoarding problems.

Indecisiveness was uniquely associated with age of onset of hoarding symptoms. Higher levels of indecision were associated with earlier onset independent of hoarding severity. In addition to being uniquely associated with hoarding severity, indecision uniquely predicted onset, suggesting that it may play a major role in the disorder.

Consistent with the literature, fears of making decisions correlated with depression, anxiety, and stress as well as OCD symptom severity. Positive decision making correlated negatively with depression, anxiety, and stress, and weakly with OCD symptoms. Depression accounted for unique variance in clutter, distress, and interference, but not for two core features of hoarding (excessive acquisition and difficulty discarding), suggesting that depression may relate to the consequences of hoarding behavior but not its core features. OCD symptoms accounted for significant and unique variance in acquisition, but examination of the CAS subscales suggests that this association may be limited to the acquisition of free things rather than compulsive buying.

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Spouses of those who hoard scored significantly higher on the HRS-3 than did children of those who hoard, but examination of the individual items indicated that this was due to items that reflected the condition of the home, which was probably due to their spouses' (the hoarding probands) behavior. Compared to children, spouses had higher scores on the clutter, distress, and interference items. The absence of differences on the difficulty discarding and acquiring items, as well as the higher compulsive buying score by children of hoarding adults, suggests that the difference was due to their spouses' hoarding behavior and not their own.

Consistent with Samuels and colleagues' (2007) findings, the children of adults who hoard had greater self-reported problems with decision making than did spouses. This sample differed from that examined by Samuels et al. in that participants were solicited specifically for the presence of hoarding symptoms, rather than OCD. The findings from this study suggest that indecision and decision-making problems may run in families of people who hoard regardless of the OCD status of the hoarding relative.

The children of those who hoard also differed from spouses on several other dimensions, including compulsive buying and OCD symptoms. The absence of higher acquisition and difficulty discarding scores among the children of hoarding participants was somewhat surprising given the consistent findings that hoarding runs in families (Frost & Gross, 1993; Samuels et al., 2007). The higher compulsive buying scores by the children of the hoarding group indicates that perhaps the HRS acquisition item, which reflects a composite of both compulsive buying and excessive acquisition of free things, was less sensitive. Further examination of familial effect of each dimension of hoarding is needed to clarify this issue.

One limitation of this study was the reliance on self-report measures collected over the Internet. No independent verification of hoarding status was possible. The limited insight that characterizes many individuals with hoarding (Samuels et al., 2007) may have influenced their reports. However, the hoarding group in this study reported significant hoarding symptoms and problems associated with them.

REFERENCES

- American Psychiatric Association. (2010). DSM-5 development: Hoarding disorder. Retrieved July 8, 2010, from http://www.dsm5.org/ ProposedRevisions/Pages/proposedrevision. aspx?rid=398
- An, S. K., Mataix-Cols, D., Lawrence, N. S., Wooderson, S., Giampietro, V., Speckens, A., et al. (2008). To discard or not to discard: The neural basis of hoarding symptoms in obsessive-compulsive disorder. *Molecular Psychiatry*, 14, 318-331.
- Brown, T. A., DiNardo, P. A., & Barlow, D. H. (1994). Anxiety disorders interview schedule for DSM-IV. San Antonio, TX: The Psychological Corporation.
- Cella, M., Dymond, S., & Cooper, A. (2010). Impaired flexible decision-making in major depressive disorder. *Journal of Affective Disor*ders, 124, 207-210.
- Foa, E. B., Huppert, J. D., Leiberg, S., Langner, R., Kichic, R., Hajcak, G., et al. (2002).

The Obsessive-Compulsive Inventory: Development and validation of a short version. *Psychological Assessment*, 14, 485-496.

- Frost, R. O., & Gross, R. C. (1993). The hoarding of possessions. *Behaviour Research and Therapy*, 31, 367-381.
- Frost, R. O., & Hartl, T. L. (1996). A cognitive-behavioral model of compulsive hoarding. *Behaviour Research and Therapy*, 34, 341-350.
- Frost, R. O., Kyrios, M., McCarthy, D. D., & Mathews, Y. (2007). Self-ambivalence and attachment to possessions. *Journal of Cognitive Psychotherapy: An International Quarterly*, 21, 236-246.
- Frost, R. O., & Shows, D. (1993). The nature and measurement of compulsive indecisiveness. *Behaviour Research and Therapy*, 31, 683-692.
- Frost, R. O., Steketee, G., & Tolin, D. F. (2011). Comorbidity in hoarding disorder. *Depression and Anxiety*. doi 10.1002/da20861

- Frost, R. O., Steketee, G., & Williams, L. (2000). Hoarding: A community health problem. *Health and Social Care in the Community*, 8, 229-234.
- Frost, R. O., Steketee, G., & Williams, L. (2002). Compulsive buying, compulsive hoarding, and obsessive-compulsive disorder. *Behavior Therapy*, 33, 201-214.
- Grisham, J. R., Brown, T. A., Savage, C. R., Steketee, G., & Barlow, D. H. (2007). Neuropsychological impairment associated with compulsive hoarding. *Behaviour Research and Therapy*, 45, 1471-1483.
- Hartl, T. L., Frost, R. O., Allen, G. J., Deckersbach, T., Steketee, G., Duffany, S. R., et al. (2004). Actual and perceived memory deficits in individuals with compulsive hoarding. *Depres*sion and Anxiety, 20(2), 59-69.
- Hayward, L. C., & Coles, M. E. (2009). Elucidating the relation of hoarding to obsessivecompulsive disorder and impulse control disorders. *Journal of Psychopathology and Behavioral Assessment*, 31, 220-227. Doi: 10.1007/s10862-008-9106-0.
- Henry, J. D., & Crawford, J. R. (2005). The shortform version of the Depression Anxiety Stress Scale (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology*, 44, 227-239.
- Kim, H.-J., Steketee, G., & Frost, R. O. (2001). Hoarding by elderly people. *Health & Social Work*, 26, 176-184.
- Kraut, K., Olson, J., & Banaji, M. (2004). Psychological research online: Report of Board of Scientific Affairs Advisory Group on the Conduct of Research on the Internet. *American Psychologist*, 59, 105-117.
- Kyrios, M., Frost, R. O., & Steketee, G. (2004). Cognitions in compulsive buying and acquisition. *Cognitive Therapy and Research*, 28, 241-258.
- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scale (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, 33, 335-343.
- Olley, A., Malhi, G., & Sachdev, P. (2007). Memory and executive functioning in obsessive-compulsive disorder: A selective review. *Journal* of Affective Disorders, 104, 15-23.
- Samuels, J. F., Bienvenu III, O. J., Pinto, A., et al. (2007). Hoarding in obsessive-compulsive disorder: Results from the OCD collaborative genetics study. *Behaviour Research* and Therapy, 45, 673-686. Doi:10.1016/j. brat.2006.05.008.

- Samuels, J.F., Bienvenu III, O. J., Riddle, M. A. et al. (2002). Hoarding in obsessive-compulsive disorder: Results from a case-control study. *Behaviour Research and Therapy*, 40, 517-528.
- Saxena, S. (2008). Recent advances in compulsive hoarding. Current Psychiatry Reports, 10, 297-303.
- Saxena, S., Brody, A. L., Maidment, K., Smith, E., Zohrabi, N., Katz, E., et al. (2004). Cerebral glucose metabolism in obsessive-compulsive hoarding. *American Journal of Psychiatry*, 161, 1038-1048.
- Simpson, H. B., Rosen, W., Huppert, J. D., Lin, S. H., Foa, E. B., & Liebowitz, M. R. (2006). Are there reliable neuropsychological deficits in obsessive-compulsive disorder? *Journal of Psychiatric Research*, 40, 247-257.
- Steketee, G., & Frost, R. O. (2003). Compulsive hoarding: Current status of the research. *Clinical Psychology Review*, 23, 905-927.
- Steketee, G., Frost, R. O., & Kyrios, M. (2003). Cognitive aspects of compulsive hoarding. Cognitive Therapy and Research, 27, 463-479.
- Timpano, K. R., Exner, C., Rief, W., Brähler, E., & Wilhelm, S. (2010). The prevalence and associated correlates of hoarding in an epidemiological sample. Paper presented at the Meeting of the World Congress of Behavioral and Cognitive Therapies, Boston.
- Tolin, D. F., Frost, R. O., & Steketee, G. (2010). A brief interview for assessing compulsive hoarding: The Hoarding Rating Scale–Interview. *Psychiatry Research*, 178, 147-152.
- Tolin, D. F., Frost, R. O., Steketee, G., & Fitch, K. E. (2008). Family burden of compulsive hoarding: Results of an internet survey. *Behaviour Research and Therapy*, 46, 334-344.
- Tolin, D. F., Frost, R. O., Steketee, G., Gray, K. D., & Fitch, K. E. (2008). The economic and social burden of compulsive hoarding. *Psychiatry Research*, 160, 200-221.
- Tolin, D. F., Kiehl, K. A., Worhunsky, P., Book, G. A., & Maltby, N. (2008). An exploratory study of neural mechanisms of decision making in compulsive hoarding. *Psychological Medicine*. doi 10.1017/S0033291708003371
- Tolin, D. F., Kurtz, M. M., Meunier, S. A., & Carlson, S. E. (2009, November). Neuropsychological impairment in compulsive hoarding. Paper presented at the Annual Meeting of the Association of Behavioral and Cognitive Therapies, New York.
- Tolin, D. F., Meunier, S. A., Frost, R. O., & Steketee, G. (2010). Course of compulsive hoarding and its relationship to life events. *Depression and Anxiety*. doi: 10.1002/da.20684