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A Hoarding Index for Adults

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Hoarding is defined in terms of four observable aspects: (a) accumulation, (b) collection, (c) lack of disposal, and (d) pathological attachment. Typically, hoarding has an early age at onset and displays a progression of clinical symptoms. Early-stage detection and diagnosis in young and middle-aged adults could allow a therapeutic response to hoarding symptoms in a timely manner and prevent later-life hoarding trauma. We hypothesized that the Hoarding Index for Adults (HIA) would reliably and validly measure two domains: (a) abnormally-intensified patterns of acquisition and (b) reduced patterns of disposal. To test our hypothesis, we created a 10-item online survey and used social networking to gather a convenience sample of adults from age 17 to 70+. We found that the HIA was reliable and predictively valid. Future research could refine the HIA to effectively diagnose hoarding symptoms in young and middle-aged adults, specifically.

Keywords: acquisition, clutter, collecting, disposal, dysfunction, hoarder, hoarding

Hoarding has been traditionally defined in terms of four observable aspects: (a) excessive accumulation, (b) collection, (c) lack of capacity to discard, and (d) pathological attachment to immaterial objects (Frost & Gross, 1993). Hoarding behaviors generally appear during childhood or adolescence, and severity levels have a tendency to increase with age (Ayers, Saxena, Golshan, & Wetherell, 2010). Hoarding patterns are apparent in mental disorders but are also evident in people with generally good mental health (Steketee & Frost, 2003). Those who hoard exhibit "a slow and steady progression [of hoarding] throughout their lives" (Grisham, Frost, Steketee, Kim, & Hood, 2006, p. 684). According to Ayers et al. (2010), hoarding behaviors and the personality traits associated with it typically results in the disruption of hoarders' lives and causes potential health and safety issues, with subsequent societal consequences (Frost, Steketee, & Williams, 2000). Moreover, severe hoarding has dangerous physical and psychological outcomes, including the increased hazard of falling, fire risks, food contamination, and social isolation (Ayers et al., 2010). With the passing of time, hoarding behaviors may become chronic as hoarders eventually amass an accumulation of items and exhibit personal dysfunction to a degree necessitating professional intervention.

Chronic hoarding behaviors are difficult to treat successfully because most current interventions are initiated after hoarding behaviors have become deeply entrenched and the magnitude of clutter has become overwhelming. Although researchers have examined potential interventions, few have examined the implications of age at onset and clinical-symptomatic progression (Ayers et al., 2010),

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particularly with the goal of creating a measure of hoarding behavior for use with young and middle-aged people. If the onset of hoarding begins at an early age and progresses with each decade of life, an effective diagnostic tool may play a key role in countering future chronic hoarding behaviors and the subsequent need for professional therapy (Muroff et al., 2009).

For the purposes of this study, we operationally defined hoarding within two domains: (a) excessive patterns of acquisition and (b) minimal patterns of disposal. We further defined excessive patterns of acquisition as an accumulation of more items than a person can normally use and defined minimal patterns of disposal as the inability to discard items that are no longer necessary for a functional life. The first domain is evident in research indicating that material deprivation during childhood accentuates the onset of hoarding (Tolin, Meunier, Frost, & Steketee, 2010) and is also associated with possession-related events, such as family eviction from an apartment or home, childhood traumas such as possessions taken by force, or the hoarding patterns of another family member (Tolin et al., 2010). Other factors include "a childhood history of parental psychiatric illness, home break-ins, and excessive physical discipline" (Tolin et al., 2010, p. 830). In addition, the sheer volume of inexpensive material goods that hoarders may acquire is greater than any time in recent history, as it becomes easier to acquire more than is useful and needed and to do so with minimal financial and time investment. Hoarders tend to over-accumulate items without subsequent discarding or usage. Many of the stored goods are in a partially-used state or may constitute an addition to collections of

similar items (Maycroft, 2009) that already have a secure place in the home.

The second domain, which was initially called "minimal patterns of disposal," signifies that hoarders tend to view their possessions as extensions of themselves. A better term might be "personal attachment to items." This proposal is supported by Koretz and Guthiel's (2009) finding that possessions are so precious that hoarders frequently report that discarding them becomes like losing a loved one. Often, a family environment that is overprotective and highly demanding leads an individual to seek security elsewhere, resulting in strengthened attachment to objects (Kortez & Guthiel, 2009). Consequently, hoarders do not practice disposal (Maycroft, 2009).

Given the two factors of excessive acquisition and minimal disposal practices, a hoarding index for young and middle-aged people may have validity because of the clinically-challenging nature of hoarding and typically poor response to treatment, which suggests a need "for innovative psychosocial treatment methodologies" (Muroff et al., 2009, p. 635), including a diagnostic tool. We hypothesized that a Hoarding Index for Adults (HIA) would reliably and validly measure both abnormal patterns of acquisition and disposal before these patterns became deeply entrenched and thus provide an initial, early-stage diagnosis of potential hoarders.

Method

Participants

We formed a convenience sample of 114 people. Of those who responded to our survey, 93% were women, 111 were Caucasian, and

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one participant each indicated being African American, Asian, and Other, respectively. The participants' ages ranged from 17 to over 70 years of age ($M = 37$, $SD = 1.36$).

Test construction

We originally constructed 30 items on a six-point Likert scale that included: Strongly Agree, Agree, Somewhat Agree, Somewhat Disagree, Disagree, and Strongly Disagree. These items were rated by 22 undergraduate psychology students, and we selected 10 items for the HIA using the content-validity ratio (CVR) (see Appendix A for the final questionnaire and Table 1 for the CVR results). The CVR ranged from 0.30 to 0.91 ($M = .58$, SD = 0.44). We reverse-scored three survey items (2, 6, and 7) to diminish the agreement-bias effect. The items were presented in random order. A total of 10 items, a face-validity question, and seven demographic items composed the survey.

Test Administration

The survey was administered using the Qualtrics software (www.qualtrics.com) to a convenience sample consisting of our fellow students, friends, and family members and other willing participants. We used social media outlets, such as Facebook (www.facebook.com), Twitter (www.twitter.com), blogs (www.houseoforder.blogspot.com), and newsletters (www.ymlp.com). The survey was available for two weeks.

Data analysis

We used the statistical package SPSS 20. We calculated internal reliability using Cronbach's alpha and item consistency using the Pearson bivariate correlation. Factor analysis provided a data-

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reduction technique and determined the factor structure of the HIA, with the factors derived from eigenvalues greater than one. Deflections in the scree plot were the basis for determining the factors. We derived face validity from the item that asked participants what they thought the questionnaire was about.

Results

Validity

As measured by the CVR, five items had exceptional content validity (>.57), three items had high-content validity (0.48-0.57), and two items had adequate content validity (= 0.30; see Table 1). In addition, face validity was maximal, as all the participants indicated that the survey measured hoarding behaviors.

Reliability

Cronbach's alpha showed that the test had high internal consistency (α = .89; see Table 2). A Pearson bivariate analysis showed that 44 of 46 correlations were significant at the $p < .01$ level, and the remaining two were significant at the $p < .05$ level (see Table 3).

Factor Analysis

Principal-components analysis showed two factors with eigenvalues greater than 1.0 (5.05 and 1.20) that explained 62.47% of the variance. Component 1 accounted for 50.50% of the variance and Component 2 accounted for 11.97% (see Table 4). The scree-plot deflection indicated one primary factor (see Table 5), and all items had primary loadings only on the first factor (see Table 6). We interpreted these results as specifying only one primary factor in the HIA.

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Discussion

The purpose of this study was to determine whether the HIA would reliably and validly measure the two domains of hoarding: (a) patterns of excessive acquisition and (b) patterns of reduced disposal. Our results strongly supported the reliability and validity of the HIA in identifying hoarding propensities, but had several weaknesses that will require further research in order to resolve.

The main limitation of this study was the conflict between the scree plot showing one primary factor and the factor analysis indicating two factors. Several patterns of response to the disposal items were too closely aligned with those to the acquisition items and thus did not directly address disposal. Also, it is clear the majority of these ambiguous items addressed hoarding factors not specific to this study, such as excessive saving, emotional attachment to belongings, and clutter. These items need rewording in order to become more discriminative. For example, the question "I like to save things that appear useless to others" could be changed to "I like to save things that appear useless to others—*instead of discarding them in a timely manner*." Moreover, the HIA should be reviewed by experts for content validity. As a result of these challenges, we concluded that the second primary domain should be re-entitled "abnormally-intensified patterns of acquisition."

Other limitations of our study were the composition of the convenience sample, our lack of expertise in formulating the HIA questions, the use of negative wording of items, and participant bias. The majority of participants were middle-aged Caucasian homeowners, making it difficult to generalize the findings. The CVR

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could also have been compromised by our lack of expertise in formulating test items. Only three items were negatively worded, which increased the possibility of agreement bias. Finally, because all of the participants agreed that the study was about hoarding, their responses may have been skewed by social desirability.

If revised appropriately, the HIA could be used in clinical therapeutic settings to diagnose hoarding. If it were used effectively, it would have the potential to reduce the damaging, long-term, health, psychological, and personal effects of hoarding.

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Appendix A

Questionnaire

Demographics

1- What is your gender?

Male   Female

2- What is your age?

Less than 18   18-20   21-30   31-40   41-50   51-60   61-70   70+

3- What is your race?

African-American   Asian   Pacific Islander   Hispanic

Native American   White   Other

4- What is your income?

Less than $10,000 $10-$20,000 $20-$30,000 $30-$40,000

$40-$50,000 $50,000+

5- What is your highest education completed?

GED   High School   College   Vocational School

Post-graduate degree   Other

6- What is your marital status?

Single   Married   Divorced   Widowed   Other

7- What is your type of housing?

Live with parents/guardians   Rent apartment/condo   Rent house

Own condo   Own house

Other Questions

1- I restrict my family members from entering my home/apartment because I have so many accumulated items.

Strongly Agree   Agree   Somewhat Agree

Somewhat Disagree   Disagree   Strongly Disagree

2- I don't buy/collect any items past what I really need.

Strongly Agree   Agree   Somewhat Agree

Somewhat Disagree   Disagree   Strongly Disagree

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3- I am afraid to throw items away because I might need them in the future.

| Strongly Agree | Agree | Somewhat Agree |
| Somewhat Disagree | Disagree | Strongly Disagree |

4- I experience difficulty discarding unneeded items.

| Strongly Agree | Agree | Somewhat Agree |
| Somewhat Disagree | Disagree | Strongly Disagree |

5- I have difficulty parting with my possessions.

| Strongly Agree | Agree | Somewhat Agree |
| Somewhat Disagree | Disagree | Strongly Disagree |

6- I am not overly attached to my belongings.

| Strongly Agree | Agree | Somewhat Agree |
| Somewhat Disagree | Disagree | Strongly Disagree |

7- I don't become distressed or anxious when throwing things away.

| Strongly Agree | Agree | Somewhat Agree |
| Somewhat Disagree | Disagree | Strongly Disagree |

8- I like to save things that appear useless to others.

| Strongly Agree | Agree | Somewhat Agree |
| Somewhat Disagree | Disagree | Strongly Disagree |

9- My accumulation habits have led to problems with neighbors, room-mates, and/or my spouse.

| Strongly Agree | Agree | Somewhat Agree |
| Somewhat Disagree | Disagree | Strongly Disagree |

10- My home is cluttered to the point that I cannot use all of the living spaces effectively.

| Strongly Agree | Agree | Somewhat Agree |
| Somewhat Disagree | Disagree | Strongly Disagree |

11- What do you think this test is measuring?

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Table 1

Content Validity Ratio

Item	CVR
Restriction of family members	.74
Buy things I past what I need	.48
Afraid to throw things away	.74
Difficulty discarding unneeded items	.49
Difficulty parting with possessions	.91
Overly attached to belongings	.74
Distressed or anxious throwing things away	.57
Save things that appear useless to others	.48
Accumulation habits led to problems with neighbors, roommates, etc.	.30
Home is cluttered to the point that space is not effectively used	.30

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Table 2

Cronbach's Alpha

Cronbach's Alpha	Cronbach's Alpha Standardized	N
.89	.89	10

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Table 3

Pearson Correlation Coefficient Results

Item	1	2	3	4	5	6	7	8	9	10
1	1.00	-	-	-	-	-	-	-	-	-
2	.37**	1.00	-	-	-	-	-	-	-	-
3	.44**	.64**	1.00	-	-	-	-	-	-	-
4	.42**	.69**	.78**	1.00	-	-	-	-	-	-
5	.34**	.36**	.43**	.46**	1.00	-	-	-	-	-
6	.41**	.33**	.43**	.39**	.48**	1.00	-	-	-	-
7	.47**	.23*	.42**	.34**	.43*	.52**	1.00	-	-	-
8	.25**	.38**	.43**	.48**	.30**	.33**	.23**	1.00	-	-
9	.35**	.59**	.64**	.80**	.47**	.39**	.33**	.52**	1.00	-
10	.42**	.49**	.48**	.56**	.45**	.40**	.27**	.34**	.57**	1

* Significant at 0.05 level (2-tailed)

** Significant at 0.01 level (2-tailed)

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Table 4

Total Variance Explained

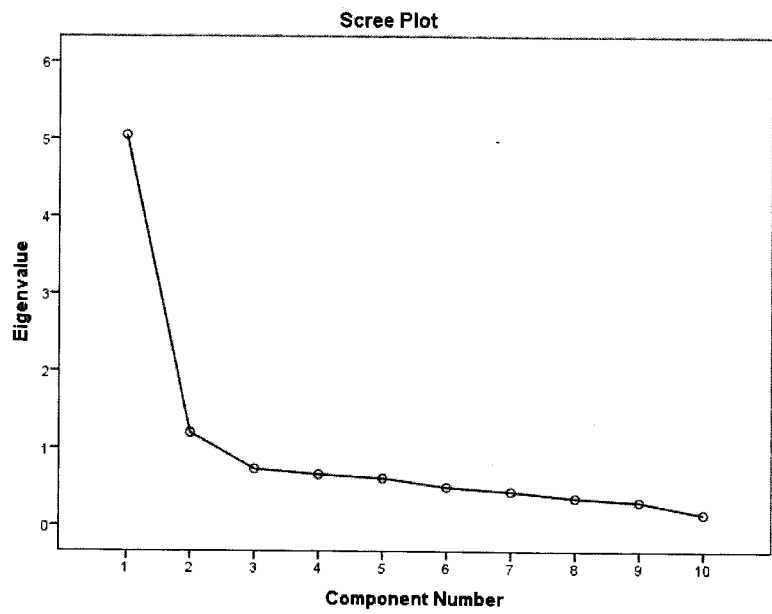**Initial Eigenvalues**

Component	Total	% Variance	% Variance	Cumulative %
1	5.05	50.50	5.05	50.50
2	1.20	11.97	1.20	62.47
3	0.73	7.32		
4	0.66	6.61		
5	0.61	6.12		
6	0.50	4.95		
7	0.44	4.39		
8	0.36	3.58		
9	0.31	3.06		
10	0.15	1.49		

Extraction Method: Principal Component Analysis

% = Percentage

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Table 5

Scree Plot

Table 6

Component Matrix

Item	Component 1	Component 2
1	.86	
2	.82	
3	.82	
4	.74	-.34
5	.71	
6	.65	
7	.64	.48
8	.61	.37
9	.60	
10	.57	.63

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