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Anxious attachment and excessive acquisition: The mediating roles of anthropomorphism and distress intolerance

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Background and aims: Most individuals with hoarding disorder (HD) are prone to excessively acquiring new possessions. Understanding the factors that contribute to this collecting behavior will allow us to develop better treatment approaches for HD. The aim of this study was to test our assumption that an anxious attachment style is associated with a tendency to anthropomorphize comforting objects and an inability to tolerate distress, which in turn leads to excessive acquisition. *Methods:* A total of 361 participants with subclinical to clinical acquisition problems (77.8% female) completed a series of self-report measures. *Results:* As expected, greater anxious attachment was related to greater distress intolerance and stronger tendencies to anthropomorphize inanimate objects. In turn, greater distress intolerance and anthropomorphism were related to more excessive buying and greater acquisition of free items. Examination of the pathways and indirect effects showed support for double mediation rather than serial mediation, as distress intolerance did not predict anthropomorphism. *Discussion and conclusion:* These novel findings, if replicated, suggest that adding treatment modules that target improving distress tolerance and reducing anthropomorphism to standard treatment for HD may lead to further reductions in excessive acquiring.

Keywords: insecure attachment, hoarding disorder, emotion regulation, emotion dysregulation, maladaptive beliefs

INTRODUCTION

Hoarding disorder (HD) is characterized by the inability to discard possessions to the degree that clutter accumulates and substantially compromises the use of one's home (American Psychiatric Association [APA], 2013). As only two thirds of individuals who have trouble discarding also excessively acquire possessions, excessive acquisition is included as a specifier, not a diagnostic criterion, for the DSM-5 diagnosis (APA, 2013). Given the less-frequent role that acquiring plays in HD, most hoarding research has been focused on discarding difficulties, and as a result, the factors that contribute to excessive acquiring in HD remain unclear (Frost, Steketee, & Tolin, 2011; Frost, Tolin, Steketee, Fitch, & Selbo-Bruns, 2009; Timpano, Exner, et al., 2011). The limited research on this topic shows that individuals who excessively acquire have more severe psychopathology in general and a more severe form of HD and that excessive acquisition is uniquely associated with inhibited self-control over other hoarding symptoms (Frost, Rosenfield, Steketee, & Tolin, 2013; Frost et al., 2009; Vohs & Faber, 2007). Increasing our knowledge of what contributes to excessive acquiring will help us to enhance treatment for the two thirds of individuals with HD who have both acquiring and discarding problems.

Fromm (1947) theorized that individuals with a hoarding orientation achieve a sense of security by collecting and saving things rather than through maintaining healthy human relationships. In support of this assumption, research has shown that people who hoard are often socially isolated (Kim, Steketee, & Frost, 2001), have more interpersonal problems than other individuals (Tolin, Frost, Steketee, Gray, & Fitch, 2008), derive comfort from their possessions, and feel that throwing away a possession is akin to throwing away a part of themselves or losing a friend (Frankenburg, 1984; Frost & Hartl, 1996; Greenberg, 1987). Thus, it seems possible that Fromm (1947) was correct in positing that people acquire possessions to attain security and that they may be more likely to do so in the absence of meaningful interpersonal relationships. Individuals require reliable social support to feel secure (Feeney & Collins, 2015), and consideration of the role of social support as described in attachment theory may help us understand why some individuals turn to objects when supportive close relationships are not available.

According to attachment theory, infants develop a sense about their personal worth and about the reliability of others during times of need through their interactions with primary caregivers. These concepts then form the basis of their interpersonal attachment style (Bowlby, 1969).

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Interpersonal attachment styles influence one's ability to regulate emotions, maintain self-control, and engage in social interactions (Sroufe, 2005; Tangney, Baumeister, & Boone, 2004). Insecure attachment styles (anxious attachment and avoidant attachment) are frequently associated with interpersonal problems and maladaptive behaviors (Fraley, Heffernan, Vicary, & Brumbaugh, 2011; Graham & Unterschute, 2015; Mikulincer & Shaver, 2012). Persons who are avoidantly attached inhibit their emotions and dismiss needs for social connection to alleviate anxiety associated with a history of not getting their interpersonal needs met, whereas anxiously attached individuals engage in attention-seeking behaviors to alleviate fears of abandonment (Maxwell, Spielmann, Joel, & Macdonald, 2013). When attention-seeking regularly fails to get others to provide comfort, individuals with an anxious attachment style may seek support from other non-human sources to relieve their distress (Mikulincer, 1998).

In such cases, objects may substitute for interpersonal attachment. Anxious attachment is associated with stronger materialistic values (Norris, Lambert, Nathan Dewall, & Fincham, 2012), greater object attachment (Keefer, Landau, Rothschild, & Sullivan, 2012), and greater hoarding tendencies (Medard & Kellett, 2014), whereas these associations have not been found among avoidantly attached individuals. Because avoidantly attached individuals dismiss needs for social connection, they have no need for turning to objects for support. On the other hand, anxiously attached individuals want social connections. When anxious attachment is induced experimentally, by priming individuals with the unreliability of close others, individuals experience separation anxiety after having a valued possession taken away (Keefer et al., 2012). Separation anxiety may occur after possession removal because individuals have attributed human-like qualities to their cherished belonging. This attribution of human-like qualities to non-human entities is known as *anthropomorphism*, and prior research has established that individuals with stronger anthropomorphic tendencies derive just as much security from objects as they do from close others (Keefer, 2016). If anxiously attached individuals seek comfort from objects to substitute for interpersonal attachment, anthropomorphizing objects may serve to further increase social support for these individuals.

Imagining that objects have human-like qualities to meet social needs begins early in life, when children turn to objects during parental unavailability (Gjersoe, Hall, & Hood, 2015). Potentially, children develop stronger anthropomorphic tendencies when their parents are regularly unavailable. Studies with adults have shown that greater anxious attachment is related to greater anthropomorphic tendencies (Bartz, Tchalova, & Fenerci, 2016; Neave, Tyson, McInnes, & Hamilton, 2016; Wang, 2017). Research has also shown that greater anthropomorphic tendencies are associated with greater hoarding behaviors, especially excessive and compulsive acquisition (Burgess, Graves, & Frost, under review; Neave et al., 2016; Timpano & Shaw, 2013). Thus, the accumulating research suggests that persons with an anxious attachment style may perceive objects to have human-like qualities and then acquire them to obtain support when their social needs are regularly unmet.

An anxious attachment style may also be associated with excessive acquisition through the influence of emotion dysregulation. Anxiously attached individuals experience more negative emotions and experience these negative emotions more intensely than do avoidant or securely attached individuals (Gentzler, Kerns, & Keener, 2010; Gillath, Bunge, Shaver, Wendelken, & Mikulincer, 2005). This may be because anxiously attached individuals tend to rely on maladaptive coping strategies, such as rumination, self-blame, and catastrophizing to regulate their emotions (Gentzler et al., 2010; Pascuzzo, Cyr, & Moss, 2013). Anxious attachment is further associated with poor impulse control in response to distress, non-acceptance of aversive emotions, and a perceived inability to manage emotional responses (Marganska, Gallagher, & Miranda, 2013).

Given these associations, it seems that anxiously attached individuals are distress intolerant. Distress intolerance is the perception that the aversive emotional states are unbearable, unacceptable, or uncontrollable (Simons & Gaher, 2005). Self-report studies have shown that greater distress intolerance and greater impulsivity in response to negative emotions are related to more compulsive buying, excessive acquisition, and difficulty discarding, with distress intolerance being most strongly related to excessive acquisition (Alemis & Yap, 2013; Phung, Moulding, Taylor, & Nedeljkovic, 2015; Rose & Segrist, 2014; Timpano, Buckner, Richey, Murphy, & Schmidt, 2009). Given these recent findings in HD, it is important to clarify the pattern of associations in HD among anxious attachment style, distress intolerance, and excessive acquisition.

The aim of this study was to test our hypothesis that an anxious attachment style exerts its influence on excessive acquisition by two different pathways – people's tendency to anthropomorphize objects and their perceived inability to tolerate distress. Prior research suggests that these factors may contribute to excessive acquisition separately, but it is plausible that distress intolerance may lead to anthropomorphism. People who perceive themselves to be more incapable of tolerating distress may have an increased need to seek comfort by anthropomorphizing items. Thus, we used serial mediation to examine our hypothesis as it allows for a test of both serial mediation (anxious attachment leads to distress intolerance, which then leads to anthropomorphism, which then leads to excessive acquisition) and multiple mediation (two separate pathways). In line with the recommendation of Frost et al. (2009), who found compulsive buying and the excessive acquisition of free items independently contributed to hoarding and may therefore have differing causal influences, we examined our hypothesis using both components of excessive acquisition. But given the lack of research on the excessive acquisition of free items, we did not have reason to conjecture differing causal pathways for the two types of acquisition behavior.

METHODS

Participants and procedure

A total of 361 participants were recruited from August 2016 to August 2017 through flyers disseminated online, on

campus, and during lectures on HD as well as through a screening survey completed by undergraduates engaging in research for course credit. To be eligible, participants had to be over 18 years of age and score above 9 on the excessive acquisition subscale of the Saving Inventory – Revised (SI-R; Frost, Steketee, & Grisham, 2004). This cut-off is one standard deviation below the mean of individuals with HD, thereby allowing us to study individuals with subclinical to clinical acquisition problems (Frost et al., 2004) (see Table 1 for a description of participant characteristics).

Eligible participants were invited through e-mail to participate in a study about gifting. Participants were informed that the aim of the study was to examine what qualities made for a good gift. While at our laboratory, participants provided informed consent, completed the self-report questionnaires mentioned in this paper, and then an experimental task examining which gifts participants desired and why (reported elsewhere). Participants were paid $20 or received 1 hr of course credit for participation depending on their method of recruitment.

To determine the required sample size for multiple mediations, an a priori power curve analysis was conducted. Standardized coefficients were estimated based on prior research ($\beta = 0.19$ for anxious attachment to hoarding; $\beta = 0.20$ for anxious attachment to anthropomorphism; $\beta = 45$ for anxious attachment to distress intolerance; $\beta = 0.18$ for anthropomorphism to acquisition; and $\beta = 0.18$ for distress intolerance to hoarding; Burgess et al., under review; Neave et al., 2016; Norberg & Grisham, unpublished paper; Timpano et al., 2009; Wang, 2017). The power curve indicated that 270 participants were required to have at least 80% power for each path.

Table 1. Demographic and clinical characteristics

Measure	*N* (%)	*M* (*SD*)
Proportion (female)	77.8	
Ethnicity		
Asian	44.9	
Caucasian	30.7	
European	10.5	
Middle Eastern	5.5	
Other	8.4	
Age		22.79 (7.53)
Years of tertiary education		2.08 (1.27)
SI-R total		43.63 (12.25)
SI-R-Acquisition		14.80 (3.43)
SI-R-Discarding		15.14 (4.88)
SI-R-Clutter		13.72 (6.73)
CAS-Buy		46.02 (12.81)
CAS-Free		26.94 (8.11)
ECR-RS-Avoidance		3.37 (1.17)
ECR-RS-Anxious		4.71 (1.57)
DII		20.69 (8.35)
GATS-Comfort		39.88 (20.39)

Note. *SD*: standard deviation; SI-R: Saving Inventory – Revised; CAS: Compulsive Acquisition Scale; ECR-RS: Experiences in Close Relationships – Relationship Structure; DII: Distress Intolerance Index; GATS: Graves Anthropomorphic Task Scale.

MEASURES

Saving Inventory – Revised (SI-R)

The SI-R is a self-report questionnaire that measures hoarding behaviors (Frost et al., 2004). Participants responded to 23 items on a 5-point Likert-type scale ranging from 0 to 4 (*none/not at all* to *almost all/extreme*), with higher scores indicating higher levels of hoarding behaviors. All three SI-R subscales as well as the total score have previously demonstrated good internal consistency ($\alpha \geq 0.87$; Frost et al., 2004). In this study, the total score had an $\alpha = 0.89$, the Clutter subscale had an $\alpha = 0.88$, the Difficulty Discarding subscale had an $\alpha = 0.83$, and the Excessive Acquisition subscale had an $\alpha = 0.57$. Inspection of the Excessive Acquisition items did not suggest that deleting any items would improve its internal consistency.

Compulsive Acquisition Scale (CAS)

The CAS is an 18-item self-report measure that measures the extent to which individuals acquire and feel compelled to acquire possessions (Frost, Steketee, & Williams, 2002; Frost et al., 2009). Participants responded to questions on a 7-point scale from 1 to 7 (*not at all* to *very much*), with higher scores indicating higher levels of acquisition. The CAS consists of two subscales, CAS-Buy and CAS-Free, which measure compulsive purchasing and acquisition of free items. As the CAS-Free subscale is limited to paper items, we added an additional item, "*Do you feel compelled to take free items in general"* to the subscale. Frost et al. (2002) defined excessive acquisition as CAS-Free scores over 23 and CAS-Buy scores over 41 (one standard deviation above the mean for the general population). The CAS has previously demonstrated good internal consistency for both the scales (Buy: $\alpha = 0.73$ and Free: $\alpha = 0.90$; Frost et al., 2009). In this study, the CAS-Buy subscale achieved an $\alpha = 0.85$, whereas the modified Free subscale achieved an $\alpha = 0.77$.

Experiences in Close Relationships – Relationships Structure Questionnaire (ECR-RS)

To measure anxious and avoidant attachment to other individuals, we used a validated measure, the ECR-RS (Fraley et al., 2011). The ECR-RS contains nine items and consists of two subscales: measuring anxious and avoidant attachment styles. Using a 7-point scale from 1 to 7 (*strongly disagree* to *strongly agree*), participants answered nine questions about their close relationships in general. The scale has demonstrated high internal consistency for both subscales ($\alpha \geq 0.83$; Fraley et al., 2011). In this study, the ECR-RS avoidant subscale achieved an $\alpha = 0.83$, whereas the anxious subscale achieved an $\alpha = 0.85$.

Graves Anthropomorphic Task Scale (GATS)-Comfort

The GATS was chosen over other measures of anthropomorphism (e.g., the Individual Differences of Anthropomorphism Questionnaire; Waytz, Cacioppo, & Epley, 2010),

as the GATS explores anthropomorphism for specific personal belongings (Burgess et al., under review). In this instance, we assessed participants' tendency to anthropomorphize comforting possessions by asking participants to think about a personal possession they found most comforting before responding to 15 items (e.g., "My possession can be thoughtful and sympathetic") on a 7-point scale from 1 to 7 (*not at all* to *very much*). The GATS contains 15 items, in which participants respond using a 7-point scale from 1 to 7 (*not at all* to *very much*). The GATS-Comfort scale has previously demonstrated high internal consistency for comforting items ($\alpha = 0.93$; Burgess et al., under review). In this study, $\alpha = 0.92$.

Distress Intolerance Index (DII)

The 10-item DII is a self-report questionnaire that measures one's emotional regulation and ability to tolerate negative states (McHugh & Otto, 2012). The DII was formulated from four distress intolerance measures: the Anxiety Sensitivity Index (Peterson & Reiss, 1992), Frustration Discomfort Scale (Harrington, 2005), Discomfort Intolerance Scale (Schmidt, Richey, & Fitzpatrick, 2006), and the Distress Tolerance Scale (Simons & Gaher, 2005). The DII is a unified measure that targets different aspects of distress tolerance. Participants responded to the items on a 5-point scale from 0 to 4 (*very little* to *very* much). The scale has been well validated and has previously demonstrated good internal consistency ($\alpha = 0.91$; McHugh & Otto, 2012). In this study, $\alpha = 0.85$.

Demographics

Participants were asked about their gender, age, and ethnicity.

Statistical analysis

All statistical analyses were carried out using SPSS 23.0. We first conducted preliminary analyses using *t*-tests and correlations to describe the sample, highlight the relations between acquiring and hoarding, and provide preliminary evidence for conducting the mediation models. Next, serial multiple mediation analyses were conducted to determine if the association between anxious attachment (X) and excessive acquiring (Y; compulsive buying and excessive acquisition of free items) was mediated by distress intolerance (M_1) and/or anthropomorphism (M_2) and whether distress intolerance (M_1) influenced excessive acquiring through anthropomorphism (M_2) using Model 6 from Hayes's (2016) PROCESS v2.16 macro. This model generates the total effect, direct effect, and bias-corrected bootstrap confidence intervals for the indirect effects based on 5,000 resamples (Hayes, 2012). Following the advice of Cheung (2009) and Preacher and Hayes (2008), completely standardized indirect effects are reported as a measure of effect size. Following the advice of Sheets and Braver (1999), to increase our confidence in the observed effects, we conducted additional analyses that reversed the proposed mediators with the outcome.

Ethics

The study was carried out in accordance with the principles described in the Declaration of Helsinki. The Human Ethics Review Committee of the authors' institution approved the study. All participants were informed of the study and provided informed consent before initiating the study.

RESULTS

Preliminary analyses

Of the 361 participants who reported subclinical to clinical acquiring problems as assessed by the SI-R, 230 (63.7%) met criteria for excessive buying and 167 (46.3%) met criteria for excessive acquisition of free items using the CAS. Two hundred seventy-one individuals (75.1%) met criteria for either and 126 (34.9%) met criteria for both. Participants who were excessive buyers or excessive free acquirers were reported having more acquiring problems [$M = 15.39$, $SD = 3.37$ vs. $M = 13.00$, $SD = 3.00$; $t(359) = 6.00$, $p < .001$], more discarding problems [$M = 15.71$, $SD = 4.74$ vs. $M = 13.40$, $SD = 4.92$; $t(357) = 3.94$, $p < .001$], and more problems with clutter [$M = 14.21$, $SD = 6.73$ vs. $M = 12.24$, $SD = 6.55$; $t(359) = 2.42$, $p = .02$] than those who did not report excessively acquiring either object type. Moreover, individuals who reported excessively acquiring both types of objects reported more acquiring problems [$M = 16.10$, $SD = 3.26$ vs. $M = 14.78$, $SD = 3.35$; $t(269) = 3.27$, $p = .001$], more discarding problems [$M = 16.61$, $SD = 4.45$ vs. $M = 14.92$, $SD = 4.86$; $t(268) = 2.96$, $p = .003$], and more problem with clutter than those who reported excessively acquiring only one type of object [$M = 15.47$, $SD = 6.67$ vs. $M = 13.12$, $SD = 6.67$; $t(269) = 2.91$, $p = .004$]. Zero-order correlations for all measures of interest are presented in Table 2.

Mediation

Figure 1 presents the two serial multiple mediation models and Table 3 presents the indirect effects and their effect sizes. The upper model shows that individuals with a stronger anxious attachment style reported more excessive buying. This total effect was statistically significant, $F(1, 358) = 26.08$, $p < .001$, $R^2 = .07$. A stronger anxious attachment style was related to more distress intolerance and anthropomorphism, but distress intolerance did not influence anthropomorphism. In turn, greater distress intolerance and greater anthropomorphic tendencies were related to more excessive buying. The direct effect was not statistically significant, suggesting that distress intolerance and anthropomorphism fully mediated the relationship between anxious attachment and compulsive buying. Examination of the indirect effects supports the finding of the individual paths and comparison of the indirect effects to each other showed that distress intolerance was a better mediator than anthropomorphism ($b = 0.64$, $SE = 0.26$, 95% CI = 0.015, 1.15). In the reversed models, distress intolerance and compulsive buying did not mediate the relationship between anxious attachment and anthropomorphism (direct effect: $b = 2.34$, $SE = 0.68$,

Table 2. Zero-order correlations

	1	2	3	4	5	6	7	8	9	10
1. SI-R-Total	–									
2. SI-R-Acquisition	0.700**	–								
3. SI-R-Discarding	0.819**	0.490**	–							
4. SI-R-Clutter	0.869**	0.409**	0.518**	–						
5. CAS-Buy	0.312**	0.430**	0.239**	0.177**	–					
6. CAS-Free	0.299**	0.208**	0.288**	0.229**	0.360**	–				
7. ECR-RS-Avoidance	0.025	0.025	0.005	0.032	−0.090	−0.025	–			
8. ECR-RS-Anxious	0.024	0.068	0.037	−0.020	0.261**	0.142**	0.133*	–		
9. DII	0.049	0.092	−0.004	0.047	0.369**	0.187**	0.021	0.429**	–	
10. GATS-Comfort	0.180**	0.091	0.188**	0.144**	0.295**	0.160**	0.036	0.251**	0.182**	–

Note. Pearson's correlations are noted in the table. SI-R: Saving Inventory – Revised; CAS: Compulsive Acquisition Scale; ECR-RS: Experiences in Close Relationships – Relationship Structure; DII: Distress Intolerance Index; GATS: Graves Anthropomorphic Task Scale. *$p < .05$. **$p < .01$.

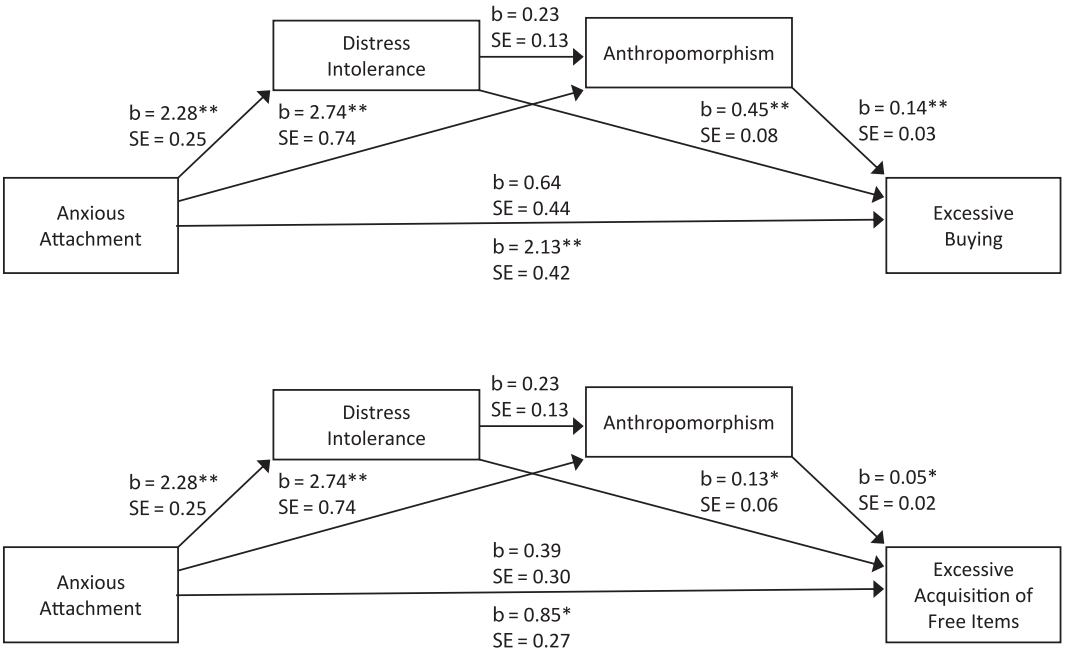

Figure 1. Serial multiple mediation models. *Note*. The direct effect of anxious attachment to excessive acquisition is presented above the horizontal line, while the total effect is presented below the horizontal line. *$p < .05$. **$p < .001$

Table 3. Indirect effects of anxious attachment on excessive acquisition

	Effect (*SE*)	95% CI	Completely standardized effect (*SE*)	95% CI
Compulsive buying				
Total IE	1.49 (0.25)	1.03, 2.00	0.18 (0.03)	0.13, 0.24
Distress intolerance	1.03 (0.21)	0.65, 1.49	0.13 (0.03)	0.08, 0.18
Distress intolerance, anthro	0.07 (0.05)	−0.003, 0.19	0.009 (0.006)	−0.0003, 0.02
Anthro	0.38 (0.13)	0.18, 0.71	0.05 (0.02)	0.03, 0.09
Acquisition of free items				
Total IE	0.46 (0.15)	0.19, 0.76	0.09 (0.03)	0.04, 0.15
Distress intolerance	0.30 (0.13)	0.06, 0.59	0.06 (0.03)	0.01, 0.11
Distress intolerance, anthro	0.02 (0.02)	−0.001, 0.08	0.005 (0.004)	−0.0002, 0.02
Anthro	0.13 (0.07)	0.01, 0.30	0.03 (0.01)	0.003, 0.06

Note. IE: indirect effect; Anthro: anthropomorphism; CI: confidence interval.

CI = 1.00, 3.69) and compulsive buying and anthropomorphism did not mediate the relationship between anxious attachment and distress intolerance (direct effect: $b = 1.89$, $SE = 0.26$, CI = 1.38, 2.39), providing confidence for our hypothesized model, but not establishing causal determination.

The lower model shows that individuals with a stronger anxious attachment style reported more excessive acquisition of free items. This total effect was statistically significant, $F(1, 358) = 9.95$, $p = .002$, $R^2 = .03$, but the direct effect was not, suggesting that distress intolerance and anthropomorphism fully mediated the relationship between anxious attachment and the acquisition of free items. Greater distress intolerance and greater anthropomorphic tendencies were related to more excessive acquisition of free items. Comparing the indirect effects to each other showed that both mediators performed equally well ($b = 0.18$, $SE = 0.16$, 95% CI = −0.11, 0.51). In the reversed models, distress intolerance and the excessive acquisition of free items did not mediate the relationship between anxious attachment and anthropomorphism (direct effect: $b = 2.59$, $SE = 0.68$, CI = 1.25, 3.94) and excessive acquisition of free items and anthropomorphism did not mediate the relationship between anxious attachment and distress intolerance (direct effect: $b = 2.09$, $SE = 0.26$, CI = 1.58, 2.61), providing confidence for our hypothesized model, but not establishing causal determination.

DISCUSSION

This study tested our assumption that an anxious attachment style exerts its influence on excessive acquisition through two different pathways. As expected, greater anxious attachment was related to greater distress intolerance and stronger tendencies to anthropomorphize comforting objects. In turn, distress intolerance and anthropomorphism were related to more excessive buying and greater acquisition of free items. Examination of the pathways and indirect effects showed support for double mediation rather than serial mediation as distress intolerance did not predict anthropomorphism.

We hypothesized a double-mediation model based on the attachment theory literature. This literature base shows that anxiously attached individuals experience negative emotions more intensely (Gentzler et al., 2010; Gillath et al., 2005) and believe themselves to be unable to manage emotions as well as those with a secure interpersonal attachment style (Marganska et al., 2013). This literature also shows that children imagine that objects have human-like qualities to achieve their social needs (Gjersoe et al., 2015) and that anxiously attached individuals often have unmet social needs (Fraley et al., 2011; Graham & Unterschute, 2015; Mikulincer & Shaver, 2012). Although we found support for our double-mediation model, distress intolerance was a better mediator than anthropomorphism for excessive buying, but not the excessive acquisition of free items. Perhaps this differential finding has to do with the types of objects that anxiously attached individuals purchase compared with those that are picked up for free. Given that relationships tend to be strained for those anxiously attached, the free items they collect may be constrained to items they do not want to go to waste, such as magnets advertising an organization or an old chair waiting to be collected by waste management, rather than gifts from loved ones. On the other hand, they may purchase unnecessary objects not only because they are useful, but also to instill a sense of belonging or self-worth. Future research should examine if differences exist between the types of objects that are bought versus acquired for free and whether this differs for securely attached versus anxiously attached individuals. In addition, future research should examine whether perceiving oneself to be unable to tolerate distress has a greater impact on acquiring sentimental objects than it does on instrumental objects. Despite these unknowns, the current findings and that of past research (Alemis & Yap, 2013; Mathes et al., 2017; Phung et al., 2015; Rose & Segrist, 2014; Timpano et al., 2009) suggest that treatment for HD might be enhanced if individuals are taught strategies for building their distress tolerance.

Although acquiring and discarding therapy sessions may build up distress tolerance as they provide repetitive opportunities to confront cues (e.g., shopping and item to be discarded) and to resist acting on the emotions that those cues elicit, these sessions may not be enough. Emotions elicited during these sessions tend to be quite high, and many individuals drop out of treatment either before or during these sessions (Thompson, Fernández de La Cruz, Mataix-Cols, & Onwumere, 2017). Using psychoeducation and strategies from Acceptance and Commitment Therapy (e.g., Man in the Hole metaphor and Leaves on a Stream; Hayes, Strosahl, & Wilson, 2016) and Dialectal Behavior Therapy (e.g., Riding the Wave metaphor, Model of Emotions, Mindfulness, and Opposite Action; Linehan, 2014) early in treatment may help individuals accept and build up tolerance for distress, thereby alleviating treatment drop-out associated with high negative emotionality and producing better reductions in acquiring problems than standard treatment for HD on its own.

This study also found that anthropomorphism is associated with excessive acquiring. Clients receiving treatment for HD could use cognitive restructuring to challenge their thoughts about the human-like nature of possessions and be taught less detrimental methods for obtaining comfort. Given that this study found that an anxious attachment style is associated with greater anthropomorphism of comforting items, the obvious alternative to engaging in anthropomorphism is to build effective interpersonal relationships. Dialectal Behavior Therapy (e.g., Relationship Effectiveness Skills; Linehan, 2014) or Interpersonal Psychotherapy (Weissman, Markowitz, & Klerman, 2017) could be used for this purpose. Given that 51% of persons with HD meet criteria for major depressive disorder (Frost et al., 2011) and that Interpersonal Psychotherapy has received strong research support for treating depression (Barth et al., 2016; Cuijpers et al., 2011), Interpersonal Psychotherapy may have a broader impact on persons with HD, despite anthropomorphism having a lesser impact on compulsive buying than distress intolerance.

Consistent with prior studies (Frost et al., 2009, 2013), individuals in this study who acquired excessively had more severe hoarding pathology. Despite all participants scoring over the SI-R clinical cut-off for acquisition problems, only 75% of participants met criteria for excessive acquisition using the CAS. Examination of items that comprise these scales suggests that this discrepancy may have occurred due to the SI-R subscale heavily targeting urges and distress, whereas the CAS mostly targets behavior. Thus, individuals

who experience strong urges to acquire but avoid acquiring can score high on the SI-R but low on the CAS. Using hoarding and compulsive buying samples, Mueller et al. (2007) and Frost et al. (2013) found that the CAS subscales and the SI-R acquisition subscale are correlated to a large (0.49–0.78), but not perfect degree. Based on these accumulating findings, future research on acquisition will wish to include both these measures as well as the Acquisition Avoidance Scale (Frost et al., 2013), which is a four-item measure of assessing avoidance of situations associated with urges to acquire. A comprehensive assessment of acquiring will not only further our knowledge of excessive acquisition and contribute to treatment enhancement, but it may also suggest how the SI-R acquisition subscale could be improved. To the best of our knowledge, this is the first study to find that the SI-R subscale had poor internal consistency.

This study had a handful of limitations that should be noted. First, this study relied on cross-sectional data to test a mediation model and cannot establish causation. While an anxious attachment style develops over the course of multiple interpersonal interactions, individuals can be primed to think about times in their life that they have felt supported or unsupported. Assessing what people do when acutely feeling like people do not care about them as much as they want or when feeling abandoned would help to establish the causal relations between the study variables. Although causal studies are highly important, the hoarding literature has highlighted the importance of doing both types of research. Examination of the literature on the relationship between distress intolerance and hoarding severity shows that distress intolerance is associated with hoarding problems in general, but not necessarily during times of acute distress (Cougle, Timpano, Fitch, & Hawkins, 2011; Fernández de La Cruz et al., 2013; Hezel & Hooley, 2014; Mathes et al., 2017; Norberg, Keyan, & Grisham, 2015; Phung et al., 2015; Shaw & Timpano, 2016; Shaw, Timpano, Steketee, Tolin, & Frost, 2015; Timpano et al., 2009; Timpano, Keough, Traeger, & Schmidt, 2011; Timpano, Shaw, Cougle, & Fitch, 2014). Thus, the combination of cross-sectional and experimental studies will give us the best picture of how individual variables affect hoarding pathology. Second, the SI-R acquisition subscale evidenced an $\alpha = 0.57$, which has been accepted to be poor internal consistency (Raykov, 1997). Internal consistency reflects the redundancy of items within a scale, and thus low αs may be indicative of a broad scale (e.g., a scale that measures urges to acquire, actual acquiring behavior, and consequences of acquiring). Schmitt (1996) has argued that coefficient alpha may underestimate the reliability of a multidimensional scale, while Sijtsma (2009) noted that coefficient alpha does not even capture the internal structure of the test. Given the problems with coefficient alpha, future studies may want to use structural equation modeling to estimate the reliability index of the SI-R subscales (Raykov, 1997). Third, while this study improved upon past research by sampling individuals from a range of different ethnicities (less than a third of participants were Caucasian), like past research, most of our participants were women. Epidemiological research using twins suggests that HD may be just as prevalent among men as it for women (López-Solà et al., 2014). Consequently, future research needs to identify ways to encourage men to participate in HD research. Fourth, this analysis was limited to the examination of two mediators. As interpersonal attachment styles influence one's ability to regulate emotions, maintain self-control, and engage in social interactions (Sroufe, 2005; Tangney et al., 2004), including a broader assessment followed by the use of structural equation model may help to provide a more thorough understanding of how anxious attachment contributes to acquiring. Lastly, this study did not include a diagnostic interview; and thus, we do not know what proportion of study participants met criteria for HD.

In conclusion, this study's findings suggest that Fromm (1947) might have been correct in positing that people who hoard may acquire possessions to attain security. We found that an anxious attachment style was associated with excessive acquiring and that this relationship was associated with one's ability to tolerate distress and tendency to humanize inanimate objects for comfort. These findings need to be replicated experimentally to determine whether acute feelings of abandonment and rejection encourage people to anthropomorphize and believe themselves to be less intolerant of distress or whether these factors tend to influence acquiring when people are not currently experiencing high negative emotionality. Findings from the combination of cross-sectional and experimental research assessing these factors will suggest the best way to modify treatment to produce larger reductions in acquiring problems.

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