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The role of attachment style and anthropomorphism in predicting hoarding behaviours in a non-clinical sample.

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Abstract

Hoarding behaviours are characterised by the acquisition of and failure to discard possessions which leads to excessive and often dangerous clutter and significant psychological/emotional distress. The cognitive behavioural-model posits that a key aspect in the expression of hoarding tendencies is an excessive attachment to objects. Research indicates that attachment style and anthropomorphic tendencies are associated with excessive object attachment and subsequent hoarding. In this study, a non-clinical sample of 283 participants (210 female) completed questionnaires measuring adult attachment styles, attachment to objects, anthropomorphic tendencies, and hoarding severity and behaviours. Females displayed significantly higher scores on hoarding severity, anxious and avoidant attachments, and on anthropomorphism. Strong positive correlations were found between measures of inanimate object attachment, adult attachment style, and anthropomorphism, with hoarding behaviours and cognitions. Subsequent regression analyses revealed that one measure of adult attachment (degree of anxious attachment) and object attachment were significant predictors of hoarding behaviours and cognitions.

1. Introduction

Hoarding behaviour is defined as the process of acquiring and failing to discard possessions of potentially limited value (Frost & Gross, 1993). In severe cases hoarding can lead to the significant cluttering of living spaces which may pose serious health-risks and cause considerable distress and impairment of daily functioning for both hoarding individuals and their families (Samuels, Bienvenu, Grados, et al., 2008; Tolin, 2011). Though often expressed as a symptom-dimension of obsessive-compulsive disorder (OCD), previous research has shown that up to 83% of patients exhibiting hoarding as a primary symptom do not meet the criteria for OCD (Tolin, Meunier, Frost, & Steketee, 2011). This is also reflected in interventions utilised in hoarding treatments, as the current, most efficacious interventions employed in OCD treatment, are largely ineffective when applied to hoarding (Rufer, Fricke, Moritz, Kloss & Hand, 2006). It is therefore clear that there is an overwhelming need to identify other predictive factors of hoarding behaviours, most prominently, those which may be targeted to increase intervention effectiveness (Timpano & Schmidt, 2010).

Frost and Hartl (1996) proposed a cognitive-behavioural model of hoarding, comprising four key attributes that largely contribute to the aetiology and expression of hoarding tendencies; these are: poor executive functioning, erroneous beliefs about the nature of possessions and the self, attachment to objects, and behavioural avoidance. Subsequent research has identified a number of sub-factors associated with the prediction of hoarding tendencies such as perfectionism (Frost & Gross, 1993); intolerance of uncertainty (Luchian, McNally & Hooley, 2007); low self-control (Timpano & Schmidt, 2010); and anxiety sensitivity (Reid, Arnold, Rosen, et al., 2011). However, the aspect which has arguably accumulated the strongest supporting evidence is the tendency to exhibit excessive

attachments to objects (Frost & Gross, 1993; Frost & Hartl, 1996; Grisham, Frost, Steketee, et al., 2009).

Hoarders often report feeling intense anxiety and discomfort when a stranger touches their belongings, describing this as feeling as if they have lost control over their environment (Frost, Hartl, Christian & Williams, 1995; Grisham et al., 2009). Furthermore, Frost and Gross (1993) report that participants self-identifying as hoarders demonstrated higher levels of object attachment than non-hoarders. Additionally, in a sample of community volunteers and college students, Frost, et al., (1995) found ratings of hoarding severity to be significantly associated with greater emotional attachment to objects. Initial object attachment was the best indicator of subsequent attachments, and acquisitional behaviours, and greater levels of hoarding beliefs related to possessions providing emotional comfort, were uniquely predictive of the initial baseline attachment (Grisham et al., 2009).

While attachment to objects is important, the role of interpersonal attachment in the expression of hoarding tendencies is an area that has been somewhat under-researched. Therefore, the consideration of attachment theory may be useful in understanding hoarders' relationships to both people and objects. Theoretical and methodological advances in adult attachment research have shown that the attachment system remains active well into adulthood (Hazan & Shaver, 1987) and has been shown to strongly affect the way adults construct their close relationships (Mikulincer & Shaver, 2007; Simpson, 1990).

Attachment can be measured on two independent dimensions; anxious attachment and attachment avoidance (Bretherton, 1992). High scorers on either dimension demonstrate an 'insecure' or 'fearful' interpersonal attachment style. Those who score highly on anxious attachment demonstrate high levels of anxiety towards abandonment, or feeling unloved within their close relationships. High scores on the avoidant attachment dimension indicate high levels of anxiety toward closeness in interpersonal relationships, and a tendency to maintain emotional independence (Collins & Read, 1990). Research has suggested that those displaying insecure attachment may utilise alternative strategies to promote substitute attachments, predominately, attachment to objects (Norris, Lambert, DeWalt & Fincham, 2012). Keefer, Landau, Rothschild and Sullivan (2012) reinforced this finding, stating that when attachment security is threatened, a compensatory response is to attach to non-human targets, specifically inanimate objects, as a neutral target to avoid rejection. Despite the apparent connection between an individual's attachment style and their subsequent attachment to objects, little research has explored the relationship of both interpersonal attachment and attachment to objects, toward the prediction of hoarding tendencies. A study by Nedelisky & Steele (2009) however has revealed that hoarders diagnosed with OCD reported high levels of emotional involvement with inanimate objects in comparison to low levels of emotional attachment to other people.

An additional potential factor to consider, again substantially under-researched, is anthropomorphism. Defined as the tendency to attribute human characteristics and mental states to a non-human target (Epley, Waytz & Cacioppo, 2007), anthropomorphism has been strongly associated with Frost and Hartl's (1996) cognitive-behavioural model of hoarding. Timpano and Shaw (2013) revealed that anthropomorphic tendencies were significantly associated with greater hoarding symptoms, with anthropomorphic tendency scores most strongly associated with emotional attachment, as a measure of hoarding cognitions. Neave, Jackson, Saxton & Hönekopp (2015) also demonstrated that anthropomorphising was a significant predictor of hoarding behaviours in a non-clinical sample.

As the majority of previous studies have focussed on clinical populations, there remains a lack of knowledge relating to hoarding tendencies in non-clinical samples. The aim of this current study was thus to investigate the roles of attachment styles, attachment to objects, and anthropomorphism in predicting hoarding tendencies in a non-clinical

population. As research has revealed sex differences in hoarding behaviours (Grisham et al., 2009; Hartl, Frost, Allen, Deckersbach, Steketee, Duffany et al., 2004), anthropomorphism (Neave et al., 2015) and in attachment styles (Del Giudice, 2011), the sample comprised males and females.

It was hypothesised that object attachment, anxious and avoidant attachment styles, and anthropomorphic tendencies would be significantly positively associated with hoarding severity and associated behaviours, but such relationships may differ slightly between males and females. A further aim was to discover, which, if any, of these factors predict hoarding behaviours and cognitions.

2. Method

2.1. Design

As the primary aim of the current study was to determine the best predictor of hoarding tendencies from a number of factors (anthropomorphic tendencies, attachment styles, object attachment, age and sex), the current sample employed a quantitative correlational design.

2.2. Participants

In order to carry out the current study, an opportunity sample was recruited with the sole eligibility criterion being that participants were over the age of eighteen. The initial total sample consisted of 424 participants. Due to incomplete data, 186 participants were removed from the study, the final sample therefore consisted of 283 participants comprising 210 females, mean age 22.41 (sd = 8.025), range 18-62 years, and 73 males, mean age 27.86 (sd = 13.943), range 18-68 years.

2.3. Materials

To measure hoarding we used two validated measures, one assessing hoarding behaviours (Saving Inventory Revised: SI-R) and one assessing thoughts and beliefs relating to hoarding behaviours (Saving Cognitions Inventory: SCI). The SI-R contains 23 items and has previously demonstrated high internal consistency for all subscales ($\alpha \geq .87$) and good test-retest reliability across four studies (Frost, Steketee, & Grisham, 2004). In our sample $\alpha = .94$. The SCI is a 24 item self-report measure, with good internal consistency on each subscale and the total score ($\alpha = .96$) and has demonstrated both good convergent and discriminant validity (Steketee, Frost & Kyrios, 2003). In our sample $\alpha = .95$.

To measure attachment to other individuals we used two validated measures the Revised Adult Attachment Scale (RAAS) and the Experiences of Close Relationships – Relationship Structures (ECR-RS). The RAAS is an 18 item self-report measure of attachment style in close relationships, it is an adaption of Collins and Read's (1990) original scale which measured attachment style in romantic relationships. The RAAS consists of two subscales measuring 'avoidant' and 'anxious' attachment. The scale has demonstrated good internal consistency on both subscales: avoidance $\alpha = .78$, anxiety $\alpha = .85$ (Collins & Read, 1990). In our sample $\alpha = .69$.

The ECR-RS is a 9-item measure designed to assess attachment patterns in a variety of relationships, giving scores on 'avoidance-related attachment' and 'anxiety-related attachment' for maternal and paternal targets. The scale has a test-retest reliability when applied to parent-specific relationships of .80, and its internal consistency is high on both the avoidance ($\alpha = .81$) and anxiety subscales ($\alpha = .86$); (Fraleigh, Heffernan, Vicary & Brumbaugh, 2011). In our sample $\alpha = .91$.

To measure attachment to objects we used the Reciprocal Attachment Questionnaire–Adapted (RAQ-A) which consists of 38 items; 17 items in 4 subscales (feared loss; proximity seeking, secure bases and separation protest) assess ‘inanimate object attachment security’ (IOAS); 20 items in four subscales (angry withdrawal, compulsive care-giving, compulsive care-seeking and compulsive self-reliance) assess ‘attachment patterns’ (AP), and one item measures ‘attachment relationship to inanimate objects’ (ARIO). The RAQ-A has previously demonstrated good internal consistency ($\alpha=.89$; Nedelisky & Steele, 2009). In our sample $\alpha=.84$.

Finally, to measure anthropomorphism we used the Anthropomorphism Questionnaire (AQ), which contains 20 items comprising two subscales (‘childhood items’ and ‘general items’) which can be summed to obtain a total score. Both subscales have demonstrated high internal consistency (childhood items, $\alpha=.91$; general items, $\alpha=.86$) (Neave et al., 2015). In our sample $\alpha=.93$ for the total score.

2.4. Procedure

Following institutional ethical approval, prospective participants were directed to an online survey tool ([SurveyMonkey](#)), where they received information about the study. After indicating their informed consent they were asked to provide basic demographic data (age and sex), they were then asked to complete the questionnaires in their own time. The questionnaires were all presented in the same order as described in section 2.3. On completion all participants were fully debriefed.

3. Results

3.1 Comparisons between the sexes

Descriptive statistics for performance on all measures as a function of sex, can be found in Table 1. A series of one-way ANOVA’s were conducted using SPSS with sex as the independent variable and scores on all measures as the dependent variables. There was a significant difference in age between the male and female participants, with males being significantly older, ($F_{1, 281} = 16.460, p < .001$). In relation to the questionnaire variables, there was a significant difference in the SI-R measure, ($F_{1, 282} = 4.350, p = .038$), with females reporting a higher total score. However, there was no difference in the SCI scores ($F_{1, 282} = 0.086, p = .770$). In the RAAS-Avoidance measure there was a significant difference ($F_{1, 282} = 4.887, p = .028$) with females reporting higher levels of avoidance. There was also a significant difference in the RAAS-Anxiety measure, again with females reporting higher levels of anxiety ($F_{1, 282} = 23.195, p < .001$). There were no significant differences in the ECR-RS measures: Maternal Anxiety ($F_{1, 282} = 2.83; p = .094$), Maternal Avoidance ($F_{1, 282} = 1.438, p = .231$); Paternal Anxiety ($F_{1, 282} = 2.627, p = .106$) and Paternal Avoidance ($F_{1, 282} = 1.049, p = .307$). There were also no sex differences in the RAQ-A measures: IOAS, ($F_{1, 282} = 2.114, p = .147$); AP ($F_{1, 282} = 0.238, p = .626$), and ARIO ($F_{1, 282} = 0.987, p = .321$). A final set of analyses was carried out on the AQ measures, with all three measures there were significant sex differences. In the AQ-Childhood measure ($F_{1, 282} = 57.239, p < .001$); in the AQ-General ($F_{1, 282} = 12.388, p = .001$) and in the AQ Total ($F_{1, 282} = 39.241, p < .001$). In all three measures females reported significantly higher AQ scores.

3.2 Relationships between the key variables

In order to establish whether the personality measures were related to the two hoarding measures, a set of bivariate correlations was carried out. These initial findings are shown in Table 2.

As predicted, hoarding severity and cognitions were significantly positively associated with anxious and avoidant attachment behaviours, with object attachment, and with anthropomorphism. Thus, individuals displaying adult attachments associated with anxiety and avoidance, who strongly attach to inanimate objects, and who anthropomorphise, score higher on measures of hoarding severity and cognitions. Interestingly both hoarding measures were significantly negatively associated with age, with younger participants showing a greater tendency towards hoarding.

3.3 Predictors of hoarding severity and behaviour

In order to investigate the importance of the personality measures for hoarding behaviours and cognitions, a series of multiple linear regression analyses (simultaneous) were conducted. In an initial analysis all bivariate predictors that were significantly associated with both hoarding measures were ran through a multiple regression on their own without moderators to see which ones remained significant. Only the variables that were significant in this initial multiple regression went into the final regression along with their moderators. Given the potential for moderation by both age and sex, these significant variables were subsequently centred and moderation regression analyses were carried out. The first analysis had SI-R as the criterion and age, sex, RAAS Anxiety, RAQ-A IOAS, RAQ-A AP and AQ Childhood and their moderators as the predictors. The overall model was significant ($F_{12, 268} = 19.925, p < .001, adjusted R^2 = .457$). The full model can be seen in Table 3. Four predictors were significant: RAAS Anxiety, RAQ-A IOAS, RAQ-A IOAS*sex, and the RAQ-A AP measure. RAQ-A IOAS*sex qualified the RAQ-A IOAS measure as the correlation coefficient of RAQ-A IOAS with SI-R was higher in males (+.804) than in females (+.508).

The second regression analysis had SCI as the hoarding criterion, and age, sex, RAQ-A IOAS and RAQ-A AP and RAQ-A Use of Attachment with their moderators as the predictors. The overall model was significant ($F_{11, 271} = 23.985, p < .001, adjusted R^2 = .473$). The full model can be seen in Table 4. Three predictors were significant: RAQ-A IOAS, RAQ-A AP and RAQ-A ARIQ. The RAQ-A IOAS*age moderation variable was marginally significant, with the RAQ-A IOAS*SCI correlation coefficient higher in the youngest half of the participants (+.648) than in the oldest half (+.472).

4. Discussion

Hoarding severity has been associated with emotional attachments and feelings of responsibility to inanimate objects (Frost & Gross, 1993; Frost et al., 1995; Grisham et al., 2009; Nedelisky & Steele, 2009) and the tendency for hoarders to anthropomorphise their possessions (Frost & Hartl, 1996; Neave et al., 2015; Timpano & Shaw, 2013). It has been speculated that attachment theory could provide a useful means of exploring such connections, as individuals who are insecurely attached to significant adult others, may develop anxiety in human relationships and seek security in inanimate objects (Nedelisky & Steele, 2009). While previous research has focussed on clinical samples of OCD patients and/or hoarders, this current study aimed to explore the possible associations between attachment style, object attachment and anthropomorphism, with hoarding tendencies and behaviours in a non-clinical sample for the first time.

Initial analyses revealed that females displayed significantly higher scores in hoarding behaviours, avoidant and anxious attachments, and in anthropomorphising, a set of findings consistent with previous research (Del Giudice, 2011; Grisham et al., 2009; Hartl, et al., 2004; Neave et al., 2015; Nedelisky & Steele, 2009). We also found strong positive correlations between measures of object attachment and an anxious attachment style, confirming the previously reported association between insecure adult attachment and

attachment to inanimate objects (Keefer et al., 2012; Norris, et al., 2012). There were also strong positive relationships between object attachment and hoarding severity and behaviours, again confirming previous research in clinical samples (Grisham et al., 2009; Nedelisky & Steele, 2009). Finally, those scoring highly in anthropomorphism showed greater hoarding severity and behaviours, once more in accord with previous findings in non-clinical samples (Neave et al., 2015; Timpano & Shaw, 2013). In short, participants who displayed strong attachments to inanimate objects, displayed an adult attachment style high in anxiety and avoidance, and who scored high on anthropomorphism, displayed greater hoarding behaviours and cognitions.

In addition, significant negative correlations were found between age and hoarding severity and cognition, with younger participants displaying more hoarding behaviours and cognitions. This finding is in accord with Neave et al., (2015) in relation to hoarding cognitions, but contrary to data from a large community sample (Samuels et al., 2008) which reported hoarding to be greater in older participants. This latter study however did not use a validated assessment of hoarding behaviour, relying upon the hoarding criteria for OCD, and only asked a short series of open-ended questions to assess hoarding propensity. In non-clinical samples it appears that age is negatively related to hoarding, this possible relationship remains to be clarified in clinical samples, though presumably patients referred for clinical assessments will be more likely to be older as their hoarding will have built up steadily over time.

While we found some sex differences in predictors of hoarding severity and behaviour, our clearest finding was that attachment to inanimate objects was strongly related to, and predicted hoarding behaviours and cognitions. This is in support of previous studies (Frost & Gross, 1993; Grisham et al., 2009; Nedelisky & Steele, 2009) and serves to further highlight the importance of attachment to objects as a pre-dispositional factor of hoarding. Frost & Hartl (1996) suggested that hoarders may have a high propensity to anthropomorphise their possessions, a suggestion confirmed by Timpano & Shaw (2013) and Neave et al., (2015). However, while we found positive associations between hoarding and anthropomorphism, the regression analyses did not find anthropomorphising to be a significant predictor, contrary to our previous finding (Neave et al., 2015). In that study we did not assess attachment to inanimate objects, and this clearly is the key factor in hoarding. It is highly likely though that the measures of object attachment and anthropomorphism used in this current study may to some extent be largely measuring the same kinds of behaviours and cognitions, table 2 showing significant positive correlations between all object attachment and anthropomorphism measures. Future research could more fully explore the similarities and differences between anthropomorphism and object attachments.

Previous research has suggested that an insecure attachment style (anxious or avoidant) may be associated with greater attachment to objects rather than people (Keefer et al., 2012; Norris et al., 2012), and thus may well be associated with hoarding. We found that individuals with anxious and avoidant attachment styles, and with higher scores on maternal anxiety and avoidance did indeed score higher on the hoarding measures. However, only scores on the RAAS anxiety attachment measure was a significant predictor for hoarding severity, but this provides some intriguing links between adult attachment style and hoarding in a non-clinical sample. Females in our sample scored higher on avoidant and anxious attachments, and also in hoarding severity, a finding in accord with Ijzendoorn, Goosens, Tavecchio, Vergeer and Hubbard (1983). These authors demonstrated that male children are more likely to attach to objects than females, provided a secure attachment style is demonstrated. However, in female children it was found that increased levels of anxious attachment predicted higher levels of attachment to objects. However, as virtually no research has considered sex differences between the aetiological factors of hoarding; further research

should aim to investigate whether these differences exist outside of the current non-clinical sample.

One limitation of our study is that we did not include questions about the participants' interpersonal status, (whether they were single, in a relationship, married etc) and if their interpersonal relationships were satisfying. If attachment security is threatened, or the individual has high levels of insecurity then we might expect to see attachment to objects, and thus hoarding to increase. Future studies could address this issue.

In sum, our data finds strong support for previous suggestions relating hoarding severity to be associated with attachment to objects rather than to people. As such tendencies are evident in a non-clinical sample, and appears to be especially strong in younger rather than older participants, an important question relates to how hoarding tendencies can then develop into a clinical syndrome, or how such tendencies can be alleviated. Future research into attachment behaviours in males and females should clearly explore these issues.

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