



Reports

Attachment to objects as compensation for close others' perceived unreliability

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ARTICLE INFO

Article history:

Received 24 July 2011

Revised 11 February 2012

Available online 17 February 2012

Keywords:

Attachment

Unreliability

Belongings

Attachment anxiety

Attachment avoidance

Materialism

ABSTRACT

Attachment theory posits that close interpersonal relationships provide people with psychological security across the lifespan. Research shows that when people perceive that close others are unreliable, they may seek alternative, non-social sources of security (e.g., deities). Building on this work, the authors hypothesized that attachment to objects compensates for threatened attachment security when close others are unreliable. Participants primed with close others', but not strangers', unreliability reported increased attachment to belongings (Study 1), and this effect was mediated by feelings of attachment anxiety (concern over close others' availability), but not attachment avoidance (avoiding emotional dependence; Study 2), suggesting that object attachment compensates for the perception that close others are unreliable rather than consistently rejecting. In Study 3, when a valued belonging was removed, participants primed with uncertainty about their relationships showed increased separation anxiety and motivation to reunite with the belonging, regardless of the belonging's perceived importance for facilitating relationships.

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Introduction

Adults display deep emotional attachments to material objects. As James (1890) observed, people's self-concepts are often so connected to their belongings that the destruction or loss of those objects is experienced as a personal injury. Although individuals derive satisfaction from acquiring and interacting with objects, an excessive valuing of belongings can have negative long-term consequences for psychological health (e.g., Kasser, 2002). It is therefore important to understand the motives behind object attachment.

The current research addresses this issue by building on attachment theory, which posits that people have a need for psychological security provided by close others (Bowlby, 1969/1982). Research shows that when attachment security is threatened, one compensatory strategy is attachment to non-human targets. Building on this work, we hypothesize that people attach to objects, at least in part, to compensate for the perception that close others are insufficiently reliable sources of security. We test this hypothesis in three studies.

Attachment, unreliability, and compensatory responses

Bowlby (1969/1982) proposed that people innately respond to physical or psychological distress by seeking proximity to attachment figures: individuals who regularly provide care and protection. Over the course of development, people broaden their source of security

from the parents to a network of close others, including friends and romantic partners (Mikulincer & Shaver, 2007).

Two conditions threaten the security that people normally derive from their attachments to close others, and each involves a characteristic compensatory response aimed at restoring security. People whose attachment figures consistently reject them in times of need may learn that relying on others is not an effective way to manage distress. People typically respond to this situation with *attachment avoidance*: maintaining independence and emotional distance from close others to avoid rejection (Mikulincer & Shaver, 2007).

Attachment security can also be threatened by the perception that close others are inconsistently available or provide unreliable support. People typically respond to this situation with *attachment anxiety*: constant vigilance and intense concern that close others will not be available in times of need (Mikulincer & Shaver, 2007). To minimize attachment anxiety, people use strategies intended to reduce uncertainty about others, such as insistent attempts to establish proximity to a partner or elicit support through clinging and controlling responses.

Recent research focuses on a unique compensatory response to close others' perceived unreliability, namely, searching for alternative, non-human sources of security perceived as more reliable. This response may motivate religiosity, for example. While physical proximity to supernatural entities is impossible, belief in an omnipotent god, prayer, and the use of icons facilitate symbolic proximity to a benevolent and reliable caregiver perceived to be more capable than close others of providing security (Kirkpatrick, 2005). Indeed, individuals who are dispositionally prone to insecure attachment are especially likely to seek proximity to god as a source of security (Granqvist, 2006), and show a greater propensity for sudden religious conversion and intense religiosity (e.g., glossolalia; Kirkpatrick, 1997). Converging experimental

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research shows that subliminal priming of close others' unreliability increases desire to be close to god (Birgegard & Granqvist, 2004).

Building on this work, we hypothesized that attachment to material objects can similarly serve to compensate for the threat to attachment security posed by close others' perceived unreliability. Unlike close others or divine figures, objects have no agency, compassion, nor other obvious features that might qualify them as attractive sources of security, so how might they serve as a viable alternative?

Unlike other potential security sources, objects are perceived as exceptionally *reliable*. Because objects lack agency, they can be completely controlled, summoned when needed and discarded when not. This responsiveness, although decoupled from the care and compassion people typically seek from a human or divine caregiver, may be attractive to people confronted with the unreliability of close others. This theorizing converges with Winnicott's (1953/1986) account of *transitional objects*, which posits that children cope with the awareness that their caregivers can occasionally be unavailable largely by virtue of the perceived reliability of their cherished material belongings (e.g., blankets).

Indirect evidence that object attachment serves a compensatory function comes from studies showing that individuals continue to derive psychological security from objects well into adulthood (Bachar, Canetti, Galilee-Weisstub, Kaplan-DeNour, & Shalev, 1998; Erkoalahti & Nyström, 2009), and such object attachment is positively associated with a lack of close interpersonal attachment (Nedelisky & Steele, 2009). Nevertheless, the current studies are, to our knowledge, the first to experimentally test whether priming close others' unreliability increases object attachment, and whether this effect is specifically mediated by attachment anxiety.

Finally, while we expect that object attachment will be related to materialism, we believe they are distinct. Whereas materialism reflects a general valuing of objects, object attachment reflects a valuing of objects for the specific purpose of fulfilling attachment needs. Study 3 empirically addresses this distinction.

Study 1

Study 1 provided an initial test of our hypothesis that priming close others' unreliability would increase object attachment. Our priming manipulation was based on conceptually related operationalizations used in prior research. Researchers have asked participants to memorize (Green & Campbell, 2000) or unscramble (Finkel, Burnette, & Scissors, 2007) sentences referring to close others' unreliability (e.g., "The mother was unreliable"). We used an open-ended writing task whereby participants were asked to reflect on real situations in which, depending on condition, close others were reliable or unreliable in a time of need. We went beyond prior operationalizations by manipulating whether the targets of the prime were close others or strangers. This allowed us to test whether the effect of our threat induction is specifically due to the salience of close others' unreliability, as we claim, and not simply the unreliability of others in general. Afterward we measured object attachment using a scale developed by Nedelisky and Steele (2009). We predicted that priming close others' unreliability, but not strangers' unreliability, would increase object attachment.

Method

A community sample of 99 participants (68 women)¹, recruited online through Amazon's Mechanical Turk service, received payment (\$0.40) for completing what was purported to be a personality survey. Participants first completed neutral filler questionnaires intended to bolster the cover story.

¹ In this and Study 2, we performed primary analyses including gender as a between-subjects variable. Because we observed no significant main effects or interactions involving gender, we omit gender from our reporting of the results to simplify presentation.

Others' perceived unreliability manipulation

The next questionnaire instructed participants to write about their interpersonal relationships. This questionnaire constituted our manipulation of others' perceived unreliability. Participants were randomly assigned to one of four writing prompts in a 2 (*target*: close others vs. strangers) × 2 (*reliability*: reliable vs. unreliable) between-subjects design. Specifically, participants were instructed to write a few sentences about three separate instances from the recent past when someone close to them [a stranger] was there for them [let them down] in a time of need.²

Attachment to objects measure

Afterward participants completed Nedelisky and Steele's (2009) object attachment measure (RAQ-A), which modifies the Reciprocal Attachment Questionnaire (RAQ), a well-validated measure of interpersonal attachment (West, Sheldon, & Reiffer, 1987), by substituting "belongings" for the human target referenced in RAQ items.

The RAQ-A contains nine dimensions. One is a single face-valid item assessing how much respondents perceive objects as fulfilling an attachment role: "I turn to my belongings for many things, including comfort and reassurance." The remaining eight subscales are split into two groups: 1) features of the attachment relationship (e.g., *separation protest*, "I feel vulnerable when I am away from my belongings for a few days"; *proximity seeking*, "I feel lost if I'm upset and my belongings are not around"), and 2) approach to the attachment relationship (e.g., *compulsive care-seeking*, "I would be helpless without my belongings"; *compulsive self-reliance*, "I enjoy being close to my belongings (reverse)").

We found variable reliabilities among these subscales ($\alpha_{\text{range}} = .68$ to $.92$; for five subscales, $\alpha < .80$). However, composite scores averaging across subscales (after reverse-scoring compulsive self-reliance) showed good reliability ($\alpha = .91$). Because our predictions concerned overall object attachment, we used composite scores as our primary dependent measure.

Results and discussion

To test our primary prediction, we submitted composite RAQ-A scores to a 2 (*target*: close others vs. strangers) × 2 (*reliability*: reliable vs. unreliable) between-subjects ANOVA. We observed a significant main effect of target, $F(1, 95) = 4.79, p = .03, \eta^2 = .05$, which was qualified by the predicted two-way interaction, $F(1, 95) = 4.42, p = .04, \eta^2 = .05$ (for the pattern of means, see Fig. 1).

Pair-wise comparisons (Fisher's LSD) revealed that participants primed with close others' unreliability scored higher on object attachment ($M = 3.16, SD = .94$) than participants primed with close others' reliability ($M = 2.66, SD = .90; t = 2.02, SE = .25, p = .046$) and strangers' unreliability ($M = 2.41, SD = .92; t = 3.22, SE = .23, p = .002$). No other pairwise comparison reached statistical significance ($ps > .34$).

Increasing the salience of close others' unreliability led participants to report stronger attachment to their belongings. By contrast, the salience of strangers' unreliability had no effect on object attachment. Thus, the observed effect was specifically due to priming the unreliability of close others, and not others in general. Furthermore, it is unlikely that the observed pattern of results was due to decreased object attachment in response to the salience of close others' reliability, since object

² While it may seem unusual to ask people to think of times when strangers let them down, participants apparently had no difficulty recalling appropriate instances, e.g., "I was 17 and my car died in a rain storm, at night, far away from home. I tried to signal a police officer for help, but was ignored" and "I had planned to take an art class at the community center. A couple other students and I waited for about half an hour until we realized that the teacher would never show up."

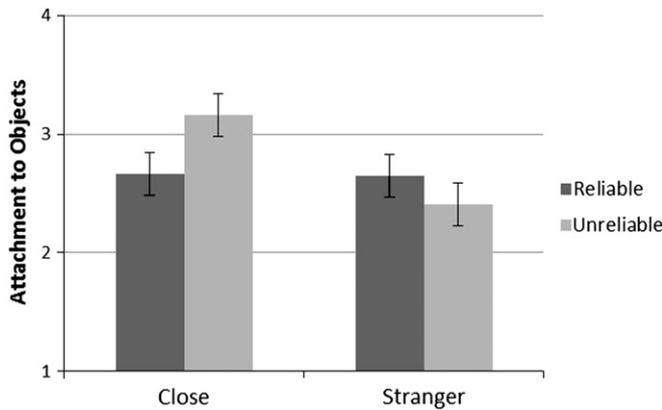


Fig. 1. Attachment to objects by others' (close others vs. strangers) perceived unreliability condition (Study 1). Note: Higher scores indicate higher attachment to objects. Scale ranges from 1 to 7.

attachment did not differ between the close-others reliable condition and the strangers-reliable condition.

These results support our claim that object attachment may be a compensatory strategy for restoring attachment security when close others' unreliability is salient. Study 2 directly assesses the proposed mechanism underlying this observed effect. If, as we claim, object attachment represents an effort to minimize attachment anxiety elicited by the threat of close others' perceived unreliability, then the effect of priming close others' unreliability on object attachment should be mediated by attachment anxiety, but not attachment avoidance.

Study 2

There are two reasons we predict that the effect observed in Study 1 will be mediated by attachment anxiety, but not by attachment avoidance. First, our manipulation more clearly represents a manipulation of attachment anxiety because, much like attachment anxiety manipulations used in other research (e.g., Green & Campbell, 2000), it primes thoughts that close others are unreliable in times of need. In contrast, attachment avoidance manipulations prime rejection and abandonment (e.g., Green & Campbell, 2000). We suspect that because most participants in Study 1 implicitly trust close others, reminders of close others' unreliability heightened uncertainty about close others' reliability, but did not increase the perception that close others are consistently rejecting.

Second, recall that a typical response to attachment anxiety is investment in alternative, non-human security sources (Kirkpatrick, 2005), whereas a typical response to attachment avoidance is resisting emotional dependence on others (Mikulincer & Shaver, 2007). Therefore, insofar as objects offer, by virtue of their reliability, an alternative security source that compensates for close others' unreliability, then attachment anxiety elicited by the priming manipulation should predict object attachment, whereas attachment avoidance should not.

We tested this reasoning in a pilot study. Rather than examine situational variation in attachment anxiety and avoidance, as we do in the main study, we focused on dispositional variation in these constructs. We had 50 undergraduates complete the 39-item RAQ-A³ used in Study 1 and the Experiences in Close Relationships-Revised scale (ECR-R; Fraley, Waller, & Brennan, 2000). As described more fully below, the ECR-R consists of 18 items assessing attachment anxiety (in this pilot, $\alpha = .93$) and 18 items assessing attachment avoidance ($\alpha = .96$). Object attachment scores were simultaneously regressed onto attachment anxiety and attachment avoidance subscales.

³ As in Study 1, subscale reliabilities of the RAQ-A varied ($\alpha_{\text{range}} = .59$ to $.93$). Therefore, we analyzed composite RAQ-A scores ($\alpha = .89$), which, as in Study 1, proved more reliable than the individual subscales.

Consistent with our reasoning, attachment anxiety was significantly and positively associated with object attachment, $\beta = .22$, $SE = .08$, $t = 2.65$, $p = .01$, whereas attachment avoidance was not, $\beta = .06$, $t = 0.76$, $p = .45$.

Based on our analysis and the results of this pilot study, we predicted that priming instances in which close others were unreliable in a time of need would increase attachment anxiety, but not attachment avoidance. Increased attachment anxiety should, in turn, mediate the effect of the prime on object attachment, whereas attachment avoidance should not.

In addition to testing predictions about divergent patterns of mediation, Study 2 builds on Study 1 by comparing the salience of close others' unreliability with the salience of the self's unreliability – that is, times when one “let oneself down.” Since participants are likely to be more disturbed when thinking about how they let themselves down compared to times when strangers let them down, this comparison condition enabled us to better control for the possibility that the effect of the close-others-unreliable induction observed in Study 1 was simply due to the heightened salience of disappointment in any self-relevant domain.

Method

A sample of 47 participants (24 women), recruited online through MTurk, received payment (\$0.25) for completing what was purported to be a personality survey. As in Study 1, participants completed filler questionnaires intended to bolster the cover story.

Others' perceived unreliability manipulation

Participants randomly assigned to the close-others-unreliable condition received three open-ended prompts, used in Study 1, asking them to write a few sentences each about three instances when close others were unreliable in a time of need. Participants in the self-unreliable condition received three parallel prompts asking them to write about three instances in which they let themselves down in a time of need.

Attachment anxiety and attachment avoidance measures

Participants then completed the 36-item ECR-R scale used in the pilot study. Eighteen of the items measure participants' attachment anxiety, or the extent to which they fear abandonment or insufficient love (e.g., “My desire to be very close sometimes scares people away,” “When my partner is out of sight, I worry that he or she might become interested in someone else”), while the remaining 18 items assess attachment avoidance, or the extent to which participants resist attachment to others (e.g., “I get uncomfortable when a romantic partner wants to be very close,” “I feel comfortable depending on romantic partners (reverse)”). The reliability and validity of this scale are well-established (Sibley, Fischer, & Liu, 2005). In our sample, the subscales showed high reliability ($\alpha_{\text{avoidance}} = .97$; $\alpha_{\text{anxiety}} = .93$).

Attachment to objects measure

As in Study 1, we measured object attachment using the RAQ-A. Also as in Study 1 and the pilot study (see Footnote 3), the subscales of the RAQ-A showed a range of reliabilities ($\alpha_{\text{range}} = .63$ to $.92$). Thus, as in those other studies, we averaged scores across subscales to form a composite measure of overall object attachment ($\alpha = .92$).

Results and discussion

We submitted scores on attachment anxiety, attachment avoidance, and object attachment to independent-samples *t*-tests (priming condition: close others unreliable vs. self unreliable). Means are depicted in

Fig. 2. Compared to participants primed with their own unreliability, those primed with close others' unreliability reported more attachment anxiety, $t(45) = 2.46, p = .02, d = .73$, and more attachment to objects, $t(45) = 2.73, p = .009, d = .82$. Somewhat unexpectedly, participants in the close-others-unreliable condition also reported higher attachment avoidance, $t(45) = 2.12, p = .04, d = .63$.

Supporting predictions and replicating the effects of the pilot study, regression analysis revealed that attachment anxiety predicted object attachment, $\beta = .33, SE = .10, t = 3.17, p = .003, R^2 = .18$. We then conducted a mediation analysis to test our prediction that the effect of the close-others-unreliable prime on object attachment would be mediated by attachment anxiety. Using Preacher and Hayes's (2008) bootstrapping procedure, we regressed object attachment scores onto priming condition (dummy-coded: close others unreliable = 1/self unreliable = 0), with attachment anxiety entered as the proposed mediator. Five-thousand bootstrap resamples were performed. As predicted, the 95% confidence interval obtained for the indirect effect of priming condition on object attachment through the mediator of attachment anxiety did not contain zero (.02, .50). See Fig. 3 for a graphical depiction of the mediation model.

Somewhat surprisingly given the results of the pilot study, the results of the main study revealed that attachment avoidance also predicted object attachment, $\beta = .26, SE = .09, t = 3.02, p = .004, R^2 = .17$. Nevertheless, our critical prediction was that attachment avoidance would not mediate the effect of the close-others-unreliable prime on object attachment. To test this prediction, we conducted a similar mediation analysis using attachment avoidance as the proposed mediator. The 95% confidence interval obtained for the indirect effect did contain zero (−.02, .45). Therefore, we are confident at $\alpha = .05$ that the effect of the close-others-unreliable prime on object attachment was mediated by the corresponding increase in attachment anxiety, and not by an increase in attachment avoidance.⁴

The salience of close others' unreliability increased object attachment compared to the salience of one's own unreliability, suggesting that the effect observed in Study 1 is robust and not likely due to the salience of any self-relevant disappointment. More importantly, we obtained direct evidence for the proposed mechanism underlying this effect: priming close others' unreliability increased object attachment indirectly by increasing attachment anxiety, but not by increasing attachment avoidance.

While we did not expect the close-others-unreliable prime to increase attachment avoidance, we recognize the possibility that reminders of close others' unreliability may incidentally induce the feelings of rejection associated with avoidance. This is especially likely given that attachment avoidance and anxiety both reflect responses to threatened attachment relations, and correspondingly are highly correlated (e.g., Sibley et al., 2005; see Footnote 4). Also, on the basis of the pilot study results, we did not expect to find that attachment avoidance predicts object attachment. Nevertheless, the fact that attachment avoidance did not mediate the effect of primary interest suggests that object attachment functions specifically to assuage the anxiety elicited by the salience of close others' unreliability.

Study 3

The results of Studies 1 and 2 support our claim that attachment anxiety elicited by the salience of close others' unreliability increases object attachment. However, three plausible alternative explanations remain untested. First, our close-others-unreliable prime may have increased general uncertainty and thereby increased attraction to the general certainty afforded by objects. Uncertainty may have been low in the comparison conditions insofar as participants expected strangers to be

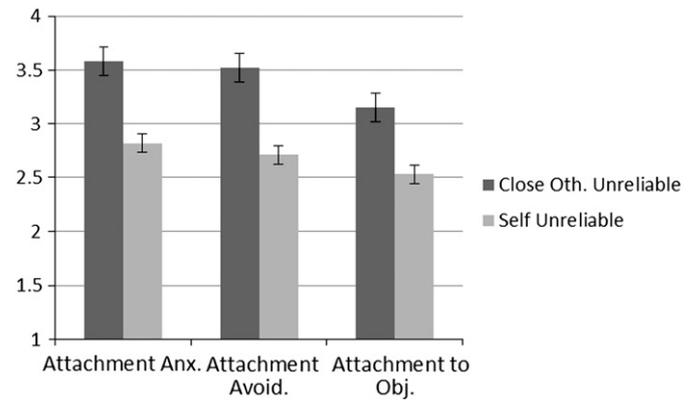
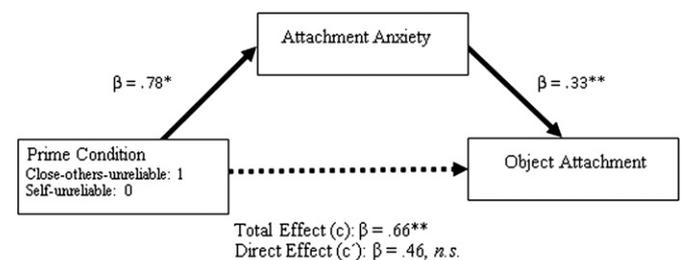


Fig. 2. Self-reported attachment anxiety, attachment avoidance, and object attachment by close others' perceived unreliability condition (Study 2). Note: For all scales, higher scores indicate greater levels. All scales range from 1 to 7.

unhelpful (Study 1) and can predict when they will disappoint themselves (Study 2). We tested this alternative possibility in Study 3 by manipulating the salience of uncertainty about either close others or oneself. We predict that priming relationship uncertainty will increase object attachment compared to priming self-concept uncertainty.

A second alternative possibility is that priming close others' unreliability increases general materialism, rather than object attachment per se. This possibility is suggested by theorizing on the use of material objects to secure attention from close others (Mikulincer & Shaver, 2008), and by evidence that attachment anxiety increases the perceived value of material objects (Clark et al., 2011). Critically, however, experimental evidence shows that priming uncertainties about the self directly increases materialism (Chang & Arkin, 2002). Therefore, if our predicted effect on object attachment was simply due to increasing general materialism, there would be no reason to expect that priming relationship uncertainty would increase object attachment more so than priming uncertainty about the self.

Third, note that objects can be used to facilitate relationships with others, suggesting that our theoretical account may not be the most parsimonious explanation for the effects found in Studies 1 and 2. Instead, participants primed with close others' unreliability may attach to their belongings as a means of restoring or strengthening their social relationships (e.g., using a computer to e-mail friends). That is, objects themselves may fail to compensate for unreliable interpersonal attachments; rather, they help strengthen those



Note: The direct effect coefficient represents the effect of the independent variable after controlling for the effect of the proposed mediator.

Total adjusted R^2 for the model = .24, $F(2, 44) = 7.11, p < .01$

* Significant at $p < .05$

** Significant at $p < .01$

Fig. 3. Mediation of the effect of priming close others' unreliability on object attachment by attachment anxiety (Study 2).

⁴ Testing an indirect effects model that simultaneously includes attachment avoidance and anxiety eliminates the effects of both due to their high multicollinearity ($r = .49, p < .001$).

attachments by facilitating communication with and granting control over others.

We tested this possibility in Study 3 by measuring participants' perceptions that a valued object – their cell phone – facilitates their social relationships. If priming relationship-relevant uncertainty increases cell phone attachment simply by virtue of that object's perceived importance for facilitating relationships, then the effect of this priming condition should be attenuated when controlling for participants' perceptions of how much their phone serves that function.

In addition to testing alternative interpretations, Study 3 was designed to complement the use of self-report measures of object attachment in Studies 1 and 2 by measuring object attachment behaviorally. Ainsworth, Blehar, Waters, and Wall (1978) found that children separated from their caregiver showed increased anxiety and motivation to reunite with their caregiver. To examine whether these indices of attachment operate analogously in people's relation to their material belongings, we temporarily separated participants from their cell phone, measured their feelings of separation anxiety for their missing phones, and measured the time they spent on a task knowing that, upon completion, they would be reunited with their phone.

Method

Fifty-one undergraduates (27 women) at the University of Kansas received course credit for participating in a purported study of consumer attitudes. All participants owned a cell phone and had it with them.

Uncertainty manipulation

Embedded in filler questionnaires purported to assess personality was a questionnaire that prompted participants to write a few sentences about three uncertainties they have about either their relationships or their own personal abilities.

Perceptions of phone's social importance

Next, as part of a purported survey of consumer attitudes, participants were asked to rate how well 10 phrases apply to their cell phones (1 = *not at all*; 7 = *completely*). Embedded in five filler phrases were five phrases describing the phone as important for their relationships (e.g., "helps maintain my relationships," "brings me closer to others"). These items formed a reliable composite ($\alpha = .80$).

Separation anxiety from absent phone

The experimenter then entered the cubicle and asked participants for their phones ostensibly to record information about consumer product choices. While their phones were absent, participants completed a measure of separation anxiety from their phones composed of 10 items modified from the Separation Anxiety Scale for Children (Méndez et al., 2008; e.g., "I stay calm when I don't have my phone (reverse)," "I feel sad when I am separated from my phone"; 1 = *strongly disagree*, 7 = *strongly agree*). These items formed a reliable composite ($\alpha = .87$).

Motivation to reunite with phone

Next, participants received computerized instructions informing them that the experimenter had finished making her recordings, and that they could retrieve their phone as soon as they completed the next writing task. The prompt for the writing task instructed participants to write about the features they would consider when making a phone purchase in the future. Then participants were given a list of cell phone features (e.g., "ability to stream video") and asked to rank them in order of preference for their next phone. The instructions for both tasks frequently and explicitly mentioned that participants could write as much or as little as they wished. The amount of time

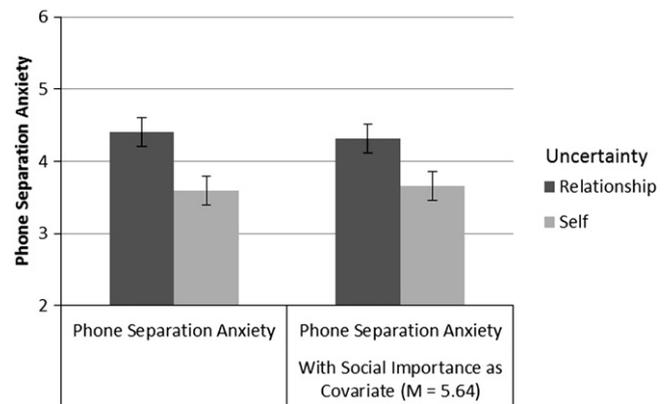


Fig. 4. Phone separation anxiety by priming condition (Study 3). Note: Scales range from 1 to 7.

participants elected to spend on this task was recorded by the computer, and served as our behavioral measure of participants' motivation to reunite with their phones (i.e., less time reflects greater motivation).

Results and discussion

We submitted scores on perceived social importance, phone separation anxiety, and time to retrieve phone to a one-way ANOVA (*priming condition*: relationship uncertainty vs. self uncertainty). Perceived social importance scores did not differ by condition ($p = .18$). However, compared to participants primed with uncertainty about their abilities, those primed with uncertainty about their relationships reported greater separation anxiety from their absent phones, $F(1, 49) = 6.65, p = .01, \eta^2 = .12$, and they spent less time on the writing task, $F(1, 49) = 5.53, p = .02, \eta^2 = .10$.

We then included social importance scores into the analysis as a covariate (ANCOVA). The effect of priming relationship uncertainty on phone separation anxiety remained significant even after controlling for how much participants rated their phone as important for their relationships, $F(1, 48) = 5.02, p = .03, \eta^2 = .09$ (see Fig. 4 for means with and without social importance ratings as a covariate). Similarly, the effect of the relationship uncertainty prime on time to retrieve phone remained significant even when controlling for participants' ratings of their phone's social importance, $F(1, 48) = 4.46, p = .05, \eta^2 = .09$ (see Fig. 5 for relevant means).

These findings address a number of limitations of Studies 1 and 2. First, because participants were primed with uncertainty about either relationships or themselves, the converging priming effects found across the studies are unlikely to be due to between-condition differences in the salience of general uncertainty. These findings also

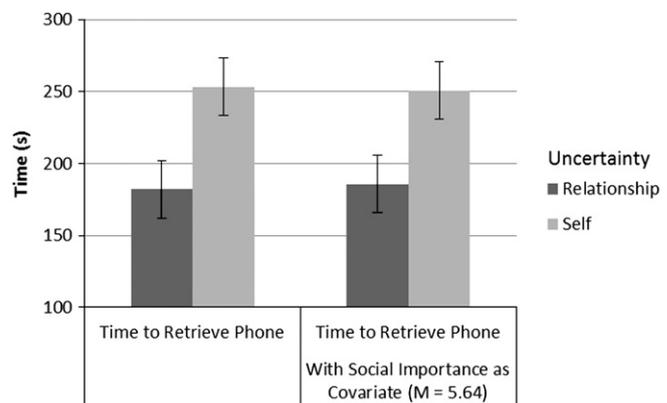


Fig. 5. Time to retrieve phone by priming condition (Study 3).

suggest that object attachment processes are distinct from materialism. If our outcome measures were assessing materialism, rather than attachment to objects per se, we would expect scores on these measures to be especially high in the self-uncertainty condition (Chang & Arkin, 2002). Furthermore, if participants had responded to the relationship-uncertainty prime with increased materialism, we would have expected them to spend more time contemplating purchasing a new phone, rather than forego such contemplation for a speedy reunion with their current phone.

Finally, the effects of priming relationship uncertainty on object attachment remained significant even after controlling for the phones' perceived importance for social relationships. These results show that object attachment following relationship uncertainty salience is not driven merely by a desire to reconnect with close others. Rather, consistent with our theoretical perspective, people seem to attach to objects for their own sake when they are unsure about their connection with close others.

General discussion

On the basis of prior research showing that people respond to threats to secure interpersonal attachments by seeking alternative, non-human sources of security (e.g., Birgegard & Granqvist, 2004), as well as findings that adults derive security from material objects by virtue of the objects' perceived reliability (e.g., Erkkolahti & Nyström, 2009), we hypothesized that object attachment can serve as a compensatory strategy for coping with the threat to security elicited by the perceived unreliability of close others.

Supporting this hypothesis, Study 1 showed that participants primed with situations in which close others were unreliable reported increased object attachment, whereas participants primed with strangers' unreliability or close others' reliability did not. Study 2 tested our claim that attachment anxiety serves as the mechanism underlying the effect of priming close others' unreliability on object attachment. As revealed by the mediational analysis, attachment anxiety, and not attachment avoidance, significantly mediated this effect. Finally, Study 3 showed that priming uncertainty about close relationships (versus uncertainty about oneself) increased participants' motivation to reunite with an absent material belonging. Study 3 also provided evidence that compensatory object attachment is not motivated by the use of objects to facilitate social relationships.

Future research should continue to investigate object attachment processes by examining whether compensatory object attachment is effective at restoring felt security. In the current studies we focused primarily on the motivation behind object attachment, but our analysis suggests that people will report similar feelings of security around valued objects as they do around close others.

Research should also consider the role of object attachment processes in materialism. While we believe that these are distinct, it is possible that compensatory object attachment offers one motivation behind materialism. This sheds new light on materialism research showing that, e.g., children from less-nurturing households become more materialistic (Kasser, Ryan, Zax, & Sameroff, 1995). While Winnicott (1953/1986) suggested that the use of objects as a source of security is an inevitable stage in development, future research must consider the ways in which personal and cultural context influences object attachment processes and later materialism.

People are often threatened with uncertainty about close others, and their ability to find alternative sources of security demonstrates the cre-

ative ways in which they protect themselves against threats to their psychological equanimity. Certainly the person whose only source of security is a collection of stamps or a particular cell phone might represent a case in which the costs of object attachment outweigh the benefits. For most people however, the ability to temporarily find comfort in objects may provide a valuable psychological benefit.

References

- Ainsworth, M. D. S., Blehar, M., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Hillsdale, NJ: Erlbaum.
- Bachar, E., Canetti, L., Galilee-Weisstub, E., Kaplan-DeNour, A., & Shalev, A. Y. (1998). Childhood vs. adolescence transitional object attachment, and its relation to mental health and parental bonding. *Child Psychiatry and Human Development*, 28, 149–167. doi:10.1023/A:1022881726177.
- Birgegard, A., & Granqvist, P. (2004). The correspondence between attachment to parents and God: Three experiments using subliminal separation cues. *Personality and Social Psychology Bulletin*, 30, 1122–1135.
- Bowlby, J. (1969/1982). *Attachment and loss: Vol. 1. Attachment*. New York: Basic Books.
- Chang, L., & Arkin, R. M. (2002). Materialism as an attempt to cope with uncertainty. *Psychology and Marketing*, 19, 389–406. doi:10.1002/mar.10016.
- Clark, M. S., Greenberg, A., Hill, E., Lemay, E. P., Clark-Polner, E., & Roosth, D. (2011). Heightened interpersonal security diminishes the monetary value of possessions. *Journal of Experimental Social Psychology*, 47, 359–364. doi:10.1016/j.jesp.2010.08.001.
- Erkkolahti, R., & Nyström, M. (2009). The prevalence of transitional object use in adolescence: Is there a connection between the existence of a transitional object and depressive symptoms? *European Child & Adolescent Psychiatry*, 18, 400–406. doi:10.1007/s00787-009-0747-7.
- Finkel, E. J., Burnette, J. L., & Scissors, L. E. (2007). Vengefully ever after: Destiny beliefs, state attachment anxiety, and forgiveness. *Journal of Personality and Social Psychology*, 92, 871–886. doi:10.1037/0022-3514.92.5.871.
- Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, 78, 350–365. doi:10.1037/0022-3514.78.2.350.
- Granqvist, P. (2006). On the relation between secular and divine relationships: An emerging attachment perspective and a critique of the depth approaches. *The International Journal for the Psychology of Religion*, 16, 1–16.
- Green, J. D., & Campbell, W. K. (2000). Attachment and exploration in adults: Chronic and contextual accessibility. *Personality and Social Psychology Bulletin*, 26, 452–461. doi:10.1177/0146167200266004.
- James, W. (1890). *The principles of psychology*. Available: <http://psychclassics.yorku.ca/James/Principles/>.
- Kasser, T. (2002). *The high price of materialism*. Cambridge, MA: Bradford.
- Kasser, T., Ryan, R. M., Zax, M., & Sameroff, A. J. (1995). The relations of maternal and social environments to late adolescents' materialistic and prosocial values. *Developmental Psychology*, 31, 907–914.
- Kirkpatrick, L. A. (1997). A longitudinal study of changes in religious belief and behavior as a function of individual differences in adult attachment style. *Journal for the Scientific Study of Religion*, 26, 207–217.
- Kirkpatrick, L. A. (2005). *Attachment, evolution, and the psychology of religion*. New York: Guilford Press.
- Méndez, X., Espada, J. P., Orgilés, M., Hidalgo, M. D., & García-Fernández, J. M. (2008). Psychometric properties and diagnostic ability of the separation anxiety scale for children (SASC). *European Child & Adolescent Psychiatry*, 17, 365–372. doi:10.1007/s00787-008-0678-8.
- Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood: Structure, dynamics, and change*. New York: Guilford Press.
- Mikulincer, M., & Shaver, P. R. (2008). "Can't buy me love": An attachment perspective on social support and money as psychological buffers. *Psychological Inquiry*, 19, 167–173. doi:10.1080/10478400802631295.
- Nedelisky, A., & Steele, M. (2009). Attachment to people and to objects in obsessive-compulsive disorder: An exploratory comparison of hoarders and non-hoarders. *Attachment & Human Development*, 11, 365–383. doi:10.1080/14616730903016987.
- Preacher, K. J., & Hayes, A. F. (2008). Contemporary approaches to assessing mediation in communication research. In A. F. Hayes, M. D. Slater, & L. B. Snyder (Eds.), *The Sage sourcebook of advanced data analysis methods for communication research* (pp. 13–54). Thousand Oaks, CA: Sage.
- Sibley, C. G., Fischer, R., & Liu, J. H. (2005). Reliability and validity of the revised experiences in close relationships (ECR-R) self-report measure of adult romantic attachment. *Personality and Social Psychology Bulletin*, 31, 1524–1536. doi:10.1177/0146167205276865.
- West, M., Sheldon, A., & Reiffer, L. (1987). An approach to the delineation of adult attachment: Scale development and reliability. *The Journal of Nervous and Mental Disease*, 175, 738–741. doi:10.1097/00005053-198712000-00006.
- Winnicott, D. W. (1953/1986). Transitional objects and transitional phenomena. In P. Buckley (Ed.), *Essential papers on object relations* (pp. 254–271). New York: New York University Press.