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Why Some Take Pleasure in Other People's Pain: The Role of Attachment, Competition, and Cooperation on Schadenfreude

Alison Baren
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WHY SOME TAKE PLEASURE IN OTHER PEOPLE’S PAIN: THE ROLE OF ATTACHMENT, COMPETITION, AND COOPERATION ON SCHADENFREUDE

by

ALISON BAREN

A dissertation submitted to the Graduate Faculty in Psychology in partial fulfilment of the requirements for the degree of Doctor of Philosophy, The City University of New York

2017
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This manuscript has been read and accepted for the Graduate Faculty in Psychology in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

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THE CITY UNIVERSITY OF NEW YORK
Abstract

Why Some Take Pleasure in Other People’s Pain: The Role of Attachment, Competition, and Cooperation on Schadenfreude

by

Alison Baren

Advisor: Claudia Brumbaugh, Ph.D.

When witnessing someone’s misfortune, some people may feel empathy and offer to help while others may feel schadenfreude (i.e., joy at other’s misfortunes) and not help. This research examined why people react to others with compassion while others respond more callously. I investigated how individual differences in attachment, empathy, personal distress, and schadenfreude, and the effects of competition versus cooperation, impacted prosocial behavior. As a novel contribution, I looked at attachment’s association with not only state schadenfreude but also trait schadenfreude. After developing a measure of trait schadenfreude (Study 1), I determined if attachment related to schadenfreude (Study 2) and explored attachment as a potential moderator of the effects of competition and cooperation (Study 3). To assess how individual and situational differences impacted helping behavior, I used real interactions (i.e., a confederate asking for help). A major contribution of this research was the development and validation of a new scale measuring trait schadenfreude. I also provided new evidence in how people’s attachment impacted reactions toward others’ misfortunes. Results showed that insecure attachment related to more negative reactions (e.g., more schadenfreude) toward another’s suffering. While findings on helping behavior were less robust, empathy’s impact on helping behavior depended on attachment avoidance. People also differed in how much empathy they felt toward a competitor or ally depending on their attachment. By using an attachment theoretical perspective, this research contributed to the field of prosocial behavior research by advancing the understanding of how personality and situations impact reactions toward suffering others.
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Table of Contents

Abstract ........................................................................................................................................ iv
Acknowledgments ....................................................................................................................... v
List of Tables ................................................................................................................................. vii
List of Figures ................................................................................................................................. viii
Theoretical overview ....................................................................................................................... 1
  Common reactions toward others’ misfortunes ........................................................................... 2
  Attachment’s role on reactions toward others’ misfortunes .................................................... 6
  Reactions toward competitors’ versus allies’ misfortunes ....................................................... 11
The current research ....................................................................................................................... 13
  Study 1: Measuring trait schadenfreude .................................................................................... 17
  Study 2: Attachment and trait schadenfreude’s impact on helping behavior ......................... 22
  Study 3: Attachment’s impact on reactions toward competitors and allies in need .......... 28
General discussion ....................................................................................................................... 39
Footnotes ....................................................................................................................................... 50
Tables ........................................................................................................................................... 51
Figures ......................................................................................................................................... 68
Appendices .................................................................................................................................... 72
References ...................................................................................................................................... 83
List of Tables

Table 1. Descriptive Statistics and Internal Consistencies of all Measures (Study 1) ..............51
Table 2. Component Matrix from Principle Components Analysis, unrotated (Study 1) ..........52
Table 3. Joint Factor Analyses Pattern Matrix, rotated using Promax method (Study 1) ........53
Table 4. Correlations among Variables (Study 1) .................................................................54
Table 5. Correlations among Variables after Controlling for Social Desirability (Study 1) ....55
Table 6. Pre-tested Helping Task Frequencies ........................................................................56
Table 7. Correlations among Variables (Study 2) .................................................................57
Table 8. Means and Standard Deviations of Variables (Study 2) ...........................................58
Table 9. Effects of Attachment and Trait Emotional Reactions on Helping Behavior (Study 2)..59
Table 10. Variance Inflation Factors of Predictor Variables (Study 2) .................................60
Table 11. Means and Standard Deviations of Variables (Study 3) .........................................61
Table 12. Main Effects of Situation on Outcome Variables (Study 3) ....................................62
Table 13. Correlations among Outcome Variables (Study 3) ................................................63
Table 14. Effects of Attachment Anxiety and Condition on Empathy (Study 3) ......................64
Table 15. Effects of Attachment Avoidance and Condition on Empathy (Study 3) ...............65
Table 16. Effects of Attachment Anxiety and Condition on Helping Behavior (Study 3) .......66
Table 17. Effects of Attachment Avoidance and Condition on Helping Behavior (Study 3) .....67
List of Figures

Figure 1. A scree plot showing the eigenvalues of each component (Study 1).........................68
Figure 2. Regression plotted using values of helping behavior (Study 2) .........................69
Figure 3. Explicit empathy as a function of attachment anxiety and situation (Study 3).........70
Figure 4. Empathy (explicit) as a function of attachment avoidance and situation (Study 3).....71
Theoretical overview

After witnessing someone suffering a misfortune, people generally react in one of a few ways. Some people feel empathy (e.g., Coke, Batson, & McDavis, 1978), and have a desire to offer support to a person needing help, such as someone who dropped all of his belongings on the sidewalk. Other people feel personal distress (Davis, 1983), becoming easily upset when seeing a downtrodden other. While less researched, another common response to others’ suffering is schadenfreude. With no direct translation from German, schadenfreude can be described in English as the feeling of taking pleasure in the misfortunes of others. In addition to the emotional reactions people may feel after learning of another’s misfortune, there can sometimes be a behavioral decision to help that person. Whether or not someone will actually help depends on a variety of factors, including how people feel toward distressed others (Darley & Batson, 1973; Eagly & Crowley, 1986; Rushton, Chrisjohn, & Fekken, 1981). Certain factors, such as individual differences in trait empathy and personal distress, are known to impact helping behavior (Spinrad & Eisenberg, 2014). However, understanding less-researched variables related to witnessing another in distress, such as schadenfreude, may provide a deeper understanding of prosocial behavior.

Because it relates to one’s degree of trust in others, attachment theory may also provide a partial explanation for why people react differently toward others in need. A specific gap in the research on attachment is how people’s experiences in their close relationships impact schadenfreude. Furthermore, most social behaviors and emotions depend on a combination of personality and circumstance (Mischel & Shoda, 1995). Thus, understanding responses (e.g., empathy or schadenfreude) toward others experiencing a misfortune likely depends on both individual and situational differences. While attachment style is known to impact emotional and
behavioral responses toward others in need (Mikulincer & Shaver, 2005; Simpson, Rholes, & Nelligan, 1992), less understood is how attachment interacts with situational features to affect responses toward suffering others. Whether people are in a competitive or cooperative situation is especially relevant to how people react toward distressed others (Cikara & Fiske, 2012; Worchel, Axsom, Ferris, Samaha, & Schweizer, 1978). Less understood is how attachment might moderate the typical effects of competition and cooperation.

The purpose of the current research was to determine when and why people sometimes react to others with compassion (e.g., feel empathy) while others respond more callously (e.g., feel schadenfreude). Specifically, I investigated how individual differences in attachment impacted schadenfreude and other reactions toward people’s misfortunes, while also considering how people generally feel toward others in need (e.g., trait differences in empathy, personal distress, and schadenfreude) and situational variables (i.e., competitive and cooperative situations). I set out to contribute to two primary fields of research. First, by examining how people’s experiences in their close relationships related to schadenfreude, I contributed to the field of adult attachment, specifically looking at how attachment impacts domains beyond close relationships (i.e., reactions toward strangers’ misfortunes). Secondly, I contributed to the field of prosocial behavior by looking at how lesser known factors (i.e., schadenfreude) and potential interactions (i.e., attachment and competition/cooperation) impacted how people responded to a downtrodden other. Knowing when and why some people are more susceptible to taking pleasure in the misfortunes of others is a crucial first step at ultimately trying to improve positive social behaviors (e.g., improving compassionate rather than callous responses).

**Common reactions toward others’ misfortunes**

Before examining the personality and situational factors that impact how people react
toward others’ misfortunes, it is important to understand what these reactions are and how they differ from each other. According to Coke and colleagues (1978), when people react with empathy they engage in a mental understanding of what someone is going through, or experience the cognitive component of empathy. People may also experience the emotional component of empathy, having the feeling of what someone is going through. Davis (1983) was the first to conceptually separate the personal distress component of empathy from the empathic concern component (herein referred to as just “empathy”). In this conceptualization, personal distress relates to affective responses including self-centered anxiety and emotional suffering (Batson, Batson, Slingsby, Harrell, Peekna, & Todd, 1991). On the other hand, empathy involves a genuine concern for another person. For example, people may experience personal distress when witnessing a homeless person begging for money and feel upset, but may not necessarily feel concerned (i.e., empathy) for the homeless person.

Another, perhaps less familiar, emotional response to observing someone’s downfall is schadenfreude, translated from German as “joy at another’s misfortune” (compounded from “schaden,” or adversity, and “freude,” or joy). While there is no equivalent word in English, the psychological experience of enjoying other people’s misfortunes nonetheless exists in English-speaking societies (Leach & Spears, 2008; Smith, Powell, Combs, & Schurtz, 2009). Schirokauer and Spitzer (1949) noted that ancient languages included terms for pleasure at others’ pain (e.g., Aristotle used the term “epichairekakia” to refer to enjoying other people’s misfortunes). This suggests that feeling joy over others’ hardships may be a common emotion, experienced by people from a variety of cultures. In his discussion of the term, Heider (1958) considered schadenfreude to be a type of emotional discordance, or the result of mismatched emotions between two people. In other words, schadenfreude stems from one individual feeling good (i.e.,
a positive emotion) in response to a second person’s sadness (i.e., a negative emotion). Others have similarly attempted to define schadenfreude. In his paper on the human spectrum of emotions, Kemper (1987) refers to schadenfreude as being similar to snobbery, vengeance, and contempt – states all falling within the anger-happiness category in which people feel a type of sadistic pleasure. For example, both vengeance and schadenfreude involve feeling good as a result of something bad happening to someone else. However, vengeance, unlike schadenfreude, is characterized by a feeling of retribution and payback. Interestingly, people feel more schadenfreude if a suffering other is deserving of their misfortune (Greitemeyer, Osswald, & Brauer, 2010), suggesting that schadenfreude may be related to feeling that justice has been served. Scholars have also compared schadenfreude to gloating, using the term, perhaps incorrectly, as a synonym for schadenfreude (Shamay-Tsoory et al., 2009). However, gloating involves participating more directly in a person’s misfortune (e.g., gloating over winning a game) and contains a component of pride (Leach, Spears, & Manstead, 2014; van Dijk & Ouwerkerk, 2014).

Compared to other reactions toward people’s misfortunes (e.g., empathy), there is limited research on schadenfreude. Preliminary work has discovered that certain factors, such as envy, tend to encourage a state of schadenfreude (Feather & Sherman, 2002; Leach & Spears, 2008; Smith et al., 1996). Feeling hostility toward someone can also trigger schadenfreude. For example, van Dijk and colleagues (2006) asked people to rate statements such as “I like what happened” and “I couldn’t resist smiling a little” after learning of someone’s failure. They found that people enjoyed an overachieving student’s failure when they felt more hostility toward that student. Beyond these things, there are other features that increase the likelihood of feeling schadenfreude. For example, when someone is deserving of their misfortune (e.g., getting a
speeding ticket), people feel more schadenfreude (Brigham, Kelso, Jackson, & Smith, 1997; Greitemeyer et al., 2010; van Dijk, Ouwerkerk, Goslinga, Nieweg, & Galluci, 2006).

Thus far, only state schadenfreude has been measured, or how schadenfreude changes as a function of varying circumstance. To investigate how individual differences in schadenfreude impact reactions toward others’ misfortunes it is necessary to have a measure of trait schadenfreude. While people differ in the amount of trait empathy and personal distress they typically feel, whether or not people also differ in the amount of schadenfreude they feel has not been investigated. Because there are known individual differences in how people generally respond to others’ misfortunes, (e.g., trait empathy), people are likely to exhibit varying levels of trait schadenfreude as well. One potential way to measure individual differences in schadenfreude is via self-report. Self-report questionnaires (e.g., dispositional empathy, personal distress) have been successful in measuring some trait differences in responses to people’s misfortunes (Davis, 1983; Mehrabian, & Epstein, 1972; Spreng, McKinnon, Mar, & Levine, 2009). When assessing individual differences in the emotions typically felt toward others, respondents are asked to agree or disagree with statements like “Seeing people cry upsets me” (Mehrabian & Epstein, 1972) and “I often have tender, concerned feelings for people less fortunate than me” (Davis, 1983). The addition of a self-report questionnaire aimed at measuring how much people typically experience happiness in response to downtrodden others would be useful in establishing and assessing trait differences in schadenfreude.

How emotional reactions impact prosocial behavior

It is important to understand the emotions people experience from seeing others in need because emotions can predict behavior. For example, past research shows that the more empathy people feel, the more likely they are to help someone (Amato, 1985; Fultz, Batson, Fortenbach,
McCarthey, & Varney, 1986). Furthermore, Cialdini and colleagues found that personal distress predicts helping behavior such that the more upset people feel, the more often they help (Cialdini, Schaller, Houlihan, Arps, Fultz, & Beaman, 1987). Empathy-prompted helping likely stems from a genuine concern for another in need, whereas helping caused by personal distress may be a way for people to reduce their own distress after witnessing another in need (e.g., watching a homeless person beg for money).

Less understood is the relationship between schadenfreude and helping behavior. While it seems logical that if a person was enjoying the pain of another, they would be likely to pass by the situation without helping, empirical evidence has yet to solidify a clear relationship between schadenfreude and prosocial (i.e., lack of prosocial) behavior. Research on traits related to schadenfreude provides tentative insight as to how trait schadenfreude may impact helping behavior. Specifically, people who are high in the dark triad traits (i.e., Machiavellianism, narcissism, & psychopathy) tend to feel more situational schadenfreude (James, Kavanagh, Jonason, Chonody, & Scrutton, 2014). The dark triad traits are also associated with less prosocial behavior (Jonason, Li, & Teicher, 2010; Paulhus & Williams, 2002). Additionally examining trait schadenfreude could help further understanding of why some people are less prosocial, ignoring others in need.

**Attachment’s role on reactions toward others’ misfortunes**

Beyond differences in empathy, personal distress, and schadenfreude, people’s feelings about relationships and their desire for closeness may impact reactions toward suffering others. Knowing how people vary in their social interactions would be useful in understanding when and why people react differently toward others’ pain. Specifically, people’s responses after witnessing others in need may also depend on individual differences in attachment.
The history of attachment: Early childhood bonds

Attachment theory states that people first develop emotional social bonds in childhood. These bonds depend on the quality of early relationships with a primary caregiver, most often a mother (Bowlby, 1969). Ainsworth (1979) noted that children exhibit one of three attachment styles: a secure style, and two insecure styles (avoidant and anxious-ambivalent). While people are likely born with a biological tendency toward certain attachment patterns (Brussoni, Jang, Livesley, & Macbeth, 2005), researchers have found that parenting style influences the attachment style that children develop. For example, in a longitudinal study, Blehar, Lieberman, and Ainsworth (1977) observed parent-child interactions to investigate the relationship between mothers’ parenting style (e.g., responsiveness and playfulness) and children’s attachment styles. They found that mothers who were inconsistent in their responsiveness were more likely to have anxious-ambivalent babies. Playful mothers who responded to their distressed infants were more likely to have secure babies. Ainsworth and colleagues (1978) also found that mothers who were less comfortable with body contact and were more withholding of emotional expression tended to have more avoidant babies. This suggests that attachment at least partially depends on the expectations infants develop in response to their parents’ caregiving.

The history of attachment: Adult attachment

Bowlby (1973) theorized that the attachment bond developed with a caregiver serves as a basis for how a person thinks and feels in all of their later relationships. In other words, repeated interactions with a caregiver lead to the formation of cognitive representations of how people view themselves and others. These cognitive representations serve as working models of attachment. Working models of attachment can be secure or insecure, and guide how people see themselves and others in later relationships, such as in adulthood, when primary attachment
figures are most often romantic partners (Feeney & Noller, 1990; Hazan & Shaver, 1987).

Although Bowlby speculated on attachment processes in adulthood, Hazan and Shaver (1987) were the first to empirically investigate adult attachment. They determined that Ainsworth’s three attachment styles were analogous to attachment styles exhibited by adults in romantic relationships. Securely attached adults display trust in their relationships. They feel that their romantic partners will be there for them, similar to how secure infants appear to “trust” that their mothers will return to them. Anxiously attached adults tend to worry that their partners will not love them, even after receiving reassurance. Likewise, anxious-ambivalent infants display distress and concern, even in the presence of their mothers. Just as avoidantly attached infants emotionally withdraw from their mothers, avoidant adults prefer emotional distance from romantic partners.

Since Hazan and Shaver’s (1987) first empirical foray, adult attachment has been further differentiated. Bartholomew and Horowitz (1991) categorized individuals according to positive or negative thoughts about the self and about others/partners. Consequently, secure people are defined as having positive views of both themselves and of others, allowing them to feel comfortable and trusting in their relationships. Preoccupied people, analogous to anxious attachment, think negatively about themselves, but positively about others. Appropriately named, preoccupied attachment is characterized by a preoccupation with relationships and relational partners. Using Bartholomew and Horowitz’s (1991) four-category model of attachment, two types of avoidant attachment emerge, both characterized by negative thoughts of others. People who also feel negatively toward themselves are classified as fearful, and are afraid of intimacy and socially avoidant. People who feel negatively toward others but positively toward themselves are dismissive, characterized as being independent and dismissing of closeness. More
recently, adult attachment researchers have used a dimensional approach to measure adult attachment (Brennan, Clark, & Shaver, 1998). In this current conceptualization, attachment is based on where individuals fall (from low to high) on both the anxiety and the avoidance dimension. This dimensional approach to attachment is beneficial in that it allows for the two attachment dimensions to be used as continuous predictor variables in order to understand how attachment influences various outcome measures.

Attachment and reactions to others in need

Adult attachment theory initially began as a way to understand people’s relationships with close others (e.g., loved ones). However, people’s working models of close relationships extend to how they more generally experience social interactions. An abundance of research finds that attachment influences behavior beyond people’s close intimate relationships (Collins & Read, 1994; Feeney, Cassidy, & Ramos-Marcuse, 2008; Rom & Mikulincer, 2003). For example, people’s working models of close relationships extend to how they experience social interactions with acquaintances and how they view novel people (Collins & Read, 1994). In one study, Brumbaugh and Fraley (2007) asked participants to read a profile of a stranger and imagine how they would likely interact with that stranger. Findings confirmed that individual differences in attachment transferred to how people felt toward strangers.

Because adult attachment influences people’s interactions with strangers, attachment theory may be a useful model for understanding how people react to seeing a stranger experience a misfortune. Research has been conducted on attachment’s role in some of the typical reactions people experience when witnessing others’ downfalls (Joireman, Needham, & Cummings, 2002; Mikulincer et al., 2001). Generally, people who are more securely attached tend to feel more empathy for others (Joireman et al., 2002). Insecurely attached people, specifically avoidant
individuals, lack empathy (Britton & Fuendling, 2005; Mikulincer et al., 2001), and do not typically experience personal distress at knowledge of another in pain. In fact, avoidant people may feel less personal distress overall in everyday life. For instance, following a breakup, avoidant people report less grief (Simpson, 1990). Avoidantly attached people are especially likely to emotionally distance themselves from others experiencing distress (Simpson et al., 1992), and also tend to care less about others’ happiness and well-being (Mikulincer et al., 2003). People high in attachment anxiety also appear to feel less empathy for others (Mikulincer et al., 2001). However, people high in attachment anxiety tend to feel more personal distress, likely because they have difficulty coping with stressful situations (Armsden & Greenberg, 1987; Baren & Brumbaugh, 2016; Mikulincer, Florian, & Weller, 1993). The heightened, self-focused personal distress that anxious individuals experience in the face of another’s misfortune (Britton & Fuendeling, 2005; Mikulincer et al., 2001) may stem from their difficulty coping with distressing situations (Armsden & Greenberg, 1987; Mikulincer et al., 1993). Beyond emotional reactions toward another in need, attachment also affects actual helping behavior (Van Lange, De Bruin, Otten, & Joireman, 1997). Mikulincer and Shaver (2005) found that people high in attachment avoidance tended to help others less often. The relationship between anxiety and helping behavior is less clear. On one hand anxious people feel more personal distress, which may prompt helping as a way to reduce that distress. On the other hand, anxiously attachment people tend to feel less empathy, which could inhibit helping behavior (Gillath et al., 2005).

Because attachment has been found to impact emotional responses (i.e., empathy and personal distress) and behavioral reactions (i.e., helpfulness) to others’ misfortune, differences in attachment may also play a role in how much schadenfreude people feel. For example, avoidantly attached people may experience more schadenfreude in response to another’s pain
because of their negative expectations of others and their general disdain for closeness (Bartholomew, 1990; Brumbaugh, Baren, & Agishtein, 2014). In order to address unanswered questions about how attachment affects reactions toward others’ hardships, additional research is needed to specifically address how attachment impacts schadenfreude and helping behavior.

Reactions toward competitors’ versus allies’ misfortunes

Beyond individual differences (e.g., differences in attachment), contextual factors are likely to affect people’s reactions to others in need. For instance, people sometimes help others as a way to gain something (e.g., gaining social approval or a favor in return) (Cropanzano & Mitchell, 2005). People’s prior interactions with someone who experiences a downfall is also likely to impact their thoughts, feelings, and behaviors toward that distressed person. Two particularly relevant types of interactions that may impact people’s emotions and behaviors are competitive and cooperative interactions. Competition and cooperation are of special interest because they are known to have a powerful influence on people’s empathy, schadenfreude, and helping behaviors (e.g., Cikara, Bruneau, & Saxe, 2011; Pettigrew & Tropp, 2008).

Cooperation and competition tend to produce opposite effects on how people react toward another in need. Cooperation generally leads to positive social outcomes (Sherif, Harvey, White, Hood, & Sherif, 1961). For instance, cooperation increases empathy for others (Allport, 1954; Pettigrew & Tropp, 2008). Furthermore, the relationship between empathy and cooperation is reciprocal, such that cooperation increases empathy and empathy encourages people to cooperate (Batson & Moran, 1999). Lanzetta and Englis (1989) found that even the expectation of cooperation can foster empathy. Cooperation also promotes actual helping behavior for people in need, likely because cooperation boosts empathy (Greitemeyer, 2015; Pettigrew & Tropp, 2008; Worchel et al., 1978). On the other hand, competition leads to negative
reactions (Esses Jackson, & Armstrong, 1998). For example, expecting to compete with someone decreases empathy, or what Lanzetta and Englis (1989) call “counterempathy.” Witnessing a competitor’s suffering may actually lead to feelings of joy, or schadenfreude (Cikara & Fiske, 2012; Smith et al., 2009). This is especially true for feelings toward outgroup members, perhaps because outgroup members are seen as more threatening. Accordingly, realistic group conflict theory (Esses et al., 1998; Sherif et al., 1961) states that competition with outgroup members for limited resources, like employment opportunities, leads to increased negative feelings and a reduced willingness to help the outgroup. This theory implies that people may be especially likely to ignore a competitor needing help.

It is important to note that people may be more or less susceptible to the effects of cooperation and competition depending on their own personality. For instance, depending on the situation, individual differences in attachment may intensify or dull people’s reactions toward others’ misfortunes. For example, anxious people’s tendency to feel personal distress is increased when learning of a disadvantaged, compared to an advantaged, person’s downfall (Baren & Brumbaugh, 2016). Attachment may also differentially affect how competitive and cooperative situations impact reactions toward others’ downfalls. Van Lange and colleagues (1997) were the first to investigate how attachment affects competitive and cooperative tendencies, or what they refer to as “social value orientations.” They found that securely attached people are generally more cooperative, possibly because they are more empathetic (Joireman et al., 2002). On the other hand, high attachment avoidance and anxiety tend to be associated with competitiveness. Because attachment generally affects competitive and cooperative tendencies (e.g., Van Lange et al., 1997), attachment may also interact with how people respond to competitors versus allies. For instance, anxiously attached people interpret events more negatively (e.g., interpreting a
friend’s silence as rejection) (Collins, 1996) and feel especially bad following a conflict (Simpson, Rholes, & Phillips, 1996). Because anxious people likely perceive competitive interactions as being especially negative or hurtful, attachment anxiety may heighten the negative effects (i.e., less empathy and less helpfulness) of competition. Conversely, avoidant people may be less susceptible to the effects of competition and cooperation. While they are more competitive (Van Lange et al., 1997), avoidant people hold negative views of others (Bartholomew, 1990). Thus, avoidant people are likely to react more negatively to another in need (e.g., feel less empathy) regardless of the situation. In order to increase understanding of why people respond differently when seeing the misfortunes of others, it would be beneficial to understand whether attachment differentially impacts reactions toward a suffering person depending on if that person is an ally or competitor.

**The current research**

Before conducting the current research, I wanted to confirm that attachment impacted how much people enjoyed the misfortunes of others, since no such research exists. Therefore, in a separate study (Baren & Brumbaugh, 2016), I looked at the role of attachment on schadenfreude. After attachment was assessed, participants read about a person experiencing a misfortune (i.e., failing a term paper). Participants reported how much empathy and personal distress they felt toward that person (see Batson, Fultz, and Schoenrade, 1987) and reported how much joy they experienced from reading about the person’s failure (i.e., schadenfreude, see van Dijk et al., 2006). As expected, people’s feelings in their close relationships had some impact on how much joy they felt when a stranger experienced a misfortune. Specifically, highly avoidant people felt more schadenfreude when learning about someone’s failure.

The current research set out to explore how people’s close relationship experiences
impact reactions toward other’s misfortunes, and to fill gaps in the literature on adult attachment and prosocial behavior. I conducted three studies investigating how individual differences in attachment, empathy, personal distress, and schadenfreude impacted prosocial behavior while considering the potential negative effects of competition and the positive effects of cooperation. As a novel contribution, I looked at attachment’s association with not only state schadenfreude but also trait schadenfreude. After first developing a measure of trait schadenfreude (Study 1), I set out to determine if attachment insecurity was related to trait differences in schadenfreude (Study 2). I also explored how attachment might moderate (i.e., amplify or dull) the typical effects of competition and cooperation (Study 3). Importantly, in Studies 2 and 3, I looked beyond emotional reactions to investigate actual behavior (i.e., helping) as a way to gain a clearer understanding of how personality and situational factors impact prosocial acts. All studies had approval from the Queens College Internal Review Board (IRB).

In these studies, I set out to make three major contributions to the research on attachment and prosocial behavior. First, I created a new way to measure schadenfreude to increase understanding of why people sometimes enjoy misfortunes of others (Study 1). Research has shown that people exhibit personality differences in how much empathy and personal distress they tend to feel (Davis, 1983). I investigated the possibility that people also differ on a trait level of how much they typically feel joy in response to others’ misfortunes.

While attachment has been shown to affect people’s emotions after witnessing troubled others (Mikulincer & Shaver, 2005; Simpson et al., 1992), less understood is the relationship between attachment and schadenfreude. Thus, a second novel contribution was my examination of how people’s feelings in close relationships influenced their joy toward others’ downfalls. I looked at attachment’s influence on both trait (Study 2) and state (Study 3) schadenfreude.
A third novel contribution to prosocial behavior research was my investigation of how attachment influenced reactions toward an individual in need depending on if that person was a competitor or ally (Study 3). It is clear that competition breeds antisocial behavior and cooperation promotes helping behavior (Batson, 1991; Cikara & Fiske, 2012). To my knowledge no one has looked at how attachment moderates the effects of competition and cooperation on prosocial behavior and accompanying emotions. Furthermore, much of the past research on how competition and cooperation affect helping behavior has focused on group level variables, rather than looking at individual competitors and allies (e.g., Esses et al., 1998; Sherif et al., 1961). Recently, Moreland (2010) suggested that dyadic (two-person) interactions likely differ from group interactions because dyads form more quickly compared to groups. Therefore, the emotions felt within a group sometimes differ compared to one-on-one interactions. For example, being rejected from an entire group likely produces more profound sadness compared to being rejected from a single person. Whether or not the negative effects of competition (e.g., more schadenfreude) and positive effects of cooperation (i.e., more empathy) occur in dyads is not well understood. Thus, I looked at reactions toward individuals, rather than groups, to additionally understand helping behavior.

The current research also considered questions of interest beyond the three primary research inquiries. First, I attempted to improve knowledge of helping behavior by investigating how schadenfreude relates to prosocial behavior. This research determined more precisely if schadenfreude predicts actual helping behavior by examining how trait schadenfreude (Study 2) and state schadenfreude (Study 3) affects people’s reactions toward a stranger asking for help. Secondly, measuring schadenfreude may be subject to social desirability bias. That is, people are likely aware that feeling happiness at another person’s pain is socially questionable and this
awareness may inhibit their responses. Thus, I developed a reaction time task to help more objectively quantify schadenfreude and explore a potentially new way to measure schadenfreude on an implicit level (Study 3). Thirdly, I investigated if gender differences existed in how people reacted to other’s misfortunes. Because research finds that women tend to feel more empathy and personal distress (Davis, 1980; Lennon & Eisenberg, 1987; Schieman & van Gundy, 2000), I investigated if gender also impacts trait schadenfreude (Study 1 & Study 2). Gender differences in helping behavior are less consistent (Eagly, 2009; Eagly & Crowley, 1986). As a way to further explore the effect of gender on prosocial behavior, I looked at how helping behavior might be affected by participant and confederate gender (Study 2 and Study 3). Furthermore, gender differences in how much schadenfreude people feel likely depends on whether or not a person experiencing a misfortune is of the same gender. For instance, van Dijk et al (2006) found that schadenfreude is more likely to be felt by people who compare themselves to a more similar (relevant) other and concluded that people should feel more schadenfreude toward people of the same gender. On the other hand, Spears (2013) found that women feel more schadenfreude toward male targets compared to female targets, claiming this finding to be a result of women’s disdain for a patriarchal society. As such, I investigated if males and females were more likely to feel schadenfreude toward a confederate of their same gender (Study 3).

Aims and Goals

This research set out to contribute to the understanding of when and why some people react to other’s misfortunes with compassion while others react more callously. Specifically, I aimed to identify which traits and situations prompt prosocial emotions and behavior. The goal of Study 1 was to develop and validate a new scale of trait schadenfreude to understand if people tend to differ on a trait level in how much joy they feel when learning of another’s downfall. The
goal of Study 2 was to identify if some people are predisposed to react to others more negatively. Specifically, I addressed whether differences in attachment related to trait differences in schadenfreude and if schadenfreude related to (a lack of) prosocial behavior. In Study 3, I further explored how individual differences in attachment impacted reactions toward others’ misfortunes and prosocial behavior. Importantly, I also looked at situational differences (i.e., competition or cooperation) as a way to more precisely predict emotional and behavioral reactions toward others.

**Study 1: Measuring trait schadenfreude**

The purpose of Study 1 was to develop and validate a new trait scale of schadenfreude to be used in subsequent research. Schadenfreude, despite being somewhat socially undesirable, is a common response to witnessing other peoples’ pain (e.g., Leach & Spears, 2008; Smith et al. 2009). This scale was developed for use in Study 2 in order to address my primary question about how attachment impacts reactions toward others experiencing a downfall and to assess if a relationship between trait schadenfreude and actual helping behavior (or a lack of helping) existed.

**Methods**

**Participants**

Ninety four people ($M_{age} = 31.94$, $SD = 12.73$, 20 males) completed an initial 33-question version of a trait schadenfreude that I developed (see Appendix A).¹ Participants were recruited via social media posts (e.g., Facebook) which included a hyperlink to Survey Monkey, an online survey website. Participation was confidential and voluntary (i.e., without monetary compensation), and participants were allowed to opt out at any time.

**Procedure**
In order to develop questions for the scale, I used a format similar to that of other measurements assessing trait emotions. For example, Mehrabian and Epstein’s (1972) scale asks people to agree or disagree with statements pertaining to how much empathy they typically feel (e.g., “Seeing people cry upsets me”). In total, I included 33 statements describing a variety of situations that might occur on a daily basis, like witnessing someone step in a puddle or seeing someone with a bad haircut. Participants were asked to respond how strongly they agreed or disagreed with statements pertaining to enjoying others’ misfortunes. Participants rated their level of agreement to the statements on a scale of 1 (strongly disagree) to 7 (strongly agree). To assess convergent and discriminant validity, participants were also given measures of constructs related to schadenfreude. Specifically, participants were asked to complete the Dirty Dozen Dark Triad Short Form (Jonason & Webster, 2010; see Appendix B), the Dispositional Envy Scale (DES; Smith, Parrott, Diener, Hoyle, & Kim, 1999; see Appendix C), The Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1979, see Appendix D), and the empathy subsection of the Interpersonal Reactivity Index (IRI; Davis, 1983, see Appendix E). See Table 1 for descriptive statistics and internal consistencies of measures.

A short version of The Marlowe and Crown Social Desirability Scale (Reynolds, 1982; see Appendix F) was administered in order to account for potential biases of participants who may have answered questions based on social desirability. Participants responded “true” or “false” to 13 questions about socially desirable behavior (e.g., “No matter who I’m talking to, I’m always a good listener”). Failure to admit to engaging in any socially undesirable behavior suggests the desire to answer questions according to what is socially acceptable, rather than what is accurate. Finally, approximately two weeks later, 27 of the original 94 participants completed the schadenfreude and dark triad scales a second time.
Results

Investigating Dimensionality

I conducted an exploratory principal components analysis on the new schadenfreude measure to determine the dimensionality of the scale and the breakdown of the total variance explained by the items. According to Kraiser’s (1960) eigenvalue rule, factors with an eigenvalue greater than 1 should be retained. However, according to Furr (2011), the eigenvalue rule is not always an accurate determination of the primary constructs of a scale, and instead analyzing the pattern of the variance is a better indicator of dimensionality. Thus, using a scree plot test (see Cattell, 1966), one clear factor emerged, with a large eigenvalue of 9.74, accounting for 30% of the variance. Because of the obvious decrease and flattening point at factors 2 and 3, which had eigenvalues of 2.90 and 2.01, respectively (see Figure 1), I concluded that only one factor or dimension should be retained. Since it appeared that the scale represented a single dimension, I next examined the item-factor associations (see Table 2). Twenty-five of the original 33 items had loadings higher than .40 on factor 1 and were retained (see Clark & Watson, 1995). Question 32, “It’s funny to see homeless people who are pushing shopping carts full of their stuff on sidewalks” was also removed because it loaded better onto the second dimension. The remaining 24 items represented a single factor, likely trait schadenfreude.

Testing Reliability

After removing items with poor loadings on the single factor of trait schadenfreude, internal consistency of the remaining items was tested. The remaining 24 items produced a Cronbach’s alpha of .91, indicating strong internal consistency. To determine test-retest reliability, I assessed the correlation between scores on the initial test and the follow-up test scores (that were collected from 27 participants, approximately two weeks after the initial test).
Test-retest reliability was strong ($r = .91, p < .001$).

**Discriminant and Convergent Validity**

In order to determine if the schadenfreude scale items represented a construct distinct from all of the other measures, I conducted joint factor analyses (see Clark & Watson, 1995). I conducted four factor analyses by extracting two components thought to represent the two constructs being compared (schadenfreude versus dark triad traits, schadenfreude versus envy, schadenfreude versus self-esteem, and schadenfreude versus empathy). As a way to create a simple structure to view the loading patterns more clearly, Clark and Watson (1995) recommend rotating the factor analysis. Components were rotated using the Promax method, an oblique (rather than orthogonal) rotation method, used when items may be correlated. To investigate the factor loadings, I examined the pattern matrix, as recommended (Osborne & Costello, 2009). Most items from the schadenfreude scale loaded strongly onto one factor while items from the other scales loaded on their own separate factor, indicating adequate discriminant validity (see Table 3). Twenty three items discriminated from at least 3 of the 4 scales used. Only item #5 (“I feel joy when I learn of other people’s breakups”) was removed from the final version of the schadenfreude scale because it did not discriminate well from the other scales.

To assess convergent validity, I examined associations between the final twenty-three schadenfreude scale and scales measuring similar constructs (i.e., dark triad, envy, empathy, self-esteem) using correlational analysis. Schadenfreude was predicted to correlate positively with dark triad traits (James et al., 2014) and envy (Piskorz & Piskorz, 2009), and negatively correlate with self-esteem (van Dijk, van Koningsbruggen, Ouwerkerk, & Wesseling, 2011) and empathy (Greitemeyer et al., 2010). Participants answering in a socially desirable way may have confounded the relationship between some of these measures. Thus, I assessed participants’
social desirability bias using a short form version of the Marlowe-Crowne Social Desirability Scale (Reynolds, 1982). Social desirability was calculated by assigning 1 point for answers that indicated people were responding in a socially desirable way (e.g., answering “true” to “I’m always willing to admit it when I make a mistake”). The average score was 5.98 ($SD = 2.10$) and scoring high on the scale indicated answering according to social biases. Answering based on social desirability was correlated with the final schadenfreude scale, and nearly all other scales (see Table 4). Based on recommendations by Nederhof (1985), I conducted partial correlations between schadenfreude and other measures (i.e., to assess convergent validity) while controlling for the variability from social desirability and found that all predictions remained supported (see Table 5).

Finally, I looked at gender differences in people’s trait emotional reactions (i.e., empathy, personal distress, and schadenfreude). In line with past research, women experienced more empathy ($M = 4.15$, $SD = .58$) compared to men ($M = 3.58$, $SD = .56$), $t (92) = 3.90$, $p < .001$, $\eta^2 = .14$. Interestingly, male participants reported more trait schadenfreude ($M = 2.62$, $SD = .80$) compared to female participants ($M = 2.15$, $SD = .74$), $t (92) = 2.46$, $p < .05$, $\eta^2 = .06$. Men also scored higher on dark triad traits ($M = 3.66$, $SD = .93$) compared to women ($M = 2.92$, $SD = 1.00$), $t (92) = 2.96$, $p < .01$, $\eta^2 = .09$. There were no gender differences in trait self-esteem and envy.

Discussion

This study demonstrated that individual differences exist in people’s experience of schadenfreude. These findings suggest that personality can be partially defined in terms of how much schadenfreude individuals typically feel, or how likely they are to enjoy others’ misfortunes. To my knowledge, this was the first scale developed to measure the construct of
trait schadenfreude. Research looking at situational effects on schadenfreude has shown that schadenfreude is a fairly common, albeit somewhat sinister, emotional response that people experience after seeing someone else suffer a misfortune (e.g., Feather & Sherman, 2002). The current study furthers the understanding of schadenfreude, and establishes a way to measure individual differences in how people respond to others’ downfalls.

Importantly, I assessed the reliability and validity of the trait schadenfreude scale. I found strong reliability using the final 23-item self-report questionnaire (see Appendix G). In other words, the scale was consistent (i.e., item responses correlated well with each other), and participant scores were stable upon repeated testing. This scale also showed strong convergent validity, which was demonstrated by the scale’s association with other similar constructs (e.g., dark triad traits). As expected, schadenfreude was positively associated with dark triad traits and trait envy, and negatively associated with self-esteem and empathy. While related to similar personality measures, joint factor analysis provided evidence that the trait schadenfreude scale represented a distinct personality construct (i.e., had good discriminant validity).

**Study 2: Attachment and trait schadenfreude’s impact on helping behavior**

Using the scale from Study 1, I examined the impact of individual differences on actual helping behavior using a quasi-experimental design in Study 2. Specifically, I assessed the impact of individual differences in attachment, empathy, personal distress, and schadenfreude on whether or not someone helps a person requesting a favor. I hypothesized that people who reported enjoying the misfortunes of others would be less helpful. Similar to past results (Archer, Diaz-Loving, Gollwitzer, Davis, & Foushee, 1981; Cialdini et al., 1987), I expected to replicate findings that people with greater trait empathy and personal distress would be more likely to agree to do a favor for a confederate. I also predicted that attachment would be associated with
trait empathy, personal distress, and schadenfreude; I expected that attachment anxiety would predict more personal distress, and avoidance would predict less empathy and more schadenfreude.

Finally, I predicted that the trait emotions associated with attachment anxiety (i.e., more personal distress) and avoidance (i.e., less empathy) would mediate a relationship between attachment and helping behavior. Specifically, avoidant people, compared to low avoidant people, were expected to help less often, because they feel less personal distress and empathy (Britton & Fuendling, 2005; Mikulincer et al., 2001). Compared to low anxiety people, highly anxious people may be more likely to help because they may feel more personal distress when someone asks for help.

Methods

Participants

I set out to recruit approximately 100 participants.² Over the course of 6 months, 145 (102 females) participated from introductory psychology classes (for course credit) or on a volunteer basis for $10. The study took approximately 30 minutes to complete. All participants were at least 18 years of age (\(M_{age} = 21.48, SD = 6.19\)) and were ethnically diverse, identifying as Asian (32%), White (30%), Hispanic (21%), Black (12%) and other (5%). Participants were primarily heterosexual (92%). Forty percent reported being in a romantic or marital relationship (relationship length \(M = 27.29\) months, \(SD = 32.13\)).

Procedure

Participants sat in a cubicle in front of a computer with a confederate acting as another participant seated in a nearby cubicle. Four confederates, two males and two females, were used in this study and were approximately the same age as the participants (i.e., under 25).
Throughout the study, the confederate responded as if he/she was another participant. To control for potential effects of confederate gender on helping behavior, participants were randomly assigned to work with a male or female confederate. There were no differences in helping behavior as a function of which confederate was used, \( F(3,140) = .75, \text{ ns.} \) After responding to demographic questions, participants completed the new trait schadenfreude scale (see Appendix G) and measures assessing individual differences in empathy, personal distress, and attachment in a randomized order. Specifically, I used portions of the IRI (Davis, 1983; see Appendix E) to measure empathy and personal distress. \(^3\) Participants are asked to rank how much they agree or disagree with statements related to empathy (e.g., “I would describe myself as a pretty soft-hearted person) and to personal distress (e.g., “In emergency situations, I feel apprehensive and ill-at-ease”). The Experiences in Close Relationships-Revised measure (ECR-R, Fraley, Waller, & Brennan, 2000; see Appendix H) assessed attachment by asking participants to rate how strongly they agreed or disagreed with statements pertaining to anxious and avoidant attachment. \(^4\) Finally, participants were asked to complete the International Positive and Negative Affect Schedule Short Form (I-PANAS-SF; Thompson, 2007) by reporting how frequently they felt positive emotions (i.e., alert, inspired, determined, attentive) and negative emotions (i.e., upset, hostile, ashamed, nervous, afraid, active) to observe possible confounding effects of mood.

After completing the questionnaires, participants were thanked for their participation, partially debriefed, and excused. The confederate was instructed to walk out of the laboratory with the participant, and after approximately 10 paces, ask for a favor from the participant. Specifically, the confederate asked if the participant would be willing to help him/her with a class project on hand-writing by copying down two pages of typed text. This favor was selected based on findings from preliminary field research used to establish a measure of behavior that
would have neither floor nor ceiling effects (see Table 6). Helping behavior was assessed unobtrusively according to the participant’s agreement or refusal to help. As soon as the participant indicated a response, the confederate fully debriefed the participant of the true nature of the study. As a manipulation check, participants were asked if they suspected the confederate to be an actor, rather than another participant. Of the 145 participants, 87 participants agreed to help, 53 refused to help, and 5 participants had ambiguous responses (e.g., offering to help the confederate at a later time). Two participants reported “yes” to “Did you have any suspicion that I was an actor in this study?” In total, 7 cases (i.e., ambiguous responses and suspicious participants) were removed from analyses specifically involving the dependent measure of helping behavior.

Results

Correlations among the personality factors are outlined in Table 7. I hypothesized that attachment anxiety would correlate with more personal distress and that avoidance would correlate with less empathy and more schadenfreude. As expected, attachment anxiety positively related to personal distress ($r = .30, p < .001$) and attachment avoidance correlated with trait schadenfreude ($r = .23, p = .007$). Unexpectedly, attachment anxiety was associated with trait schadenfreude ($r = .35, p < .001$) and avoidance was not associated with empathy ($r = -.03, ns$).

See Table 8 for descriptive statistics of all predictor variables: anxiety, attachment avoidance, trait schadenfreude, trait empathy, and trait personal distress. Oddly, trait schadenfreude was positively related to trait empathy ($r = .20, p < .05$).

Next, I tested my hypotheses regarding individual differences and helping behavior. The outcome variable, helping behavior, was dichotomous; for analytic purposes, 0 was assigned for refusal to help a confederate and 1 indicated agreement to help. I hypothesized that trait
schadenfreude would predict less helping behavior and that people with greater trait empathy and personal distress would be more likely to help. I conducted logistical regression analyses to determine if group memberships (i.e., those who helped versus those who did not help) could be predicted by individual differences (e.g., attachment). All of the predictor variables were entered in step one to examine potential main effects of avoidance, anxiety, schadenfreude, empathy, and personal distress on helping. Based on recommendations by Aiken and West (1991), I centered all continuous predictor variables and created interaction terms among the predictor variables. These interaction terms were entered in the second step of the logistical regression model; see Table 9 for values of the unstandardized coefficient (B), standard error (SE), the Wald Test (Wald), and probability value (p). Against my predictions, helping behavior was not predicted by personality factors alone (attachment anxiety B = .36, ns; attachment avoidance, B = -.44, ns; trait empathy, B = .91, ns; trait personal distress, B = -.28, ns; trait schadenfreude, B = -.15, ns). There was an interaction between avoidance and empathy on helping behavior (B = -2.50, p = .001). Figure 2 shows that for people low in attachment avoidance, helping behavior was more likely to occur when they were more empathetic. Helping behavior was unaffected by trait levels of empathy for people high in avoidance. No other interactions emerged between attachment and trait empathy, personal distress, and schadenfreude on helping behavior. Of note, while the predictors variables were significantly correlated, it was determined that multicollinearity among predictor variables did not impact the result as variance inflation factors were low (see O’Brien, 2007; see Table 10).

To ensure participants did not respond in an intentionally biased way, once again I used the short form version of the Marlowe-Crowne Social Desirability Scale (Reynolds, 1982). Social desirability was calculated by assigning 1 point each time a participant agreed with
statements such as “I’m always willing to admit it when I make a mistake.” The average score was 6.13 ($SD = 2.16$). Because this study required regression and correlational analyses, I controlled for social desirability by using the partial correlation method (Nederhof, 1985). Of note, when controlling for social desirability, trait schadenfreude and attachment avoidance were only marginally associated ($\beta = .16, p = .08$). No other associations changed after controlling for the potential social desirability bias.

Because mood can impact helping behavior (Isen & Levin, 1972), I assessed positive and negative affect to ensure mood was not a confounding variable (I-PANAS-SF; Thompson, 2007) using the partial correlation method (Nederhof, 1985). While positive and negative affect were related to almost all predictor variables (refer to Table 7), affect did not relate to helping behavior and thus no further analyses were required.

Finally, I investigated if gender impacted people’s trait emotional reactions (i.e., empathy, personal distress, and schadenfreude) and helping behavior. Congruent with findings from Study 1, men reported more trait schadenfreude ($M = 2.39, SD = .75$) compared to women ($M = 1.78, SD = .68$), $t (143) = 4.84, p < .001, \eta^2 = .14$. No other gender differences emerged. I also investigated if helping behavior was greater when participants were paired with a confederate of their same gender but found no significant differences.

In sum, attachment insecurity (avoidance and anxiety) was associated with higher levels of trait schadenfreude. Anxiety was also related to experiencing more personal distress. Furthermore, no one personality factor appeared to predict helping behavior. Instead, it appeared that certain combinations of personality traits lead to differences in helping. Specifically, helping behavior was more likely to occur when people were low in attachment avoidance and high in trait empathy.
Discussion

Taken together, these findings suggest that how people experience their close relationships (i.e., attachment) impacts the way people feel and act toward strangers’ misfortunes. The discovery that insecurely attached people tended to enjoy others’ pain may stem from their low self-esteem (Collins & Read, 1990) and negative affect (Simpson, 1990) likely caused by insecure people’s maladjusted experiences and expectations in close relationships. For instance, insecurely attached people tend to exhibit more negative and domineering behaviors (e.g., lecturing or yelling) toward romantic partners compared to securely attached people (Creasey, 2002). The tendency for insecurely attached people to “bully” others in their close relationships seems to transfer into how insecurity affects people’s reactions toward strangers (e.g., laughing at their pain).

Interestingly, my findings did not parallel past research showing that individual differences in trait emotions impact helping behavior (Eisenberg, 2010). Instead, I found that helping behavior was only more likely when someone was low in attachment avoidance and also high in trait empathy. Research should continue to investigate attachment and trait emotions in a variety of situations in order to pinpoint which personality factors and combinations of traits predict prosocial behavior.

**Study 3: Attachment’s impact on reactions toward competitors and allies in need**

Competition and cooperation seem to be particularly relevant factors involved in predicting prosocial behaviors and emotions and may also potentially moderate how attachment impacts emotional and behavioral reactions to others’ downfalls. Generally, people feel more schadenfreude after learning of a competitor’s hardship (Cikara & Fiske, 2012; Smith et al., 2009) while cooperating tends to boost empathy and prosocial behavior (Greitemeyer, 2015;
Pettigrew & Tropp, 2008). However, people may react differently to the positive effects of cooperation and negative effects of competition depending on their attachment. For instance, anxiously attached people may be especially likely to react negatively (e.g., feel less empathy) toward competitors, because they are oversensitive and react negatively during conflict (Simpson et al., 1996). For people high in attachment avoidance, the negative effects of competition and positive effects of cooperation may be dulled because they generally disengage and distance themselves from others (Bartholomew, 1990; Brumbaugh et al., 2014).

In Study 3, I examined how other interactions between attachment and competitive versus cooperative situations affected people’s reactions after learning of another’s failure. Specifically, I investigated if reactions to learning of a stranger’s failure depended on an individual’s attachment and/or whether that stranger was a competitor or ally. As a novel way to overcome people’s tendencies to respond in socially desirable ways, I used a newly developed reaction time task to measure implicit (i.e., unconscious) reactions toward others’ downfalls.

Because anxiously attached people have difficulty coping with distressing situations (Mikulincer et al., 1993) and experience more trait personal distress (see results from Study 2), I hypothesized that personal distress would be related to attachment anxiety, especially after learning of an ally’s misfortune. Anxious people were also expected to be more sensitive (i.e., react more negatively) to a competitor. I also hypothesized that avoidant people, because they distance themselves from others, dislike others, and tend to have higher levels of trait schadenfreude (see Study 2), would feel more state schadenfreude, less empathy, and less personal distress, and also help less regardless of the situation. Looking at overall effects, in line with prior research (e.g., Batson, 1991; Cikara & Fiske, 2012; Smith et al., 2009), reactions were expected to be, on average, more negative (i.e., more schadenfreude, less empathy, less personal
distress, less helping) after competition, and more positive (i.e., less schadenfreude, more empathy, more personal distress, more helping) after cooperation.

Method

Participants

I set out to recruit approximately 200 participants. In total, 181 participants (119 females) participated over the course of a year. Participants earned partial course credit, or $10. Participants were at least 18 years old (\(M_{age} = 21.88, SD = 6.16\)) and identified as Asian (34%), White (30%), Hispanic (17%), Black (9%) and other (9%). The majority of participants were heterosexual (94%). Almost half of the participants (40.89%) reported being in a romantic or marital relationship (relationship length \(M = 28.30\) months, \(SD = 45.51\)). The study took approximately 60 minutes to complete.

Procedure

As in Study 2, participants started by working at a computer with a confederate acting as another participant, working nearby. The four confederates (2 males, 2 females) used in Study 2 also acted in Study 3. Participant helping behavior did not differ among the four confederates, \(F(3,174) = 1.87, ns.\) Participants completed demographic questions and the ECR-R (see Appendix H) measuring attachment anxiety and avoidance. Afterward, the participant was moved to the same room as the confederate where they were asked to solve anagrams. While the anagram task was arbitrary to the study’s true purpose, I manipulated the situation by assigning participants to one of three conditions: cooperative, competitive, and neutral. In the cooperative condition, the participant was seated next to the confederate at the same desk. The participant and confederate were instructed to work with each other to solve as many anagrams as possible in 10 minutes. To encourage joint participation, only one pen was provided and the confederate was instructed to
avoid solving more than a couple of the anagrams on his/her own. In the competitive condition, the participant was brought into the same room as the confederate and instructed to sit at a nearby desk (approximately 5 feet away from the confederate). The participant and confederate were asked to compete with each other to solve the most anagrams in 10 minutes. They were told that whoever solved the most anagrams would earn $5, and that the winner would be announced at the end of the study. Of note, the participant always “lost” (i.e., I told the participant that the confederate solved the most anagrams). This was done as a way to control for potential effects of winning versus losing on helping behavior. Importantly, participants were told that they lost only after completing measures assessing their reactions toward the confederate’s failure. The third condition was a “neutral” condition in which the participant worked alone on the anagram task. In this condition, the participant was brought into the same room as the confederate and sat at a small desk approximately 5 feet away from the confederate. The participant and confederate were asked to solve as many anagrams as possible in 10 minutes.

After working on the anagram task for 10 minutes, the participant and confederate were asked to return to their original room. Both the participant and confederate were instructed to write about a personal experience. Ostensibly, the type of story assignment was randomized. In reality, all actual participants were asked to write a neutral story (e.g., a paragraph about what they did in the morning), whereas the confederate was “asked” to write about a time he/she experienced a misfortune. The participant and confederate’s (predetermined) story were then shared with each other. Participants next answered questions about how they felt (i.e., their empathy, schadenfreude and personal distress) after reading about the confederate failing a term paper and ending up with a low grade in a class (see Appendix I). Empathy and personal distress was measured by asking participants to rate how much they felt fourteen different emotions
including six adjectives related to empathy (moved, sympathetic, compassionate, tender, warm, softearted) and eight adjectives related to personal distress (alarmed, grieved, upset, worried, disturbed, distressed, troubled, and perturbed) (Batson et al., 1987). To measure state schadenfreude, participants responded to statements modified from van Dijk and colleagues’ (2006) study, such as “I couldn’t resist smiling a little” (see Appendix J). Finally, as in Study 2, participants completed the I-PANAS-SF (Thompson, 2007) to measure positive affect and negative affect.

Lastly, participants completed a lexical decision task, a reaction time task in which people quickly identify if a string of letters is a word. 1) Nonsense words, 2) words related to empathy, personal distress, and schadenfreude, and 3) control words (i.e., neutral words) were included (See Appendix K for a list of words). In lexical decision tasks, the rationale is that quicker response times indicate unconscious thoughts. For example, a quicker response to the word “compassion” would indicate greater accessibility to empathetic thoughts. After completing the questionnaires and lexical decision task, participants were thanked, partially debriefed, and excused. As in Study 2, the confederate walked out of the laboratory with the participant and asked for help on his/her hand-writing class project. Helping behavior was measured and debriefing procedures followed as in Study 2. Of the 181 participants, 108 participants agreed to help, 67 refused help, and 10 participants responded ambiguously or not at all (e.g., they answered a phone call). During the debriefing, four participants responded “yes” to suspecting that the confederate was an actor, rather than another participant. In total, 14 participants were removed from the analysis involving the helping measure.

Results

In order to test the hypothesis that attachment would impact people’s reactions toward
competitors versus allies in need, three outcome measures were assessed. First, the explicit emotional responses toward a confederate’s misfortune were measured via self-reported schadenfreude, empathy, and personal distress. Second, as an exploration into assessing implicit (affective) associations, I assessed participants’ reaction times to identifying words related to schadenfreude, empathy, and personal distress. Faster reaction times were assumed to indicate greater levels of each type of emotion. Third, helping behavior was measured as in Study 2, on a dichotomous scale (1 = helped, 0 = did not help). See Table 11 for descriptive statistics of all variables: anxiety, attachment avoidance, explicit and implicit reactions (schadenfreude, empathy, personal distress), and helping behavior.

To assess the main effect of situational (competitive, cooperative, or neutral condition) on the outcome variables, I conducted one-way ANOVAS (see Table 12). I hypothesized that reactions toward a competitor would generally be more negative (e.g., more schadenfreude and less empathy, personal distress, and helping) and that reactions toward an ally would be more positive (e.g., less schadenfreude, more empathy, personal distress, and helping). There was a significant main effect of situation type on reported empathy, $F(2, 178) = .39, p = .02, \eta^2 = .04$. Post hoc analysis were conducted using Fisher’s least significance difference test. Surprisingly, participants reported more empathy ($M = 3.67, SD = 1.26$) after reading about a misfortune (e.g., failing) of a competitor compared to an ally [$M = 3.10, SD = 1.49; t (116) = 2.25, p = .02$] or a neutral condition [$M = 3.05, SD = 1.34; t (122) = 2.64, p = .01$]. No other effects emerged as a function of situation type.

To determine if condition type impacted mood, I conducted one-way ANOVAS of positive and negative affect as a function of participants being in a competitive, cooperative, or neutral situation. Condition did not impact positive or negative affect, $F (2, 178) = .29, ns; F (2,$
I also assessed potential differences in helping as a function of mood, since mood can impact prosocial behavior (Isen & Levin, 1972). Using logistical regression, I found that helping behavior did not differ as a function of affect (positive affect, \( B = .02, SE = .06, Wald = .13, ns \); negative affect, \( B = .03, SE = .05, Wald = .36, ns \)).

Because the predictor variables of attachment anxiety and avoidance were continuous, I used linear regression analysis to assess the effects of attachment on the six continuous outcome variables (e.g., implicit & explicit schadenfreude, empathy, & personal distress), (see Table 13 for correlations among outcome variables). Using this model, I was able to also assess potential interactions between attachment and condition. The continuous variables were centered (e.g., anxiety & avoidance) and two dummy variables representing the three levels of the condition were created (neutral = 0 versus competition = 1, and neutral = 0 versus cooperation = 1). The main effects were entered in step one of the model while the interaction variables and entered into step two. Values were reported in terms of standardized coefficients (\( \beta \)). I hypothesized that attachment anxiety would be related to more personal distress. While attachment anxiety did not predict personal distress as expected (\( \beta = .08, ns \)), anxiety was associated with more enjoyment of a confederate’s misfortune (i.e., schadenfreude) (\( \beta = .26, p < .001 \)). I also hypothesized that high attachment avoidance would lead to more schadenfreude, less empathy, and less personal distress. This was partially supported in that attachment avoidance was marginally related to explicit schadenfreude (\( \beta = .13, p = .09 \)). Regarding potential interactions between attachment and condition, I hypothesized that for anxious people, learning of a misfortune of a competitor would lead to more negative reactions. Although anxiety did not lead to differences in schadenfreude, personal distress, or helping distress depending on the situation, there was a significant interaction between anxiety and condition on explicit empathy, specifically when
comparing competition to the neutral condition ($\beta = -0.24, p = 0.023$), see Table 14 for values of the unstandardized coefficient ($B$), standard error ($SE$), standardized coefficient ($\beta$), and probability value ($p$). Compared to people low in attachment anxiety, people who were highly anxious felt somewhat less empathy in the competitive condition (see Figure 3). No interactions were predicted to occur between avoidance and condition (i.e., avoidant people were hypothesized to react more negatively regardless of the situation type). However, I found a significant interaction between avoidance and the condition on reported (explicit) empathy (competition versus neutral, $\beta = -0.30, p = 0.007$; cooperative versus neutral, $\beta = -0.26, p = 0.014$) (see Table 15 for values of the unstandardized coefficient ($B$), standard error ($SE$), standardized coefficient ($\beta$), and probability value ($p$). Specifically, avoidant people were more empathetic toward the other participant when they did not have to interact with them (e.g., neutral condition) ($\beta = 0.31, p = 0.016$). When in the competitive or cooperative condition, empathy was not predicted by avoidance ($\beta = -0.14, n.s$ for cooperative; $\beta = -0.20, n.s$ in the competitive) (see Figure 4).

To assess the impact of attachment and condition on implicit emotions, I first omitted trial errors (i.e., when a participant incorrectly identified a word as being a “nonword”) and one obvious outlier data point (i.e., a 22 second reaction time). Overall, the average reaction time for detecting words was .86 seconds ($SD = .45$). I next calculated each participant’s average reaction time for detecting words in each category (schadenfreude, personal distress, empathy, and neutral). To normalize the distribution, I transformed the data using the logarithm of each reaction time (see Whelan, 2008). Using the subtraction method (see Ashby & Townsend, 1980), I created an index for each participant by taking the reaction time of the natural category and subtracting the average reaction time of each emotional category (schadenfreude, personal distress, and empathy). In other words, each participant now had three scores representing how
quickly they responded to words related to empathy, personal distress, and schadenfreude in comparison to neutral words (i.e., neutral reaction time – emotional word reaction time). For example, a positive value for empathy would indicate that a participant responded faster to words related to empathy compared to neutral words. I conducted separate linear regression analyses for each word type following the steps outlined above (i.e., for the explicit measures of schadenfreude, empathy, and personal distress). There was a significant effect of attachment avoidance on reaction time to schadenfreude related words. Oddly, high avoidance related to slower reaction times for detecting words related to schadenfreude (β = -.24, p = .002). No other effects of attachment and/or situation type on the reaction time task (i.e., measuring implicit emotions) were significant.

Because the outcome variable of helping behavior was dichotomous (i.e., people either helped or did not help), I used logistical regression to assess the effects of attachment (anxiety and avoidance) on helping behavior. I also was able to assess potential interactions between attachment and condition on helping behavior using the logistical regression model. The continuous variables were centered (e.g., anxiety & avoidance) and two dummy variables representing the three levels of the condition (competitive, cooperative, & neutral) were created. The main effects were entered in step one of the model while the interaction variables and entered into step two. Helping behavior did not depend on attachment anxiety (B = .09, ns). Against my predictions, did not depend on attachment avoidance (B = -.05, ns). Regarding helping behavior, there were no significant interactions between anxiety and condition (see Table 16) or avoidance and condition (see Table 17). To investigate if emotional reactions toward a confederate’s failure impacted helping that confederate with a favor, I conducted logistical regression analysis. Against my predictions, helping behavior was not predicted by empathy (B =
As in Study 2, I assessed potential differences in helping behavior as a function of the participant and confederate genders and found no significant differences. Gender differences in reactions toward the confederate’s misfortune (i.e., empathy, personal distress, and schadenfreude) also did not differ.

In sum, attachment predicted people’s reactions toward others’ misfortunes. Specifically, attachment insecurity related to more schadenfreude. While I expected competition and cooperation to yield differences in emotional and behavior reactions, I found that only empathy was impacted by the situation. Specifically, people oddly reported more empathy after learning of a competitor’s failure compared to a neutral or cooperative partner. However, people high in attachment anxiety reported the opposite; they felt less empathy for competitors. Lastly, avoidant people seemed to only feel empathy for a person if that person did not interact with them (i.e., neither cooperated nor competed).

Discussion

Results from Study 3 confirmed and expanded upon the findings that attachment impacts people’s responses to others’ misfortunes. While results were only marginally significant, I found that people who were more avoidantly attached tended to enjoy learning of the confederate’s failure. This is congruent with the findings from Study 2. People who are avoidant tend to dislike others (Bartholomew, 1990; Brumbaugh et al., 2014) and therefore it is not surprising that they feel somewhat more schadenfreude. Attachment avoidance also related to slower responses to words related to schadenfreude (e.g., comical). This finding was unusual given that avoidant people explicitly reported more schadenfreude. Interestingly, attachment anxiety also related to schadenfreude, but not to personal distress (as hypothesized). People who
are anxiously attached tend to be hypersensitive to stressful situations (Armsden & Greenberg, 1987; Mikulincer et al, 1993). While anxious people have more trait personal distress, as found in Study 2 and in past research (Britton & Fuendeling, 2005), in scenarios that more closely mimic real life, they may try to reduce the seriousness of someone’s downfall by laughing at it (i.e., feeling schadenfreude) rather than letting themselves become overly upset (i.e., personal distress). In past research (e.g., Mikulincer et al., 2001) participants merely read about someone else’s misfortune (i.e., they did not interact with that person). Future research should continue to investigate attachment’s role on emotional responses in order to determine when and why anxiously attached people sometimes feel more personal distress and sometimes feel enjoyment toward others’ pain.

Interestingly, competition and cooperation alone did not impact people’s emotional reactions toward another’s misfortune, nor did it impact helping behavior. Past research has repeatedly discovered that competition breeds antisocial responses and cooperation leads to prosocial responses (Batson, 1991; Cikara & Fiske, 2012; Esses et al., 1998). However, my research looked at competition and cooperation in dyadic interactions, rather than the more commonly used group interactions. The fact that reactions with an individual competitor or ally did not generally differ suggests that the negative effects of competition and positive effects of cooperation may apply more so to group dynamics rather than one-on-one interactions. As Moreland (2010) suggests, the emotional and behavioral effects caused by group interactions sometimes are not replicated in dyadic interactions. This is in line with my finding that people’s emotions and behaviors were unaffected by competition and cooperation when interaction with a single person. A caveat was that empathy was higher toward a competitor compared to a neutral or cooperative partner. Being that competition usually lowers empathy, this unusual finding
requires more research to answer specific questions about how competition and cooperation impact dyadic interactions.

Upon closer investigation, empathy toward a competitor, ally, or neutral partner seemed to depend on attachment anxiety and avoidance. Anxious people felt less empathy toward competitors compared to allies or neutral partners. Anxiously attached people are hypersensitive to fairness (Koleva, Selterman, Iyer, Ditto, & Graham 2013). Losing to a competitor may have seemed unfair, thereby reducing the amount of compassion anxious people felt after reading about the competitor’s misfortune. Avoidant people on the other hand felt more empathy when they did not have to interact with anyone (i.e., they were in the neutral condition). This may suggest that when avoidant people do not have to engage in real social interactions, they can be more compassionate.

**General discussion**

I set out to investigate how attachment impacted people’s reactions to others’ pain. To address gaps in the literature, I conducted studies using real-life interactions looking specifically at how attachment and other trait differences (e.g., schadenfreude) impacted emotional reactions toward someone’s misfortune and subsequent helping behavior. Furthermore, I looked at how attachment interacted with situational factors like competition versus cooperation to gain a clearer understanding of why some people help versus ignore others in need.

**Measuring schadenfreude**

The first major contribution of this research was the development of a new scale measuring personality differences in the enjoyment of experiencing the suffering of others. I hypothesized that people would exhibit individual differences in how much joy they experience from witnessing or learning of others’ misfortunes. Results from Study 1 provided the first
evidence that the construct of “trait” schadenfreude exists. The new measure showed strong internal consistency and test-retest reliability. This scale was also valid, correlating with similar constructs (e.g., dark triad traits) yet discriminating well from similar measures. This suggests that though schadenfreude is related to other traits, it represents a distinct psychological concept. This scale provided a way for me to address research questions about when and why some people respond to others in need with compassion while others respond more callously.

Against my predictions, schadenfreude, both trait and situational, did not seem to impact helping behavior. I believed that people who reported more frequently enjoying the misfortunes of others (Study 2) and reported enjoying reading about a confederate’s misfortune (Study 3) would be more likely to refuse to help a stranger. The relationship between prosocial behavior and schadenfreude may be more complex. For instance, in some situations, people who experience more schadenfreude might find it amusing to help a downtrodden other (i.e., as a way to patronize or further embarrass someone). While I found that helpfulness was not associated with schadenfreude, the new trait schadenfreude scale could also help further the understanding of the potential disadvantages associated with high trait schadenfreude. For instance, people high in trait schadenfreude may be more socially inept, resulting in fewer friendships. Furthermore, there could be behavioral indicators of being high or low in trait schadenfreude. For example, people who are high in trait schadenfreude may seek out situations in which they can witness others’ misfortunes (e.g., frequently gossiping).

Attachment’s impact on reactions toward others’ misfortunes

The current research provided new evidence in how people’s experiences in their close relationships (i.e., attachment) impact reactions toward others’ misfortunes. The general finding was that people with insecure attachment (anxiety and avoidance) tended to react more
negatively toward another’s suffering. Insecurity is partially defined by the negative emotions that avoidant and anxious people experience in close relationships (Simpson, 1990). For instance, avoidant people tend to feel uncomfortable with closeness in relationships while anxious people tend to worry about abandonment in their relationships. Beyond close relationships, insecure attachment drives negative social interactions and can lead to dysfunctional social encounters, whereas secure attachment promotes social skills (Deniz, Hamarta, & Ari, 2005). Therefore, it is not surprising that when insecure people learn of another’s misfortune they tend to react in undesirable ways, sometimes even reveling in the downfalls of others.

Attachment avoidance

I hypothesized that people who were insecurely attached, specifically those high in attachment avoidance, would experience more schadenfreude, less empathy, less personal distress, and engage in less helpful behavior. My hypotheses were partially supported. Specifically, attachment avoidance related to more trait schadenfreude and more state (explicit) reports of schadenfreude in reaction to learning of another’s failings. Whether or not people like someone plays a role in schadenfreude. For instance, Smith et al., (1996) asked people to rate how much they liked or disliked a pre-medical student before rating their responses after learning that the student failed to get into medical school. Not surprisingly, the researchers found that people experienced more schadenfreude when they disliked the student. Because disliking someone predicts schadenfreude, avoidant people’s tendency to enjoy the misfortunes of others may stem from the fact that avoidant people hold internal working models characterized by a negative view of others (Bartholomew & Horowitz, 1991). In a recent study, Brumbaugh and colleagues (2014) found that after reading profiles of strangers, avoidant people reported
disliking almost everyone, verifying that avoidance relates to a general disdain for others. Avoidant people also emotionally distance themselves from others (Simpson et al., 1992), potentially motivating them to deal with the uncomfortable situation of witnessing another in emotional distress by turning to humor (i.e., laughing at that person). Avoidant people are also not very good at identifying other people’s emotions (Izhaki-Costi & Schul, 2010) and thus their tendency to laugh at another’s downfall may stem from simply not understanding that someone is feeling pain.

I expected to find that individual differences in attachment alone would predict helping behavior (e.g., that avoidant people would help less). Instead I found that people low in attachment avoidance helped more, but only when they were also high in trait empathy. Unlike highly avoidant people, people low in attachment avoidance are more inclined to engage in social interactions. In fact, Pietromanaco and Barrett (1997) found that compared to low avoidant people, highly avoidant people reported feeling sad, angry, and nervous during their daily social interactions. My findings suggest that people who are more comfortable with closeness are more open to interact with (i.e., help) a stranger, especially when they generally feel concerned for others (i.e., trait empathy).

Attachment anxiety

I hypothesized that attachment anxiety would lead to more personal distress in response to learning of another’s downfall. Results pertaining to anxiety were inconsistent between studies. In Study 2, as expected, anxious attachment predicted higher trait levels of personal distress. This is congruent with past research (Britton & Fuendeling, 2005; Mikulincer & Shaver, 2005) and my initial research which found that in response to others’ pain, anxious people feel a self-focused concern, rather than real compassion. Anxious people’s tendency to experience
heighted personal distress may stem from their tendency to experience heightened anxiety in stressful situations (Mikulincer, Florian, & Weller, 1993). Furthermore, anxious people’s increased distress may come from their heightened sensitivity to others’ emotions (Fraley, Niedenthal, Marks, Brumbaugh, & Vicary, 2006), potentially leading them to exaggerate how much pain someone feels from a downfall. Surprisingly, anxiously attached people did not experience more situational personal distress after learning of a confederate’s misfortune (Study 3). Anxious people’s tendency to feel more personal distress may have been dulled by certain features of the situation in Study 3. Typically, anxious people perceive events more negatively, leading them to generally feel more upset and emotional (Collins, 1996). Being in a somewhat contrived environment (i.e., lab setting), may have rendered the situation less serious, thereby reducing the amount of concern anxiously attached people might typically have felt after learning of the confederate’s misfortune.

In addition to more trait personal distress, I found that anxiously attached people reported more trait schadenfreude in Study 2. In Study 3, anxious people also felt more schadenfreude after learning of a confederate’s misfortune, but did not report more personal distress. This suggests that anxious people may not always feel personal distress when witnessing the failings of another. In Study 3, participants were asked to report how they felt toward the confederate’s misfortune, rather than report general daily experiences of empathy, personal distress, and schadenfreude. Thus, Study 3 may have induced a more salient, and potentially more stressful situation for participants via engaging with an actual person (i.e., confederate). Feeling more schadenfreude may be a way for anxiously attached people to overcome their heightened sensitivities to emotional events. When encountering stressful situations, anxious people may feel humor as a defense mechanism to avoid allowing themselves to feel overly upset.
Furthermore, some research finds that while anxious people are hypervigilant in close relationships (e.g., Simpson, Ickes, & Grich, 1999), they tend to disengage from strangers (Feeney, Noller, & Patty, 1993) and express more hostility toward strangers (Feeney et al., 2008). Anxious people’s general dysfunctionality in social interactions may be why they reacted to the confederate’s downfall with pleasure, rather than concern. Another reason that people high in attachment anxiety may feel more joy at others’ misfortunes may stem from the fact that anxiously attached people tend have low self-esteem (Collins & Read, 1990). Self-esteem relates to schadenfreude such that people with lower self-esteem tend to feel more joy after witnessing another person’s misfortune (van Dijk et al., 2011). When seeing another’s failure, schadenfreude may be a way for insecurely attached people to increase their low self-esteem by making a downward social comparison to the downtrodden other.

People who were highly anxious also reported less empathy toward competitors. Generally speaking, attachment anxiety is characterized by an inconsistency of views of others, in that anxious people tend to want to be close to others but at the same time can feel animosity toward people (Feeney et al., 2008; Pietromonaco & Barrett, 1997). Anxious people’s capacity to feel compassion toward someone likely depends on whether or not that person is a friend or rival. This could be because anxious people have an increased sensitivity to fairness (Koleva, et al., 2013) and experience heightened negative emotions following conflict (Simpson et al., 1996). After competing and then losing to the confederate, anxious people may have felt a sense of injustice, thereby reducing the amount of compassion felt toward the confederate. The current research confirmed that when anxious people engage in negative social interactions, in this case when rivaling with another, they feel less compassion.

*Social desirability and schadenfreude*
When asking participants to answer questions related to socially acceptable behavior (e.g., questions about violence or drug use), it is important to consider that some people may lie in order to appear “good.” Because schadenfreude may be seen as socially unacceptable, I investigated potentially contaminated responses based on social desirability biases. Overall, findings remained consistent when accounting for these potential biases. This suggests that for the most part, participant responses were not impacted by the desire to answer questions based on what was perceived as socially acceptable. The one exception was that in Study 2, after controlling for social desirability, trait schadenfreude and avoidant attachment were only marginally associated.

As a novel contribution, in Study 3, I created a new implicit measure of schadenfreude (e.g., the lexical decision task) in order to bypass the need for a social desirability scale. Reaction time tasks are thought to assess automatic thought processes. With my lexical decision task, the assumption was that if people were feeling a certain type of emotion (e.g., personal distress) after reading about a confederate’s misfortune, unconscious thoughts related to that emotion (e.g., “upset”) would be activated. Unlike explicit measures of feelings (e.g., self-report of empathy), reaction time tasks are believed to be more impervious to social desirability, since participants do not have time to consciously think about their responses. Oddly, the implicit measure revealed that people low in avoidance were faster at identifying words related to schadenfreude compared to neutral words. This finding is incongruent with the fact that avoidant people consciously endorsed feeling more schadenfreude. Furthermore, the lexical decision task did not show significant differences in any other domain (e.g., empathy). Future researchers should continue to explore reliable methods of obtaining people’s unconscious thoughts and feelings as a way to improve validity in studies that are subject to social desirability.
Empathy and schadenfreude relationship

Empathy and schadenfreude are often studied together because they are both reactions felt after observing someone’s misfortune. Some factors play a role in both schadenfreude and empathy, such as whether or not people like someone (Leach, Spears, Branscombe, & Doosje, 2003; Stürmer, Snyder, Kropp, & Siem, 2006), while other factors appear to independently predict either schadenfreude (e.g., envy, Feather & Sherman, 2002) or empathy (e.g., personal distress, Davis, 1983). This indicates that the two concepts are highly related, and in some situations may be mirror images of each other. In my research, I found three different outcomes when examining the correlations between empathy and schadenfreude. Oddly, trait empathy was negatively related to trait schadenfreude in Study 1 but positively related to schadenfreude in Study 2. Of note, the internal consistency of the empathy measure was extremely low in Study 2, suggesting that the items on the empathy scale were unreliable which could explain the unusual finding that more empathy was associated with more schadenfreude. Furthermore, in Study 3, explicit (e.g., state) empathy was not correlated with explicit (e.g., state) schadenfreude. Future research examining the circumstances surrounding a person experiencing a misfortune should continue to investigate both empathy and schadenfreude as a way to help clarify the relationship between empathy and schadenfreude.

Cultural and gender differences

In the current study, participants were culturally diverse. Research finds that culture plays a big role in prosocial behavior. In studies 2 and 3 where helping behavior was measured, approximately half of the participant reported being Hispanic or Asian. People from Hispanic cultures tend to help strangers more (Levine, Norenzayan, & Philbrick, 2001). Furthermore, people from collectivistic cultures (e.g., Asian cultures) may also be more inclined to help others,
especially in-group members. Notably, helping did not differ between people who identified as Hispanic and Asian compared to the rest of the participants. Future research looking at helping behavior should continue to account for cultural variability in socially acceptable behavior.

One subgoal of this study was to further examine how gender impacts reactions toward others in need. While gender did not impact helping behavior, I did replicate past findings (e.g., Davis, 1980) that women feel more empathy compared to men. As a novel contribution, I found that gender impacted how much joy people felt toward others’ misfortunes. Specifically, males had higher levels of trait schadenfreude compared to women. With the development of a trait schadenfreude scale, this research was able to elucidate differences in how people (men versus women) experience the misfortunes of others. Future research should continue to investigate how gender impacts reactions toward another’s downfall as a way to more clearly understand who is likely to react compassionately versus unkindly.

Limitations

One potential limitation of this study was the use of confederates who had similar features to the participants (e.g., all college students, similar age groups). In fact, participants were made to believe that the confederate was another psychology student. Due to the shared characteristics between the participants and confederates, participants may have considered the confederate to be an in-group member. It is suggested that people feel more empathy for in-group members in need because of the characteristics in-group members share (Stürmer et al., 2006). Furthermore, Hyland (1978) argues that “friendly competition” can boost camaraderie among group members. Participants may have felt a camaraderie with the confederate and sharing the competitive experience in the safe situation of a psychological experiment may have actually boosted prosocial responses (i.e., more empathy) rather than less helpful responses.
Another potential limitation was that in Study 3, participants in the competitive condition were made to believe that they just lost $5 to the confederate. Participants discovered that they lost at the apparent end of the study (i.e., during the partial debriefing), before walking out and being asked for a favor by the confederate. The potential design flaw stems from the fact that for the cooperative and neutral conditions (unlike the competitive condition), participants received no feedback about their performance on the anagram task. Negative feedback, likely causing negative feelings, may have confounded the results of helping behavior because it systematically varied with the independent variable (i.e., feedback in the competitive condition, no feedback in the cooperative or neutral condition). Therefore, it would be difficult to disentangle whether or not it was the condition (competitive/cooperative/neutral) versus the feedback (negative feedback/no feedback) that impacted helping. Of note, I found that helping behavior did not differ as a function of the situation, and therefore the potential effect of losing did not appear to impact my results. Future research might control for the potential confounding effects of negative feedback by having participants “lose” in all three conditions. For instance, in the cooperative and neutral conditions, the participant (and confederate) could be told that if they solve all of the anagrams, they will earn $5. Assuming that the anagrams would be difficult enough that the majority of people could not complete the task, all participants would eventually learn that they lost.

Lastly, this research found inconsistent results regarding people’s willingness to help a confederate in need. Against my predictions and contrary to prior research, helping behavior did not depend on personality differences alone. I hypothesized that trait schadenfreude and attachment avoidance would independently predict less helping behavior and that empathy would predict more helpful behavior. I also speculated that because people with attachment
anxiety tend to feel more personal distress, they might be likely to help someone in need as a means of eliminating that distress. However, helping behavior only differed as a function of both attachment avoidance and trait empathy. People low in attachment avoidance helped a confederate when they were high in empathy, but did not help when they were low in empathy. The differences in helping as a function of empathy did not occur for people high in attachment avoidance. Research has found that empathy for someone predicts prosocial behavior and low empathy predicts antisocial behavior, like aggression (Spinrad & Eisenberg, 2014). These inconsistent findings may be a result of the failure to examine how other potentially key personality traits impacting reactions toward others’ misfortunes. For instance, people who are more agreeable tend to engage in more prosocial behaviors (Graziano, Habashi, Sheese, & Tobin, 2007). In the future, research should continue to investigate a variety of personality traits that could predict when and why people sometimes react compassionately and other times react callously to the misfortunes of others.

Conclusions

The current research contributed to the field of prosocial behavior research by advancing understanding of how personality and situations impact reactions toward suffering others. My results highlighted some key personality differences in how people react toward downtrodden others using an attachment theoretical perspective. Importantly, the use of real social interactions (i.e., using a confederate) in this project helped answer novel questions as to why people react differently toward others’ misfortunes and why some people choose to help others. Understanding when and why people are more likely to help others is important, as prosocial behavior is widely appreciated and important in maintaining societal harmony.
Footnotes

1 Research finds that initial scale development using exploratory factor analysis requires 50 to 100 participants (Sapnas & Zeller, 2002; Williams, Brown, & Onsman, 2012).

2 To estimate the number of participants needed to ensure adequate power for multiple regression, I conducted a-priori analysis using an online software program (Soper, 2017). Five predictor variables (i.e., attachment anxiety, attachment avoidance, trait empathy, personal distress, and schadenfreude) required 91 participants to ensure a medium effect size (i.e., .15) at a probability level of .05.

3 Reliability for the empathy measure was low (less than .70) in Study 2, suggesting a need for a more reliable measure of empathy in future research.

4 Notably, anxiety and avoidance were positively correlated ($r = .48$, $p < .001$).

5 To estimate the number of participants needed to ensure adequate power for multiple regression, I conducted an a-priori analysis (Soper, 2017). To ensure an adequate effect size (i.e., .15) at a probability level of .05, a power analysis showed that 67 participants would be required with two predictor variables (attachment anxiety and avoidance). This number was tripled to 201 to account for the between subjects variable (competition, cooperation, and neutral conditions).

6 As in Study 2, anxiety and avoidance were positively correlated ($r = .37$, $p < .001$).

7 Helping behavior did not differ between Asian/Hispanic participants and non-Asian/Hispanic participants [Study 2, $t (131) = -1.70$, $ns$; Study 3, $t (157) = -.88$, $ns$].
Table 1: Descriptive Statistics and Internal Consistencies of all Measures (Study 1)

<table>
<thead>
<tr>
<th>Measure</th>
<th>M</th>
<th>SD</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schadenfreude</td>
<td>2.53</td>
<td>.62</td>
<td>.87</td>
</tr>
<tr>
<td>Dark Triad</td>
<td>3.08</td>
<td>1.03</td>
<td>.88</td>
</tr>
<tr>
<td>Envy</td>
<td>2.08</td>
<td>.79</td>
<td>.89</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>3.81</td>
<td>.60</td>
<td>.70</td>
</tr>
<tr>
<td>Empathy</td>
<td>4.03</td>
<td>.62</td>
<td>.85</td>
</tr>
</tbody>
</table>
Table 2: Component Matrix from Principle Components Analysis, unrotated (Study 1)

<table>
<thead>
<tr>
<th>Item</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0.40</td>
<td>0.14</td>
<td>-0.19</td>
<td>0.22</td>
<td>0.35</td>
<td>0.44</td>
<td>0.21</td>
<td>0.35</td>
<td>0.04</td>
</tr>
<tr>
<td>2.</td>
<td>0.33</td>
<td>0.08</td>
<td>0.34</td>
<td>-0.01</td>
<td>0.07</td>
<td>0.54</td>
<td>0.23</td>
<td>-0.21</td>
<td>0.42</td>
</tr>
<tr>
<td>3.</td>
<td><strong>0.63</strong></td>
<td>-0.08</td>
<td>0.11</td>
<td>-0.25</td>
<td>-0.10</td>
<td>-0.33</td>
<td>0.28</td>
<td>-0.09</td>
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<td>-0.03</td>
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<td>-0.35</td>
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<td>-0.09</td>
<td>-0.03</td>
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</tr>
<tr>
<td>8.</td>
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<td>0.03</td>
<td>0.02</td>
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<tr>
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<tr>
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<td>0.59</td>
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<td>0.17</td>
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<td>-0.22</td>
<td>0.00</td>
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<td>21.</td>
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<td>-0.05</td>
<td>0.18</td>
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<td>0.05</td>
<td>0.53</td>
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<tr>
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<tr>
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<td>0.08</td>
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<td>-0.05</td>
<td>-0.03</td>
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<td>0.04</td>
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<td>-0.14</td>
<td>-0.19</td>
</tr>
<tr>
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<td>-0.15</td>
<td>-0.09</td>
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<td>-0.16</td>
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<tr>
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<td>0.09</td>
<td>-0.15</td>
<td>0.13</td>
<td>-0.18</td>
<td>-0.19</td>
</tr>
<tr>
<td>29.</td>
<td><strong>0.55</strong></td>
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<td>-0.25</td>
<td>0.00</td>
<td>-0.18</td>
<td>0.13</td>
<td>0.12</td>
<td>-0.15</td>
</tr>
<tr>
<td>30.</td>
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<td>0.46</td>
<td>0.08</td>
<td>-0.02</td>
<td>-0.26</td>
<td>0.00</td>
<td>0.15</td>
<td>0.03</td>
<td>-0.35</td>
</tr>
<tr>
<td>31.</td>
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<td>0.10</td>
<td>-0.13</td>
<td>-0.24</td>
<td>0.01</td>
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<td>0.19</td>
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<tr>
<td>32.</td>
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<td>-0.08</td>
</tr>
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<td>33.</td>
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<td>0.44</td>
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<td>-0.09</td>
<td>-0.11</td>
<td>0.14</td>
<td>-0.32</td>
<td>0.10</td>
<td>0.18</td>
</tr>
</tbody>
</table>

Note. Bolded values indicate strong loading factors for primary component.
Table 3: Joint Factor Analyses Pattern Matrix, rotated using Promax method (Study 1)

<table>
<thead>
<tr>
<th>Item</th>
<th>Dark Triad Component</th>
<th>Envy Component</th>
<th>Self-Esteem Component</th>
<th>Empathy Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.</td>
<td>0.52 0.17</td>
<td>0.64 -0.03</td>
<td>0.69 0.17</td>
<td>0.51 0.19</td>
</tr>
<tr>
<td>5.</td>
<td>0.33 0.26</td>
<td>0.23 0.40</td>
<td>0.39 -0.19</td>
<td>0.58 -0.05</td>
</tr>
<tr>
<td>6.</td>
<td>0.48 0.22</td>
<td>0.51 0.15</td>
<td>0.59 -0.01</td>
<td>0.48 0.24</td>
</tr>
<tr>
<td>7.</td>
<td>0.52 0.11</td>
<td>0.42 0.25</td>
<td>0.44 -0.30</td>
<td>0.58 0.04</td>
</tr>
<tr>
<td>8.</td>
<td>0.59 0.31</td>
<td>0.59 0.33</td>
<td>0.74 -0.12</td>
<td>0.88 -0.07</td>
</tr>
<tr>
<td>9.</td>
<td>0.69 0.03</td>
<td>0.58 0.21</td>
<td>0.55 -0.33</td>
<td>0.56 0.21</td>
</tr>
<tr>
<td>11.</td>
<td>0.40 0.31</td>
<td>0.37 0.36</td>
<td>0.52 -0.18</td>
<td>0.72 -0.09</td>
</tr>
<tr>
<td>12.</td>
<td>0.70 0.02</td>
<td>0.64 0.11</td>
<td>0.67 -0.08</td>
<td>0.55 0.26</td>
</tr>
<tr>
<td>13.</td>
<td>0.76 -0.16</td>
<td>0.62 0.07</td>
<td>0.58 -0.16</td>
<td>0.39 0.36</td>
</tr>
<tr>
<td>14.</td>
<td>0.54 -0.10</td>
<td>0.67 -0.34</td>
<td>0.40 -0.13</td>
<td>0.14 0.43</td>
</tr>
<tr>
<td>15.</td>
<td>0.60 0.20</td>
<td>0.78 -0.37</td>
<td>0.58 0.09</td>
<td>0.20 0.44</td>
</tr>
<tr>
<td>17.</td>
<td>0.08 0.53</td>
<td>0.43 0.16</td>
<td>0.43 -0.01</td>
<td>0.71 -0.26</td>
</tr>
<tr>
<td>19.</td>
<td>0.24 0.57</td>
<td>0.41 0.37</td>
<td>0.62 -0.02</td>
<td>0.86 -0.24</td>
</tr>
<tr>
<td>22.</td>
<td>0.10 0.45</td>
<td>0.34 0.13</td>
<td>0.37 -0.11</td>
<td>0.58 -0.17</td>
</tr>
<tr>
<td>23.</td>
<td>0.50 0.33</td>
<td>0.62 0.15</td>
<td>0.82 0.24</td>
<td>0.64 0.15</td>
</tr>
<tr>
<td>24.</td>
<td>0.09 0.55</td>
<td>0.34 0.23</td>
<td>0.57 0.18</td>
<td>0.67 -0.18</td>
</tr>
<tr>
<td>25.</td>
<td>0.45 0.35</td>
<td>0.58 0.13</td>
<td>0.64 -0.04</td>
<td>0.57 0.14</td>
</tr>
<tr>
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<td>0.71 0.04</td>
<td>0.73 -0.02</td>
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<tr>
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<td>0.43 -0.06</td>
<td>0.18 0.29</td>
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<tr>
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<td>0.12 0.71</td>
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<td>-0.06 0.75</td>
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<td>0.22 0.58</td>
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<tr>
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<td>0.62 -0.14</td>
<td>0.35 0.39</td>
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<tr>
<td>33.</td>
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<td>0.44 0.10</td>
<td>0.43 -0.14</td>
<td>0.06 0.51</td>
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</table>

Note. Bolded values indicate factors loading more strongly onto the primary component of the new scale compared to similar measures.
Table 4: Correlations among Variables (Study 1)

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<th>Measure</th>
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<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>1. Schadenfreude</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>2. Dark Triad</td>
<td>.53**</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>3. Envy</td>
<td>.47**</td>
<td>.59**</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>4. Self-Esteem</td>
<td>-.33**</td>
<td>-.32**</td>
<td>-.59**</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>5. Empathy</td>
<td>-.37**</td>
<td>-.33**</td>
<td>-.16</td>
<td>.23*</td>
<td>—</td>
</tr>
<tr>
<td>6. Social Desirability</td>
<td>-.45**</td>
<td>-.61**</td>
<td>-.39**</td>
<td>-.25*</td>
<td>.20</td>
</tr>
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</table>

Note. **p < .01; *p < .05.
### Table 5: Correlations among Variables after Controlling for Social Desirability (Study 1)

<table>
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<th>5</th>
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<td>1. Schadenfreude</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Dark Triad</td>
<td>.40**</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Envy</td>
<td>.37**</td>
<td>.48**</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Self-Esteem</td>
<td>-.26*</td>
<td>-.22*</td>
<td>-.55**</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>5. Empathy</td>
<td>-.32**</td>
<td>-.27**</td>
<td>-.09</td>
<td>.19</td>
<td>—</td>
</tr>
</tbody>
</table>

Note. **p < .01; *p < .05.
Table 6: Pre-tested Helping Task Frequencies

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<tr>
<th>Favor</th>
<th>Agreed</th>
<th>Declined</th>
</tr>
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<tbody>
<tr>
<td>“Would you help me carry this stuff? I am going to the science</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>building/union/library”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Do you mind waiting here for a minute while I go use the</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>bathroom? I really don’t want to take this stuff in with me”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The confederate drops his/her stuff.</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>“May I borrow your cell phone, I really need to call someone to</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>tell them I am going to be late.”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Hey, do you happen to know where the library is?”</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>“I’m doing a project on hand-writing for my class. Would you mind</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>taking some time to copy this text by hand for my study?”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 7: Correlations among Variables (Study 2).

<table>
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<tr>
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<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2. Attachment Avoidance</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Trait Empathy</td>
<td>.10</td>
<td>-.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Trait Personal Distress</td>
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<td>.15</td>
<td>-.30**</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Trait Schadenfreude</td>
<td>.35**</td>
<td>.23**</td>
<td>.20*</td>
<td>.27**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Positive Affect</td>
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<td>-.39**</td>
<td>.01</td>
<td>-.25*</td>
<td>-.27**</td>
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</tr>
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<td>.38**</td>
<td>.13</td>
<td>.30**</td>
<td>.30**</td>
<td>.31**</td>
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<td></td>
</tr>
<tr>
<td>8. Social Desirability</td>
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<td>-.08</td>
<td>-.17</td>
<td>-.33**</td>
<td>-.29**</td>
<td>-.16</td>
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</table>

Note. **p < .01; *p < .05
### Table 8: Means and Standard Deviations of Variables (Study 2).

<table>
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<tr>
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<th>Maximum</th>
<th>Mean</th>
<th>Standard Deviation</th>
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Note. *Mean score on scale, 1-7; **Mean score on scale 1-5; ***Summed score on scale, 1-5.
Table 9. Effects of Attachment and Trait Emotional Reactions on Helping Behavior (Study 2).

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Note. * Significant difference.
Table 10: Variance Inflation Factors of Predictor Variables (Study 2).

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### Table 11: Means and Standard Deviations of Variables (Study 3).

<table>
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<th>Measure</th>
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<th>Mean</th>
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<th>Cronbach’s Alpha</th>
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<td>-.01</td>
<td>.10</td>
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</table>

Note. *Mean score; ** Values are reaction times (logarithm transformed) subtracted from neutral words. *** Summed score on scale, 1-5.
Table 12: Main Effects of Situation on Outcome Variables (Study 3).

<table>
<thead>
<tr>
<th>Measure</th>
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<th>Competitive</th>
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<tr>
<td></td>
<td></td>
<td>3.67 (1.26)$_a$</td>
<td>3.10 (1.49)$_b$</td>
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<tr>
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Note. Standard deviations are in parentheses. Effect sizes reported as partial eta squared ($\eta^2$). Only empathy was affected by the situation. * Values are reaction times (logarithm transformed) subtracted from neutral words. **Behavior reported as 1=helped, 0=did not help/
Table 13: Correlations among Outcome Variables (Study 3).

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<td>.16*</td>
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Note. **p < .01; *p < .05.
Table 14. Effects of Attachment Anxiety and Condition on Empathy (Study 3).

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Note. * Significant difference
Table 15. Effects of Attachment Avoidance and Condition on Empathy (Study 3).

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Note. * Significant difference
Table 16. Effects of Attachment Anxiety and Condition on Helping Behavior (Study 3).

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Table 17. Effects of Attachment Avoidance and Condition on Helping Behavior (Study 3).

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<td>.14</td>
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Figure 1: A scree plot showing the eigenvalues of each component, with a large eigenvalue for component 1, tapering off steeply at the second component (Study 1).
Figure 2: Regression plotted using values of helping behavior (1 = agreed to help, 0 = did not agree to help) one standard deviation above/below the means for empathy and avoidance (Study 2).
Figure 3: Explicit empathy as a function of attachment anxiety and situation (Study 3).
Figure 4: Empathy (explicit) as a function of attachment avoidance and situation (Study 3).
Appendix A
Initial Items of Trait Schadenfreude Scale

1. When someone trips while walking, I can’t help but laugh out loud.
2. I enjoy watching reality television shows in which people embarrass themselves.
3. I can’t help but feel good when a fellow classmate doesn’t do well on an exam.
4. I am not entertained by other people’s misfortunes. (-)
5. I feel joy when I learn of other people’s breakups. (not discriminant from other scales)
6. I feel good after learning of a celebrity who experiences a downfall.
7. I often feel joy from witnessing other’s misfortunes.
8. I feel satisfied when a coworker fails to get a promotion.
9. I perk up when I find out someone has failed an exam.
10. I don’t enjoy watching someone getting yelled at (-).
11. My attitude improves when someone I know gains weight.
12. I feel satisfied when other people experience a downfall.
13. I daydream about ways people I know could fail.
14. I can’t help but smile when I see someone step in a puddle.
15. It makes me laugh to watch people run after the bus.
16. Watching slapstick comedy is a great way to cheer up.
17. I seek out gossip.
18. When someone gets a bad haircut, I feel sad. (-).
19. I remember and share details about other people’s misfortunes.
20. I am more interested in information about someone getting hired than fired. (-)
21. I feel bad for celebrities whose downfalls are highlighted in the media. (-)
22. I am more likely to read news articles about a political scandal than a political success.
23. Gossip is more fun when the person I’m talking about has been negatively affected.
24. I am more likely to click on a news article about a celebrity’s scandal than her charity work.
25. My mindset is improved when I hear a rumor.
26. When someone I know or follow on social media gets an unflattering hair cut I get pleasure out of talking to others about it.
27. When I see a person with a black eye, I think he must have deserved it in some way.
28. It’s funny to see people who have casts or who are on crutches.
29. I like to see car accidents on the side of the road.
30. When someone I know has lost something important to them, I laugh to myself.
31. If someone didn’t get into college, that would be kind of funny.
32. It’s funny to see homeless people who are pushing shopping carts full of their stuff on sidewalks.
33. When someone throws a party and hardly anyone comes, that’s amusing.
Appendix B

Dirty Dozen Dark Triad Short Form Scale

Please rate the degree to which you agree or disagree with the following statements. Please try to answer as truthfully as possible. Your answers will be anonymous.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
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<th>5</th>
<th>6</th>
<th>7</th>
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<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Somewhat Disagree</td>
<td>Neutral/Mixed</td>
<td>Somewhat Agree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

1. I tend to manipulate others to get my way.
2. I have used deceit or lied to get my way.
3. I have used flattery to get my way.
4. I tend to exploit others towards my own end.
5. I tend to lack remorse.
6. I tend to be unconcerned with the morality of my actions.
7. I tend to be callous or insensitive.
8. I tend to be cynical.
9. I tend to want others to admire me.
10. I tend to want others to pay attention to me.
11. I tend to seek prestige or status.
12. I tend to expect special favors from others.
Appendix C

Dispositional Envy Scale

Please rate the degree to which you agree or disagree with the following statements. Please try to answer as truthfully as possible. Your answers will be anonymous.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral/ Mixed</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

1. I feel envy every day.
2. The bitter truth is that I generally feel inferior to others.
3. Feelings of envy constantly torment me.
4. It is so frustrating to see some people succeed so easily.
5. No matter what I do, envy always plagues me.
6. I am troubled by feelings of inadequacy.
7. It somehow doesn’t seem fair that some people seem to have all the talent.
8. Frankly, the success of my neighbors makes me resent them.
Appendix D
Rosenberg Self-Esteem Scale

Please rate the degree to which you agree or disagree with the following statements. Please try to answer as truthfully as possible. Your answers will be anonymous.

<table>
<thead>
<tr>
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<th>1</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral/Mixed</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

1. On the whole, I am satisfied with myself.
2. At times I think I am no good at all. (-)
3. I feel that I have a number of good qualities.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of. (-)
6. I certainly feel useless at times. (-)
7. I feel that I'm a person of worth.
8. I wish I could have more respect for myself. (-)
9. All in all, I am inclined to think that I am a failure. (-)
10. I take a positive attitude toward myself.
Appendix E
Interpersonal Reactivity Index

Please rate the degree to which the following statements describe you. Please try to answer as truthfully as possible. Your answers will be anonymous.

<table>
<thead>
<tr>
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<th>1</th>
<th>2</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Does Not Describe Me well</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Describes Me Very Well</td>
</tr>
</tbody>
</table>

**Empathic Concern**
1. I often have tender, concerned feelings for people less fortunate than me.
2. Sometimes I don't feel very sorry for other people when they are having problems. (-)
3. When I see someone being taken advantage of, I feel kind of protective towards them.
4. Other people's misfortunes do not usually disturb me a great deal. (-)
5. I am often quite touched by things that I see happen.
6. I would describe myself as a pretty soft-hearted person.
7. When I see someone being treated unfairly, I sometimes don't feel very much pity for them (-)

**Personal Distress**
1. In emergency situations, I feel apprehensive and ill-at-ease.
2. I sometimes feel helpless when I am in the middle of a very emotional situation.
3. When I see someone get hurt, I tend to remain calm. (-)
4. Being in a tense emotional situation scares me.
5. I am usually pretty effective in dealing with emergencies (-).
6. I tend to lose control during emergency situations.
7. When I see someone who badly needs help in an emergency, I go to pieces.
Appendix F

Short form from the Marlowe and Crown Social Desirability Scale

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to your personality.

1. It is sometimes hard for me to go on with my work if I am not encouraged. (F)
2. I sometimes feel resentful when I don't get my way. (F)
3. On a few occasions, I have given up doing something because I thought too little of my ability. (F)
4. There have been times when I felt like rebelling against people in authority even though I knew they were right. (F)
5. No matter who I'm talking to, I'm always a good listener. (T)
6. There have been occasions when I took advantage of someone. (F)
7. I'm always willing to admit it when I make a mistake. (T)
8. I sometimes try to get even rather than forgive and forget. (F)
9. I am always courteous, even to people who are disagreeable. (T)
10. I have never been irked when people expressed ideas very different from my own. (T)
11. There have been times when I was quite jealous of the good fortune of others. (F)
12. I am sometimes irritated by people who ask favors of me. (F)
13. I have never deliberately said something that hurt someone's feelings. (T)
Appendix G

Final Version: Trait Schadenfreude Scale

Please rate the degree to which you agree or disagree with the following statements.

<p>| | | | | | | | |</p>
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</thead>
<tbody>
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<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Somewhat Disagree</td>
<td>Neutral/Mixed</td>
<td>Somewhat Agree</td>
<td>Agree</td>
<td>Strongly Agree</td>
<td></td>
</tr>
</tbody>
</table>

1. I can’t help but feel good when a fellow classmate doesn’t do well on an exam.
2. I feel good after learning of a celebrity who experiences a downfall.
3. I often feel joy from witnessing other’s misfortunes.
4. I feel satisfied when a coworker fails to get a promotion.
5. I perk up when I find out someone has failed an exam.
6. My attitude improves when someone I know gains weight.
7. I feel satisfied when other people experience a downfall.
8. I daydream about ways people I know could fail.
9. I can’t help but smile when I see someone step in a puddle.
10. It makes me laugh to watch people run after the bus.
11. I seek out gossip.
12. I remember and share details about other people’s misfortunes.
13. I am more likely to read news articles about a political scandal than a political success.
14. Gossip is more fun when the person I’m talking about has been negatively affected.
15. I am more likely to click on a news article about a celebrity’s scandal than her charity work.
16. My mindset is improved when I hear a rumor.
17. When someone I know or follow on social media gets an unflattering hair cut I get pleasure out of talking to others about it.
18. When I see a person with a black eye, I think he must have deserved it in some way.
19. It’s funny to see people who have casts or who are on crutches.
20. I like to see car accidents on the side of the road.
21. When someone I know has lost something important to them, I laugh to myself.
22. If someone didn’t get into college, that would be kind of funny.
23. When someone throws a party and hardly anyone comes, that’s amusing.
Appendix H
Experiences in Close Relationships Attachment Measure

<table>
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<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree</td>
<td>Strongly</td>
<td>Neutral/ Mixed</td>
<td></td>
<td></td>
<td></td>
<td>Agree Strongly</td>
</tr>
</tbody>
</table>

1. I'm afraid that I will lose my partner’s love.
2. I am very comfortable being close to my romantic partners.
3. I worry that romantic partners won’t care about me as much as I care about them.
4. I find it relatively easy to get close to my partner.
5. I often wish that my partner’s feelings for me were as strong as my feelings for him or her.
6. I prefer not to be too close to romantic partners.
7. When my partner is out of sight, I worry that he or she might become interested in someone else.
8. When I show my feelings for romantic partners, I'm afraid they will not feel the same about me.
9. I get uncomfortable when romantic partners want to be very close.
10. I rarely worry about my partner leaving me.
11. It's not difficult for me to get close to my partner.
12. My romantic partner makes me doubt myself.
13. I usually discuss my problems and concerns with my partner.
14. I do not often worry about being abandoned.
15. I tell my partner just about everything.
16. I find that my partners don't want to get as close as I would like.
17. I talk things over with my partner.
18. My desire to be very close sometimes scares people away.
19. It's easy for me to be affectionate with my partner.
20. It makes me mad that I don't get the affection and support I need from my partner.
21. I find it easy to depend on romantic partners.
22. I worry that I won’t measure up to other people.
23. My partner only seems to notice me when I’m angry.
24. I prefer not to show a partner how I feel deep down.
25. I often worry that my partner will not want to stay with me.
26. I feel comfortable sharing my private thoughts and feelings with my partner.
27. I often worry that my partner doesn't really love me.
28. I find it difficult to allow myself to depend on romantic partners.
29. I worry a lot about my relationships.
30. I don't feel comfortable opening up to romantic partners.
31. It helps to turn to my romantic partner in times of need.
32. I am nervous when partners get too close to me.
33. Sometimes romantic partners change their feelings about me for no apparent reason.
34. I feel comfortable depending on romantic partners.
35. I’m afraid that once a romantic partner gets to know me, he/she won’t like who I really am.
36. My partner really understands me and my needs.

Appendix I

The Confederate’s Predetermined Misfortune

“A while ago, I took a class that required a lot of writing. It was pretty time-consuming, as most writing classes are. The final assignment was a 10 page paper on a topic of our choice, which had to be approved by the professor. The paper was worth half of our final grade. I waited too long to pick a topic, and so I didn’t get approval from the professor until a couple days before it was due. I ended up writing it the day before it was due, and only turned in a 5 page essay. I got 58% on the paper, and ended up with a D+ in the class.”
Appendix J

Schadenfreude Scale

Please rate the degree to which you agree or disagree with the following statements.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
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<th>4</th>
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<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
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<td>Somewhat Disagree</td>
<td>Neutral/Mixed</td>
<td>Somewhat Agree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

1. What happened to this person gives me satisfaction.
2. I like what happened to this person
3. I couldn’t resist smiling a little when I read about what happened to this person
4. I had to laugh a little about this person
5. I feel enjoyment from what happened to this person
Appendix K
Implicit Measure (Lexical Decision Task)

Instructions: Please press the right arrow (→) if the following string of letters forms a real word and the left arrow (←) if they do not form a real word.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Stimulus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empathy</td>
<td>moved, sympathetic, compassionate, tender, warm, softhearted, empathetic</td>
</tr>
<tr>
<td>Personal Distress</td>
<td>alarmed, grieved, upset, worried, disturbed, distressed, troubled</td>
</tr>
<tr>
<td>Schadenfreude</td>
<td>delighted, amused, humorous, laughable, happy, joyous, comical, gratified,</td>
</tr>
<tr>
<td>Neutral</td>
<td>casual, daring, studious, curious, idealistic, fashionable, decisive</td>
</tr>
<tr>
<td>Nonwords</td>
<td>glapp, shintraffond, clarouslucia, persain, wagt, sobenitran, exertinging,</td>
</tr>
<tr>
<td></td>
<td>asizzes, glupped, urpist, windest, dishost, darestle, tongle,</td>
</tr>
<tr>
<td></td>
<td>duplanses, amplian, horson, linews, pathod, corrical, vapolly, sheast,</td>
</tr>
<tr>
<td></td>
<td>distilo, sappors, sanctions, impigged, inflissant, disancet</td>
</tr>
</tbody>
</table>
References


