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Indirect & Displaced Aggression: The Role of Comparison Based Traits and Cognitive Vulnerabilities

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Indirect & Displaced Aggression: The Role of Comparison Based Traits
and Cognitive Vulnerabilities

by

Niki Knight

A Dissertation

Submitted to the Graduate School,
the College of Education and Psychology
and the Department of Psychology
at The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

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ABSTRACT

The present study explored the relationships of contingent self-esteem, dispositional envy, and two cognitive vulnerabilities (i.e., anger rumination and fear of negative evaluation) to indirect aggression (IA) and displaced aggression (DA) in a college student sample ($N = 346$). Despite the theoretical relevance of these personality and cognitive factors to aggression, there is little empirical evidence linking them to the perpetration of IA and DA. Bivariate correlations and hierarchical multiple regression were used to test the utility of these constructs in accounting for unique variance in IA and DA and to assess the potential role of participant gender. Participants high in anger rumination and dispositional envy reported more IA and DA. Further, anger rumination and dispositional envy were positive predictors of IAS-A guilt induction, IAS-A social exclusion, and DAQ behavioral displaced aggression. Fear of negative evaluation, anger rumination, and dispositional envy were positive predictors for DAQ revenge planning and IAS-A malicious humor. Despite mean gender differences on some variables, there was no evidence that the predictors differed in their utility based on gender. Moreover, contingent self-esteem did not emerge as a significant predictor of IA or DA despite its theoretical relevance to these variables. The present findings suggest that anger rumination, dispositional envy, and fear of negative evaluation may be useful in understanding indirect and displaced aggression.

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DEDICATION

I would like to thank all of my friends and loved ones for their unwavering support throughout my academic pursuits. I am also grateful for all of the empowering women who have been role models, supervisors, professors, and mentors along the way. In moments of uncertainty, your strength is my strength.

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CHAPTER I - INTRODUCTION

There is little doubt that aggression is a serious social problem, highlighting the societal and scientific importance of gaining a better understanding of factors that may contribute to aggressive behaviors (Foster & Jones, 2006; Glomb, 2002; Mercy, Krug, Dahlberg & Zwi, 2003). Although overt aggression has received the most attention in the literature (Fry & Gabriel, 1994; Paquette & Underwood, 1999) a growing body of evidence indicates that more subtle and nuanced forms of aggression (e.g., relational, indirect, and displaced aggression) can have an adverse impact on both victims and perpetrators (Archer & Coyne, 2005; Coyne, Archer, & Eslea, 2006; Paquette & Underwood, 1999). As a result, there has been increased interest in identifying predictors of these forms of aggression in the hope that such information may ultimately aid in the development of targeted intervention and prevention programs. The present study explored the potential relationship of two comparison-based personality traits (i.e., contingent self-esteem and dispositional envy) and two cognitive vulnerabilities (i.e., anger rumination and fear of negative evaluation) to indirect and displaced aggression.

Indirect and Displaced Aggression

Indirect aggression (IA) involves the infliction of harm in a circuitous and non-confrontational manner, such as malicious humor, social exclusion, gossiping, or trying to convince others to dislike the victim (Archer & Coyne, 2005; Duncan & Owen-Smith, 2006; Osterman, 1994). IA may be more common than direct forms of aggression because it is less likely to be considered acceptable (Baron & Neuman, 1996; Björkqvist, Lagerspetz, & Kaukiainen, 1992; Walker, Richardson & Green, 2000). IA has been

linked to low self-esteem, low emotional intelligence, and neuroticism (Loudin, Loukas, & Robinson, 2003; Richardson & Green, 1999). It also appears to be related to manipulation of others, lack of self-control, irritability, and anger (Richardson & Green, 1999).

Displaced aggression (DA) involves aggressive behaviors aimed at innocent others rather than the original provocateur (Denson et al., 2006; Tedeschi & Norman, 1985). DA can serve as a way to preserve positive self-image (Hoobler & Brass, 2006) and occurs when the aggressor is either unwilling or unable to retaliate against the original source of provocation (Denson et al., 2006). Denson and colleagues (2006) posited that there are personality-related factors in one's tendency to engage or not engage in DA and developed an instrument to measure trait DA. Unlike those who use direct aggression, individuals high in trait DA are more behaviorally inhibited when provoked (Denson, Pederson, & Miller, 2006), perhaps due to fear of negative evaluation or a desire to avoid the negative consequences associated with aggressive behaviors. In some ways, DA can be considered a form of IA; however, DA involves a wider range of associated behaviors than IA, such as physical and verbal aggression (Denson, et al., 2006).

Given their similarities, it is not surprising that scores on measures of IA and direct aggression tend to be highly correlated. Still, there are some important differences (Archer, 2010, Richardson & Green, 1999). For example, direct aggression is positively related to measures of comfort in social situations (i.e., extraversion) while IA shows inverse relationships to extraversion and positive relationships with to other personality traits such as neuroticism (Archer, 2010). Thus, while it would be reasonable to expect

some theoretical overlap between IA and direct aggression, there is some evidence that they have some distinct correlates.

Studies examining potential predictors of IA and DA are limited compared to those focusing on overt or relational aggression; however, a number of good candidates have emerged. Individuals who feel insecure about themselves, their social standing, and their relationships may be less likely to utilize direct/overt forms of aggression, preferring less direct methods that may have fewer consequences (Archer, 2010; Duncan & Owen-Smith, 2006). There is some evidence that social comparison plays an important role in IA. For example, acts of indirect peer aggression and romantic relational aggression were more frequent among women who reported engaging in more appearance-based social comparisons (Arnocky, Sunderani, Miller, & Vaillancourt, 2012). This suggests that comparing oneself to others may facilitate IA. In addition, it has been suggested that IA may serve to deflect potential criticism away from oneself and onto others (Archer, 2010). This suggests that anticipating criticism or negative evaluation from others in social settings may facilitate IA. Archer and Coyne (2005) suggested that IA serves to neutralize a potential rival by adversely affecting their social standing, either by removal of the rival from the social group, or by reducing their social status within the social group. Thus, IA may serve as a mechanism for envious individuals to “level down” others and protect their own social status. Self-esteem may be relevant to DA, as there is evidence that individuals low in self-esteem were more likely to displace their aggression onto an innocent bystander following a frustration-inducing laboratory stimulus (Lange, 1971). In addition, Denson et al. (2006) suggested that those high in trait DA utilize rumination as a primary means of coping with frustrations and other aversive life events,

and Denson et al. (2009) posited that anger rumination has an exhausting effect on self-control mechanisms from which DA may emerge.

Comparison Based Personality Traits

Contingent Self-Esteem

Contingent self-esteem is a fragile form of self-esteem, involving a connection of specific outcomes and self-worth evaluations, and is associated with an increased tendency to defend/maintain positive yet fragile self-evaluative feelings (Kernis & Paradise, 2002; Kernis, Lakey, & Heppner, 2008). Individuals with contingent self-esteem are highly motivated to prove their self-worth to themselves and others by satisfying their contingencies of self-worth (Crocker, Brooke, Niiya, & Villacorta, 2006). The successes and failures that occur are often generalized by the individual to their overall sense of self-worth (Crocker, Karpinski, Quinn, & Chase, 2003). Because one cannot control one's environment or every outcome, basing one's self-worth on an external domain generally leads to negative outcomes (Deci & Ryan, 1995; Kernis, 2003). Individuals with contingent self-esteem have reported higher levels of depression (Crocker, 2002; Crocker & Park, 2004), being more sensitive towards negative feedback, having lower levels of self-acceptance, and having fewer positive relationships (Kernis, et al., 1993; Paradise & Kernis, 2002).

Deci and Ryan (1995) posited that contingent self-esteem facilitates a preoccupation with the maintenance of positive self-regard, causing a higher level of ego involvement in daily activities and interactions. Contingent self-esteem is coupled with a motivation to validate and protect that fragile self-regard, and these individuals will go to great lengths to avoid situations that may threaten their sense of self-worth (Deci & Ryan,

1995). Those with contingent self-esteem may respond to information that is potentially threatening by becoming insensitive and aggressive towards others, such as insulting others after having been criticized, blaming others for personal failures, and ignoring or denying information that reflects badly on them (Deci & Ryan, 1995; Kernis, 2003). Kernis and Paradise (2002) found that the more contingent one's self-esteem, the higher levels of anger and hostility one experiences after one's ego is threatened. Moreover, contingent self-esteem predicted vindictive tendencies for expressing anger in that participants with higher levels of contingent self-esteem were more likely to direct their anger inward rather than outward, and were also more likely to lash out at innocent others. These findings by Kernis & Paradise (2002) suggest that contingent self-esteem is associated with being easily angered, and with the expression of that anger in unconstructive or harmful ways. Overall, contingent self-esteem has been linked to vindictive tendencies, reactive aggression, higher levels of hostility and anger, and verbal defensiveness (Kernis & Paradise, 2002; Kernis et al., 2008; Turner & White, 2015). Given that individuals high in contingent self-esteem are more sensitive to ego-threatening situations in everyday events and may behave aggressively in response (Kernis & Paradise, 2002), it was predicted that persons with higher contingent self-esteem would report utilizing more IA and/or DA.

Dispositional Envy

Although envy is an emotion that every individual experiences, some appear to be more or less prone to feeling envious of others (Smith & Kim, 2007). Dispositional (or trait) envy is conceptualized as a tendency to engage in upward social comparisons and focus attention on desired successes, possessions, or traits, often resulting in a pervasive

sense of inferiority, negative emotions, and ill will towards envied individuals (Smith, Parrott, Diener, Hoyle, & Kim, 1999; Veselka, Giammarco, & Vernon, 2014).

Dispositional envy appears to promote episodic (or state) envy, as evidenced by the findings of Rentzsch and Gross (2015), in which participants with higher levels of dispositional envy reported experiencing stronger levels of state envy. Neufeld and Johnson (2015) posited that dispositional envy sparks episodic envy experiences via the persistent attention given to the coveted good fortune or superior status of others. These upward social comparisons or “diagnostic perspectives of the self” appear to facilitate envious reactions (Tai et al., 2012; p. 108).

In a study by Rentzsch and Gross (2015), dispositional envy was related to trait anxiety, depressive symptoms, negative self-perception, neuroticism, low self-esteem, and hostile tendencies. The negative behaviors and emotional responses associated with dispositional envy appear to serve as coping mechanisms; envious individuals are motivated to reduce the pain of envy and protect their self-image (Schaubroeck, & Lam, 2004). Indirectly aggressive behaviors could serve as a way for the chronically envious individual to “level down” others and protect their own social status, or as a way to cope with chronic feelings of inferiority and ill will towards others.

Cognitive Vulnerabilities

Anger Rumination

Rumination refers to a tendency of self-focused attention involving repetitive thoughts about negative past experiences and feelings (Nolen-Hoeksema, & Morrow, 1991; Ray, Wilhelm, & Gross, 2008). Anger rumination refers to the tendency to focus on past experiences of anger in particular (Sukhodolsky, Golub, & Cromwell, 2001).

Rumination has predicted aggressive responses to insults and decreased ability to solve interpersonal problems (Collins & Bell, 1997). Past research shows that rumination intensifies anger and dysphoria (Konecni, 1974; Nolen-Hoeksema, 1996; Rusting & Nolen-Hoeksema, 1998), and has been associated with higher levels of anxiety, depressed mood, negative affect, trait anger, and anger directed inwards (Roberts, Gotlib, & Gilboa-Schechtman, 1998; Sukhodolsky et al., 2001). Ruminating about a provocation increased the likelihood of participants responding with triggered DA, as measured by giving a negative evaluation following a mildly annoying event (i.e., fumbling research assistant) approximately twenty-five minutes after the initial provocation (Bushman et al., 2005). Anger rumination predicted physical aggression, verbal aggression, and hostility among an undergraduate sample (Anestis, et al., 2009).

Rumination in general and anger rumination in particular have been linked to triggered DA (e.g., Bushman et al., 2005), aggressive responses to perceived insults (e.g., Collins & Bell, 1997), higher levels of anger (e.g., Bushman, 2002) as well as higher levels of hostility, verbal aggression and physical aggression (Anestis et al., 2009). Thus, anger rumination appears to be an important variable when considering aggressive behaviors. Surprisingly, no prior studies were found that directly assessed the association between anger rumination and IA. Theoretically, the cognitive vulnerability of anger rumination coupled with comparison-based personality traits could increase the likelihood of one's utilization of IA and DA behaviors. As previously mentioned, Denson (2008) suggested that anger rumination has an exhausting effect on self-control mechanisms, and aggressive behaviors are a potential result of this cognitive depletion.

Fear of Negative Evaluation

Fear of negative evaluation refers to persistent expectations of being evaluated unfavorably, and distressing feelings of apprehension and dread regarding these negative evaluations (Watson & Friend, 1969). Social anxiety includes a wide range of negative affective reactions to social situations whereas fear of negative evaluation refers solely to the persistent expectation and dread of being evaluated negatively by others (Weeks et al., 2005). Social anxiety is posited to be an affective response to fear of negative evaluation (Wells et al., 1995). These two constructs are distinct but closely related.

It has been suggested that the associations between social anxiety and aggressive behaviors are due to a fear of negative evaluation from others. This leads to a hypervigilance regarding hostility detection and a tendency to respond to these misinterpretations with aggressive retaliatory behaviors (Crick, Grotpeter, & Bigbee, 2002; Lochman & Dodge, 1994; Loudin, Loukas, & Robinson, 2003). Those higher in socially anxious traits appear to have a tendency to interpret neutral social interactions as competitive (Rapee & Heimberg, 1997). IA has been positively correlated to anxiety about one's status in friendships (Duncan & Owen-Smith, 2006). These behaviors may serve as a way for the socially anxious person to deflect expected rejection and criticism by focusing negative attention towards others (Duncan & Owen-Smith, 2006; Watson and Friend, 1969). Utilizing IA tactics (e.g., spreading rumors and giving "dirty looks") could serve as a way to utilize aggressive behaviors without direct confrontation, minimizing the likelihood of being negatively evaluated or disapproved by others within the peer group.

Anxiety and social anxiety predicted relational aggression and relational victimization among emerging adults (Gros, Stauffacher-Gros, & Sims, 2010), and some research suggests a more nuanced relationship regarding fear of negative evaluation and aggression when taking gender into account. Among a late adolescent sample, fear of negative evaluation was a significant predictor for dating aggression (i.e., including physical and psychological aggressive behaviors) among young men but was not a significant predictor for young women (Hanby et al., 2012). Social anxiety was positively associated with romantic relational aggression among college women but college men (Bagner, Storch, & Preston, 2007). Social evaluative anxiety was positively associated to the use of social aggression among female and male adolescents and negatively associated to the use of overt aggression among male participants (Loukas, Paulos, & Robinson, 2005). Fear of negative evaluation predicted relational aggression among a college student sample (Loudin et al., 2003), and anxiety about one's status in friendships predicted indirect aggression (Duncan & Owen-Smith, 2006). Despite theoretical evidence, no studies were found directly linking fear of negative evaluation to DA or IA.

Aggression and Gender

Generally, it appears that men are more likely to engage in overt and/or direct forms of aggression than women; however, gender differences in other forms of aggression are less clear, especially when different age cohorts are examined (Bagner, Storch, & Preston, 2007; Green, Richardson, & Lago, 1996; Loudin, Loukas, & Robinson, 2003). Studies of adolescents and emerging adults have shown that some of the gender differences noted among children may not persist across the lifespan (Linder, Crick, & Collins, 2002). Lagerspetz, Bjorkqvist, and Peltonen, (1988) found that young

women utilize indirect aggressive tactics more often than young men and suggested that social groups are “tighter” among young women, making IA a more common and effective means. Archer (2004) noted that IA appears to be more common among teenage girls than teenage boys but that this difference shrinks when adult participants are examined. Among an adolescent sample, male youths reported engaging in more frequent verbal and physical aggression for each age group assessed (i.e., 14-15 years, 16-17 years); however, there were no significant gender differences found for IA (Toldos, 2005).

Bailey and Ostrov (2008) observed gender differences among an undergraduate sample, with men utilizing significantly more proactive and reactive physical aggression than women. Bjorkqvist and colleagues (1994) found that men reported significantly more “relational appearing” forms of IA (e.g., interrupting, directly criticizing, questioning one’s sense of judgment) than women, and women reported engaging in more “social manipulative” forms of IA (e.g., spreading of false rumors, backbiting comments, insinuating negative glances). Several studies have shown that male participants report engaging in more relational aggression and IA than female participants (Moroschan, Hurd, & Nicoladis, 2009; Schmeelk & Sylvers, 2008; Storch et al., 2004), with other studies indicating that female participants are more likely to engage in IA (Hess & Hagen, 2006). Given mixed findings of aggression among adult samples, the present study included gender in the analyses.

The Present Study

The present study explored the relationships of two comparison-based personality traits (i.e., contingent self-esteem and dispositional envy) and two cognitive

vulnerabilities (i.e., anger rumination and fear of negative evaluation) to the perpetration of IA and DA. Contingent self-esteem and dispositional envy were expected to contribute to the tendency to engage in indirect and displaced aggressive behaviors, as both have been associated with direct aggression and maladaptive anger expression (e.g., Deci & Ryan, 1995; Kernis, 1993; Kernis, Lakey, & Heppner, 2008; Crocker & Park, 2004). Various aspects of self-esteem appear to be relevant to a variety of aggressive behaviors, but no prior studies were found assessing the relationship of contingent self-esteem to IA or DA. Dispositional envy was deemed relevant, as it has been linked to higher levels of resentment and hostile reactions. Further, dispositional envy has been linked to a pervasive sense of inferiority and ill will towards the envied party (Smith et al., 1999; Veselka et al., 2014). Thus, IA and DA could serve as a way for the chronically envious individual to “level down” others and protect their own social status, or as a way to cope with chronic feelings of inferiority.

The two cognitive vulnerability factors, fear of negative evaluation and anger rumination, were also deemed potentially relevant. IA has been positively associated with high levels of anxiety about one’s status in friendships (Duncan & Owen-Smith, 2006). Fear of negative evaluation may inhibit one’s ability and/or willingness to directly aggress, facilitating the utilization of IA and/or DA. Anger rumination has been linked to higher levels of overt aggression, hostility, and triggered DA (Anestis et al., 2009; Bushman et al., 2005; Sukhodolsky et al., 2001). Anger rumination, coupled with comparison-based personality traits, may increase one’s utilization of aggression as a result of cognitive depletion (Denson, 2006), or as a tactical method to “level down” an envied party.

We predicted that contingent self-esteem, dispositional envy, anger rumination, and fear of negative evaluation would account for unique variance in the perpetration of IA and DA. We expected that each of these variables would be positively related to IA and DA. Because we did not have a sufficient theoretical or empirical basis for predicting gender differences or a specific type of moderation effect, respondent gender was examined as a potential moderator of these predicted relationships on an exploratory basis.

CHAPTER II - METHOD

Participants

A web-based research system (i.e., Sona Systems Ltd.) was utilized to recruit participants from the University of Southern Mississippi. A power analysis calculated with G*Power determined that at least 200 participants would be needed to detect medium effect sizes, and so a target of at least 300 participants was set in order to ensure a sufficient sample size after addressing potential data integrity issues. For the results to be easily comparable to other studies using college student samples, the age range was restricted to 18-25.

The present sample included 346 undergraduate student volunteers. The age range was restricted to 18-25 years. Seventy-seven participants identified themselves as men (22%), and 269 identified themselves as women (78%). The racial makeup of the sample included 66% participants who identified themselves as White, 27% as Black, 4% as Asian, 3% as Hispanic/Latino, and 1% as American Indian/Alaska Native. First-year college students were somewhat over-represented, with 40% of the sample identifying themselves as freshmen, 25% as sophomores, 18% as juniors, and 17% as seniors.

Instruments

The following instruments were administered online through Qualtrics. The demographic questionnaire (see Appendix A) was presented first, and the order of the remaining measures were randomized to minimize potential order effects.

Participant Demographic Questionnaire

A brief demographic questionnaire was administered at the beginning of the survey to assess demographic information and to check if the participant qualified for the study's demographic requirements (i.e., ages 18-25).

Dispositional Envy Scale (DES)

The 8-item DES was developed by Smith et al., (1999) to assess dispositional envy. The DES was recently described by Lange and Crusius (2015) as “the most widely used measure of envy as a personality trait” (p. 285), who also noted that the DES appears to assess malicious but not benign envy. Item content deals with feelings of envy, inferiority, and resentment (e.g., “I feel envy every day,” “The bitter truth is that I generally feel inferior to others.”) Respondents rate each item using a 5-point Likert scale where response options range from 1 (“strongly disagree”) to 5 (“strongly agree”). The DES has demonstrated high internal consistency in college student samples (α s = .83 - .86) and impressive short-term temporal stability in the form of a 2-week test-retest reliability coefficient of .80 (Smith et al. 1999). This measure has also shown evidence of construct validity through correlations to other measures of envy, as well as other theoretically similar constructs, such as vulnerable narcissism and high levels of insecurity, neuroticism, hostility, and schadenfreude (i.e., feeling pleasure when others fail; Krizan & Johar, 2012; Rentzsch, Schroder-Abe, & Schutz, 2015; Rentzsch & Gross, 2015; Smith et al., 1999).

Contingent Self-Esteem Scale (CSES)

The 15-item CSES was developed by Paradise and Kernis (1999) to measure contingent self-esteem. Items assess self-esteem contingencies in areas such as

acceptance from others, performance, and living up to expectations. Items are rated on a 5-point Likert scale ranging from 1 (“not at all like me”) to 5 (“very much like me”), with higher scores indicating stronger contingencies. This scale has displayed 4-week test-retest reliability ($r = .77$), and adequate internal consistency ($\alpha s = .79-.85$; Kernis, 2005; Neff & Vonk, 2009; Patrick, Neighbors, & Knee, 2004; Neighbors, Larimer, Geisner, & Knee, 2004). There is also evidence of construct validity (Kernis, 2003; Neff & Vonk, 2009; Neighbors et al., 2004).

Displaced Aggression Questionnaire (DAQ)

The 31-item DAQ was used to assess trait displaced aggression (i.e., “When someone or something makes me angry I am likely to take it out on another person;” “If someone made me angry I would likely vent my anger on another person”). Respondents answer items on a 7-point Likert scale (1 = extremely uncharacteristic of me; 7 = extremely characteristic of me). The DAQ is made up of three subscales, which measure a cognitive dimension (revenge planning, 11 items), behavioral dimension (behavioral displaced aggression, 10 items), and affective dimension (anger rumination, 10 items). The DAQ has exhibited high levels of internal consistency ($\alpha = .91$) and four-week test re-test reliability ($r = .77$) as well as evidence of construct validity (Clingan et al., 2016; Denson, Pederson, & Miller, 2006; Garcia-Sancho et al., 2016). The total score of the DAQ was used in the present study.

Indirect Aggression Scales – Aggression Version (IAS-A)

The IAS-A is a 25-item self-report measure of the frequency with which respondents have used various forms of indirectly aggressive behaviors during the last 12 months (Forrest, Eatough, & Shevlin, 2005). Items are presented on a 5-point Likert scale

ranging from 1 (“Never”) to 5 (“Regularly”). The 25 IAS-A items form three subscales: social exclusion (10 items; α s = .78 - .82), malicious humor (9 items; α s = .84 - .86), and guilt induction (6 items; α s = .79 - .81; Klem, 2008; Forrest et al., 2005). Potential scores range from 25-125, with higher scores indicating higher levels of IA behaviors. The overall IAS-A has shown good internal consistency among college student samples (α = .94; Arnocky et al., 2012; Grimaldi, Napper, & LaBrie, 2014) as well as evidence of construct validity (Moroschan, Hurd, & Nicoladis, 2009; Forrest et al., 2005). The overall IAS-A score was utilized in the present study.

Fear of Negative Evaluation Scale – Brief (FNEB)

The 12-item FNEB is a brief self-report questionnaire that measures respondents’ desire for peer acceptance and fear of negative evaluation from others (i.e., “I am afraid others will not approve of me”). Respondents rate how characteristic they consider each statement to be of themselves on a 5-point Likert scale (1=*not at all characteristic of me*; 5=*extremely characteristic of me*). This measure has demonstrated good internal consistency (α s = .90-.97), and excellent (r = .94) 2-week test-retest reliability (Collins, Westra, Dozois, & Stewart, 2005; Duncan & Owen-Smith, 2006) as well as evidence of construct validity (Collins et al., 2005; Weeks et al., 2008).

Anger Rumination Scale (ARS)

The 19-item ARS (e.g., Sukhodolsky et al., 2001) is a self-report questionnaire that measures the tendency to focus attention on, recall, and ruminate on past angry moods and anger experiences (e.g., “Whenever I experience anger, I keep thinking about it for a while.”) Responses range on a 4-point Likert scale (1=*almost never*; 4=*almost always*). This scale has shown high internal consistency (α s = .91 - .93), one-month test-

retest reliability of .77 (Anestis et al., 2009; Sukhodolsky, et al., 2001) and evidence of construct validity (Anestis, et al., 2009; Sukhodolsky, et al., 2001).

Procedure

Approval for this study was obtained through the University of Southern Mississippi Institutional Review Board - Human Subjects Protection Review Committee (see Appendix B). The Department of Psychology's web-based research system (i.e., Sona Systems Ltd.) was used to recruit potential participants from the departmental subject pool. After reading a description of the study, potential participants signed up through Sona, at which time they were given a URL directing them to the consent form (see Appendix C) hosted through Qualtrics. After reviewing and electronically signing the online consent form, participants were directed to a demographic questionnaire and all study instruments. Consistent with published recommendations on the importance of detecting careless responding in online survey research (e.g., Meade and Craig, 2012), two directed response items were embedded in the survey questionnaires and formatted to blend in with the measures in which they are embedded. Each instructed respondents to answer in a particular way (e.g., "Answer 'agree' to this question."). Participants who failed to answer either item as instructed were flagged so their responses can be eliminated from analyses. Consistent with departmental policies, participants who completed the study without failing the quality assurance checks received 1 research credit based on an expected 60-minute completion time.

CHAPTER III - RESULTS

Data Clean-Up and Preliminary Analyses

Data were downloaded from Qualtrics and converted into an SPSS file. Initially, there were 558 cases in the data set. Eighty-four cases that contained nothing but missing data were manually deleted and 102 were excluded due to failing one or both of the two directed response items, which were designed to detect careless responding ($N = 409$). Next, twenty-six participants were excluded for being outside the 18-25 age range ($N = 346$). Distributed among participants in the data set, there was 1 missing item response for the IAS and 29 missing item responses for the DAQ. These missing responses were replaced using the subscale averages. That is, each participant's average item-level score for the subscale on which each particular missing item fell was calculated, and the missing data point was replaced with that value.

Means, standard deviations, and alpha coefficients for variables used in the primary analyses are presented by respondent gender (see Table 1). Also reported are F-statistics for one-way (gender) ANOVAs and effect sizes (i.e., Cohen's d). Alpha coefficients ranged from a low of .85 to a high of .96, indicating that the internal consistency of all measures was more than sufficient for research purposes. Gender differences were found for the IAS-A total score and BFNE total score, although the unequal numbers of women and men in the present sample should be taken into consideration when considering these differences. Men scored higher on indirect aggressive behavior (IAS-A) than women. This is consistent with some previous research showing that men scored higher on the IAS-A (Klem, 2008; Moroschan, Hurd, & Nicoladis, 2009); however, other studies found no sex differences on the overall score of

IAS-A (Forrest, et al., 2005; Kussy, 2011). Women scored higher on fear of negative evaluation traits (BFNE) than men, which is consistent with past research utilizing this measure (Biolcati, 2017; Duke, Krishnan, Faith, & Storch, 2006; Shokri et al., 2008). The effect sizes of both of these differences would be considered small (Valentine & Cooper, 2003).

Table 1

Scale Reliabilities, Means, Standard Deviations, and Gender Differences

Variable	α	Men		Women		$F(1,346)$	d
		M	SD	M	SD		
DES	0.91	16.12	7.78	17.29	7.66	1.41	-0.15
ARS	0.95	34.47	13.32	33.92	11.16	0.13	0.05
BFNE	0.90	34.03	10.57	37.12	10.36	5.28*	-.30
DAQ	0.96	88.71	40.50	87.33	39.58	0.07	0.04
CSE	0.85	48.09	9.85	49.04	9.76	0.57	-0.98
IAS	0.95	40.51	16.60	36.20	12.76	5.91*	0.31

Note. DES =Dispositional Envy Scale; ARS = Angry Rumination Scale; BFNE = Brief Fear of Negative Evaluation Scale; DAQ =Displaced Aggression Questionnaire; CSE = Contingent Self-Esteem Scale; IAS-A= Indirect Aggression Scale – Aggressor.

* $p < .05$

The two dependent variables (i.e., IAS-A and DAQ) were examined for normality. The distribution of the IAS-A was positively skewed and was transformed with an inverse and reflect transformation. Next, all continuous independent variables used in the primary analyses were examined for normality. The DES total score exhibited moderate positive skewness and was transformed using a logarithmic transformation. The ARS total score exhibited slight positive skewness and was transformed using a square

root transformation. Unless otherwise noted, transformed scores were used for these variables in subsequent analyses.

Intercorrelations among the variables were examined separately for women and men; however, tests of the strength of independent correlations revealed fewer differences than would be expected to occur by chance. Thus, correlations are reported for the full sample (Table 2). Dispositional envy, fear of negative evaluation, anger rumination, and contingent self-esteem were positively related to both indirect aggression and displaced aggression, indicating that participants with higher scores on these variables were more likely to report engaging in indirect or displaced aggressive behaviors.

Table 2

Intercorrelations of Variables

	1	2	3	4	5
1. IAS	--				
2. DAQ	.51**	--			
3. DES	.37**	.57**	--		
4. BFNE	.13*	.34**	.55**	--	
5. ARS	.50**	.78**	.58**	.39**	--
6. CSE	.09	.32**	.51**	.74**	.33**

Note. IAS = Indirect Aggression Scale; DAQ = Displaced Aggression Scale; DES = Dispositional Envy Scale; BFNE = Brief Fear of Negative Evaluation; ARS = Angry Rumination Scale; CSE = Contingent Self-Esteem Scale.

*p < .01; **p < .05

Primary Analyses

A dummy gender variable was created (0 = women, 1 = men), and all predictor variables were centered to facilitate interpretation and reduce multicollinearity. In order to explore the utility of anger rumination, fear of negative evaluation, contingent self-esteem, and dispositional envy in predicting indirect aggression (H1) and displaced aggression (H2), two hierarchical multiple regressions were computed. First, total scores of the IAS-A were regressed on respondent gender, dispositional envy, anger rumination, fear of negative evaluation, contingent self-esteem, and the following interaction terms: dispositional envy x gender, anger rumination x gender, fear of negative evaluation x gender, contingent self-esteem x gender. Respondent gender, dispositional envy, anger rumination, fear of negative evaluation, and contingent self-esteem were entered in the first step, and the interaction terms were entered in the second step (see Table 3).

The overall model was significant, explaining 29% of the variance and indicating that ARS and DES were positive predictors of indirect aggression (i.e., higher scores on these scales were associated with higher levels of indirect aggressive behaviors) while taking respondent gender into account. Thus, H1 was partially supported. Anger rumination and dispositional envy predicted indirect aggression. Contingent self-esteem and fear of negative evaluation did not. The interaction terms tested on Step 2 were not significant, suggesting that the predictive utility of these scales does not differ for men and women.

Table 3

Hierarchical Regression Analysis Summary for Dispositional Envy, Angry Rumination, Contingent Self-Esteem, and Fear of Negative Evaluation Predicting Indirect Aggression (N = 346)

Variable	<i>B</i>	95% CI	<i>SE B</i>	β	<i>R</i> ²	ΔR^2
Step 1					.29	.29**
Gender	-.00	[-.00, -.00]	.00	.14**		
DES	.01	[.00, .01]	.00	.20**		
ARS	.00	[.00, .01]	.00	.42**		
BFNE	-7.74	[.00, .00]	.00	-.10		
CSE	9.64	[.00, .00]	.00	.00		
Step 2					.29	.00
DES x Gender	.00	[-.01, .01]	.01	-.01		
ARS x Gender	.00	[-.00, .00]	.00	-.05		
BFNE x Gender	9.54	[.00, .00]	.00	.11		
CSE x Gender	4.03	[.00, .00]	.00	.00		

Note. IAS = Indirect Aggression Scale; DES = Dispositional Envy Scale; BFNE = Brief Fear of Negative Evaluation; ARS = Angry Rumination Scale; CSE = Contingent Self-Esteem Scale.

* $p < .05$. ** $p < .01$.

Second, total scores of the DAQ were regressed on respondent gender, dispositional envy, anger rumination, fear of negative evaluation, contingent self-esteem, and the following interactions terms: dispositional envy x gender, anger rumination x gender, fear of negative evaluation x gender, contingent self-esteem x gender. Respondent gender, dispositional envy, anger rumination, fear of negative evaluation, and contingent self-esteem were entered in the first step, and the interaction terms were entered in the second step (see Table 4).

The overall model was significant, explaining 63.4% of the variance and indicating that two variables (i.e., ARS and DES) were positive predictors of displaced aggression (i.e., higher scores on these scales were associated with higher levels of displaced aggression) while taking respondent gender into account. Thus, H2 was partially supported. Angry rumination and dispositional envy predicted displaced aggression; contingent self-esteem and fear of negative evaluation did not. The interaction terms tested on Step 2 were not significant, suggesting that the predictive utility of these scales did not differ by respondent gender.

Table 4

Hierarchical Regression Analysis Summary for Dispositional Envy, Angry Rumination, Contingent Self-Esteem, and Fear of Negative Evaluation Predicting Displaced Aggression (N = 346)

Variable	<i>B</i>	95% CI	<i>SE B</i>	β	R^2	ΔR^2
Step 1					.63	.63*
Gender	-1.36	[-7.60, 4.88]	-.01	-.01		
DES	38.38	[20.58, 56.19]	.19**	-.06		
ARS	28.56	[25.28, 31.85]	1.67	.69**		
BFNE	-.23	[-.61, .16]	.19	.19**		
CSE	.09	[-.31, .49]	.20	.69**		
Step 2					.64	.00
DES x Gender	-4.13	[-46.93, 38.68]	21.76	-.02		
ARS x Gender	.98	[-6.40, 8.35]	3.75	.02		
BFNE x Gender	-.09	[-.98, .80]	.45	-.02		
CSE x Gender	.34	[-.61, 1.28]	.48	.07		

Note. DAQ = Displaced Aggression Scale; DES = Dispositional Envy Scale; BFNE = Brief Fear of Negative Evaluation; ARS = Angry Rumination Scale; CSE = Contingent Self-Esteem Scale.

* $p < .05$. ** $p < .01$.

Exploratory Analyses

Exploratory analyses were conducted using the subscales of the IAS-A and DAQ in order to assess potential differences among predictors within each type of aggression.

Table 5

Scale Reliabilities, Means, Standard Deviations, and Gender Differences

Variable	α	Men		Women		$F(1,345)$	d
		M	SD	M	SD		
IAS-SE	0.91	18.23	8.29	16.89	6.33	2.32	.015
IAS-MH	0.88	15.88	7.19	13.06	4.88	16.00**	0.04
IAS-GI	0.85	9.68	4.07	9.10	3.77	1.39	0.29
DAQ-RP	0.95	30.99	16.54	24.93	14.40	9.91*	0.03
DAQ-BDA	0.93	23.16	12.06	28.03	14.34	7.38*	0.09
DAQ-AR	0.95	34.58	18.47	34.38	16.42	0.01	0.06

Note. IAS-SE = IAS S; IAS-MH = IAS Malicious Humor subscale; IAS-GI = IAS Guilt Induction subscale; DAQ-RP = DAQ Revenge Planning Subscale; DAQ-BDA = DAQ Behavioral Displaced Aggression Subscale; DAQ AR = DAQ Angry Rumination Subscale.

* $p < .05$. ** $p < .01$.

Alpha coefficients, means, and standard deviations for all subscales used in the exploratory analyses are presented in Table 5 by respondent gender. F-statistics for one-way (gender) ANOVAs and effect sizes (i.e., Cohen's d) are also reported. Alpha coefficients ranged from a low of .85 to a high of .95, indicating that the internal consistencies of all subscales were sufficient. Gender differences were found for the following subscales: IAS-A malicious humor, DAQ revenge planning, and DAQ behavioral displaced aggression. Men scored higher on IAS-A malicious humor and

DAQ revenge planning than women; women scored higher on DAQ behavioral displaced aggression than men. The effect sizes of these differences were small (Valentine & Cooper, 2003). Moreover, these gender differences should be considered tentatively due to the unequal number of women and men in the present sample.

Table 6

Intercorrelations of Variables

	1	2	3	4	5	6	7	8	9
1. IAS-SE	--								
2. IAS-MH	.76**	--							
3. IAS-GI	.80**	.72**	--						
4. DAQ-RP	.55**	.57**	.45**	--					
5. DAQ-BDA	.37**	.35**	.40**	.56**	--				
6. DAQ-AR	.33**	.32**	.25**	.65**	.65**	--			
7. DE	.37**	.31**	.35**	.42**	.55**	.51**	--		
8. BFNE	.14*	.05	.19**	.09	.36**	.43**	.55**	--	
9. ARS	.48**	.47**	.42**	.68*	.55**	.77**	.58**	.39**	--
10. CSE	.09	.05	.15**	.10	.32**	.39**	.52**	.74**	.33**

Note. IAS = Indirect Aggression Scale; DAQ = Displaced Aggression Scale; DES = Dispositional Envy Scale; BFNE = Brief Fear of Negative Evaluation; ARS = Angry Rumination Scale; CSE = Contingent Self-Esteem Scale.

* $p < .01$. ** $p < .05$

Correlations are reported for the full sample (see Table 6). Dispositional envy, fear of negative evaluation, anger rumination, and contingent self-esteem were positively related to all IAS and DAQ subscales, indicating that participants with higher scores on

these variables were more likely to report engaging in these various forms of indirect and displaced aggressive behaviors.

Table 7

Hierarchical Regression Analysis Summary for Dispositional Envy, Angry Rumination, Contingent Self-Esteem, and Fear of Negative Evaluation Predicting Indirect Aggression – Aggressor Malicious Humor Subscale (N = 346)

Variable	B	95% CI	SE B	β	R ²	ΔR^2
Step 1					.27	.27**
Gender	-.01	[-.02, .01]	.00	-.20		
DE	-.02	[.01, .04]	.01			
				.20**		
ARS	-.01	[.01, .01]	.00			
BFNE	.00	[-.00, .00]	.00	.40**		
CSE	5.20	[.00, .00]	.00	-.17*		
Step 2				.00	.28	.01
DE x Gender	.01	[-.02, .05]	.02	.09		
ARS x Gender	-.00	[-.01, .00]	.00	-.09		
BFNE x Gender	.00	[-.00, .00]	.00	.18		
CSE x Gender	-7.40	[-.00, .00]	.00	-.03		

Note. IAS = Indirect Aggression Scale; DES = Dispositional Envy Scale; BFNE = Brief Fear of Negative Evaluation; ARS = Angry Rumination Scale; CSE = Contingent Self-Esteem Scale.

* $p < .05$. ** $p < .01$.

In order to explore the potential predictive utility of different types of indirectly aggressive behaviors, three hierarchical multiple regressions were conducted (i.e., one with each of the three IAS-A subscales). For each regression, the IAS-A subscale score was regressed on respondent gender, dispositional envy, anger rumination, fear of negative evaluation, contingent self-esteem, and the following interactions terms: dispositional envy x gender, anger rumination x gender, fear of negative evaluation x gender, contingent self-esteem x gender. Respondent gender, dispositional envy, anger

rumination, fear of negative evaluation, and contingent self-esteem were entered in the first step, and the interaction terms were entered in the second step. The results for IAS-A malicious humor (see Table 7), social exclusion, (see Table 8) and guilt induction (see Table 9) were similar.

Table 8

Hierarchical Regression Analysis Summary for Dispositional Envy, Angry Rumination, Contingent Self-Esteem, and Fear of Negative Evaluation Predicting Indirect Aggression – Social Exclusion (N = 346)

Variable	<i>B</i>	95% CI	<i>SE B</i>	β	R^2	ΔR^2
Step 1					.25	.25**
Gender	-.00	[-.00, .01]	.00	.07		
DE	-.02	[-.03, -.00]	.01	-.18**		
ARS	-.01	[-.01, -.01]	.00	-.42**		
BFNE	.00	[.00, .00]	.00	.29		
CSE	5.20	[.00, .00]	.00	.68		
Step 2					.25	.00
DE x Gender	9.53	[-.03, .03]	.01	.01		
ARS x Gender	.00	[-.00, .01]	.00	.18		
BFNE x Gender	9.39	[-.00, .00]	.00	-.34		
CSE x Gender	5.83	[.00, .00]	.00	.20		

Note. IAS = Indirect Aggression Scale; DES = Dispositional Envy Scale; BFNE = Brief Fear of Negative Evaluation; ARS = Angry Rumination Scale; CSE = Contingent Self-Esteem Scale.

* $p < .05$. ** $p < .01$.

All regression models were significant, and the ARS and DES were positive predictors of all three IAS-A subscales. BFNE emerged as another positive predictor of malicious humor. In all three cases, the interaction terms tested on Step 2 were not significant, indicating that the predictive utility of the predictor variables did not differ by participant gender.

Table 9

Hierarchical Regression Analysis Summary for Dispositional Envy, Angry Rumination, Contingent Self-Esteem, and Fear of Negative Evaluation Predicting Indirect Aggression – Guilt Induction (N = 346)

Variable	<i>B</i>	95% CI	<i>SE B</i>	β	<i>R</i> ²	ΔR^2
Step 1					.18	.18**
Gender	-.01	[-.02, .00]	.01	-.09		
DE	.04	[-.02, .07]	.01	.22**		
ARS	.01	[-.01, .01]	.00	.24**		
BFNE	6.43	[.00, .00]	.00	.02		
CSE	-4.66	[-.00, .00]	.00	-.01		
Step 2					.18	.00
DE x Gender	-.02	[-.03, .03]	-.11	.11		
ARS x Gender	.00	[-.01, .00]	.02	.02		
BFNE x Gender	5.06	[.00, .00]	.00	.01		
CSE x Gender	.00	[-.00, .00]	.09	.56		

Note. IAS = Indirect Aggression Scale; DES = Dispositional Envy Scale; BFNE = Brief Fear of Negative Evaluation; ARS = Angry Rumination Scale; CSE = Contingent Self-Esteem Scale.

In order to explore the potential predictive utility of different types of displaced aggressive behaviors, three hierarchical multiple regressions were conducted (i.e., one with each of the three DAQ subscales). In each regression, the DAQ subscale was regressed on respondent gender, dispositional envy, anger rumination, fear of negative evaluation, contingent self-esteem, and the following interactions terms: dispositional envy x gender, anger rumination x gender, fear of negative evaluation x gender, contingent self-esteem x gender. Respondent gender, dispositional envy, anger rumination, fear of negative evaluation, and contingent self-esteem were entered in the first step, and the interaction terms were entered in the second step.

Table 10

Hierarchical Regression Analysis Summary for Dispositional Envy, Angry Rumination, Contingent Self-Esteem, and Fear of Negative Evaluation Predicting Displaced Aggression – Revenge Planning (N = 346)

Variable	<i>B</i>	95% CI	<i>SE B</i>	β	R^2	ΔR^2
Step 1					.51	.51**
Gender	-.50	[-.75, .23]	.13	-.14		
DE	1.44	[.70, 2.17]	.38	.20**		
ARS	.96	[.82, 1.01]	.07	.65**		
BFNE	-.03	[-.05, -.01]	.01	-.23**		
CSE	-.01	[-.02, .01]	.01	-.05		
Step 2					.51	.00
DE x Gender	-.33	[-2.09, 1.44]	.90	-.37		
ARS x Gender	-.05	[-.35, .26]	.16	-.30		
BFNE x Gender	.01	[-.03, .05]	.02	.48		
CSE x Gender	-.01	[-.04, .03]	.02	-.04		

Note. IAS = Indirect Aggression Scale; DES = Dispositional Envy Scale; BFNE = Brief Fear of Negative Evaluation; ARS = Angry Rumination Scale; CSE = Contingent Self-Esteem Scale.

* $p < .05$. ** $p < .01$.

The results for DAQ revenge planning (see Table 10), behavioral displaced aggression (see Table 11) and angry rumination (see Table 12) were similar; however, there was more variability with these subscales than was the case with the IAS-A. Scores on the BFNE, ARS, and DES were positive predictors of revenge planning. Scores on the ARS and DES but not BFNE were positive predictors of behavioral displaced aggression. Finally, the ARS was the only variable to predict angry rumination. In each regression, the interaction terms tested on Step 2 were not significant, indicating that these relationships did not differ by participant gender.

Table 11

Hierarchical Regression Analysis Summary for Dispositional Envy, Angry Rumination, Contingent Self-Esteem, and Fear of Negative Evaluation Predicting Displaced Aggression – Behavioral Displaced Aggression (N = 346)

Variable	<i>B</i>	95% CI	<i>SE B</i>	β	R^2	ΔR^2
Step 1					.42	.42**
Gender	.39	[.12, .66]	.14	.12		
DE	2.17	[1.40, 2.93]	.39	.32**		
ARS	.53	[.39, .67]	.07	.32**		
BFNE	.00	[-.02, .02]	.01	.38**		
CSE	.00	[-.01, .02]	.01	.00		
Step 2				.03	.43	.01
DE x Gender	-.89	[-2.69, .92]	.92	-.12		
ARS x Gender	.39	[.07, .69]	.16	.23		
BFNE x Gender	-.03	[-.05, .01]	.02	-.18		
CSE x Gender	.03	[-.01, .07]	.02	.19		

Note. IAS = Indirect Aggression Scale; DES = Dispositional Envy Scale; BFNE = Brief Fear of Negative Evaluation; ARS = Angry Rumination Scale; CSE = Contingent Self-Esteem Scale.

* $p < .05$. ** $p < .01$.

Table 12

Hierarchical Regression Analysis Summary for Dispositional Envy, Angry Rumination, Contingent Self-Esteem, and Fear of Negative Evaluation Predicting Displaced Aggression – Angry Rumination (N = 346)

Variable	<i>B</i>	95% CI	<i>SE B</i>	β	R^2	ΔR^2
Step 1					.63	.63**
Gender	-.43	[-3.11, 2.25]	1.36	-.01		
DE	1.34	[-6.31, 8.99]	3.89	.02		
ARS	12.54	[11.13, 13.95]	.72	.71**		
BFNE	.11	[-.06, .28]	.08	.07		
CSE	.15	[-.03, .32]	.09	.08		
Step 2					.63	.00

02 (continued).

DE x Gender	7.79	[-10.59,26.16]	9.34	.08
ARS x Gender	-1.23	[-4.39, 1.94]	1.61	.06
BFNE x Gender	-.07	[-.45, .31]	.19	-.04
CSE x Gender	.09	[-.31, .49]	.21	.05

Note. IAS = Indirect Aggression Scale; DES = Dispositional Envy Scale; BFNE = Brief Fear of Negative Evaluation; ARS = Angry

Rumination Scale; CSE = Contingent Self-Esteem Scale.

* $p < .05$. ** $p < .01$.

CHAPTER IV - DISCUSSION

The present study extended the literature on indirect forms of aggression by examining the degree to which comparison-based personality factors (i.e., contingent self-esteem and dispositional envy) and cognitive vulnerability traits (i.e., fear of negative evaluation and anger rumination) predicted the tendency to engage in indirect and displaced aggressive behaviors among college students. As expected, anger rumination and dispositional envy were positive predictors for both IA and DA while taking respondent gender into account. Participants who were higher in anger rumination and dispositional envy reported engaging in more frequent indirect and displaced aggression. Further, anger rumination and dispositional envy explained unique variance for all three subscales of the IAS-A (i.e., social exclusion, guilt induction, and malicious humor) and two of the DAQ subscales (i.e., behavioral displaced aggression, and revenge planning). Essentially, anger rumination and dispositional envy explained a significant amount of variance in these particular forms of indirect and displaced aggression while accounting for all other variables that are included in the regression model. This is consistent with the possibility that indirect and displaced aggression may serve as maladaptive coping techniques for individuals who frequently feel envious of others and have a tendency to ruminate over angry experiences. Dispositional envy did not explain unique variance in DAQ Angry Rumination.

Contrary to what was expected, contingent self-esteem did not explain unique variance in indirect or displaced aggression. Further, contingent self-esteem was unrelated to IA even when examining bivariate correlations. Although contingent self-esteem was related to displaced aggression when examining bivariate relationships, the

relationship was much weaker than either dispositional envy or anger rumination. Similarly, fear of negative evaluation showed a stronger bivariate relationship to DA than to IA; however, this relationship was not enough to make a contribution along with the other variables in the regressions. Fear of negative evaluation did not explain unique variance in indirect or displaced aggression total scores; however, fear of negative evaluation did account for unique variance in DAQ revenge planning and IAS-A malicious humor. This suggests a more nuanced relationship between specific behaviors associated with these forms of aggression and fear of negative evaluation, and that exploring specific behaviors associated with IA and DA could provide better insight into contributing factors.

Past research has supported the relevance of considering potential gender differences when studying aggressive behavior. Thus, gender was explored as a potential moderator in the present study. Contrary to past research findings of gender differences in aggressive behaviors (Archer, 2004; Bagner, et al., 2007; Basow, Cahill, Phelan, Longshore, & McGillicuddy-DeLisa, 2007; Card, Stuck, Sawalani, & Little, 2008; Eagly & Steffen, 1986; Green, Richardson, & Lago, 1996), no gender differences were found in this sample. Overall, the relationships between variables in the present study did not function differently when taking gender into account.

Indirect Aggression

The finding that dispositional envy explained unique variance in indirect aggression was consistent with Archer and Coyne's (2005) intriguing suggestion that IA may serve to neutralize a potential rival by adversely affecting their social standing, either by removal of the rival from the social group or by reducing their social status

within the social group. Regardless of gender, participants who were prone to experience feelings of envy reported engaging in indirect aggression more frequently. While it is not possible to infer a causal relationship here, these findings are consistent with the possibility that envy may facilitate IA. Such a possibility would fit well with the notion that a function of dispositional envy involves being motivated to protect one's self-image and "level down" the comparison target (Vidaillet, 2007). Anger rumination also accounted for unique variance in indirect aggression, which was not surprising since it has been associated with various types of aggression in previous studies, such as reactive aggression, physical aggression, and verbal aggression (Anestis et al., 2009; Bushman et al., 2005; White & Turner, 2015). Given that no previous studies were located that directly examined the association between anger rumination and IA, the present findings help to address a gap in the literature by demonstrating the potential relevance of anger rumination to indirect aggression.

Contrary to what was predicted, fear of negative evaluation and contingent self-esteem did not account for unique variance in indirect aggression when total IAS-A scores were examined. It is unlikely that a restricted range of scores on these measures was a factor, as their means and standard deviations were comparable to those reported in other studies utilizing the CSE to measure contingent self-esteem (Paradise & Kernis, 2002; Kernis et al., 2008; Turner & White, 2015) and the BFNE to measure fear of negative evaluation (Dogaheh, Mohammadkhani & Dolatshani, 2011; Hossein et al., 2009; Rodenbaugh et al., 2004). Contingent self-esteem involves a higher ego involvement in everyday activities (Deci & Ryan 1995) and is associated with being easily angered after experiencing an ego threat (Kernis & Paradise, 2002). Essentially,

those with contingent self-esteem may respond to threatening information by becoming aggressive, and past research has linked this fragile form of self esteem to higher levels of hostility and various aggressive behaviors, such as vindictive tendencies, verbal defensiveness, reactive aggression, insulting others, and blaming others (Deci & Ryan 1995; Kernis, 2003; Kernis et al., 2008; Kernis & Paradise 2002). The lack of significant findings in the present study could reflect measurement error or the need for a different research design. For example, an experimental research design in which variables are manipulated to give opportunities for participants to experience threats to their self-esteem, and then observed in situations designed to elicit indirect aggression as a response to these ego threats. Bushman & Baumeister (1998), found no relationship between self-esteem level and narcissism to laboratory triggered displaced aggression, so perhaps self-esteem is not as relevant a factor when considering displaced aggression. Future studies may find it beneficial to utilize longitudinal designs and/or to assess other aspects of self-esteem (e.g., stability) in order to fully explore the potential for self-esteem fragility to play a role in facilitating indirect and displaced aggressive behaviors.

It is worth noting that fear of negative evaluation was a significant predictor of scores on the IAS-A malicious humor subscale, suggesting that it is likely relevant to some aspects of IA. That it helped to account for malicious humor but not total IAS-A scores or scores on the other two IAS-A subscales (i.e., social exclusion and guilt induction) suggests that its role in indirect aggression may be fairly limited. Fear of negative evaluation has previously been linked to hostile interpersonal functioning and aggressive behaviors, as the socially anxious person has a tendency to predict that social interactions will be competitive or threatening (Rapee & Heimberg, 1997). The present

findings suggest that individuals who fear negative evaluation in social settings may be more likely to utilize malicious humor, perhaps as a way to deflect negative attention onto others and away from themselves. Malicious humor (i.e., imitating the victim in front of others, using sarcasm to insult) could be a more effective and immediate avenue to do this than guilt induction (i.e., trying to influence the victim by making them feel guilty, using the victims feelings to coerce them) or social exclusion (i.e., purposefully leaving the victim out of activities, excluding the victim from a group). This is consistent with the theory that those who fear negative evaluation may use IA as a way to deflect negative attention away from themselves onto others.

Displaced Aggression

Displaced aggression involves harm-doing behaviors aimed at innocent others rather than the original provocateur (Denson et al., 2006). Similar to what was found for indirect aggression, dispositional envy and anger rumination accounted for unique variance in displaced aggression while taking gender into account. While the present design does not permit drawing causal inferences, the present findings were consistent with the possibility that displaced aggression may be an outcome for individuals who regularly engage in upward social comparisons and ruminate over angry feelings.

Exploratory analyses focusing on the subscales of the DAQ found that anger rumination and dispositional envy accounted for unique variance in all three DAQ subscales. This suggests that the relevance of these variables extends to the behavioral, affective, and cognitive dimensions of DA. This adds to previous research linking anger rumination to higher levels of overt aggression, hostility, and triggered displaced aggression (Anestis et al., 2009; Bushman et al., 2005; Sukhodolsky et al., 2001). The tendency to engage in

upward social comparisons and experience the associated feelings of inferiority and “ill will” towards the envied party (Gold, 1996; Smith et al., 1999; Veselka et al., 2014) coupled with the cognitive tendency to ruminate or “brood” over these experiences appears to influence the engagement of DA. These aggressive behaviors could serve as a way to cope with the chronic feelings of inferiority that are associated with dispositional envy and the cognitive depletion that can occur when one has a tendency to engage in anger rumination (Denson, 2006). In sum, anger rumination coupled with the comparison-based personality trait of dispositional envy appears to increase one’s utilization of displaced aggression. This may serve as a displaced expression of frustration and ill will towards an original source of provocation, the envied party.

Despite theoretical support for its inclusion, fear of negative evaluation did not account for unique variance in displaced aggression when the total score was used. On the other hand, fear of negative evaluation did contribute to the DAQ revenge planning subscale. This suggests that fear of negative evaluation may be most relevant when considering the cognitive dimension of displaced aggression, or the tendency to hold grudges and plan for retaliation. Research has shown that those who are high in fear of negative evaluation tend to interpret neutral social interactions as threatening or competitive (Crick, Grotpeter, & Bigbee, 2002; Lochman & Dodge, 1994; Rapee & Heimberg, 1997). Perhaps this sensitivity towards perceived social slights facilitates the engagement in revenge planning as a cognitive coping technique. The behavioral aspect of aggression associated with fear of negative evaluation appears to be better explained by the malicious aggression dimension in indirect aggression, rather than being displaced later onto an innocent other.

Overall, these findings provide support for considering the underpinnings of aggressive behaviors when exploring contributing factors. Contingent self-esteem did not emerge as a significant predictor for displaced aggression, despite theoretical support in relevant literature. As noted above, this could reflect measurement error or the need for a different research design. Future directions could involve the manipulation of variables in a research study or the use of different instruments to potentially better capture these constructs within the scope of the research questions.

Limitations and Future Directions

Limitations of the present study include the reliance on self-report measures, the possible influence of careless responding on data integrity, the overrepresentation of women in the sample, the use of a convenience sample from a single university, and the correlational design. The most important limitation is likely the correlational design, as it prevents us from drawing causal inferences about the variables. As tempting as it might be to infer that envy and anger rumination lead to indirect or displaced aggression, the lack of an experimental design prevents us from ruling out the possibility that unspecified variables could be involved or to infer causation from correlation. Future research could incorporate longitudinal designs, daily diary methodology where participants provide data on regular intervals, or experimental research designs in which variables are manipulated and observed. Aggression is a socially undesirable behavior, and the self-report measures utilized in the present study were susceptible to the possibility of socially desirable responding. The use of an anonymous online survey likely helped; however, it may be helpful to future studies to assess socially desirable responding or to supplement self-report data with informant ratings where possible. Although recommended

procedures (e.g., Meade & Craig, 2012) were utilized to identify participants who responded carelessly to the questionnaires and exclude their data, it was clear that a significant number of participants who completed the study (roughly 102) responded carelessly enough to be eliminated. This highlights the possibility that some participants who carelessly responded could have been retained in the data set, which could negatively impact the validity of the findings. The present sample was predominately female (78%). This is not representative of college students and could have negatively impacted our ability to detect small gender differences in mean scores or in the relationships among variables of interest. Additionally, the sample was drawn from a single mid-sized public university in the Southeastern United States, which further reduces the generalizability of findings to a broader college student population. It may be beneficial for future studies involving these constructs to compare the present findings with those from more diverse samples.

Overall, the findings that dispositional envy and anger rumination were positively related to both indirect and displaced aggression suggest that future research on IA and DA may benefit from their inclusion. Although additional work with more diverse samples is likely to be useful, the present results suggest that gender may not be relevant when considering these relationships among emerging adults. It also appears that dispositional envy may be less relevant when considering the affective dimension of displaced aggression (i.e., anger rumination) despite being related to the other two subscales of the DAQ (i.e., behavioral displaced aggression, revenge planning). Future studies could expand on various types of similar interpersonally aggressive behaviors, such as relational aggression. Further, there could be personality-related factors in one's

dispositional tendency to experience envy to be explored based off the present findings. For example, DAQ revenge planning has been negatively associated with agreeableness and conscientiousness.

Fear of negative evaluation did not emerge as a significant factor when considering IAS-A and DAQ total scores; however, this trait was related to IAS-A malicious humor and DAQ revenge planning. Perhaps studies focused on forms of aggression that consist primarily of malicious behaviors (i.e., playing practical jokes, use of sarcasm, calling names and criticizing in public) as well as the tendency to hold grudges and plan for retaliation could provide more insight into the relationship between aggressive behaviors and fear of negative evaluation. Fear of negative evaluation is a cognitive vulnerability, and it is interesting that it was significantly correlated with the cognitive dimension of displaced aggression. Perhaps future studies could explore the types of thoughts associated with the cognitive dimension of displaced aggression as a maladaptive coping technique for those who experience fear of negative evaluation. Denson et al. (2006) found DAQ revenge planning to be positively correlated to trait hostility, norm of negative reciprocity, and direct physical aggression while negatively correlated to agreeableness, conscientiousness, anger control, and social desirability. Future studies may benefit from exploring fear of negative evaluation and these particular correlates to the DAQ revenge planning subscale.

More insight into factors that facilitate and maintain aggressive behaviors could inform the development of prevention programs (e.g., anti-bullying initiatives, educational based programs) as well as intervention strategies in clinical settings. Specifically, the present findings have the potential to reduce interpersonal dysfunction in

the form of indirect and/or displaced aggression. Cognitive-behavioral strategies focused on reducing dispositional envy, fear of negative evaluation, and anger rumination or changing behavioral responses to these intrapersonal experiences may be beneficial in reducing the use of aggressive behaviors. For example, cognitive restructuring as a means of reducing the impact of dispositional envy could potentially improve one's interpersonal functioning. Envy usually involves an upward social comparison that occurs when a person lacks an achievement, personal quality, or possession of another and desires this factor for themselves (Salovey & Roden, 1984). Such upward social comparisons can be interpreted as inspiring and motivating or these comparisons can elicit feelings of inferiority and self-dissatisfaction. Thus, cognitive restructuring geared at interpreting upward social comparisons as inspirational or motivating could reduce the associated aggressive responses and lead to more positive outcomes. Findings also suggest that gaining a clear picture of what DA/IA dimension is being expressed could further tailor interventions. For example, displaced aggressive behaviors that center primarily around the cognitive dimension of DA could suggest that assessing for and treating fear of negative evaluation is relevant. In such cases, interventions focused on cognitive restructuring regarding the tendency to interpret neutral social interactions as threatening and competitive could be an effective approach to the treatment of displaced aggression.

The present study provided support for the utility of personality-related factors and cognitive vulnerability factors in understanding indirect and displaced aggression among emerging adults. Specifically, anger rumination and dispositional envy accounted for unique variance in indirect and displaced aggression while taking respondent gender into account. On the other hand, contingent self-esteem did not contribute to

understanding indirect or displaced aggression. Support for fear of negative evaluation was more nuanced in that it was associated with the revenge planning dimension of displaced aggression and the malicious humor dimension of indirect aggression. These relationships did not vary by respondent gender.

APPENDIX A Study Questionnaires

Participant Demographic Questionnaire

The following questions will be used to gather information about participants in this study. Please answer the questions accordingly.

Gender: ☐ Male ☐ Female ☐ Other

Age:

Race/Ethnicity:

☐ African American/Black

☐ Caucasian/White

☐ Hispanic/Latino

☐ Native Hawaiian/Pacific Islander

☐ American Indian/Alaska Native

☐ Asian

☐ Other (specify)

College Status:

☐ Freshman

☐ Sophomore

☐ Junior

☐ Senior

Brief Fear of Negative Evaluation Scale (BFNE)

Read each of the following statements carefully and indicate how characteristic it is of you according to the following scale:

1 = not at all characteristic of me

2 = slightly characteristic of me

3 = moderately characteristic of me

4 = very characteristic of me

5 = extremely characteristic of me

1. I worry about what other people will think of me even when I know it doesn't make any difference.
2. I am unconcerned even if I know people are forming an unfavorable impression of me.
3. I am frequently afraid of other people noticing my shortcomings.
4. I rarely worry about what kind of impression I am making on someone.
5. I am afraid others will not approve of me.
6. I am afraid that people will find fault with me.
7. Other people's opinions of me do not bother me.
8. When I am talking to someone I worry about what they may be thinking about me.
9. I am usually worried about what kind of impression I make.
10. If I know someone is judging me, it has little effect on me.
11. Sometimes I think I am too concerned with what other people think of me.
12. I often worry that I will say or do the wrong things.

Dispositional Envy Scale (DES)

1 = strongly disagree

2 = moderately disagree

3 = neither agree nor disagree

4 = moderately agree

5 = strongly agree

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.

Displaced Aggression Questionnaire (DAQ)

1 = Extremely like me

2 = Moderately unlike me

3 = Slightly unlike me

4 = Neither like or unlike me

5 = Slightly like me

6 = Moderately like me

7 = Extremely like me

1. When somebody offends me, sooner or later I retaliate.
2. Sometimes I can't help thinking about times when someone made me mad.
3. When things don't go the way I plan, I take out my frustration on the first person I see.

4. I think about ways of getting back at people who have made me angry long after the event has happened.
5. When feeling bad, I take it out on others.
6. After an argument is over, I keep fighting with this person in my imagination.
7. I never help those who do me wrong.
8. If a person hurts you on purpose, you deserve to get whatever revenge you can.
9. I often find myself thinking over and over about things that have made me angry.
10. When angry, I have taken it out on people close to me.
11. The more time that passes, the more satisfaction I get from revenge.
12. Sometimes I get upset with a friend or family member even though that person is not the cause of my anger or frustration.
13. I feel angry about certain things in life.
14. If somebody harms me, I am not at peace until I can retaliate.
15. When angry, I tend to focus on my thoughts and feelings for a long period of time.
16. When someone or something makes me angry, I am likely to take it out on another person.
17. I have long living fantasies of revenge after the conflict is over.
18. Sometimes I get so upset by work or school that I become hostile toward family or friends.
19. I get “worked up” just thinking about things that have upset me in the past.
20. If another person hurts you, it’s all right to get back at him or her.
21. Whenever I experience anger, I keep thinking about it for a while.

22. When I am angry, I don't care who I lash out at.
23. I would get frustrated if I could not think of a way to get even with someone who deserves it.
24. I think about certain events from a long time ago and they still make me angry.
25. If I have had a hard day at work or school, I'm likely to make sure everyone knows about it.
26. I often daydream about situations where I'm getting back at my own people.
27. I take my anger out on innocent others.
28. I re-enact the anger episode in my mind after it has happened.
29. When someone makes me angry, I can't stop thinking about how to get back at this person.
30. If someone made me angry, I would likely vent my anger on another person.
31. I keep thinking about events that angered me for a long time.

Indirect Aggression Scale – Aggressor Version (IAS-A)

Think about the past 12 months with your friends, peers, and co-workers. On a scale of 1-5, rate how often you think you have done the actions stated below.

1 = Never

2 = Once/Twice

3 = Sometimes

4 = Often

5 = Regularly

1. Used my relationship with them to try and get them to change a decision.
2. Used sarcasm to insult them.

3. Tried to influence them by making them feel guilty.
4. Withheld information from them that the rest of the group is let in on.
5. Purposefully left them out of activities.
6. Made other people not talk to them.
7. Excluded them from a group.
8. Used their feelings to coerce them.
9. Made negative comments about their physical appearance.
10. Used private in-jokes to exclude them.
11. Used emotional blackmail on them.
12. Imitated them in front of others.
13. Spread rumors about them.
14. Played a nasty practical joke about them.
15. Done something to try and make them look stupid.
16. Pretended to be hurt and/or angry with them to make them feel bad about
him/herself
17. Made them feel that they don't fit in.
18. Intentionally embarrassed them around others.
19. Stopped talking to them.
20. Put undue pressure on them.
21. Omitted them from conversations on purpose.
22. Made fun of them in public.
23. Called them names.
24. Criticized them in public.

25. Turned other people against them.

Contingent Self-Esteem Scale (CSES)

1 = strongly disagree

2 = moderately disagree

3 = neither agree nor disagree

4 = moderately agree

5 = strongly agree

1. An important measure of my worth is how competently I perform.
2. Even in the face of failure, my feelings of self-worth remain unaffected.
3. A big determinant of how much I like myself is how well I perform up to the standards I have set for myself.
4. My overall feelings about myself are heavily influenced by how much other people like me.
5. If I get along well with somebody, I feel better about myself overall.
6. An important measure of my worth is how physically attractive I am.
7. My overall feelings about myself are heavily influenced by what I believe other people are saying about me.
8. If I am told I look good, I feel better about myself in general.
9. My feelings of self-worth are basically unaffected when other people treat me badly.
10. An important measure of my worth is how well I perform up to the standards that other people have set for me.
11. If I know that someone likes me, I do not let it affect how I feel about myself.

12. When my actions do not live up to my expectations, it makes me feel dissatisfied with myself.
13. Even on a day when I don't look my best, my feelings of self-worth remain unaffected.
14. My overall feelings about myself are heavily influenced by how good I look.
15. Even in the face of rejection, my feelings of self-worth remain unaffected.

Anger Rumination Scale (ARS)

1 = almost never; 2 = sometimes, 3 = often, 4 = almost always

1. I ruminate about my past anger experiences.
2. I ponder about the injustices that have been done to me.
3. I keep thinking about events that angered me for a long time.
4. I have long living fantasies of revenge after the conflict is over.
5. I think about certain events from a long time ago and they still make me angry.
6. I have difficulty forgiving people who have hurt me.
7. After an argument is over, I keep fighting with this person in my imagination.
8. Memories of being aggravated pop up into my mind before I fall asleep.
9. Whenever I experience anger, I keep thinking about it for a while.
10. I have had times when I could not stop being preoccupied with a particular conflict.
11. I analyze events that make me angry.
12. I think about the reasons people treat me badly.
13. I have daydreams and fantasies of violent nature.
14. I feel angry about certain things in my life.

15. When someone makes me angry, I can't stop thinking about how to get back at this person.
16. When someone provokes me, I keep wondering why this should have happened to me.
17. Memories of even minor annoyances bother me for a while.
18. When something makes me angry, I turn this matter over and over again in my mind.
19. I re-enact the anger episode in my mind after it has happened.

APPENDIX B – IRB Approval Letter



INSTITUTIONAL REVIEW BOARD
118 College Drive #5147 | Hattiesburg, MS 39406-0001
Phone: 601.266.5997 | Fax: 601.266.4377 | www.usm.edu/research/institutional.review.board

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.
Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 16102509
PROJECT TITLE: Friend or Foe: Self-Esteem and Social Comparisons
PROJECT TYPE: New Project
RESEARCHER(S): Niki Knight
COLLEGE/DIVISION: College of Education and Psychology
DEPARTMENT: Psychology
FUNDING AGENCY/SPONSOR: N/A
IRB COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 10/31/2016 to 10/30/217
Lawrence A. Hosman, Ph.D.
Institutional Review Board

APPENDIX C CONSENT FORM

Project Title: Friend or Foe: Self-Esteem and Social Comparisons - Men Only

Principle Investigator: Niki Knight

Phone: 501-722-3508

Email: niki.knight@eagles.usm.edu

College: Education

Department: Psychology

1. Purpose

The purpose of this study is to assess how various aspects of self-concept, personality, and thinking styles relate to the social behavior of college students.

2. Description of Study:

Participants will be asked to complete online questionnaires about aspects of their personality, self-concept, thinking styles, and forms of social aggression in which they have participated or experienced. The study is fully online, will take about 60 minutes to complete, and is designed to be completed in one session (i.e., starting the study and then trying to finish it later may not work). Participants who complete the study will receive 1 research credit. Quality assurance checks will be used to make sure that participants are reading each question carefully and answering thoughtfully. Participants who do not pass these checks will NOT receive credit for completing the study.

3. Benefits:

Participants will earn 1 research credit for completing the study; those who do not complete the study will not receive research credit. Participants will receive no other direct benefits; however, the information provided will enable researchers to better

understand the role of personality in social behavior. This study does not involve treatment procedures of any kind or the potential for medical injury.

4. Risks:

There are no foreseeable risks to participating in this study. If you feel that completing these questionnaires has resulted in emotional distress, please stop and notify the researcher (Niki.Knight@eagles.usm.edu). If you should decide at a later date that you would like to discuss your concerns, please contact the research supervisor, Dr. Eric Dahlen (Eric.Dahlen@usm.edu). Alternatively, you may contact one of several local agencies, such as:

Student Counseling Services: (601) 266-4601

Community Counseling and Assessment Clinic: (601) 266-4829

Pine Belt Mental Healthcare Resources: (601) 544-4641

5. Confidentiality:

The online questionnaires are designed to be anonymous, and the information you provide will be kept strictly confidential. Any potentially identifying information (e.g., your IP address) will not be retained with your responses.

6. Alternative Procedures:

Students who do not wish to participate in this study may sign up for another study instead or talk with their instructor(s) about non-research options.

7. Participant's Assurance:

This project has been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations.

Any questions or concerns about rights as a research participant should be directed to the Manager of the IRB at 601-266-5997. Participation in this project is completely voluntary, and participants may withdraw from this study at any time without penalty, prejudice, or loss of benefits.

Any questions about the research should be directed to the Principal Investigator using the contact information provided in Project Information Section above.

Consent to Participate: I consent to participate in this study, and in agreeing to do so, I understand that:

CONSENT TO PARTICIPATE IN RESEARCH

Consent is hereby given to participate in this research project. All procedures and/or investigations to be followed and their purpose, including any experimental procedures, were explained to me. Information was given about all benefits, risks, inconveniences, or discomforts that might be expected.

The opportunity to ask questions regarding the research and procedures was given.

Participation in the project is completely voluntary, and participants may withdraw at any time without penalty, prejudice, or loss of benefits. All personal information is strictly confidential, and no names will be disclosed. Any new information that develops during the project will be provided if that information may affect the willingness to continue participation in the project.

Questions concerning the research, at any time during or after the project, should be directed to the Principal Investigator with the contact information provided above. This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations.

Any questions or concerns about rights as a research participant should be directed to the
Chair of the Institutional Review Board, The University of Southern Mississippi, 118
College Drive #5147, Hattiesburg, MS, 39406-0001, (601) 266-5997.

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