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Social Status Differences In Hostile Attribution Biases and Reactive Aggression

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SOCIAL STATUS DIFFERENCES IN HOSTILE ATTRIBUTION BIASES AND REACTIVE AGGRESSION.

A Dissertation
Presented In
Partial Fulfillment of the
Requirements for the Degree of
Doctor of Philosophy

By
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Defended January 18, 2012
Revised April 13, 2012

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VITA

James Davis earned a Bachelor of Arts Degree in Psychology from Humboldt State University in 2002 and a Master of Arts degree from Humboldt State University in 2005. James earned a Doctor of Philosophy degree in experimental psychology from DePaul University with the successful completion of this dissertation.
TABLE OF CONTENTS

DISSERTATION COMMITTEE ................................................................. i
ACKNOWLEDGMENTS ......................................................................... ii
VITA ......................................................................................................... iii
TABLE OF CONTENTS ........................................................................ iv
LIST OF TABLES ................................................................................... vii
LIST OF FIGURES ................................................................................ viii
CHAPTER I INTRODUCTION ............................................................... 1
        Attribution Theory ........................................................................ 1
        Attributions of Causality ............................................................... 2
        Attributions of Responsibility ....................................................... 4
        Attributions of Intention ............................................................... 5
        Attributions of Hostile Intentions ................................................ 7
        Reactive Aggression ................................................................... 9
        Social Information Processing ...................................................... 10
        Attributions of Hostile Intentions in Adult Samples .................... 12
        Summary ..................................................................................... 15
Social Status and Attributions of Hostile Intentions .......................... 16
        Summary ..................................................................................... 19
        Hostile Attributions of Intention and Psychological Self Protection. 19
        Rationale .................................................................................... 23
        Statement of Hypotheses ............................................................ 24
CHAPTER II STUDY 1 .......................................................................... 25
        Method ......................................................................................... 26
        Participants .................................................................................. 26
        Procedure .................................................................................... 26
        Measures ..................................................................................... 26
Results..................................................................................................................33

Tests of Hypothesis I .................................................................................................33
Tests of Hypothesis II .................................................................................................38
Additional Analyses ...................................................................................................45

Men Only ...................................................................................................................45
Alternative Model .......................................................................................................51
Discussion ..................................................................................................................52

Summary ....................................................................................................................52
Implications .................................................................................................................54
Alternative analyses ....................................................................................................56

CHAPTER III STUDY 2 ..............................................................................................57
Method .........................................................................................................................58

Data Preparation ........................................................................................................58
Participants ..................................................................................................................59
Procedures ..................................................................................................................59
Measures ......................................................................................................................61
Results .........................................................................................................................63

Tests of Hypothesis III ...............................................................................................64
Additional Analyses ....................................................................................................66

Men Only ....................................................................................................................66
Discussion ...................................................................................................................67

CHAPTER IV STUDY 3 ..............................................................................................69
Method .........................................................................................................................70

Participants ................................................................................................................70
Procedures ...................................................................................................................70
Measures ......................................................................................................................72
### Results

<table>
<thead>
<tr>
<th>Tests of Hypothesis IV</th>
<th>74</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjective status.</td>
<td>76</td>
</tr>
<tr>
<td>Additional Analyses</td>
<td>77</td>
</tr>
<tr>
<td>Subjective status.</td>
<td>79</td>
</tr>
<tr>
<td>Discussion</td>
<td>80</td>
</tr>
</tbody>
</table>

### CHAPTER V GENERAL DISCUSSION

<table>
<thead>
<tr>
<th>Summary</th>
<th>83</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theoretical Elaboration</td>
<td>84</td>
</tr>
<tr>
<td>Implications</td>
<td>88</td>
</tr>
</tbody>
</table>

### CHAPTER VI CONCLUSION

<table>
<thead>
<tr>
<th>REFRENCES</th>
<th>92</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix A Social Information Processing-Attribution and Emotional Response Questionnaire</td>
<td>115</td>
</tr>
<tr>
<td>Appendix B Social Worth Scale</td>
<td>120</td>
</tr>
<tr>
<td>Appendix C Buss-Perry Aggression Questionnaire</td>
<td>122</td>
</tr>
<tr>
<td>Appendix D Self-Report of Aggression and Social Behavior Measure</td>
<td>124</td>
</tr>
<tr>
<td>Appendix E Exposure to Violence Measures</td>
<td>126</td>
</tr>
<tr>
<td>Appendix F Harsh Parenting Measures</td>
<td>129</td>
</tr>
<tr>
<td>Appendix G Normative Beliefs about Aggression Scale</td>
<td>131</td>
</tr>
<tr>
<td>Appendix H Demographics Measures</td>
<td>134</td>
</tr>
<tr>
<td>Appendix I Study 2 Stimuli</td>
<td>138</td>
</tr>
<tr>
<td>Appendix J Positive Negative Affect Scale</td>
<td>141</td>
</tr>
</tbody>
</table>
LIST OF TABLES

Table 1. Analysis of covariance examining mean differences in hostile attributions and reactive aggression for ethnicity while controlling for trait aggression, exposure to violence, harsh parenting, and normative beliefs about aggression

Table 2. Multiple regression analyses predicting hostile attributions and reactive aggression from socioeconomic status while controlling for normative beliefs about aggression, trait aggression, relational aggression, romantic aggression, harsh parenting, and exposure to violence.

Table 3. Multiple regression analyses predicting hostile attributions and reactive aggression from socioeconomic status while controlling for normative beliefs about aggression, trait aggression, relational aggression, romantic aggression, harsh parenting, and exposure to violence.

Table 4. Multiple regression analyses predicting hostile attributions and reactive aggression from subjective status while controlling for normative beliefs about aggression, trait aggression, relational aggression, romantic aggression, harsh parenting, and exposure to violence.

Table 5. Correlations among each status indicator, threatened social worth, vigilance toward threats, hostile attributions and reactive aggression.

Table 6. Analysis of covariance examining mean differences in threatened social worth and vigilance toward threats by affirmation condition while controlling for positive affect.

Table 7. Multiple regression analyses predicting hostile attributions and reactive aggression from affirmation condition, dichotomous ethnicity and their interaction.

Table 8. Multiple regression analyses predicting hostile attributions and reactive aggression from affirmation condition, sex and their interaction.

Table 9. Multiple regression analyses predicting hostile attributions and reactive aggression from affirmation condition, SES and their interaction.

Table 10. Multiple regression analyses predicting hostile attributions and reactive aggression from affirmation condition, subjective status and their interaction.
LIST OF FIGURES

Figure 1. Conceptual model

Figure 2. Multiple mediation model depicting threatened social worth, vigilance toward threat, and hostile attributions mediating the relationship between social status and both hostile attributions and aggression

Figure 3. Standardized path coefficients for the hypothesized model with ethnicity representing social status

Figure 4. Standardized path coefficients for the modified model depicting with ethnicity representing social status

Figure 5. Standardized path coefficients for the hypothesized model with sex representing social status

Figure 6. Standardized path coefficients for the modified model with sex representing social status

Figure 7. Standardized path coefficients for the hypothesized model with SES representing social status.

Figure 8. Standardized path coefficients for the modified model with SES representing social status.

Figure 9. Standardized path coefficients for the hypothesized model with subjective status representing social status

Figure 10. Standardized path coefficients for the modified model with subjective status representing social status

Figure 11. Mean reactive aggression by subjective status and sex

Figure 12. Alternative model including all status indicators.

Figure 13. Estimated marginal mean hostile and benign reaction times by ethnicity.
CHAPTER I INTRODUCTION

On November 1st 2009, three young Hispanic men attempted to sneak into a Halloween party near the DePaul University campus in Chicago, Illinois. The hosts of the party soon discovered the uninvited guests and asked them to leave. Thirty minutes later, the individuals returned and began erratically firing a handgun toward the house; one student was shot in the neck and died. How does the apparent slight of being kicked out of a party result in such disproportionate violent retaliation? What characteristics of the perpetrator and the situation can help us to understand why those young men chose such a deadly method of retaliation? The purpose of this research is to extend our understanding of retaliatory aggression by examining the role of social status in biased attributions toward hostile intent. Beginning with a brief review of attribution theory, I examine attributions of responsibility and intention in the context of the hostile attributions and reactive aggression literature. Drawing on recent theoretical advancements, I will integrate these literatures and develop a theoretical argument for a series of novel hypotheses surrounding the predicted social status differences in hostile attributions. I will then describe three studies that test the proposed hypotheses and discuss the implications of their results.

Attribution Theory

Attribution theory\(^1\) has its origins in our implicit understanding of the causes and consequences of events and outcomes we experience. Heider (1958) suggests that the ability to exert some measure of control in our environment is contingent on developing an understanding of causal relations within our complex social networks. At its core, attribution theory is

\(^1\) For purposes of exposition I will refer to “attribution theory”; however, this is meant to represent what Weiner (2008) describes as the collection of “attribution-based theories” (p. 154) that comprise the domain of attribution research.
concerned with people’s answer to the question of “why” an outcome happened (Jones & Davis, 1965; Kelley, 1973; Weiner, 1986). Why do some students fail a test (e.g., Reyna, 2008)? Why is that person poor (e.g., Henry, Reyna, & Weiner, 2004)? Why did I win or lose an election (Kingdon, 1967)? Why did that child break my puzzle (e.g., Dodge, 1980)? Why was I kicked out of a party? The specific answers we generate to these kinds of “why” questions have important implications for our affect (e.g., Wilkowski & Robinson, 2010), cognitions (e.g., Weiner, Perry, & Magnusseon 1988) and subsequent behavior (e.g., Ai-qing, & Fang-lian, 2003). Attributions of causality, in relation to determinations of intention and responsibility provide an important foundation for elucidating the processes involved in attributions of hostile intent.

Attributions of Causality

Modern attribution theory as articulated by Weiner (1986; 2010) holds that an outcome is the result or consequence of some behavior, action or event. Causality is the explanation given for the relationship between a behavior action or event and some outcome. People will spontaneously attempt to make attributions for the causes of events they experience or witness, especially if the event is negative, harmful or unexpected (Clary & Tesser, 1983; Fiske, 1980; Weiner, 1985; Weiner & Wong, 1981). Importantly, expectancy violation (not necessarily valence), is the primary mechanism that facilitates spontaneous causal search (Kanazawa, 1992). If for example I expect to fail an exam and then fail, my expectations are confirmed and no causal search is necessary. Information regarding cause is often evident for expected outcomes (this is why we expect them); thus, it is only when an outcome is unexpected that we are motivated to ask why. When we are subject to an unexpected negative outcome that is the result
of another person’s behavior we infer the causality along three dimensions: locus, stability and controllability (Weiner, 1986).

Locus refers to sources of causality that are either internal or external to a person (Rotter, 1966). Attributions of stability are defined by the relative consistency of a particular cause (Weiner, Nierenberg, & Goldstien, 1976). Stable causes persist across time and situational contexts, and unstable causes are subject to change. If for example you are in a rear-collision car accident, inferring that the other driver was not paying close enough attention would be an internal attribution. If the other driver’s brakes unexpectedly failed, the accident would be due to an external cause. If the other driver has attention deficit disorder you would perceive both an internal and stable source of causality. If on the other hand the driver’s attention was distracted by a police car approaching quickly from the rear, it would be seen as an internal, unstable cause.

The distinctions in the above examples are important because the nature of our causal attributions can have an important impact on how we respond to the situation. The locus and perceived stability of a cause can influence expectancies about future outcomes (Weiner, 1974), such that internal causes are seen as more stable. The more stable a particular cause, the more likely it is to occur again in the future (Mischel, Jeffery, & Patterson, 1974). Within romantic relationships, people are less likely to forgive their partner when they make a stable attribution for a social transgression (Davis & Gold, 2011; Gold & Weiner, 2000) suggesting that they believe a similar future offense is likely, especially if the transgressor’s behavior was controllable (Wohl & Pritchard, 2008).

Representing the third dimension of causality within attribution theory, controllability refers to the degree of volitional control that can be (could have been) exerted over a particular outcome. The extent to which a particular outcome was chosen or could have been avoided,
interacts with perceptions of both stability and locus to allow for a relatively dynamic set of causal ascriptions (Weiner 1985). For example developing a form of diabetes may be due to a genetic predisposition (internal, stable, uncontrollable cause), a predilection toward a high fat, high sugar diet (internal, stable, controllable cause), or a scarcity of affordable, more nutritious alternatives (external, unstable, uncontrollable). Causal attributions for particular outcomes have important implications for social perception, depending on where they fall on these three dimensions. For example, those who see homosexuality as a volitional choice, thus internal and controllable, report more negative affect and less support for gay civil rights compared those who favor a biologically based, internal and uncontrollable cause for homosexuality (Haider-Markel & Joslyn, 2008). The interaction between locus and controllability as it relates to judgments of responsibility and intentionality are of particular relevance for attributions of hostile intent.

**Attributions of Responsibility**

When the cause for an outcome is perceived to be controllable and thus internal to an individual; in the absence of mitigating factors people are likely to see that individual as responsible for that outcome (Weiner, 1995). Judgments of responsibility tend to increase anger (Averill, 1993; Roseman, 1991), decrease sympathy and increase punishment for those perceived to have caused some negative outcome (Graham, Weiner, & Zucker, 1997; Weiner, Graham, & Reyna, 1997). If the cause of a person’s poor economic situation is perceived to be controllable (i.e., does not work hard enough) they are perceived as responsible for their situation and thus undeserving of economic assistance (Henry et al., 2004). On the other hand, if the person’s poor economic situation is the result of external (and thus uncontrollable) environmental, social or situational factors (e.g., social disadvantage or loss due to a natural disaster), attributions of
responsibility are diminished, increasing sympathy and a willingness to provide assistance (Henry et al., 2004). In terms of aggression, a person perceived to be responsible for an aggressive action will elicit more anger and a greater propensity toward retaliation than if they are perceived not to be responsible (Ai-qing, & Fang-lian 2003; Graham, et al., 1997). The implications of attributing responsibility are further magnified to the extent that they are perceived to be intentional, that is to say the effects of their actions are foreseeable, and they acted of their own free will without external pressure (Rudolph, Roesch, Greitemeyer, & Weiner, 2004; Weiner 1980).

Attributions of Intention

Heider (1958) discusses intention in terms of the lay understanding of the word “try”; when one is “trying” to do something we infer intentionality. Attributing intentionality to a particular behavior requires that a person (a) desires a particular outcome, (b) contemplates the action and foresees its effects, (c) decides to act, (d) is able to perform the action and (e) is cognizant of their own action (Malle & Knobe, 1997). In short, a desire is a mental representation of a particular state or goal that may potentially be brought about. A desire becomes intention when one decides to act, presumably from a belief that the action they are performing will produce the outcome (Malle, Moses, & Baldwin, 2001). Importantly, the decision to act toward a particular goal separates intentions from desires, defining the intentionality of a behavior or behavior sequence. Attributing intentionality of a specific behavior requires not only intention, but also the awareness of, and ability to enact the behavior (Malle & Knobe 1997). Importantly for the social perceiver, Intentions are unobservable; thus, in a typical social context, intentionality must be inferred based on existing knowledge and observable evidence (Maselli & Altrocchi, 1969) that is often ambiguous (Bruner, 1957).
It follows, then, that intention is an internal, controllable factor; however, controllability and intentionality are theoretically distinguishable constructs (albeit strongly related, e.g., Anderson 1983). In the above example, both the uncontrollable and controllable causes for developing diabetes are presumably unintended. However, control is not sufficient to infer intention because intentional actions (eating a high fat, high sugar diet) often result in unintentional outcomes (developing diabetes). A person may intend to open their car door in a parking lot (action) and in doing so dent the car next to them (outcome). Their initial intention may have been simply to open the car door, which resulted in an unintentional outcome, denting the other car. Alternatively, of course this person could not only have intended to open the door, but also intended to dent the other car. For the social perceiver (owner of the dented car), this poses an important practical dilemma; how does one distinguish between intentional behaviors that produce intentional outcomes versus intentional behaviors that produce unintentional outcomes? In other words, if I experience some negative outcome because of another’s behavior, how do I know whether or not they intended to produce that outcome with that behavior?

The ability of intentional behavior to produce unintended outcomes has a significant moderating effect on judgments of responsibility and our subsequent emotional and behavioral reactions (e.g., Graham, Weiner, & Zucker, 1997). Take for example the case of Johannes Mehserle, an Oakland, CA transit police officer who shot and killed an unarmed man he was restraining (Bulwa, 2010). Mehserle claims that he thought the victim was reaching for a gun, and intended to draw his stun gun to subdue the man. Despite the fact he drew his pistol instead, shot and killed the victim, he solemnly claims to have believed he had pulled his stun gun with the intention of using non-lethal force. Clearly he is responsible for the civilian’s death; his
controllable actions caused the outcome. However, his intentions may be the difference between a conviction of manslaughter compared to murder. If a jury believes that the death was unintentional, he will likely garner some sympathy and a relatively lighter sentence (manslaughter) whereas attributing intentionality to the shooting would likely increase anger and the imposition of a harsher punishment (first degree murder; Weiner, Graham, & Reyna, 1997).

Unfortunately for the social perceiver, in many circumstances there is not enough information to accurately infer the intentionality of a behavior (Bruner, 1957). For both the intentionally and unintentionally produced door dent in the above example, the person is clearly responsible for the outcome. Opening the door is an internal and controllable cause that produced the dent; however, there is little information regarding the intentions of the actor. In situations where the intent of the actor is ambiguous, inferences regarding the actors intent can have important emotional and behavioral ramifications (as noted above). Inferring hostile as opposed to benign intent can result in increase anger and potentially aggressive retaliation (Epstien & Taylor, 1967).

**Attributions of Hostile Intentions**

Hostile intent is the desire and determination to carry out some malevolent act toward another and has been examined primarily in terms of its relation to aggression (cf. Anderson & Bushaman, 2002; Bushman & Anderson, 2002; Epstien & Taylor, 1967; Malle & Knobe, 1997). From a folk perspective, when one individual deliberately causes harm to another, we consider that person to have had hostile intentions. But, because intent must be inferred from available social cues and situational information, judgments of intentionality are subject to potential cognitive biases (Bruner, 1957). To the extent that observable evidence renders the intentions of an actor inconclusive, existing knowledge structures, salient features, and heuristic processing
mechanisms direct judgments of intentionality (Crick & Dodge, 1994; Dodge & Crick, 1990; Dodge & Newman, 1981; Dodge & Tomlin, 1987) and may result in biased social perception. The term hostile attribution bias (HAB; Nasby, Hayden, & DePaulo, 1980) refers to a proclivity toward inappropriately attributing hostile intent to another’s behavior when their true intentions are ambiguous or benign (Dodge 1980; Dodge, & Coie, 1987; Dodge, Murphy, & Bachsbaum 1984).

In a seminal paper, Dodge (1980) demonstrated the phenomena of HAB within a nonclinical population of boys that is exemplary of the research in this area. Using information gathered from teachers and peers, boys were divided into groups based on their general level of aggression (aggressive vs. non-aggressive). The boys were then subjected to a frustrating experience where a puzzle they were working on was destroyed by an ostensibly unseen other child. The key manipulation in this experiment was the intent of the other child; participants were led to believe that the puzzle destruction was clearly intentional, accidental, or ambiguous. Importantly, across conditions the other boy was responsible for breaking the puzzle in that his actions clearly produced the negative outcome; but in the ambiguous intent condition, there was no information available to the participants as to why the other child acted the way he did. Both aggressive and non-aggressive groups had no trouble accurately determining the intentions of the other child from salient social cues in the clear intention and accidental conditions. However, in the ambiguous intent condition boys labeled as aggressive perceived greater hostile intent and reported more aggressive resolutions than those labeled as non-aggressive (Dodge, 1980).

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2 Similar methods for differentiating aggressive and non-aggressive children using subjective aggression ratings are quite common within the HAB literature. For example, researchers have used ratings of aggression by teachers (e.g. Graham, Hudley & Williams, 1992) parents (e.g. Godleski & Ostrov 2010), peers (e.g. Hudley & Graham 1993) or self-report (e.g. Caprara, Paciello, Gerbino, & Cugini, 2007).
The theoretical framework underlying cognitive biases toward interpreting hostility in the actions of others draws on the developmental, social, and cognitive literatures (Dodge & Crick, 1990), primarily focusing on an applied goal of reducing antisocial behavior in aggressive children (e.g., Dodge, Pettit, McClaskey, & Brown, 1986). With this aim, much of the research on hostile attributions focuses on differential processing between those determined to be either aggressive or non-aggressive (Dodge & Coie, 1987; Godleski & Ostrov, 2010; Graham, Hudley, & Williams, 1992; Hudley & Graham, 1993; Tiedens, 2001). These data are most often collected from child and adolescent (Burks, Laird, Dodge, Pettit, & Bates, 1999; Caprara, Paciello, Gerbino, & Cugini 2007; Crick & Dodge, 1996; Dodge, 1980; Hubbard, Dodge, Cillesses, Coie, & Schwartz, 2001; Zelli, Dodge, Lochman, Laird, & Conduct Problems Prevention Research Group, 1999), incarcerated (Slaby & Guerra, 1988), or clinical populations (Coccaro, Noblett, & McCloskey, 2009). Among these data, there is strong evidence of a correlation between a bias toward inferring hostility and reactive aggression in ambiguous provocation situations; whether or not a hostile inference is actually warranted (de Castro, Merk, Koop, Veerman, & Bosch, 2005; de Castro, Veermen, Koops, Bosch, & Monshouwer, 2002).

**Reactive Aggression**

Modern theorists define aggression as any behavior carried out with the intention of causing harm to someone who is compelled to avoid such harm (Bushman & Anderson, 2002). Most definitions of human aggression articulated in the last century include intention to harm as an integral component (e.g., Berkowitz & Frodi, 1977; Berkowitz 1993; Dollard, Miller, Doob, Mowrer, & Sears, 1939; Geen, 1990). Consequently the target of an aggressive action may use attributions of intentionality as a justification for an aggressive response (Dodge & Pettit, 2003;
Moffitt, 1993) akin to tit-for-tat reciprocity (e.g., Miller, Pedersen, Earleywine, & Pollock, 2003).

There is a distinction between reactive (hostile) and proactive (instrumental) aggression that is worth noting (e.g., Anderson & Bushman, 2002; Poulin & Bovin, 2000). Hostile or reactive aggression is a response to some perceived threat or provocation, whereas instrumental aggression is a means to achieve some goal in the absence of a provocation or threat (Bushman & Anderson, 2002). If I believe that you have insulted me (perceived provocation), then slapping you in the mouth would be an act of reactive aggression. On the other hand, if I just walk up and slap you in the mouth to assert my dominance (no provocation), I am aggressing for instrumental purposes. Following a perceived provocation, attributions of hostile intent predict reactive but not instrumental aggression, especially for those with a propensity for aggression (Dodge & Coie, 1987). Perceiving a negative outcome as the result of an intentional action that was both foreseeable and under the volitional control of the actor may be construed as provocative, and is associated with both increased attributions of responsibility (Graham, Weiner, & Benesh-Weiner, 1995; Weiner, 1995) and a propensity to respond aggressively (Costanzo, Grumet, & Brehm, 1974; Dyck & Rule, 1978; Rule & Duker, 1973)\(^3\).

**Social Information Processing**

The bias toward interpreting hostility from ambiguous social cues is due in part to distinct social information processing mechanisms (SIP; Crick & Dodge, 1984). The initial SIP model of children’s adjustment (Dodge, Pettit, Mcclaskey, & Brown, 1986) outlined six steps for processing social information. These include: (1) encoding; (2) representing and interpreting; (3) specifying goals; (4) generating potential responses; (5) selecting a response; and (6) enacting

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\(^3\) This statement holds true for both men and women. Although social roles produce gender differences in aggression generally (see Eagly & Steffen, 1986); in situations of perceived provocation gender differences in reactive aggression decrease substantially (Bettencourt & Miller, 1996).
the response. As initially conceived, the SIP model suggested that differences in aggressive versus non-aggressive children’s attribution patterns (and subsequent behavior) occur because of differential processing at one or more points through this sequence of steps. For example, at the encoding and representation phase, aggressive children selectively attend to hostile or irrelevant cues while non-aggressive children focus more on benign social information (Dodge, et al., 1986; Gouze, 1987). During the response generation step, those identified as aggressive generate a greater quantity of possible aggressive resolutions and report fewer potentially assertive or mature responses than non-aggressive peers (Asarnow & Callan, 1985). Aberrant processing at any of these levels is associated with the potential to inappropriately attribute hostile intent (de Castro et al., 2002).

A subsequent revision of the SIP model intimates that bidirectional processing occurs simultaneously between each of the six steps outlined above and in connection to previous experience, knowledge, and memory structures (Dodge & Pettit 2003). Knowledge and memory structures are mental representations stored in long-term memory that determine in large part how people attend to, interpret, and respond to social behavior (cf. Abelson, 1981; Bargh & Pietromonaco, 1982; Bruner, 1957; Murphy & Medin, 1985). An important implication of this revision is that not only do experience, knowledge and memory structures direct SIP but they are reciprocally shaped by these mechanisms as well (see Dodge & Pettit, 2003). For example, exposure to violent video games caused increased expectations of hostile thoughts, feelings and aggressive behaviors for characters in a story facing a potential conflict (Bushman & Anderson, 2002). Given that short term (20 minutes) exposure to violence and aggression increases hostile social expectations, it is reasonable to intuit that similar chronic exposure would produce a
general bias toward hostile social expectations solidified within individuals’ knowledge and memory structures.

As a cognitive process that increases reactive aggression, investigations into the origins of attributions of hostile intent typically occur within a broader focus on the development of aggressive or antisocial behavior problems. In a comprehensive review, Dodge and Pettit (2003) encapsulate the hostile attribution bias within the “mental processes” portion of a larger model that predicts the development of conduct disorders from biological, socio-cultural and relational factors. Social rejection (Coie & Dodge, 1988; Parker & Asher, 1987), exposure to neighborhood violence (Guerra, Huesmann, Tolan, Van Acker, & Eron, 1995) and harsh parenting (Weiss, Dodge, Bates & Pettit, 1992) facilitate the development of a hostile attribution bias and put children and adolescents at an increased risk for aggression-related behavioral problems (Dodge & Pettit, 2003). can lead to selective attention to hostile cues (e.g., Crick & Dodge, 1994), increased accessibility of both aggressive thoughts and constructs (Burks, Laird, Dodge, Pettit, & Bates, 1999) and the development of a generalized expectancy for hostility in social interactions (Coie, Dodge, & Kupersmidt, 1990). Longitudinal evidence suggests that aggression-related knowledge structures and cognitive processes developed during childhood and adolescence, are relatively stable over time (e.g., Caprara, Paciello, Gerbino, & Cugini 2007; Huesmann, Eron, Lefkowitz, & Walder, 1984; Huesmann, Eron, & Yarmel, 1987; Olweus, 1979) and thus should be evident in adult populations as well.

**Attributions of Hostile Intentions in Adult Samples**

The bulk of research examining attributions of hostile intent specifically, tends to sample from child, adolescent, clinical or incarcerated populations (as noted above) while “evidence of the meaningfulness of hostile attribution bias in adults has been less direct” (Epps & Kendal,
Additionally, “despite its utility in explaining developmental aggression, SIP theory has not been well-studied in adult populations within which aggressive behaviors can have more severe social and economic implications” (Coccaro, Noblett, & McCloskey, 2009, p. 916). Research examining SIP biases has until recently focused almost exclusively on non-adult populations (Pettit, Lansford, Malone, Dodge, & Bates, 2010). However, the patterns among the few studies that do look at SIP and HAB processes in adults tend to replicate those in the development and clinical literature (e.g., Epps & Kendal). For example in the context of competition, adult males’ hostile attributions of an opponent’s intentions were a stronger predictor of reactive aggression than their frustration with losing a game (Epstein & Taylor, 1967).

Deficiencies in SIP that produce a HAB in children and adolescents may solidify into a hostile or aggressive personality in adulthood (Dill, Anderson, & Deuser, 1997). Undergraduate participants with an aggressive personality (as indicated by measures of trait irritability, anger, hostility, physical and verbal aggressiveness) exhibited a greater expectation of hostility in a story completion task and from observations of videotaped social interactions, especially when the intent of the protagonist was ambiguous or clearly aggressive (Dill et al., 1997). Additionally, participants scoring high in irritability, trait anger and resentment attributed greater hostile intent and self-reported anger and aggression when imagining themselves as the target in an ambiguous provocation scenario (Epps & Kendal, 1995).

Zelli, Huesmann, and Cervone, (1995) divided an undergraduate sample into aggressive or non-aggressive groups based on the frequency of self-reported aggressive behavior. Participants memorized a list of sentences in which the actions of the subject had ambiguous negative consequences for a target. For example, “The policeman pushes Dave out of the way”
(Zelli et al., p. 410). Participants were cued with either semantically related (e.g., prison) or hostility related words (e.g., aggression), and asked to recall the memorized sentences. Non-aggressive adults recalled significantly more information from memorized sentences when primed with a semantically related word, but aggressive adults’ recall improved only for dispositional aggressive word cues. Evidence that adults reporting high levels of aggression spontaneously process social information in terms of hostile cues is consistent with similar SIP patterns in aggressive children (Burks et al., 1999). Subsequent research using a similar method manipulated the mood of the participants and found that induced anger (in comparison to sadness, neutral or happy conditions) exacerbated hostile inferences but only for those who scored high in aggression (Tiedens, 2001). Thus, misattributing hostile intent produces similar tendencies toward reactive aggression, especially among those self-identifying as aggressive.

Undergraduates randomly assigned to imagine themselves as the protagonist in several scenarios of ambiguous provocation demonstrated increased attributions of hostile intent compared those in a non-provocation condition (Topalli & O'neal, 2003). Hostile attributions were the most prevalent when participants anticipated an opportunity to retaliate against the target (Topalli & O'neal). There was a significant correlation between dispositional aggression, hostile attributions and vengeance seeking; however, the researchers did not compare these measures between aggressive and non-aggressive groups. Thus, situations of ambiguous provocation may then produce increases in attributions of hostility regardless of participants’ dispositional aggression.

In a distally related literature, adult perpetrators of intimate partner violence (IPV) demonstrate deficits in social-cognitive processes similar to those proposed by Crick and Dodge’s (1994) SIP model, resulting in similar patterns of reactive aggression (Holtzworth-
Munroe, 1992). For example, compared to non-violent husbands, maritally violent (MV) husbands attribute greater hostile intent to wives depicted in marital conflict scenarios, especially within situations of perceived abandonment, jealousy or challenge to the husband (Holtzworth-Munroe & Hutchinson, 1993). During an elicited angry emotional reaction, MV husbands articulated greater arbitrary inferences (no factual basis) and hostile attributions of intent regarding a wife’s behavior in a scenario describing marital conflict (Eckhardt, Barbour, & Davison, 1998). On the other hand, women who attribute intention to their partners’ abusive behavior are more likely to blame their abuser and use a greater number of coping strategies than women who do not attribute intent (Meyer, Wagener, & Dutton, 2010). The IPV literature finds biases toward inferring hostile intent predicts adult male violence toward relational partners, and further supports patterns of biased social information processing in adult samples.

Summary

The evidence presented thus far supports the following theoretical statements.

Attribution theory specifies how individuals make causal determinations for outcomes they experience especially when the outcome is negative or unexpected. When a persons’ behavior is perceived to be internal and controllable they are judged to be responsible for the resulting outcome. Judgments of responsibility are moderated by perceived intent and people react more punitively when a person is responsible for an outcome caused intentionally rather than unintentionally. Intentions are inherently internal, controllable and unobservable; thus, in ambiguous situations, ascriptions of intentionality may be subject to biases in social information processing. When a person’s behavior results in negative or unexpected consequences and their intent is ambiguous, misattributing intentionality is associated with increased anger and reactive aggression. And finally, biases in social information processes that lead to misattributing hostile
intent stem from chronic negative experiences that shape knowledge structures and heuristic processing mechanisms toward expectations of hostility in social interactions. With these basic theoretical premises articulated, we can now examine the evidence in support of an argument for social status differences among these psychological processes.

Social Status and Attributions of Hostile Intentions

A person’s social status can be defined by demographic factors such as income, ethnicity, gender, immigration status, sexual or religious orientation or by subjective evaluations (e.g., Adler, Epel, Castellazzo, & Ickovics, 2000). In the United States, White men with high incomes are considered to have high demographic status relative to non-Whites, women, and those with lower incomes (Sidanius & Pratto, 1999). Members of low status groups are disproportionately subject to greater prejudice and discrimination (Crocker, Major, & Steele, 1998; Sidanius, Levin, Federico, & Pratto, 2001) and experience greater rates of economic disadvantage (Sidanius & Pratto, 1999) relative to those of high status. The devalued position of lower status groups also poses chronic threats to achieving and maintaining a sense of psychological and social worth (described in detail below), which may have lasting effects on their attitudes, beliefs and behavior (Henry 2008; 2009; 2011). Those with low social status may be more likely than their high status counterparts to experience the kind of social rejection, exposure to violence and harsh parenting that leads to the development of a hostile attribution bias.

Social status among child and adolescent samples within the hostile attributions literature is characterized by the degree to which a child is liked (or rejected) by their peers (i.e., termed sociometric status; Crick & Dodge, 1994). Rejected children (low status) exhibit greater hostile attribution biases, reactive aggression and are at an increased risk for maladjustment as adults.

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4 The term “Low Status” is meant to describe any group about which people hold negative attitudes, that suffer disproportionately greater economic or social disadvantage, and-or are targets of discrimination and prejudice (see Crocker & Major, 1989).
(Parker & Asher, 1987) relative to accepted or popular children (high status; Coie, Dodge, & Kupersmidt, 1990). Relative to those of high social status, children and adults belonging to low status groups may have disproportionately greater direct or indirect experiences (e.g., prejudice and discrimination) that represent a kind of social rejection. These experiences may facilitate the development of memory and knowledge structures that contribute to biased social information processing similar to the patterns established in the literature among socially rejected children (Parker & Asher).

Members of low status groups experience greater stress, exposure to aggression and violence than their high status counterparts (Bradely & Corwyn, 2002; Garbino, 1999) suggesting that there may be measurable status differences in social information processing. To the extent that low status groups experience greater life stress and are exposed to more violence than high status groups they should be more likely to develop normative beliefs about the acceptability of aggressive responding (e.g., Guerra et al., 1995) and potentially a bias toward interpreting hostility in situations of ambiguous intent. Increased exposure to violence may lead to greater attention to hostile cues, greater accessibility to hostile and aggressive thoughts and constructs and may make those of low social status more likely to interpret ambiguous social cues in hostile terms than their high status peers.

Considerable evidence within the developmental literature suggests that low social status is associated with maladaptive, neglectful or harsh parenting (Dodge, Pettit, & Bates 1994) that puts children at increased risk for behavior problems, and social rejection (e.g., Bradely & Corwyn, 2002; Schultz & Shaw, 2003). Harsh disciplinary practices lead to increases in aggression, a relationship that is mediated by children’s biased social information processing toward attributions of hostile intent (Weiss et al., 1992). Given the longitudinal evidence
supporting the relative stability of aggression-related knowledge structures and cognitive processes that develop during childhood (e.g., Caprara, et al., 2007; Huesmann, et al., 1984; Huesmann, et al., 1987; Olweus, 1979), it is reasonable to predict that any status-based differences that appear in child samples may be evident among adults as well.

In addition to the co-variation of low social status with variables demonstrated to predict hostile attribution biases, several studies examined thus far use samples that over-represent traditionally low status groups (ethnic minorities, low socioeconomic status). Hostile attributions of intent are shown to be associated with increased reactive aggression: within a sample consisting of 53% African American children from lower to middle class backgrounds (Dodge & Coie, 1987); in a sample of 40% African American adolescents (Crick & Dodge, 1996); and in a sample made up entirely of African American and Latino adolescents from an “economically depressed community” (Graham, Hudley, & Williams, 1992, p. 732). Hubbard et al. (2001) found a similar pattern within dyadic playgroups made up African American children from lower to lower middleclass backgrounds. Slaby and Guerra (1988) demonstrated that SIP deficits produce increased aggression in a sample of incarcerated adolescents, 60% of whom were classified as “minority”; primarily African Americans and Hispanics. Within children’s playgroups, hostile attributions were associated with reactive aggression and victimization within a sample of African American boys from predominantly lower socioeconomic backgrounds (Schwartz et al., 1998). In fact, the first study to suggest that attribution bias differentiates between aggressive and non-aggressive children sampled from a clinical population of boys from predominantly lower middle class backgrounds (Nasby, Hayden, & DePaulo, 1980).
Summary

Low social status co-varies with the kinds of experiences that produce hostile attribution biases, and members of low status groups are over represented in the hostile attributions literature. Consequently, social status differences in attributions of hostile intent are likely to exist among adult populations. Parallel to this prediction, it is also reasonable to expect that the patterns of social information processing that produce HAB among child populations may also be present among adults. It may be the case that for low status groups, situations involving negative consequences increase the accessibility of hostility and aggression related knowledge structures to a greater degree than their high status counterparts. Thus, when the intent of the protagonist is unclear, this increased accessibility results in the increased likelihood of attributing hostile intent, and the potential for an aggressive response. However, status differences in this kind of automatic social cognition only explain how low status group members make inferences of hostile intent. It does not adequately explain why; what purpose do these cognitive biases serve for those of low social status? Emerging theory suggests that people have an underlying drive toward a stable sense of social worth, which is chronically threatened among those with low social status.

Hostile Attributions of Intention and Psychological Self Protection.

Stigma Compensation Theory (SCT; Henry, 2008; 2009) is a recent theoretical advancement in understanding how living as a member of a low status group influences one’s core psychological processes. According to SCT theory, all people have a sense of the relative value that society (broadly conceived) bestows upon different groups and subsequently group members. In a society with hierarchical structure, the groups associated with high social status are valued to a greater degree than those groups that occupy the lowest levels of that hierarchy
The greater access to resources, education, and opportunities available to those belonging to high status groups is an ever-present reminder that society values members of these groups more than those belonging to low status groups. This concept, termed social worth, is represented by statements like “I believe that others in society feel that I am a less worthy human being”, “The media portrays people like me in a negative way” and “I feel my worth as a human being is challenged by others in society” (Brandt, Henry, & Davis 2011). People can experience these threats to social worth both indirectly and directly in the treatment they receive from others in their day-to-day lives, in portrayals of different groups in the media and within political discourse. Preliminary data indicates that those belonging to low status ethnic groups (non-White), women, and those with low incomes score on average significantly lower on a measure of social worth than men, those with high incomes or those belonging to high status ethnic groups (Whites; Brandt, Henry, & Davis 2010).

A primary pillar of SCT theory is that one’s sense of social worth is pervasive; it is thoroughly integrated into all aspects of existence within hierarchical society (for discussion see Henry, 2011). Simply belonging to a low status group within this type of social structure is a constant, although not necessarily explicit, reminder of the relatively lower value society has for you and those like you. These long term, pervasive threats to social worth produce psychological conflict among low status groups who on the one hand, desire to be seen by others as valuable to society, and yet experience subtle reminders every day that they are not (relative to those of high status). SCT theory argues that low status groups develop compensation strategies that function to either protect or bolster their sense of social value against these long term threats to their social worth. One such compensation strategy is a vigilant defense of one’s honor.
SCT theory was formally introduced to social psychology in the context of an investigation into the mechanisms underlying cultures of honor (Henry 2009). Within cultures of honor, there is a high value placed on respectful and dignified treatment (Nisbett & Cohen, 1996) and aggression is a justifiable response to any threat to one’s sense of honor, especially perceived insults (Cohen, Nisbett, Bowdle, & Schwarz, 1996) or disrespectful treatment (Cohen & Nisbett, 1997). Early culture of honor research focused on the American south and discrepancies in murder rates in predominantly herding versus farming regions (Nisbett 1993) revealing that murder rates are significantly higher among herding communities. Aspects of herding culture promote vigilant and aggressive protection the flock as “one’s livelihood can literally be rustled away” (Cohen & Nisbett 1994, p. 551) and this vigilance was hypothesized to permeate into a defense of honor broadly. Subsequent research demonstrates that relative to farming culture, herding culture is associated with relatively lower social status; and in fact, social status disparities mediate the relationship between herding culture and aggression (Henry 2009). This analysis suggests that the relatively lower social worth ascribed to members of low status groups leads to an increased vigilance toward potential threats to social worth, and increased aggression in response to a perceived threat.

Interestingly, allowing participants to affirm their sense of social worth reduced vigilance and endorsement of aggression in response to insult for low status groups only; the affirmation did not influence high status group members (Study 4, Henry 2009). In other words, when social worth of those with low status is bolstered through an affirmation task, their motivation to be on guard and thus aggress is reduced. This evidence supports vigilance and aggression as compensation strategies that serve self protective functions by enabling the speedy identification and mitigation of threats. Further, endorsement of aggression by White male southerners is
specific to a perceived affront and motivated by desire of protecting one’s reputation (Cohen & Nisbett, 1994) not for instrumental purposes or resulting from support of aggression broadly.

A broad conceptual model. Although conceptualized differently, increased vigilance toward threats (Henry 2009), “Hypersensitivity to affronts” (Cohen & Nisbett, 1994, p. 551), and selective attention toward hostile cues (Dodge, Pettit, Mccluskey, & Brown, 1986) all describe similar psychological process that explain reactive aggression. Figure 1 represents a broad conceptual model that integrates the hostile attributions literature with SCT theory and imposes a logical organizational structure to these processes⁵. Both harsh parenting and low social status can threaten one’s sense of social worth. Threatened social worth, exposure to violence and beliefs about aggression push people to be on guard for threatening social cues (increased vigilance toward threats). This increased vigilance may produce a hostile attribution bias that ultimately leads to increased reactive aggression.

Figure 1. Conceptual model

If low status groups are more likely to incorrectly attribute hostile intent, it is likely the result of biased social information processing that develops out of (and is reinforced by) a strong

⁵ For the purpose of this dissertation, I only focus on the central path of this broader model as it relates to the hypotheses IIa and IIb described below
motivation to protect the psychological-self. Because of their relatively lower social worth, psychological self-protection is relatively more important to those of low, as opposed to high status groups. Thus for those with low status, a hostile attribution bias may conceptualized as an increased type two error rate that occurs when both the negative psychological impact of inaction and the benefit of action are high. In essence, HAB may represent an increased tolerance for false positives, when the psychological cost associated with a false negative is too great.

**Rationale**

The purpose of this dissertation it to test four novel hypotheses that predict social status differences in hostile attribution biases and aggression within adult populations. Based on the evidence presented, I believe an investigation into the following hypotheses is warranted, especially in light of the potential theoretical and applied implications for reactive aggression.

First, the qualitatively different experiences of members of low status groups may put them at greater risk for developing the knowledge, memory structures and motivation that lead to a bias toward inferring hostile intent (Bradely & Corwyn, 2002; Coie, Dodge, & Kupersmidt, 1990; Crick & Dodge, 1994; Garbino 1999; see also Schultz & Shaw, 2003). Because of their devalued position in society those with low social status may be more vigilant toward threats that results in bias toward attributing hostile intent.

Second, following an ambiguous provocation, attributing hostile intentions increases the likelihood of an aggressive response (Asarnow & Callan, 1985; Crick & Dodge, 1996; Dodge 1980; Dodge & Coie 1987; Orobio de Castro et al., 2002). Shared, group-based beliefs and values may dictate that it is appropriate or desirable to use aggression as a means to resolve social conflict (e.g., Graham, Hudley, & Williams, 1992; Gurerra et al., 1995; Nisbett & Cohen, 1996; Baumeister & Boden, 1998). Low status groups that subscribe to cultures of honor are
more likely to respond to perceived insult with aggression than those of high status (Henry, 2009). If those of low status groups are more likely to attribute hostile intent to the ambiguous actions of others, this may also result in increased reactive aggression.

Third, according to SIP theory, hostile attributions of intent result from biased representation and interpretation of social cues (Dodge & Coie, 1987; Dodge & Crick; 1990; Dodge & Pettit; 2003). If those of low social status do demonstrate a HAB to a greater degree than their high status counterparts, it may be evidence of biased SIP. Suffering negative consequences as a result of another’s ambiguous actions may activate hostility related knowledge structures to a greater degree for those of low as compared to high social status. Thus, when intent is ambiguous, increased accessibility of aggressive and hostile knowledge structures may be one mechanism that increases the likelihood of hostile attributions.

Last, according to SCT theory, the threats to social worth that are inherent for low status groups in a hierarchical society lead to vigilant psychological self-protection (Henry 2008; 2011). The SIP deficits that produce attribution errors and subsequent reactive aggression may be the result increased psychological defensiveness by low status groups to protect against pervasive long-term threats to their social worth. Henry (2009) demonstrated that an a priori affirmation of social worth reduced differences between low and high status groups on a measure of defensiveness (aggression in response to insult). This evidence suggests that allowing participants to bolster their sense of social worth may decrease psychological defensiveness and subsequently attribution errors and self-reported reactive aggression.

**Statement of Hypotheses**

**Hypothesis Ia.** Those of low social status will infer hostile intent to a greater degree than those of high status when evaluating ambiguous provocation scenarios.
Hypothesis Ib. Those of low social status will report greater reactive aggression than those of high status when evaluating ambiguous provocation scenarios.

Hypothesis IIa. The relationship between social status and attributions of hostile intent will be mediated by threatened social worth and vigilance toward threats.

Hypothesis IIb. The relationship between social status and reactive aggression will be mediated by threatened social worth and vigilance toward threats and attributions of hostile intent.

Hypothesis III. Following an ambiguous provocation sentence prime, low status participants will identify hostile words in a lexical decision task faster than benign or non-words and faster than high status participants.

Hypothesis IVa. Engaging in a social worth affirmation task prior to evaluating ambiguous provocation scenarios will reduce hostile attributions of intent, especially for those of low social status.

Hypothesis IVb. Engaging in a social worth affirmation task prior to evaluating ambiguous provocation scenarios will reduce reactive aggression, especially for those of low social status.

I examined these hypotheses across three studies. Study 1 tests Hypotheses I and II using survey based measures of status, a scenario based measure of hostile attributions of intent and self-reported reactive aggression. Study 2 tests Hypothesis III using a reaction time measures similar to a lexical decision task. Study 3 uses an experiment design to test Hypothesis IV by manipulating the presence of a social worth affirmation.

CHAPTER II STUDY 1

The purpose of Study 1 is to test hypotheses Ia, Ib, IIa and IIb. Study 1 tests the prediction that those of low social status will infer greater hostile intent and report greater reactive aggression relative to those of high status. Second, this Study examined the role of
threatened social worth and increased vigilance toward threat in mediating the relationship between status and both hostile attributions and reactive aggression. Study 1 employed a survey methodology using undergraduate research participants to gather data on hostile attributions, reactive aggression and threatened social worth/vigilance.

Method

Participants.

Participants were students at a large Midwestern university who received course credit for their participation. Six participants failed to complete one or more of the critical demographic items and were excluded from the analysis, resulting in a final sample of \( n = 302 \) (Men = 79, Women = 223). Participants were 63% White, 8.8% African American and 18.2% Latino/Hispanic with the remaining 10% indicating other ethnicities.

Procedure.

Participants were recruited using the Psychology Department’s research participation system and received course credit for their participation. All survey materials were administered in an online format. Participants first read a brief description of the study, highlighting the nature of their participation and confidentiality of their responses. Following the introduction page, participants were directed to a survey webpage that contained all of the survey measures (described below). Once participants completed the survey, they were directed to a debriefing webpage and provided information about the purpose of the study and potential implications of the results.

Measures.

Attributions of hostile intent and potential reactive aggression. The Social Information Processing – Attribution Bias questionnaire (SIP-AEQ; Coccaro, Noblett, & McCloskey, 2009;
Appendix A) was used to directly measure attributions of hostile intent and reactive aggression. The SIP-AEQ solicits participants’ reactions to eight scenarios, each describing an individual acting in a way that causes negative consequences but where social cues to their intentions are ambiguous. For example, in one scenario participants are asked to:

“Imagine that you and a group of your co-workers went on a business trip. While at the hotel, waiting to meet a customer, you stop to buy a cup of coffee. Suddenly, one of your co-workers bumps your arm and spills your coffee over your shirt. The coffee is hot and your shirt is wet. Why do you think your coworker bumped your arm making you spill your coffee?” (Coccaro, et al., 2009 p. 923)

Participants are then asked rate the likelihood of various attribution statements on a four point scale ranging from 1 = not at all likely to 4 = very likely with the statement “my co-worker wanted to make me look bad to the customer” exemplifying a hostile attribution. Following the attribution items, participants respond to the question “how likely is it that you would respond aggressively if this happened to you” using the same scale. Responses to the sixteen hostile intention items formed a reliable scale (α = .83) and were averaged together to create a measure of attributions of hostile intent with higher numbers indicating greater perceived hostile intentions. Responses to the eight aggression items also formed a reliable scale (α = .86) and were averaged together to create a measure of potential reactive aggression with higher numbers indicating a greater likelihood to respond aggressively.

**Threatened social worth and vigilance toward threats.** Twelve items were used to measure participant’s perceptions of threatened social worth and vigilance toward threats (see Appendix B). These items were designed to measure perceptions of relative value to society and vigilance toward social threats. This scale is moderately correlated (r’s < .50) with measures of
self-esteem and collective self-esteem but was designed to tap into the extent to which participants’ social value (i.e., to others, to society) is threatened or affirmed by the existing social structures (Brandt, Henry, & Davis 2011). The instructions indicated that, “we are interested in how you see yourself in relation to the world around you” and participants responded to the eight statements using a seven point scale with 1 = *strongly disagree* and 7 = *strongly agree*. The eight social worth threat items formed a reliable scale (α = .84) and were averaged together to create a composite of threatened social worth, with higher numbers indicating a greater sense of threatened social worth. The four items measuring vigilance toward threats formed a reliable scale (α = .73) and were averaged together to create a composite measure of vigilance, with higher numbers indicating a greater vigilance toward social threats.

**Trait aggression.** The full 29-item Buss Perry Aggression Questionnaire (BPAQ; Buss & Perry, 1992; Appendix C) was used to assess trait aggression. The BPAQ demonstrates adequate reliability and validity (e.g., Harris, 1995; 1997), is a commonly used trait aggression measure, and is positively correlated with hostile and instrumental attributions as measured by the SIP-AEQ (Coccaro et al., 2009). Those high in trait aggression should be more likely to make hostile attributions of intent and respond aggressively to a person causing them negative consequences. Thus, the BPAQ was included in this study to examine and control for trait aggression. Participants responded to the BPAQ items using a seven point scale with 1 = *extremely uncharacteristic of me* and 7 = *extremely characteristic of me*. The 29 BPAQ items formed a reliable scale (α = .93) and were averaged together to create a composite of trait aggression, with higher numbers indicating a greater trait aggression.

**Romantic and relational aggression.** The romantic (ROM-A) and relational aggression (REL-A) subscales of the self-report of aggression and social behavior measure (SRASBM;
Linder et al., 2002; Appendix D) were used to assess trait aggression in terms of romantic and relational aggression. The SRASBM has been empirically validated and shown to be significantly related to attributions of hostile intent as measured by the SIP-AEQ (e.g., Murray-Close et al., 2010). Although gender differences in aggression tend to attenuate under circumstances of perceived provocation and some studies have been unable to demonstrate gender differences in verbal or physical aggression (see: Bettencourt & Miller 1996), social roles may dictate that relational aggression is more appropriate for women than men (Eagly & Steffen, 1986). Those high in romantic and relational aggression should be more likely to make hostile attributions of intent and respond aggressively to a person causing them negative consequences. Thus, the romantic and relational aggression scales were included in this study to examine and control for forms of aggression not captured by the BPAQ. Participants were asked to “rate the degree to which each of the following statements describe you” and responded using a five point scale with 0 = *Never* and 5 = *Often*. The five items measuring romantic aggression formed a reliable scale (α = .81) and were averaged together to create a scale with higher numbers indicating a greater romantic aggression. The five items measuring relational aggression formed a reliable scale (α = .80) and were averaged together to create a scale with higher numbers indicating a greater relational aggression.

**Exposure to violence.** The Children’s Report of Exposure to Violence (CREV; Cooley et al., 1995; Appendix E) was modified to make it more applicable to adult populations. The CREV assesses exposure to media violence, reported violence (toward others), observed violence and directly experienced violence. Modifications included removing sample items that are designed to acclimate children to the response format and intermittent instructions that are designed to define terms like “stranger”, “chased” or “threatened”. Participants scoring high in
exposure to violence may be more likely to make biased hostile attributions. The purpose of including the adapted CREV was to control for variability in hostile attributions that could be explained by exposure to violence. Participants were asked to rate their exposure to various forms of violence, ranging from watching someone being beaten up in a movie to hearing about, or seeing someone they know killed. Participants responded using a five point scale with 0 = Never and 4 = Every Day. The nineteen CREV items formed a reliable scale (α = .86) and were averaged together to create a scale with higher numbers indicating a greater exposure to violence.

**Harsh Parenting.** Exposure to harsh parenting (HP) was measured using six items adapted from Bailey et al., (2009) and Dodge, Pettit, and Bates (1994; Appendix F). These items do not represent a developed scale; rather, they are published measures previously used to examine the effects of harsh parenting on children. I adapted these items for use with adults by making them past tense and retrospective. For example, the item “How often do you and (CHILD) yell at each other” (Bailey, et al., 2009, p. 1218) was changed to “When you were growing up, how often did you and your parents yell at each other?” Exposure to harsh parenting is associated with the development of a HAB among child populations (Weiss, et al., 1992) and is included in the current study as a covariate. Participants were asked to rate how often they experienced various interactions with their parent(s) while they were growing up. For example, “When you disobeyed your parents how often were you punished by spanking?” Participants responded using a five point scale with 0 = Never and 4 = Often. The six HP items formed a reliable scale (α = .78) and were averaged together to create a scale with higher numbers indicating a greater exposure to harsh parenting while growing up.
Acceptability of aggression. The normative beliefs about aggression scale (NOBAGS; Huesman, & Guerra 1997; Appendix G) is a 20-item measure designed to assess the perceived acceptability of both specific and general aggressive behaviors in child populations. I adapted these items for use with adult populations by removing age specific language. For example the item “Suppose a young man says something bad to another young man, Tyler. Do you think it's OK for Tyler to hit him?” (Huesman & Guerra 1997, p. 419) was changed to “Suppose someone says something bad to Tyler. Do you think it's OK for Tyler to hit him?”. In a previous study the NOBAGS measure significantly mediated the relationship between socioeconomic status and aggression (Guerra, et al., 1995) and thus may be related to attributions of hostile intentions. The purpose of including the adapted NOBAGS will be to examine beliefs supporting aggression as a potential covariate. Participants were asked whether various aggressive behaviors were wrong or ok, and responded using a four point scale with 1 = perfectly ok and 4 = really wrong. The 20 NOBAGS items formed a reliable scale (α = .87) and were reverse coded and then averaged together to such that higher numbers indicate a greater acceptability of aggressive behaviors.

Social status. Participant gender, ethnicity, socioeconomic status and subjective social status were used as indicators of social status (see e.g., Adler et al., 2000; Jost & Hunyady, 2002; Henry, 2011; Ridgeway, 2001; Sidanius & Pratto, 1999; Appendix H). Ethnicity and sex were coded into dichotomous variables with 1 = Whites (Males) and 0 = non-Whites (Females). Participants were asked to indicate their total annual family income and responded using a twelve point scale ranging from 1 = Less than $20,000 to 12 = Greater than $200,000. Participants were asked to indicate their socioeconomic class and responded using a ten point scale ranging from 1 = below the poverty line to 10 = higher upper class. Responses to the income and social class items formed a reliable scale (α = .87, r = .71, p <.001) and were
standardized and averaged together to create a measure of socioeconomic status (SES) with higher numbers indicating greater SES.

In addition to SES, I measured perceptions of subjective social status. Subjective social status captures people’s relative experience of social status and can be more informative than SES (see Adler et al., 2000). For example, a person with an annual income of $65,000 would have relatively different perception of their social status depending on whether they lived in a large urban area with a high cost of living or a small rural area with a low cost of living. Subjective status was assessed with two items and was included to measure relative perceptions of social stats. Participants were asked “When you think about your identity as a whole, how would you rate your status in society?” and responded using a seven point scale with 1 = low status and 7 = high status. For the second item, participants are presented with an image of a ladder that has ten rungs and are given the following instructions:

“Think of this ladder as representing where people stand in the United States. At the top of the ladder are the people who are the best off- those who have the most money, the most education and the most respected jobs. At the bottom are the people who are the worst off - who have the least money, least education, and the least respected jobs or no job. The higher up you are on the ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom.” (Adler et al., 2000 p. 587)

Participants place themselves on the ladder by selecting one of the ten rungs and responses were coded such that 10 = top rung and 1 = bottom rung. Responses to both the subjective social status items formed a reliable scale ($\alpha = .75$, $r = .59$, $p < .001$) and were standardized and
averaged together to create a measure of subjective status, with higher numbers indicating higher
subjective status.

**Results**

**Tests of Hypothesis I**

**Ethnicity.** I began by examining mean differences in hostile attributions for dichotomous
ethnicity in isolation and then controlling for trait aggression, romantic aggression, relational
aggression, exposure to violence, harsh parenting and normative beliefs about aggression
(BPAQ, ROM-A, REL-A, adapted CREV, HP and adapted NOBAGS). Ethnicity significantly
predicted hostile attributions and this pattern did not change when the covariates were included
in the analysis. Non-Whites (M = 2.11, SD = .37) rated the hostile attribution statements as
significantly more likely than Whites (M = 1.97, SD = .34). Results of this analysis support
Hypothesis Ia that in terms of ethnicity, those of lower social status will infer hostile intent to a
greater degree than those of high status when evaluating ambiguous provocation scenarios.

To test Hypothesis Ib, I examined mean differences in reactive aggression for
dichotomous ethnicity in isolation and then while controlling for the same variables used in the
above analysis (BPAQ, ROM-A, REL-A, adapted CREV, HP and adapted NOBAGS). Results
presented in the third and fourth columns of Table 1 indicate significant effects ethnicity on
reactive aggression. These effects persisted when the covariates were included in the analysis.
Not surprisingly, increases in trait aggression, relational aggression and normative beliefs are
associated with increases in reactive aggression; however, non-Whites (M = 2.10, SD = .57)
indicated that they would be significantly more likely to respond aggressively to an ambiguous
provocation than Whites (M = 1.85, SD = .54). These results support Hypothesis 1b suggesting
that, in terms of ethnicity, those of lower social status reported greater reactive aggression than

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6 For ease of interpretation, raw means are presented in Study 1.
those of high status, even when controlling for trait aggression, relational aggression, and normative beliefs about aggression.

Table 1.

Study 1. Analysis of covariance examining mean differences in hostile attributions and reactive aggression for ethnicity while controlling for trait aggression, exposure to violence, harsh parenting, and normative beliefs about aggression

<table>
<thead>
<tr>
<th>Hostile attributions</th>
<th>Reactive Aggression</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Initial Analysis</td>
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<tr>
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<td>Ethnicity</td>
<td>10.31*** .033</td>
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<tr>
<td>BPAQ</td>
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<tr>
<td>ROM-A</td>
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<td>CREV</td>
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<td>HP</td>
<td>.07</td>
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<tr>
<td>NOBAGS</td>
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</table>

Note: Effects reported as .0 are < .001. Ethnicity is coded with 1 = Whites and 0 = non-Whites. Covariates included are trait aggression (BPAQ), romantic aggression (ROM-A), relational aggression (REL-A), exposure to violence (CREV), harsh parenting (HP), and normative beliefs about aggression (NOBAGS). n = 502. p < .05*, p < .01**, p < .001***.

Sex. To provide an additional test of Hypothesis Ia I conducted a one-way ANCOVA examining mean differences in hostile attributions for sex in isolation and then controlling for the same covariates used in the above analysis (BPAQ, ROM-A, REL-A, adapted CREV, HP and adapted NOBAGS). Results presented in the first two columns of Table 2 suggest that sex did not significantly predict hostile attributions and this effect remained non-significant when covariates were included in the analysis. Results of this analysis do not support Hypothesis Ia. In terms of sex, those of lower social status (women) did not infer greater hostile intent than those of high status (men) when evaluating ambiguous provocation scenarios.
To provide an additional test of Hypothesis Ib, I conducted a one-way ANCOVA examining mean differences in reactive aggression for sex in isolation and then controlling for the same covariates as above (BPAQ, ROM-A, REL-A, adapted CREV, HP and adapted NOBAGS). Results presented in the third and fourth columns of Table 2 indicate significant effects of relational aggression, harsh parenting, and normative beliefs about aggression; however, the effect of sex on reactive aggression was not significant. There was also a marginally significant effect of trait aggression. These results do not support Hypothesis Ib. In terms of sex, those of lower social status did not report greater reactive aggression than those of high status when evaluating ambiguous provocation scenarios.

**SES.** Next, I tested Hypothesis Ia using continuous independent variables. I conducted a multiple hierarchical regression predicting hostile attributions from SES in isolation and then controlling for covariates (BPAQ, ROM-A, REL-A, adapted CREV, HP and adapted NOBAGS).

<table>
<thead>
<tr>
<th></th>
<th>Hostile attributions</th>
<th>Reactive Aggression</th>
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</thead>
<tbody>
<tr>
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<td>NOBAGS</td>
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Note: Effects reported as .0 are < .001. Sex is coded with 1 = Male and 0 = Female. Covariates included are trait aggression (BPAQ), romantic aggression (ROM-A), relational aggression (REL-A), exposure to violence (CREV), harsh parenting (HP), and normative beliefs about aggression (NOBAGS). n = 302, p < .05*, p < .01**, p < .001***.
Results presented in first two columns of Table 3 indicate that SES marginally predicts hostile attributions; however, when the covariates were included from the analyses the effect of SES became significant. Results of this analysis provide mixed support for Hypothesis 1a; decreases in SES are associated with increases in hostile attributions but the true effect may be small or unstable.

Table 3.

I conducted a multiple hierarchical regression predicting reactive aggression from SES in isolation and then controlling for covariates (BPAQ, ROM-A, REL-A, adapted CREV, HP and adapted NOBAGS). Results presented in the third and fourth columns of Table 3 indicate SES does not significantly predict reactive aggression. With the covariates included in the analysis, romantic relational aggression and exposure to violence did not significantly predict aggression; however, not surprisingly, increases in normative beliefs about aggression, relational aggression, harsh parenting and trait aggression are all associated with increases in reactive aggression.
Results of this analysis do not support Hypothesis Ib; decreases in SES were not associated with significant increases in reactive aggression.

**Subjective status.** Next I conducted a multiple hierarchical regression predicting hostile attributions from subjective status and then while controlling for the same covariates (BPAQ, ROM-A, REL-A, adapted CREV, HP and adapted NOBAGS). Excepting romantic relational aggression, the results presented in first two columns of Table 4 indicate no significant effects of subjective status or the covariates on hostile attributions. There was a marginally significant effect of romantic relation aggression. Results of this analysis do not support Hypothesis Ia; decreases in subjective status are not associated with increases in hostile attributions.

| Table 4. Study 1. Multiple regression analyses predicting hostile attributions and reactive aggression from subjective status while controlling for normative beliefs about aggression, trait aggression, relational aggression, romantic aggression, harsh parenting, and exposure to violence. |
|---|---|---|---|---|---|---|---|---|---|---|
| **Hostile Attributions** | **Reactive Aggression** |
| **Initial Analysis** | **Covariates Included** | **Initial Analysis** | **Covariates Included** |
| **B** | **SE** | **β** | **B** | **SE** | **β** | **B** | **SE** | **β** | **B** | **SE** | **β** |
| Subjective Status | .004 | .023 | .009 | -.009 | .024 | -.023 | -.004 | .036 | -.007 | -.006 | .034 | -.010 |
| BPAQ | -.007 | .030 | -.018 | .078 | .044 | .135† | .047 | .048 | -.068 | .128 | .055 | .168* |
| ROM-A | .056 | .034 | .127† | .047 | .048 | -.068 | .091 | .040 | .133* | .043 | .074 | .035 |
| REL-A | .029 | .038 | .060 | .128 | .055 | .168* | .091 | .040 | .133* | .043 | .074 | .035 |
| HP | .013 | .028 | .029 | .091 | .040 | .133* | .043 | .074 | .035 |
| CREV | .031 | .052 | .039 | .043 | .074 | .035 |
| NOBAGS | .052 | .043 | .074 | .247 | .061 | .225*** |

Note: Covariates included are normative beliefs about aggression (NOBAGS), trait aggression (BPAQ), relational aggression (REL-A), romantic aggression (ROM-A), harsh parenting (HP), exposure to violence (CREV). n = 302, p < .10†, p < .05*, p < .01**, p < .001***.

Finally I conducted a multiple hierarchical regression predicting reactive aggression from subjective status and then controlling covariates (BPAQ, ROM-A, REL-A, adapted CREV, HP and adapted NOBAGS). Results presented in the third and fourth columns of Table 4 indicate subjective status does not significantly predict reactive aggression. Similar to previous analyses,
romantic relational aggression and exposure to violence did not significantly predict aggression. Increases in normative beliefs about aggression, relational aggression, harsh parenting, and trait aggression are all associated with increases in reactive aggression. Results of this analysis do not support Hypothesis Ib; decreases in subjective status were not associated with significant increases in reactive aggression.

The results presented thus far offer mixed support Hypothesis Ia and Ib. Non-whites are significantly more likely than Whites to make hostile attributions and endorse reactive aggression. SES was marginally negatively associated with hostile attributions. There were no significant effects of sex or subjective status on either hostile attributions or reactive aggression. These results seem to suggest that there may be effect of social status on hostile attributions; however, the effect sizes are relatively small, and may depend in part on how social status is measured. Next I examined two potential mechanisms for the effects predicted by Hypotheses Ia and Ib: threatened social worth and vigilance toward threats.

**Tests of Hypothesis II**

Using AMOS 18, I conducted a maximum likelihood path analyses for each status indicator to examine the central path in the conceptual model (Figure 2). This procedure allows for simultaneous tests of the mediation effects predicted by Hypothesis IIa and IIb. I predicted that threatened social worth and vigilance toward threats would significantly mediate the relationship between social status and hostile attributions (Hypothesis IIa) and that together threatened social worth, vigilance toward threats and hostile attributions would significantly
Table 5.

Correlations among each status indicator, threatened social worth, vigilance toward threats, hostile attributions and reactive aggression.

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<td>-.08</td>
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</table>

Note: Ethnicity and sex are coded 1 = Whites (Males) and 0 = non-Whites (Females). Normative beliefs about aggression (NOBAGS), trait aggression (BPAQ), relational aggression (REL-A), romantic aggression (ROM-A), harsh parenting (HP), exposure to violence (CREV). n = 302, p < .10†, p < .05*, p < .01**, p < .001***.
mediate the relationship between social status and reactive aggression (Hypothesis IIb).

Correlations among each status indicator, threatened social worth, vigilance toward threats, hostile attributions and reactive aggression are presented in Table 5. I considered the Chi-square statistic, the standardized root mean square error (SRMR), the comparative fit index (CFI), Tucker-Lewis index (TLI) and the root mean square error of approximation (RMSEA) as estimates of model fit (Hu & Bentler, 1999). According to these criteria, when the Chi-square statistic is not statistically significant, SRMR is less than .10, CFI and TLI are greater than .95 and RMSEA is less than .08, the model is considered to have good fit. Indirect effects indicate the extent to which the independent variable influences the dependent variable through single or multiple mediating variables. The significance of the indirect effects were determined using bootstrapping with bias corrected 95% confidence intervals (see Preacher & Hayes, 2008). A significant indirect effect indicates a significant mediation effect.

**Ethnicity.** Using ethnicity as an indicator of social status I began by examining the hypothesized model (Figure 3). The hypothesized model had relatively poor fit $\chi^2(6, n = 302) = 60.74, p < .001$, SRMR = .14, RMSEA = .17, 90% CI .14, .22, CFI = .66, TLI = .43

Modification indices suggested including a direct path from threatened social worth to both hostile attributions and aggression, as well as a path from vigilance to aggression.

The modified model (Figure 4) fit the data significantly better than the hypothesized model $\chi^2_{\text{difference}}(3, n = 302) = 48.67, p < .01$ and had relatively better fit overall $\chi^2(3, n = 302) = 12.07, p$
Ethnicity significantly predicted threatened social worth suggesting that non-Whites experience greater threats to social worth than Whites. Threatened social worth significantly predicted variance in hostile attributions, suggesting increases in threatened social worth are associated with increases in hostile attributions. The combined direct and indirect effects of ethnicity, threatened social worth and vigilance explain significant variance in hostile attributions, $R^2 = .09$. Increases in threatened social worth, vigilance and hostile attributions all significantly predict increases in reactive aggression. Together ethnicity, threatened social worth, vigilance and hostile attributions explain a significant amount of variability in reactive aggression, $R^2 = .26$.

Analysis of the indirect effects revealed that together, threatened social worth and vigilance toward threats significantly mediated the relationship between ethnicity and hostile attributions (indirect effect = -.054, $SE = .02, p = .002$) providing evidence supporting Hypothesis IIa. There was also a significant mediation effect of ethnicity on reactive aggression through threatened social worth, vigilance and hostile attributions (indirect effect = -.056, $SE = .02, p = .002$) providing evidence supporting Hypothesis IIb.

**Sex.** Next I examined sex as an indicator of social status. I began by examining the hypothesized model (Figure 5). The hypothesized model had poor fit $\chi^2(6, n = 302) = 58.79$,
SRMR = .12, RMSEA = .17, 90% CI .13, .21 , CFI = .64, TLI = .41 and sex did not significantly predict threatened social worth. Modification indices suggested including a direct path from threatened social worth to hostile attributions and aggression, a path from vigilance to aggression, and a direct path from sex to aggression.

The modified model (Figure 6) fit the data significantly better than the hypothesized model \( \chi^2 \) difference (4, n = 302) = 53.41, \( p < .01 \) and had relatively better fit overall \( \chi^2(2, n = 302) = 5.38, p = .068, SRMR = .037, RMSEA = .075, 90\% CI .00, .15 , CFI = .97, TLI = .89. The combined direct and indirect effects of sex, threatened social worth and vigilance explain significant variance in hostile attributions, \( R^2 = .09 \). The direct effect of sex on aggression was significant but opposite the hypothesized direction, suggesting men are more likely to aggress when controlling for the presence of the mediators. Together these variables explain a significant amount of variability in reactive aggression, \( R^2 = .28 \).
Analysis of the indirect effects revealed that together, threatened social worth and vigilance toward threats did not significantly mediate the relationship between sex and hostile attributions (indirect effect = .023, $SE = .02$, $p = .136$) providing evidence that does not support Hypothesis IIa. The effect of sex on reactive aggression through threatened social worth, vigilance and hostile attributions was also not significant (indirect effect = .023, $SE = .02$, $p = .142$) offering no support to Hypothesis IIb.

SES. Next I examined socioeconomic status as an indicator of social status. The hypothesized model (Figure 7) had poor fit $\chi^2(6, n = 302) = 51.30$, SRMR = .118, RMSEA = .16, 90% CI .12, .20, CFI = .69, TLI = .49. Modification indices suggested including a direct path from threatened social worth to both hostile attributions and aggression, as well as a path from vigilance to aggression. The modified model (Figure 8) fit the data significantly better than the hypothesized model $\chi^2$ difference $(3, n = 302) = 48.67$, $p < .01$ and had relatively better fit overall $\chi^2(3, n = 302) = 2.63$, $p = .451$, SRMR = .024, RMSEA = .000, 90% CI .00, .09, CFI = 1.0, TLI = 1.0. SES significantly predicted threatened social worth, suggesting that decreases in SES are associated with increases in threatened social worth. The combined direct and indirect effects of SES, threatened social worth and vigilance explain significant variance in hostile attributions $R^2 = .09$. The combined direct and indirect effects of these variables explain a significant amount of variability in reactive aggression $R^2 = .26$. 

![Figure 7](image_url)  
**Figure 7.** Standardized path coefficients for the hypothesized model with SES representing social status. $p < .10^*$, $p < .05^*$, $p < .01^*$**, $p < .001^***$.  
![Figure 8](image_url)
Analysis of the indirect effects revealed that together, threatened social worth and vigilance toward threats significantly mediated the relationship between SES and hostile attributions (indirect effect = -.050, SE = .02, p = .002) providing evidence supporting Hypothesis IIa. Despite the non-significant relationship between SES and aggression (see Table 5) the indirect effect of SES on reactive aggression through threatened social worth, vigilance and hostile attributions was also significant (indirect effect = -.052, SE = .02, p = .002) providing mixed support to Hypothesis IIb.

**Subjective Status.** Last, I examined subjective status as an indicator of social status. The hypothesized model (Figure 9) had poor fit $\chi^2(6, n = 302) = 54.04$, SRMR = .115, RMSEA = .16, 90% CI .12, .20, CFI = .70, TLI = .50. Modification indices suggested including a direct path from threatened social worth to both hostile attributions and aggression, a path from vigilance to aggression. The modified model (Figure 10) fit the data significantly better than the hypothesized model $\chi^2_{\text{diffence}}(3, n = 302) = 48.66, p < .01$ and had relatively better fit overall $\chi^2(3, n = 302) =$

![Figure 8. Standardized path coefficients for the modified model with SES representing social status. $p < .10^{*}$, $p < .05^{* *}$, $p < .01^{* * *}$, $p < .001^{* * *}$.

![Figure 9. Standardized path coefficients for the hypothesized model with subjective status representing social status. $p < .10^{*}$, $p < .05^{* *}$, $p < .01^{* * *}$, $p < .001^{* * *}$.


Subjective status significantly predicted threatened social worth, suggesting that decreases in subjective status are associated with increases in threatened social worth. The combined direct and indirect effects of subjective status, threatened social worth and vigilance explain significant variance in hostile attributions $R^2 = .09$. The combined direct and indirect effects of these variables explain a significant amount of variability in reactive aggression $R^2 = .26$.

![Diagram](image)

*Figure 10. Standardized path coefficients for the modified model with subjective status representing social status. $p < .10^*$, $p < .05^*$, $p < .01^*$, $p < .001^***$. *

Despite the non-significant relationship between subjective status and both hostile attributions and reactive aggression (see Table 5), analysis of the indirect effects suggested that threatened social worth and vigilance toward threats significantly mediated the relationship between subjective status and hostile attributions (indirect effect = -.068, $SE = .02$, $p < .001$) providing mixed support for Hypothesis IIa. The indirect effects of subjective status on reactive aggression through threatened social worth, vigilance and hostile attributions was also significant (indirect effect = -.070, $SE = .01$, $p < .001$) providing mixed support to Hypothesis IIb.

**Additional Analyses**

**Men Only**

Sex did not significantly predict either hostile attributions or reactive aggression, however it may be that case that the observed patterns differ for men and women. Despite
evidence to the contrary (Bettencourt, & Miller 1996) it may be that the influence of gender based social expectations inhibited women self-reporting hostile attributions or reactive aggression. To examine this possibility, the analyses preformed above were repeated for men only. This approach assumes that gender based social expectations do not conflict with reporting of aggression for men, and tests the possibility that the observed relationships between social status, and hostile attributions, and reactive aggression are stronger when women are excluded.

**Ethnicity.** Examining the mean differences in hostile attributions and reactive aggression for men only reveal a pattern of effects similar to those reported above (See: Table 1 alt). Despite the increased effect sizes, the direct effect of ethnicity on hostile attributions and reactive aggression is reduced to marginal significance but remains in the predicted direction. These effects are significant (as above) when the covariates are included in the analyses; however, trait aggression and relational aggression no longer significantly predict reactive aggression. These analyses do differ from those reported above but this is likely due to the reduction in power associated with the smaller sample size.

Similar to the mediation analyses reported above, I conducted a maximum likelihood path analyses for ethnicity examining the central path in the conceptual model, but for men only (see Figure 4 alt). Excluding women from the analyses produced a model that fit the data significantly better $\chi^2$ difference (4, n = 79) = 9.75, $p < .05$ and exhibits better fit overall $\chi^2$(4, n = 79) = 2.32, $p = .67$, SRMR = .044, RMSEA = .000, 90% CI .00, .13 , CFI = 1.09, TLI = 1.09 than the model reported above (see Figure 4). In this model threatened social worth did not significantly predict reactive aggression. All of the path coefficients remain in the predicted direction and are generally stronger than in the model presented above. The resulting indirect effects follow this trend. For men only, threatened social worth and vigilance remained
significant mediators of the relationship between ethnicity and hostile attributions (indirect effect
$= -0.121, SE = 0.05, p = 0.006$). The indirect effects of ethnicity on reactive aggression through
threatened social worth, vigilance and hostile attributions remain significant (indirect effect
$= -0.071, SE = 0.03, p = 0.006$).

**Table 1 alt.**

*Study 1. Analysis of covariance examining mean differences in hostile attributions and reactive
aggression for ethnicity while controlling for trait aggression, exposure to violence, harsh parenting,
and normative beliefs about aggression for men only.*

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<th>Hostile attributions</th>
<th>Reactive Aggression</th>
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Note: Effects reported as .0 are < .001. Ethnicity is coded with 1 = Whites ($n = 46$) and 0 = non-Whites ($n = 33$). Covariates included are trait aggression (BPAQ), romantic aggression (ROM-A), relational aggression (REL-A), exposure to violence (CREV), harsh parenting (HP), and normative beliefs about aggression (NOBAGS). $n = 79$. $p < .05^*, p < .01^{**}, p < .001^{***}$. 

**Figure 4 alt.** Standardized path coefficients for the modified model depicting with ethnicity
representing social status. $p < .10^+$, $p < .05^*, p < .01^{**}, p < .001^{***}$. 

**SES.** When examining the effects of SES on hostile attributions and reactive aggression for
men only, the differences between the initial analyses follows the same pattern as ethnicity. (See:
Table 3 alt). The direct effects of SES on hostile attributions and reactive aggression remain in
the predicted direction, but despite increased effect sizes these effects are not statistically significant. These effects become marginally significant for hostile attributions and remain insignificant for reactive aggression when the covariates are included in the analyses. Similar to the patterns observed for ethnicity any differences in analyses could be attributable to the reduction in power associated with the smaller sample size.

Table 3 alt.

*Study 1. Multiple regression analyses predicting hostile attributions and reactive aggression from socioeconomic status while controlling for normative beliefs about aggression, trait aggression, relational aggression, romantic aggression, harsh parenting, and exposure to violence for men only*

<table>
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<tr>
<th>Hostile Attributions</th>
<th>Reactive Aggression</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial Analysis</strong></td>
<td><strong>Covariates Included</strong></td>
</tr>
<tr>
<td>B  SE B  β</td>
<td>B  SE B  β</td>
</tr>
<tr>
<td>Socioeconomic Status</td>
<td>.046 .040 .128</td>
</tr>
<tr>
<td>BPAQ</td>
<td>-.001 .057 -.003</td>
</tr>
<tr>
<td>ROM-A</td>
<td>.132 .065 .276*</td>
</tr>
<tr>
<td>REL-A</td>
<td>.050 .080 .095</td>
</tr>
<tr>
<td>HP</td>
<td>-.002 .057 -.005</td>
</tr>
<tr>
<td>CREV</td>
<td>-.063 .094 -.078</td>
</tr>
<tr>
<td>NOBAGS</td>
<td>.124 .068 .208†</td>
</tr>
</tbody>
</table>

Note: Covariates included are normative beliefs about aggression (NOBAGS), trait aggression (BPAQ), relational aggression (REL-A), romantic aggression (ROM-A), harsh parenting (HP), exposure to violence (CREV). n = 78, p < .10†, p < .05*, p < .01**, p < .001***.

I conducted a maximum likelihood path analyses for SES examining the central path in the conceptual model, but for men only (see Figure 8 alt). Excluding women from the analyses produced a model that did not fit the data significantly better $\chi^2$ difference (4, n = 79) = 1.80, $p = ns$ but exhibited better fit overall $\chi^2$ (4, n = 79) = 0.83, $p = .93$, SRMR = .021, RMSEA = .000, 90% CI .00, .05, CFI = 1.0, TLI = 1.19 than the model reported above (see Figure 8). In this model threatened social worth did not significantly predict reactive aggression. All of the path coefficients remain in the predicted direction and are generally stronger than in the model presented above however the direct effect of SES on threatened social worth was reduced. The
resulting indirect effects were smaller than those in the initial model and were reduced to non-significance. For men only threatened social worth and vigilance did not mediate relationship between SES and hostile attributions (indirect effect = -.051, $SE = .05, p = .29$). The indirect effects of SES on reactive aggression through threatened social worth, vigilance and hostile attributions were not significant (indirect effect = -.030, $SE = .03, p = .28$).

Subjective Status. When examining the effects of subjective status on hostile attributions for men only there are no differences between the initial analyses (See: Table 4 alt). Despite the increased effect sizes, the direct effect of subjective status on hostile attributions and reactive aggression remains in the predicted direction but is not statistically significant. Including the covariates in the analyses reduced the effect of subjective status on hostile attributions; however, the effect on reactive aggression increases when the covariates are included. This pattern suggests the possibility that sex interacts with subjective status in predicting reactive aggression. To examine this possibility, I predicted reactive aggression from sex, subjective status and their interaction (subjective status was centered prior to calculating the interaction term) using the complete sample (including both men and women). There was no significant effect of subjective status or sex predicting reactive aggression however the interaction term was significant $t(301) = 2.49, p = .013, \beta = .15$. An examination of the simple slopes (see Figure 11) revealed that men high in subjective status scored marginally higher on reactive aggression than women high in

![Path Diagram](image_url)
subjective status $t(301) = 1.91, p = .057, \beta = .18$, and no other differences were significant.

Counter to hypothesis II, this interaction suggests that males who perceive that they to have high status are also more likely to endorse greater reactive aggression.

**Table 4.** Multiple regression analyses predicting hostile attributions and reactive aggression from subjective status while controlling for normative beliefs about aggression, trait aggression, relational aggression, romantic aggression, harsh parenting, and exposure to violence.

<table>
<thead>
<tr>
<th>Hostile Attributes</th>
<th>Initial Analysis</th>
<th>Covariates Included</th>
<th>Reactive Aggression</th>
<th>Covariates Included</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B   SE  B   B</td>
<td></td>
<td>B   SE  B   B</td>
<td></td>
</tr>
<tr>
<td>Subjective Status</td>
<td>.037 .038 .112</td>
<td>- .003 .040 .008</td>
<td>- .006 .034 .010</td>
<td>.106 .061 .205†</td>
</tr>
<tr>
<td>BPAQ</td>
<td>-.021 .057 -.060</td>
<td></td>
<td>.054 .088 .098</td>
<td></td>
</tr>
<tr>
<td>ROM-A</td>
<td>.132 .069 .274†</td>
<td></td>
<td>-.093 .107 .122</td>
<td></td>
</tr>
<tr>
<td>REL-A</td>
<td>.043 .081 .081</td>
<td></td>
<td>.116 .126 .138</td>
<td></td>
</tr>
<tr>
<td>HP</td>
<td>.010 .059 .021</td>
<td></td>
<td>.059 .092 .078</td>
<td></td>
</tr>
<tr>
<td>CREV</td>
<td>-.054 .096 -.066</td>
<td></td>
<td>.101 .148 .078</td>
<td></td>
</tr>
<tr>
<td>NOBAGS</td>
<td>.133 .069 .224†</td>
<td></td>
<td>.296 .107 .314***</td>
<td></td>
</tr>
</tbody>
</table>

Note: Covariates included are normative beliefs about aggression (NOBAGS), trait aggression (BPAQ), relational aggression (REL-A), romantic aggression (ROM-A), harsh parenting (HP), exposure to violence (CREV). $n = 78, p < .10†, p < .05*, p < .01**, p < .001***.$

**Figure 11.** Mean reactive aggression by subjective status and sex

Last, I conducted a maximum likelihood path analyses for Subjective Status examining the central path in the conceptual model, but for men only (see Figure 10 alt). Excluding women
from the analyses produced a model that had marginally worse fit \( \chi^2 \text{diffrence} (4, n = 79) = -6.11, p = .19 \) and exhibited worse fit overall \( \chi^2 (4, n = 79) = 11.49, p = .02 \), SRMR = .098, RMSEA = .155, 90% CI .054, .263 , CFI = .862, TLI = .654 than the model reported above (see Figure 10). In this model threatened social worth did not significantly predict reactive aggression. All of the path coefficients remain in the predicted direction and are similar in magnitude to those presented in the model above. The resulting indirect effects were similar to those in the initial model; threatened social worth and vigilance remained significant mediators of the relationship between subjective status and hostile attributions (indirect effect = -.102, \( SE = .05, p = .031 \)). The indirect effects of subjective status on reactive aggression through threatened social worth and vigilance remained significant (indirect effect = -.060, \( SE = .03, p = .028 \)).

![Alternative Model](image)

**Figure 10 Alt.** Standardized path coefficients for the modified model with subjective status representing social status. \( p < .10^*, p < .05^*, p < .01^{**}, p < .001^{***} \).

**Alternative Model**

To examine and control for the combined effects of the status indicators, I conducted a final maximum likelihood path analyses for ethnicity, SES, Subjective Status examining the central path in the conceptual model, and including the significant direct paths from the modified models presented above (see Figure 12). This alternative model fit the data well \( \chi^2 (8, n = 302) = 14.04, p = .081 \), SRMR = .041, RMSEA = .05, 90% CI .000, .092 , CFI = .98, TLI = .95. Ethnicity and subjective status significantly predicted threatened social worth however, controlling for these status indicators reduced the relationship between SES and threatened social
worth to non-significance. The remaining patterns did not change with respect to the previous models, except that ethnicity significantly predicted hostile attributions and marginally predicted reactive aggression. There was a significant indirect effect of ethnicity on both hostile attributions (indirect effect = -.038, $SE = .019$, $p = .017$) and reactive aggression (indirect effect = -.086, $SE = .028$, $p = .001$). There was a significant indirect effect of subjective status on both hostile attributions (indirect effect = -.054, $SE = .020$, $p = .003$) and reactive aggression (indirect effect = -.056, $SE = .023$, $p = .004$). The indirect effects of SES on both hostile attributions (indirect effect = -.003, $SE = .068$, $p = .87$) and reactive aggression (indirect effect = -.003, $SE = .040$, $p = .87$) were not significant.

![Diagram](image)

*Figure 12. Alternative model including all status indicators. n = 302, $p < .10^*$, $p < .05^*$, $p < .01^*$, $p < .001^*$.*

**Discussion**

**Summary**

The central thesis of Study 1 is the prediction that those with low social status will report greater hostile attributions and reactive aggression than those of high status and that these effects will be mediated by threatened social worth and vigilance toward threats. Non-Whites and those with low SES reported significantly greater hostile attributions than Whites and those with high
SES, even when controlling for trait aggression, relational aggression and normative beliefs about aggression. Non-Whites reported significantly greater reactive aggression than Whites even when controlling for trait aggression, relational aggression and normative beliefs about aggression. There was no significant effect SES on aggression. Sex and subjective status did not significantly affect hostile attributions or aggression. These effects offer mixed support for Hypothesis I; the direct effect of social status on hostile attributions and reactive aggression was most pronounced for ethnicity and to a lesser degree SES but nonexistent for sex and subjective status.

The path analyses revealed that increases in threatened social worth are associated with significant increases in hostile attributions and reactive aggression. Additionally, increased vigilance toward threats significantly predicted increases in reactive aggression. Both ethnicity and SES were significantly associated with threatened social worth and vigilance toward threats and these variables significantly mediated the effects of ethnicity and SES on hostile attributions. There was a significant multiple mediation effect of ethnicity and SES on aggression through threatened social worth, vigilance and hostile attributions. Subjective status was significantly related to threatened social worth and vigilance toward threats but unrelated to hostile attributions and reactive aggression; however subjective status did significantly influence both hostile attributions and reactive aggression indirectly. Sex did not significantly predict threatened social worth or vigilance toward threats; however with these variables included in the model, there was a significant effect of sex on aggression, opposite of the predicted direction. These effects offer mixed support for Hypothesis II; the ability of threatened social worth, and vigilance toward threats to mediate the relationship between social status and hostile attributions.
and reactive aggression was the most clear for ethnicity, SES and to a lesser degree subjective status.

**Implications**

This pattern of results fits well with predictions made by Stigma Compensation Theory (Henry, 2009, 2011). Those with high social status are valued by society and thus experience greater social worth, while those of low social status experience a diminished sense of social value and thus threatened social worth (Henry 2009). The threats to social worth associated with low social status lead to increased psychological vigilance and a motivation to actively mitigate potential future threats. (Brandt & Henry, in press-b; Henry 2009, 2011). Threatened social worth is thus the primary mechanism that drives the predicted status differences in social cognition and behavior.

The mediation analyses presented in Study 1 reflect this conceptualization demonstrating that threatened social worth mediated the relationship between status and both hostile attributions and aggression. In contrast, vigilance toward threats did not significantly predict hostile attributions but instead consistently mediates the effect of status on aggression. This suggests that vigilance, like hostile attributions, may play a more proximal role in aggressive behavior. On the other hand, threatened social worth seems to drive both increased vigilance and hostile attributions which in turn drive reactive aggression. Given that vigilance did not significantly predict hostile attributions, the theoretical model could be adjusted such that both increased vigilance and hostile attributions occur in parallel rather than in sequence. This re-configuration would still be consistent with SCT, in that threatened social worth is still the primary mechanism that explains status based differences in social cognition and behavior.
Sex notwithstanding, this study largely supports the predicted relationships between social status, hostile attributions and reactive aggression. This evidence supports Stigma Compensation Theory’s prediction that those of low social status face threats to social worth that in turn influences social cognition and behavior. Additionally these results support SIP theory (Dodge & Pettit, 2003) by demonstrating a pattern of effects in adults that is similar to those found with children and adolescents. Study 1 offers some support for Hypothesis II demonstrating that the relationship between social status and hostile attributions is mediated by perceptions of social worth and vigilance; however, this pattern was not found for sex.

The mixed nature of these results may mean that these relationships may depend on the saliency or the context in which status is measured. For example, recent evidence suggests that for non-whites, making a downward (status inconsistent) social comparison significantly reduces threatened social worth and hostile attributions compared to upward social comparisons (status consistent comparisons; Davis, 2012). In a university sample, ethnicity and SES may be particularly salient indicators of social status. This suggests that non-whites and those with low SES attending a predominantly upper class, majority white university, may experience increased threats to social worth because the saliency of their status promotes upward social comparisons in that context. These effects may be substantially weakened in contexts where minority status is less salient, for example in a university where the majority of students are non-White and or come from low SES backgrounds.

Alternatively working toward a college education may imbue a sense of status such that subjective measures may be less reliable in university student samples. Similarly undergraduate women may not experience sex based diminished social status the same way that the general population might. The sample was predominantly female, making women a majority group, and
perhaps women may not experience lower social value in a university context. It also may be that the SIPAEQ measures are not a sensitive enough to elicit and detect reliable gender differences in hostile attributions and reactive aggression.

It is important to note, that although the models tested here have a logical causal structure, these data alone do not support causal inferences. There is experimental evidence suggesting that hostile attributions lead to increases in reactive aggression (e.g., Orobio de Castro et al., 2002; Dodge & Pettit, 2003). There is also evidence that low social status is associated with increased reactive aggression and that an experimental affirmation of social worth rendered these effects non-significant (Henry 2009). There is emerging experimental evidence suggesting a causal effect of relative social status on threatened social worth (Davis 2012). Thus, although the causal structure of the models tested cannot be inferred from Study 1, other research provides evidence supporting the temporal order.

**Alternative analyses**

The analyses with men only revealed patterns that were quite similar to the complete sample, and will not be reiterated here; however some important differences emerged that warrant comment. Examining men only, effect sizes were consistently larger than those in the combined gender sample. Additionally, across all status indicators the link between threatened social worth and reactive aggression was no longer significant, suggesting that variance among women was likely driving this effect. Collapsed across gender, the path between social status and reactive aggression is mediated by threatened social worth, vigilance toward threats and hostile attributions, but the alternative analyses suggest that these processes may be stronger for men. For women, threatened social worth may drive reactive aggression both directly and indirectly whereas for men, these effects seem to be channeled through vigilance and hostile attributions.
The alternative model that included all of the status indicators simultaneously, revealed patterns that were similar to the separate models; however, controlling for subjective status and ethnicity reduced the effect of SES to non-significance. This suggests that the effect of SES described above may be driven by variance in ethnicity and subjective status. The combined model bolsters Study 1’s support for Hypothesis II; threatened social worth and vigilance toward threat mediates the combined effects of ethnicity and subjective status on hostile attributions and reactive aggression.

CHAPTER III STUDY 2

The purpose of Study 2 was to integrate the results of Study 1 with predictions made by social information processing theory. In the context of a lexical decision task, in predicted that reaction times for hostile words (relative to benign words) will be faster for those with low compared to high status (Hypothesis III). Using the online version of the Inquisit (Inquisit 3.0.4.0, 2010) computer program, Study 2 presented undergraduate participants with a series of ambiguous provocation or filler sentences. Following the sentences, participants were asked to identify as quickly as possible whether the target was either a word or non-word. Word targets were either hostile or benign words related to the sentence prime or a neutral unrelated word. SIP theory posits that the HAB and subsequent increased reactive aggression are the result of biased social cognitive processes. This methodology allows for a direct test of predictions made by SIP in the context of the predicted status based differences in hostile attributions and reactive aggression.
Method

Data Preparation

During the process of data collection I noticed that there was an error in the Inquisit (Inquisit 3.0.4.0, 2010) syntax such that the program was not recording participant demographic information. I fixed this error and continued with data collection. Of the total \( n = 154 \) participants, the Inquisit program only collected demographic information for \( n = 21 \). Before proceeding, I will briefly describe the procedure I used to associate demographic information to an additional \( n = 96 \) participants, for a final sample of \( n = 117 \).

After participants completed the study using the online Inquisit (Inquisit 3.0.4.0, 2010) computer program they were immediately directed to a separate debriefing web page where they were given more information about the study and asked for their confidential participant code. The participant’s confidential code is a unique number string that is given to every participant and is used to assign credit for participation in research studies while maintaining confidentiality. Both the Inquisit computer program and the debriefing webpage page collect the internet protocol address (IP) of the participants’ computer, and date and time of submission. By matching participant IP address and verifying with date and time of submission, I was able to accurately associate participants’ confidential codes from the debriefing webpage with the data collected by the Inquisit computer program.

Data collection for Study 2 began on May 8, 2011 and ended October 28, 2011. During that time span I also collected dissertation data for Study 1, Study 3, and collected data for a separate unrelated study. All of these studies included participants’ unique confidential codes and used the same exact demographic measures described in the methods section of Study 1 (see Appendix H). Using participant confidential codes I was able to associate demographic
information from Study 1 (n = 3), Study 3, (n = 31) and the unrelated study (n = 55) with the Inquisit data collected for Study 2. I was also able to associate an additional n = 7 participants’ gender and ethnicity information from the research participation pool’s pre-screening survey.

Given the nature of demographic data and the close temporal proximity of the studies it is very unlikely that participant responses would vary from study to study. There were no significant main effects or interactions (p’s > .05) with other independent variables on any of the dependent measures (described below) between those participants with demographic data (n =117) and those missing demographic data (n = 37). Although this procedure was unanticipated and admittedly less than ideal, I was as meticulous as possible with its execution.

Participants

Participants were DePaul University students who received course credit for their participation. Participants without demographic information were excluded from analysis resulting in a final sample of n = 117 (Men = 26, Women = 91). Participants were 55.6% White, 9.4% African American and 25.6% Latino/Hispanic with the remaining 9.4% indicating other ethnicities.

Procedures

All materials were coded for use with the Inquisit software package (Inquisit 3.0.4.0, 2010) and administered in an online format. Participants were first directed to an introduction webpage that contained the following description of the study:

“This study investigates the relationship between reading and word identification. Specifically, we are interested in you the ability to discriminate between words and non-word letter strings after reading sentences with specific grammatical structures. In the first portion of this study you will be presented with a series of sentences. Following each
sentence you will be shown a fixation point + and then a target. Your task is to identify whether the target is a word or non-word.”

These instructions were designed to provide a plausible explanation for the reaction time task and focus participants’ attention on the word/non-word discrimination aspect of the study. Hypothesis III predicts status based differences in reaction times to the hostile and benign words following the ambiguous provocation sentences. Thus, the only purpose of the lexical decision design was to gather these reaction time data without drawing participants’ attention to a possible connection between the sentences and target words. Following the introduction page, participants were directed to web page containing the Inquisit application.

The first portion of Study 2 was a modified version of a lexical decision task (LDT). For each LDT trail participants were presented with a short sentence in the center of an otherwise blank computer screen for approximately 1500ms. The sentence was then replaced by a fixation point and 5ms later the fixation point was replaced by a target word or non-word letter string. The participant’s task was to identify whether the target is a word or non-word letter string by pressing the either the “e” (word) or “i” (non-word) on the computer keyboard. Participants were instructed to go as fast as they can while making as few mistakes as possible.

The stimulus materials were based in part on previously published measures (Zelli, Huesmann, & Cervone 1995) and consisted of thirty ambiguous provocation sentence primes, thirty filler sentences and ten practice sentences (see Appendix H). Each of the ambiguous provocation sentences were paired with a corresponding hostile, benign and neutral target word. For example the sentence “The boy throws a toy at Kennedy.” was paired with the hostile word “harm”, the benign word “catch” and the neutral word “glass”. Filler sentences were always paired with non-word letter strings and were designed to match the ambiguous provocation
sentences in length and structure to ensure that participants were unable to distinguish between them. For each ambiguous provocation sentence, the target hostile, benign and neutral words were matched as closely as possible for number of letters, syllables and frequency of occurrence (Kucera & Francis 1967) using the MRC psycholinguistic database (Coltheart 1981) to control for these influences on reaction times.

Sentences were presented in four discrete blocks with the ten practice items appearing in the first block and the remaining sixty ambiguous provocation and filler sentences distributed in groups of twenty across the remaining three blocks. After the practice block, the order of sentence presentation was completely randomized with participants responding to each of the sixty filler sentences and ambiguous provocation plus word target pairings only once. Filler sentences were always paired with a non-word target. For each of the thirty ambiguous provocation sentences, only one of the three potential target words (either hostile, benign or neutral) was selected for each trial. Trails were randomized such that any given ambiguous provocation sentence could be paired with either its corresponding hostile, benign or neutral word. After completing the reaction time task, (some) participants responded demographic measures used in Study 1 and were directed to a debriefing webpage.

Measures.

Social status. As with Study 1, participant gender, ethnicity, socioeconomic status and subjective social status were used as indicators of social status (see e.g., Adler et al., 2000; Jost & Hunyady, 2002; Henry, 2011; Ridgeway, 2001; Sidanius & Pratto, 1999; Appendix G). Ethnicity and sex were coded into dichotomous variables with Whites (Males) = 1 and non-Whites (Females) = 0. Participants were asked to indicate their total annual family income and responded using a twelve point scale ranging from 1 = Less than $20,000 to 12 = Greater than
$200,000. Participants were asked to indicate their socioeconomic class and responded using a
ten point scale ranging from 1 = below the poverty line to 10 = higher upper class. Responses to
the income and social class items formed a reliable scale (α = .87, r = .77, p <.001) and were
standardized and averaged together to create a measure of SES with higher numbers indicating
greater SES. Subjective social status was assessed with the same two items from Study 1.
Responses to both the subjective social status items formed a reliable scale (α = .73, r = .57, p
<.001) and were standardized and averaged together to create a measure of subjective status,
with higher numbers indicating higher subjective status.

**Reaction times.** The Inquisit computer program (Inquisit 3.0.4.0, 2010) records the
amount of time it takes participants to respond to the target word/non-word stimuli following the
presentation of the prime sentence. Within the thirty ambiguous sentence primes, each
participant responded to ten hostile words, ten benign words and ten neutral words with specific
word sentence pairings completely randomized. On average, participants correctly classified
targets as words in 94% of the trials. Incorrect responses were excluded from analysis. Reaction
times to the hostile words formed a reliable scale (α = .82) and were averaged together to create a
measure of hostile word reaction time (RT; in milliseconds). Participant reaction times to the
benign words formed a reliable scale (α = .73) and were averaged together to create a measure of
benign RT (in milliseconds). Participant reaction times to the neutral words formed a reliable
scale (α = .72) and were averaged together to create a measure of neutral RT (in milliseconds)
with higher numbers indicating slower (longer) reaction time.

The average reaction time in identifying neutral words represents general variance in
word identification that is presumably unrelated to the effect of the sentence prime. Thus, for
each participant, the average reaction time for neutral words was subtracted from both the hostile
RT and benign RT measures prior to analysis. For example, a given participant’s average reaction time to neutral words is 600ms, hostile words 650ms and benign words 525ms. Subtracting the neutral from the hostile RT would result in an adjusted hostile RT score of 50ms and an adjusted benign RT score of -75ms. Thus the resulting adjusted measures are scaled such that 0 represents a hostile or benign response latency that is equal to the participant’s average neutral reaction time. Positive numbers represent hostile or benign latencies that are slower than participants’ neutral reaction times (50ms slower in the above example) and negative numbers represent latencies that are faster (75ms faster in the above example) than participants’ neutral reaction times.

**Results**

Prior to analysis of the Study 2 data I examined two separate samples of pilot data that were designed to measure the extent to which participants viewed target words as hostile (n = 80) and helpful in explaining the intentions of the actor in each sentence (n = 70). In the sample measuring hostility of words, participants evaluated the hostile words (M = 5.05, SD = 1.34) as significantly more hostile than both benign (M = 2.77, SD = 1.33) t(79) = 2.74, p < .001 and neutral words (M = 1.86, SD = 1.14) t(79) = 3.58, p < .001. In the sample measuring the helpfulness of words, the hostile (M = 4.15, SD = 1.27) t(69) = 13.37, p < .001 and benign words (M = 4.70 SD = 1.20) t(69) = 15.14, p < .001 were evaluated significantly more helpful in understanding the intentions of the sentence protagonist than the neutral words (M = 1.62 SD = 1.13). Participants also evaluated the hostile words significantly less helpful in understanding the intentions of the sentence protagonist than the benign words t(69) = -5.53, p < .001.

Following the analysis of the pilot data, I began by screening the LDT data for outliers. An outlier was considered to be an average reaction time greater than three standard deviations
above and below the mean on either the hostile RT or benign HT (Greenwald, Banaji, & Nosek 2003). Three such outliers were identified and removed from subsequent analyses.

**Tests of Hypothesis III**

**Ethnicity.** Using ethnicity as an indicator of social status, I conducted a repeated measures ANCOVA with word target (hostile RT and benign RT) as a within subjects (WS) factor, and ethnicity (Whites and non-Whites) as a between subjects factor. There was a marginally significant main effect for WS factor, Wilks’ Lambda = .97, $F(1, 112) = 3.66$, $p = .058$, $\eta^2 = .032$ such that collapsed across ethnicity, participants were faster to respond to benign words ($M = -9.94$, $SE = 10.50$) than hostile words ($M = 12.34$, $SE = 13.02$). The between subjects main effect for dichotomous ethnicity was not significant $F(1, 112) = 1.69$, $p = .19$, $\eta^2 = .015$. These effects were qualified by a significant interaction between dichotomous ethnicity and the WS factor, Wilks’ Lambda = .96, $F(1, 112) = 4.53$, $p = .036$, $\eta^2 = .039$ (Figure 12). Simple effects tests revealed that Whites were significantly slower to respond to hostile words than benign words, $F(1, 112) = 9.13$, $p = .003$, $\eta^2 = .075$. There was not a significant difference for non-Whites between hostile and benign reaction times, $F(1, 112) = .21$, $p = .88$. Additionally, Whites were significantly slower to respond to hostile words than non-Whites, $F(1, 112) = 3.93$, $p = .050$, $\eta^2 = .034$ but there was no significant difference between Whites and non-Whites on benign reaction times, $F(1, 112) = .009$, $p = .92$. 
These results do not support Hypothesis III however the pattern is consistent with the theoretical underpinning of the prediction. Hypothesis III predicted that ambiguous provocations would facilitate processing of hostility related stimuli (hostile words) for those of low social status. An opposite yet theoretically consistent pattern emerged, such that ambiguous provocation sentences seem to have inhibited Whites’ processing of hostile stimuli.

**Sex.** Next I examined sex as an indicator of social status. I conducted a repeated measures ANCOVA with word target (hostile RT and benign RT) as a WS factor, and dichotomous sex (males and females) as a between subjects factor. There was a significant main effect for WS factor, Wilks’ Lambda = .96, $F(1,112) = 4.55$, $p = .035$, $\eta^2 = .039$ such that collapsed across sex, participants responded significantly faster to benign words ($M = -6.45$, $SE = 12.61$) than to the hostile words ($M = 23.95$, $SE = 15.85$). The between subjects main effect for sex was not significant, $F(1, 112) = .77$, $p = .38$, $\eta^2 = .007$. The interaction between sex and the WS factor was not significant, Wilks’ Lambda = .99, $F(1, 112) = .47$, $p = .49$, $\eta^2 = .004$. These results do not support Hypothesis III.
SES. Next I examined SES as an indicator of social status. I conducted a repeated measures ANCOVA with word target (hostile RT and benign RT) as a WS factor and SES as a covariate⁷. There was a significant main effect for the WS factor, Wilks’ Lambda = .96, $F(1, 112) = 4.54, p = .037, \eta^2 = .038$, such that controlling for SES, participants responded significantly faster to benign words ($M = -9.83, SE = 10.43$) than to the hostile words ($M = 15.06, SE = 13.16$). The between subjects main effect for SES was not significant, $F(1, 112) = .02, p = .88$. The interaction between SES and the WS factor was not significant, Wilks’ Lambda = .98, $F(1, 112) = 1.36, p = .24, \eta^2 = .012$. These results do not support Hypothesis III.

Subjective status. Last I conducted a repeated measures ANCOVA with word target (hostile RT and benign RT) as a WS factor and subjective status as a covariate. There was a significant main effect for the WS factor, Wilks’ Lambda = .96, $F(1, 112) = 4.44, p = .037, \eta^2 = .037$, such that controlling for subjective status, participants responded significantly faster to benign words ($M = -9.83, SE = 10.44$) than to the hostile words ($M = 15.06, SE = 13.18$). The between subjects main effect for subjective status was not significant, $F(1, 112) = .08, p = .78$. The interaction between subjective status and the WS factor was not significant, Wilks’ Lambda = 1.0, $F(1, 112) = .01, p = .91$. These results do not support Hypothesis III.

Additional Analyses

Men Only

Ethnicity. Following a rationale similar to Study 1, the Study 2 analyses were repeated excluding female participants. Using ethnicity as an indicator of social status, I conducted a repeated measures ANCOVA with word target (hostile RT and benign RT) as a within subjects (WS) factor, and ethnicity (Whites and non-Whites) as a between subjects factor. There were no

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⁷ This is mathematically equivalent to procedures assessing variance in WS dependent variables in regression with continuous independent variables (cf. Henry, Reyna, & Weiner, 2004; Judd, McClelland, & Ryan, 2009).
significant effects for WS factor, Wilks’ Lambda = .93, $F(1, 24) = 1.76, p = .196, \eta^2 = .069$, or the WS factor by ethnicity interaction Wilks’ Lambda = .98, $F(1, 24) = .30, p = .58, \eta^2 = .012$. The between subjects main effect for dichotomous ethnicity was significant $F(1, 24) = 5.82, p = .02, \eta^2 = .19$, suggesting collapsed across WS factor, non-White Men were faster to respond to both hostile and benign words ($M = -42.99, SE = 34.95$) than White men ($M = 53.13, SE = 19.14$).

**SES.** I examined SES as an indicator of social status. I conducted a repeated measures ANCOVA with word target (hostile RT and benign RT) as a WS factor and SES as a covariate. There was not a significant main effect for the WS factor, Wilks’ Lambda = .90, $F(1, 24) = 2.44, p = .13, \eta^2 = .092$. The between subjects main effect for SES was not significant, $F(1, 24) = .36, p = .55, \eta^2 = .092$. The interaction between SES and the WS factor was not significant, Wilks’ Lambda = .97, $F(1, 24) = .53, p = .47, \eta^2 = .022$.

**Subjective status.** Last I conducted a repeated measures ANCOVA with word target (hostile RT and benign RT) as a WS factor and subjective status as a covariate. There was a marginally significant main effect for the WS factor, Wilks’ Lambda = .89, $F(1, 24) = 2.91, p = .101, \eta^2 = .10$, such that controlling for subjective status, participants responded faster to benign words ($M = -8.66, SE = 16.10$) than to the hostile words ($M = 70.57, SE = 35.54$). The between subjects main effect for subjective status was not significant, $F(1, 112) = .08, p = .78$. The interaction between subjective status and the WS factor was not significant, Wilks’ Lambda = .98, $F(1, 24) = .49, p = .49$.

**Discussion**

The purpose of Study 2 was to examine whether social status influenced processing of hostile or benign words following an ambiguous provocation sentence prime. The results of Study 2 were mixed. First, regardless of social status, participants were generally faster to
respond to benign, compared to hostile words. When considered in conjunction with the pilot data, this suggests that the ambiguous provocation sentences may have enhanced processing of benign stimuli and/or inhibited processing of hostile stimuli or both. With the exception of ethnicity, there were no significant main or interaction effects of social status on reaction time. The significant interaction between ethnicity and WS reaction time factor suggests that the ambiguous provocation sentences may have inhibited processing of hostile words for Whites only. Non-Whites were equally as fast to respond to benign and hostile words. Removing females from the analyses rendered the interaction between ethnicity and WS reaction time non-significant, but otherwise did not meaningfully influence the pattern of results.

SIP theory suggests that when people are presented with an ambiguous provocation those with a bias toward attributing hostile intent will selectively pay attention to hostile social cues and ignore benign or accidental cues due to facilitated or inhibited cognitive processing (Dodge & Coie, 1987; Dodge & Crick; 1990; Dodge & Pettit; 2003). Integrating this perspective with SCT, I predicted that those with low social status would demonstrate increase accessibility of aggressive and hostile structures when presented with an ambiguous provocation. These data provide some support for this hypothesis, in that for non-Whites, hostile and benign cues seem to be simultaneously activated by an ambiguous provocation, but for Whites benign cues are activated to a greater degree than hostile cues; however this pattern is preliminary and was only evident for ethnicity. Sex was not significantly related to hostile attributions and reactive aggression in Study 1, so it is not surprising that sex was not significantly related to the Study 2 reaction time measures. Similarly the results of Study 1 seem to indicate that SES and subjective status have a more distal, indirect effect on hostile attributions. These relatively indirect effects
may partially account for the non-significant effects of SES and subjective status on the reaction time measures.

These data suggest that, in ambiguous provocation situations, hostility-related information may not be as relevant for Whites, so they might be less likely to automatically process these cues. For non-Whites it may be the case that both benign and hostility related social information is relevant. Stigma compensation theory predicts that decreased social status leads to increased vigilance toward threats (Henry 2009); however, it may be that case that low status predicts increase vigilance to all social cues related to both safety and threat. Prior research supports this possibility. Relative to a higher social class friend, those with lower social class more accurately tracked hostile emotions in a dyadic interaction (Kraus, Hornberg, Goetz, & Keltner, 2011) offering behavioral evidence of increased vigilance. Conversely, other research shows that those with less education and low incomes are significantly more compassionate than their high status peers. Compassion is defined in part by one’s ability to recognize emotions in others (Batson 1990) and together this evidence supports the notion that low social status may increase vigilance to all social cues. This perspective fits with the theoretical model presented above. Study 1 demonstrates vigilance specifically toward threats, but it’s possible that a more general measure of vigilance towards prosocial and antisocial cues may also be related to social status via threatened social worth.

CHAPTER IV STUDY 3

The purpose of Study 3 was to test Hypothesis IVa and IVb that engaging in a social worth affirmation task prior to evaluating ambiguous provocation scenarios will reduce both hostile attributions of intent and reactive aggression, especially for those of low social status. Participants were randomly assigned to either an affirmation or control condition. In the
affirmation condition, participants wrote about a time in their life where other people recognized them as important or valuable, and in the control condition they wrote about a neutral topic (a boring television show). SCT predicts that threatened social worth may be one mechanism driving the status differences in HA and reactive aggression evidenced in Study 1. If threatened social worth drives these processes, then affirming social worth should render the status differences on HA and reactive aggression non-significant (compared to control).

**Method**

**Participants.**

Participants were DePaul University students who received course credit for their participation. Twenty participants failed to follow the task instructions and or complete all of the dependent measures and were excluded from analysis resulting in a final sample of n = 358 (Men = 74, Women = 284). Participants were 67.3% White, 7.8% African American and 17.9% Latino/Hispanic with the remaining 7% indicating other ethnicities.

**Procedures.**

All materials were administered in an online survey format. Following an introduction page that contained a brief description of the study, participants were randomly assigned to an affirmation or control condition. Both conditions began with the following instructions:

“The first task is a short writing section we will use to assess how you construct sentences and your use of grammar. Remember there are no right or wrong answers, we are simply interested in writing style. To ensure that there is variability in both the sentences and the grammar people use, you have been randomly assigned the writing topic below from a bank of 25 potential topics. Please do your best to address the topic in
your paragraph, providing as much detail as you can so we will be better able to assess your sentence construction and use of grammar.”

These instructions were designed to provide a plausible explanation for the writing task and topic while attempting to divert participants’ attention away from thinking about how the content of their writing might influence responses to the dependent measures.

Participants in the experimental (affirmation) condition were then given the following instructions:

“Topic 8 of 25: Recognition. Now we would like you to write a brief paragraph about a situation where others recognized you as important and valuable. This may be because of something that you did or said, or something someone else did or said to you. Try to imagine exactly what happened. When you have the situation clearly in mind, we need you to describe the situation you are thinking of, and explain why other people made you feel important or valuable.”

In the control condition, participants were given the following instructions:

“Topic 23 of 25: Boring. Now we would like you to write a brief paragraph about a television or radio program you recently watched that was really boring. Try to imagine exactly what happened. When you have the situation clearly in mind, we need you to describe the situation you are thinking of, and explain what happened and why it was so boring.”

Following the experimental manipulation, participants completed survey items including the same battery of dependent measures and demographics used in Study 1. Once participants completed the survey items, they were directed to a debriefing webpage and given more information about the purpose of the study and potential implications of the results.
Measures.

**Positive affect.** The positive negative affect scale (PANAS; Appendix I; Watson, Clark, & Tellegen, 1988) is a generally accepted, reliable and valid measure of affect (Crawford, & Henry, 2004). In addition to bolstering social worth, writing about a time where you were recognized by others as important and valuable may increase positive affect to a greater degree than writing about a television or radio program that was boring. Thus, I measured positive affect to control for any systematic differences in increased positive affect across conditions. The ten positive affect items of the PANAS formed a reliable scale (α = .89) and were averaged together to create a measure with higher numbers indicating greater positive affect.

**Attributions of hostile intent and potential reactive aggression.** The Social Information Processing – Attribution Bias questionnaire (SIP-AEQ; Coccaro, Noblett, & McCloskey, 2009; Appendix A) was used to directly measure attributions of hostile intent and reactive aggression. Responses to the sixteen hostile intention items formed a reliable scale (α = .87) and were averaged together to create a measure of attributions of hostile intent with higher numbers indicating greater perceived hostile intentions. Responses to the eight aggression items also formed a reliable scale (α = .87) and were averaged together to create a measure of potential reactive aggression with higher numbers indicating a greater likelihood to respond aggressively.

**Threatened social worth and vigilance toward threats.** Twelve items were used to measure participant’s perceptions of threatened social worth and vigilance toward threats (see Appendix B). The eight social worth threat items formed a reliable scale (α = .84) and were averaged together to create a composite of threatened social worth, with higher numbers indicating a greater sense of threatened social worth. The four items measuring vigilance toward
threats formed a reliable scale ($\alpha = .77$) and were averaged together to create a composite measure of vigilance, with higher numbers indicating a greater vigilance toward social threats.  

**Social status.** Participant gender, ethnicity, socioeconomic status and subjective social status, and were used as indicators of social status (see e.g., Adler et al., 2000; Jost & Hunyady, 2002; Henry, 2011; Ridgeway, 2001; Sidanius & Pratto, 1999; Appendix H). Ethnicity and sex were coded into dichotomous variables with Whites (Males) = 1 and non-Whites (Females) = 0. Participants were asked to indicate their total annual family income and responded using a twelve point scale ranging from $1 = Less than $20,000$ to $12 = Greater than $200,000$. Participants were asked to indicate their socioeconomic class and responded using a ten point scale ranging from $1 = below the poverty line$ to $10 = higher upper class$. Responses to the income and social class items formed a reliable scale ($\alpha = .81$, $r = .69$, $p < .001$) and were standardized and averaged together to create a measure of socioeconomic status (SES) with higher numbers indicating greater SES. Subjective social status was assessed with the same two items from Studies 1 and 2. Responses to both the subjective social status items formed a reliable scale ($\alpha = .66$, $r = .53$, $p < .001$) and were standardized and averaged together to create a measure of subjective status, with higher numbers indicating higher subjective status.  

**Results**

I began by conducting separate ANCOVs examining the effect of the experimental manipulation on threatened social worth and vigilance toward threats while controlling for positive affect. If the manipulation successfully affirmed the social worth, then those in the affirmation condition should report significantly lower threatened social worth and vigilance toward threats than those in the control condition. Results presented in Table 6 indicate that there was a significant effect of positive affect on threatened social worth such that increases in
positive affect are significantly associated with decreases in threatened social worth ($r = -.16, p = .003$). Controlling for positive affect, there were no significant differences between the affirmation condition (Estimated Marginal Mean = 3.34 $SE = .072$) and the control condition (Estimated Marginal Mean = 3.50, $SE = .072$) on social worth threat. The effect of positive affect on vigilance toward threats was not significant; however there was a marginal effect of the experimental manipulation. Controlling for positive affect, those in the affirmation condition reported marginally lower vigilance toward threats (Estimated Marginal Mean = 4.61 $SE = .082$) than those in the control condition (Estimated Marginal Mean = 4.82, $SE = .087$). These results indicate that the affirmation condition was not successful in bolstering the social worth of participants, and somewhat successful in reducing vigilance toward threats.

### Tests of Hypothesis IV

To test Hypothesis IVa and IVb, I conducted separate hierarchical multiple regression analyses for each of the social status indicators, dichotomous ethnicity, sex, SES, and subjective status. I separately predicted hostile attributions and reactive aggression from affirmation condition, social status, and their interaction while controlling for positive affect. Prior to analysis, continuous predictors (SES, subjective status and hostile attributions) were

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<td>Positive affect</td>
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Note: Affirmation condition is coded with affirmation = 1 and control = 0. $n = 358$, $p < .01^*$, $p < .05^*$, $p < .01^{**}$.
standardized, and interaction terms were computed with the standardized continuous predictor variables (Aiken & West 1991; Cohen, Cohen, West, & Aiken 2003; Dawson & Richter 2006).

**Ethnicity.** Using ethnicity as an indicator of social status, results presented in Table 7 indicate that positive affect significantly predicted hostile attributions suggesting that increases in positive affect are associated with decreases in hostile attributions. There was a marginally significant effect of affirmation condition and ethnicity on hostile attributions. Indicating that non-Whites and those in the control condition had relatively lower hostile attributions than Whites and those in the affirmation condition. The interaction term was not significant suggesting that the affirmation did not reduce non-whites hostile attributions. None of the variables significantly predicted reactive aggression. These results do not support Hypothesis IVa or IVb.

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Note: Affirmation condition is coded with affirmation = 1 and control = 0. Ethnicity is coded with 1 = Whites and 0 = non-Whites. n = 358, p < .10†, p < .05*, p < .01**, p < .001***.

**Sex.** Using sex as an indicator of social status, results presented in Table 8 indicate positive affect significantly predicted hostile attributions but there were no significant effects of condition, sex or their interaction. None of the variables significantly predicted reactive aggression. These results do not support Hypothesis IVa or IVb.
Using SES as an indicator of social status, results presented in Table 9 indicate positive affect significantly predicted hostile attributions but there were no significant effects of condition, SES or their interaction. None of the variables significantly predicted reactive aggression. These results do not support Hypothesis IVa or IVb.

Subjective status. Last, using subjective social status as an indicator of status, results presented in Table 10 indicate that positive affect significantly predicted hostile attributions but there were no significant effects of condition, subjective status or their interaction. None of the variables significantly predicted reactive aggression. These results do not support Hypothesis IVa or IVb.
Similar to Study 1 and Study 2, the Study 3 analyses were repeated excluding female participants. I began by conducting separate ANCOVAs examining the effect of the experimental manipulation on threatened social worth and vigilance toward threats while controlling for positive affect. There was no effect of positive affect on threatened social worth or vigilance toward threats (see Table 6 alt). Controlling for positive affect, there were no significant differences between the affirmation condition and control on threatened social worth. The effect of positive affect on vigilance toward threats was not significant; however, there was a significant effect of the experimental manipulation. Controlling for positive affect, Men in the affirmation condition reported significantly lower vigilance toward threats (Estimated Marginal Mean = 4.73, $SE = .17$) than those in the control condition (Estimated Marginal Mean = 4.15, $SE = .17$). These results indicate that the affirmation condition was not successful in bolstering Men’s perceptions of their social worth, but was successful in reducing their vigilance toward threats.
Ethnicity. Using ethnicity as an indicator of social status, positive affect marginally predicted hostile attributions suggesting that increases in positive affect are associated with decreases in hostile attributions (see Table 7 alt). There was a significant effect of affirmation condition on hostile attributions suggesting that those in the control condition reported higher hostile attributions (\(M = 2.09, SD = .47\)) than those in the affirmation condition (\(M = 1.92, SD = .55\)). There was no significant effect of ethnicity; however, there was a marginally significant interaction between affirmation condition and ethnicity. Examination of the simple slopes revealed no significant differences; however, the pattern was consistent with the hypothesis. Non-White males reported lower hostile attributions in the affirmation condition compared to the control condition, and there seemed to be no effect of the affirmation on White males’ attributions.
Using SES as an indicator of social status, positive affect marginally predicted hostile attributions but there were no significant effects of condition, SES, or their interaction (see table 9 alt). None of the variables significantly predicted reactive aggression.

Subjective status. Last, using subjective social status as an indicator of status, positive affect significantly predicted hostile attributions but there were no significant effects of condition, subjective status or their interaction (Table 10 alt). None of the variables significantly predicted reactive aggression.
Discussion

The purpose of Study 3 was to test the hypothesis that a social worth affirmation will reduce both hostile attributions of intent (IVa) and reactive aggression (IVb) for those of low social status compared to those of high status and a control condition. Results do not support this hypothesis. Controlling for positive affect, the affirmation manipulation had only a marginal effect on vigilance toward threats and did not significantly influence threatened social worth. The critical tests of hypothesis IVa and IVb were the two-way interactions between the affirmation manipulation and the status indicators; none of these significantly influenced hostile attributions or reactive aggression. Controlling for positive affect, the direct effects of the manipulation and social status were not significant, except for a marginal effect of condition and ethnicity on hostile attributions. These marginal effects do not support hypothesis IVa or IVb but are somewhat consistent with the results of Study 1 and hypothesis Ia. Positive affect was significantly related to threatened social worth and hostile attributions, suggesting that decreases in positive affect are associated with increases in both.

When considered in conjunction with the results of Study 1, it seems that the affirmation condition did not reliably influence threatened social worth, hostile attributions or reactive
aggression. This could be due to the nature of threatened social worth. SCT argues that an individuals’ sense of social worth is derived from their place in the broader social structure and is chronically experienced through social interactions, media exposure, etc. It may be that the pervasiveness of this kind of social threat makes it difficult to influence with a relatively subtle affirmation procedure. It may also be the case that the effects of the affirmation were not strong enough to persist through the entire 45 minute experiment. Regardless of the potential reasons, the affirmation manipulation was not successful and the results of Study 3 did not support hypothesis IV.

The analyses with men only revealed patterns that were quite similar to the complete sample, and will not be reiterated here; however, some differences emerged that warrant comment. Removing women from the analyses did improve the manipulations effectiveness in reducing vigilance towards threats; controlling for positive affect, the marginal effect of the affirmation condition on vigilance toward threats reported in the complete sample became significant. Additionally the interaction between ethnicity and the affirmation condition became marginally significant when women were excluded from the analyses. Following the rationale outlined in the Study 1 discussion, it may be the case that the affirmation is less effective for women because their social worth is not as threatened in a university context. Similarly the inclusion of women may have suppressed the interaction effect between ethnicity and the affirmation condition on hostile attributions. Although for the most part the affirmation failed, the alternative analyses suggest that the affirmation could be successful in the right context. It may be the case that Hypothesis IV would receive support in a more representative sample or perhaps in a context where social status is more salient.
CHAPTER V GENERAL DISCUSSION

When presented with ambiguous social information, the attributions we make can influence our emotions (e.g., Wilkowski & Robinson, 2010), cognition (e.g., Weiner, Perry, & Magnusson, 1988) and subsequent behavior (e.g., Ai-qing & Fang-lian, 2003). The central thesis of this research is that a person’s standing within a social hierarchy can have a pervasive influence on patterns of attribution, especially when presented with an ambiguous social provocation. Integrating Attribution Theory (e.g., Heider 1958; Weiner, 1986) with predictions of SIP theory (Crick & Dodge, 1994; Dodge & Pettit, 2003) and SCT (Henry, 2009; 2011), this perspective suggests the possibility that status-based differences in hostile attributions and reactive aggression are mediated by threatened social worth.

I predicted that that those of low social status would be more likely to infer hostile intentions and respond aggressively than their high status counterparts. SCT suggests that those with low social status are devalued by society and this sense of threatened social worth motivates vigilance toward threats and influences social cognition and behavior. Applying this theoretical position to the hostile attributions literature suggests the hypothesis that threatened social worth and vigilance toward threats will mediate the influence of social status on hostile attributions and reactive aggression. According to SIP theory, hostile attributions of intent result from biased representation and interpretation of social cues (Dodge & Coie, 1987; Dodge & Crick; 1990; Dodge & Pettit; 2003) suggesting the hypothesis that ambiguous provocation situations may increase the accessibility of aggressive and hostile knowledge to a greater degree for those with low compared to high social status. Last, the mediating role of social worth and vigilance toward threats predicted above suggests that a social worth affirmation task may reduce status
differences in threats and vigilance leading to a reduction in hostile attributions and reactive aggression.

**Summary**

The results of Study 1 demonstrate that non-Whites and those with lower SES reported significantly greater hostile attributions than Whites and those with higher SES even when controlling for relevant covariates. Additionally, non-Whites reported significantly greater reactive aggression than Whites even when controlling for trait aggression, relational aggression and normative beliefs about aggression. However, this pattern was not consistently evident; sex and subjective status did not significantly affect hostile attributions or aggression, and SES did not significantly affect aggression. With the exception of sex, the path analyses revealed that social status is negatively associated with threatened social worth. Together, threatened social worth and vigilance toward threats significantly mediated the relationship between social status hostile attributions for ethnicity SES and subjective status. Additionally, there was a significant multiple mediation effect of social status on aggression through threatened social worth, vigilance and hostile attributions for ethnicity and subjective status. This pattern was not evident for sex or SES.

Vigilance toward threats did not significantly predict hostile attributions but consistently mediated the effect of status on aggression. It may be the case that vigilance, like hostile attributions, plays a more proximal role in aggressive behavior (cf. Henry 2009). Threatened social worth is more proximal to social status driving both increased vigilance and hostile attributions, which in turn drive reactive aggression. This supports predictions made by SCT in that threatened social worth seems to be a primary mechanism accounting for the effects of cognitive and behavioral status differences on hostile attributions and aggression.
Study 2 employed a modified LDT to test for differences in activation of hostility related knowledge structures following ambiguous provocation stimuli. The results were mixed; regardless of social status, participants were generally faster to respond to benign, compared to hostile words. This suggests that overall the ambiguous provocation sentences may have facilitated processing of benign stimuli and/or inhibited processing of hostile stimuli. However, the significant interaction between ethnicity and WS reaction time factor suggests that the ambiguous provocation sentences may have inhibited processing of hostile words for Whites only. Non-Whites were equally as fast to respond to benign and hostile words, although this effect was not duplicated with any of the measures of status.

Study 3 examined the effects of a social worth affirmation on the relationships between social status, hostile attributions and reactive aggression. I predicted that if threatened social worth drives these processes, then affirming social worth should render the status differences on HA and reactive aggression non-significant (compared to control). The results of Study 3 did not support this hypothesis. The affirmation condition only had a marginal effect on vigilance toward threats and did not significantly interact with social status in predicting hostile attributions and aggression.

**Theoretical Elaboration**

**Ethnicity.** The results of this research were mixed, but there were some common patterns across studies. Ethnicity seemed to be the strongest predictor of hostile attributions and reactive aggression. These studies suggested that non-whites are more likely to make hostile attributions and respond aggressively to ambiguous provocations than Whites. The results further demonstrate that threatened social worth and vigilance toward threats mediate the relationship between status and both hostile attributions and reactive aggression. Importantly Study 1
demonstrated that this effect persists even when controlling for trait aggression, relational aggression and normative beliefs about aggression. Thus, it is not the case that non-Whites are more aggressive *per se* but that they are more likely to see aggression as a justified response because of a provocation that is perceived as intentional. This conclusion is supported by SCT; Henry (2009) suggests that aggression in response to provocation may be a compensation strategy that is aimed as protecting against threats to social worth.

It may be the case that ethnicity was the strongest predictor of hostile attributions and reactive aggression because it is a non-concealable form of stigma (e.g. Quinn, & Chaudoir, 2009). Ethnicity may be a more salient indicator of social status such that non-Whites may experience greater threats to social worth compared to groups with similar status but concealable stigma. For example, status may be more salient for a non-White student in a White-majority university setting than it would be for a White student from a low SES background. This salience may highlight status-consistent upward social comparisons in a way that is uniquely threatening to Non-whites’ social worth (cf. Davis 2012). Thus, ethnicity may shape social cognition in a way that is either different or perhaps more intense than relatively more concealable forms of status like SES and subjective status.

It may be that in terms of social worth, the effects of social status are cumulative. For example, a White male with low SES may experience relatively greater social worth than a Black male with the same level of SES. This logic suggests that belonging to a high (or low) status ethnic group may temper (or exacerbate) threats to social worth that result from the social devaluation associated with low SES. More research is clearly necessary to test other potential intermediating variables and to identify the specific similarities and differences between status
dimensions and how they influence status based differences in hostile attributions and reactive aggression.

Alternatively, it may be the case that SCT simply fits best with the effects of ethnicity based social status. If threatened social worth is influenced by the social context and the relative saliency of status, then non-whites’ social worth is likely to be threatened to a greater degree than other low-status groups across contexts. Conversely, the extent to which low SES Whites, women and those with lower education experience threatened social worth may be more context-dependent. This suggests the possibility that manipulating social contexts may produce differences in threatened social worth and thus may influence subsequent psychological processes like hostile attributions and vigilance toward threats.

**SES and Subjective Status.** The influence of SES and subjective status on hostile attributions and reactive aggression were less consistent, and the patterns found with ethnicity were not evident for subjective status and SES. This may be a function of university sampling. Education is an indicator of social status, and the more education one has the greater the status. It is possible that being a university student reduced the variability in perceived subjective status. Additionally, the university student population may not adequately represent a wide distribution of SES, thus limiting the variability within the sample. If the predictions of SCT are correct, then we would expect a more representative sample to replicate the patterns observed for ethnicity with measures of SES and subjective status.

**Sex.** The null effects of sex may mean that the predictions of SCT do not apply to sex-based social status. This may be because women (especially undergraduate women) do not experience threatened social worth in the same way or to the same extent as other low status groups. As with SES and subjective status, the ability to detect effects of sex may have been
limited by the university student sample. As noted above, the sample was predominantly female, and were psychology majors, making women a majority group. Additionally women may not experience lower social value in a university context because as a group women are evaluated very positively in north American university student samples (e.g. Eagly & Mladinic, 1994; Eagly, Mladinic, & Otto, 1991).

Alternative analyses. There are no direct gender-based status differences on hostile attributions or reactive aggression that are consistent with the social worth thereat hypothesis. There was no direct effect of gender on reactive aggression, however controlling for threatened social worth, vigilance toward threats, and hostile attributions revealed a small effect of gender such them men were more reactively aggressive then women. Despite this, excluding women from the analyses did not change the overall pattern of effects; however, there were some differences that warrant comment. In Study 1, effect sizes were consistently larger than those in the combined gender sample and the link between threatened social worth and reactive aggression was no longer significant, suggesting that variance among women was likely driving this effect. Collapsed across gender, the path between social status and reactive aggression was mediated by threatened social worth, vigilance toward threats and hostile attributions, but the alternative analyses suggest that these processes may be stronger for men. For women, threatened social worth may drive reactive aggression both directly and indirectly whereas for men, these effects seem to be channeled through vigilance and hostile attributions.

Excluding women did not change the pattern of data in Study 2; however, some differences did emerge in Study 3. The social worth affirmation seemed more effective in reducing vigilance toward threats for men compared to women. It may be the case that the affirmation is less effective for women because their social worth is not as threatened in a
university context. For the most part the affirmation failed; however, when considered in conjunction with some of the theoretical conjecture presented thus far it seems plausible that the affirmation could be successful in the right context.

**Theoretical contribution.** Social status plays an important role in social aggression and has a strong influence on how people interpret and respond to social situations. One theoretical contribution of this research is providing evidence that social status influences social cognition and behavior in terms of hostile attributions and reactive aggression. Importantly this research extends the current literature by examining threatened social worth and vigilance towards threats as two theoretically-derived mechanisms. Threatened social worth mediated the relationship between social status and both hostile attribution and aggression; vigilance toward threats only mediated the effect of status on aggression. This suggests that vigilance, like hostile attributions, may be a more proximal predictor of aggressive behavior. This research demonstrates partial support for SCT and SIP theory and highlights the importance of threatened social worth and vigilance towards threats as constructs that influence social cognition and behavior. The results of these studies have direct implications for the social psychological and hostile attributions literatures and indirectly may inform the literatures on social rejection and status based health disparities.

**Implications**

Recent research in the social psychology literature demonstrates that low social status, defined by income and education, is associated with increased hostile expectations (Kraus, et al., 2011) and reactive aggression (Henry, 2009). The current research partially replicates these patterns and integrates these findings into a single model. Additionally, this research advances
our understanding of these processes by proposing and testing threatened social worth as a mechanism for the effect of status on hostile attributions.

Threatened social worth is particularly useful as a mechanism because it may also account for other somewhat paradoxical patterns, suggesting low social status leads to increased pro-social tendencies (Piff, et al., 2010). The experience of being a devalued member of society can make those with low social status more vigilant to potential threats to an already diminished social value, and simultaneously may also increase motivation to bolster their social value. In instances of ambiguous provocations, threatened social worth may lead those with low social status to interpret the behavior of others as hostile and then respond aggressively. In the absence of a perceived provocation, those with low social status may be more compassionate, empathetic, and behave more pro-socially as a way to affirm their social value. Future research should examine the simultaneous influence of threatened social worth on both aggressive and pro-social behavior.

There is strong evidence for a relationship between inferring hostility and reactive aggression within the developmental literature (de Castro, Veermen, Koops, Bosch, & Monshouwer, 2002); however, research specifically examining hostile attributions has focused almost exclusively on non-adult populations or adult populations in the context of criminal violence or intimate partner abuse (cf. Lim, Day, & Casey, 2011; Pettit, Lansford, Malone, Dodge, & Bates, 2010). This research extends the predictions of SIP theory and replicates the effects of hostile attributions on reactive aggression using exclusively adult samples. At the same time this research exposes a gap within the development literature highlighting the important role that social status and threatened social worth play in predicting hostile attributions and aggression. For example, by using adult samples and replicating hostile attribution and reactive
aggression patterns established in the developmental literature, these data suggest the possibility that threatened social worth may function in a similar way among child and adolescent populations. Developmental research may benefit by focusing on indicators of family social status in conjunction with threatened social worth. I would expect these findings to replicate within a sample of children and/or adolescents.

In the course of this research I was struck by the similarities between social status and social rejection. Groups associated with high social status are valued by society to a greater degree than those groups occupying the lowest levels of the social hierarchy (Major, Quinton, & McCoy, 2002; Pratto, Sidanius, & Levin, 2006). People have a fundamental need to belong (Baumeister & Leary, 1995); however, for those with low social status this need is existentially threatened. Similar to the results presented above, those who are rejected exhibit both increased hostile attributions following an ambiguous provocation (DeWall, Twenge, Gitter, & Baumeister, 2009) and increased reactive aggression (Twenge, Baumeister, Tice, & Stucke, 2001). Interestingly, the social rejection literature tends to focus on acute instances of rejection; for example, being rejected by one’s peers (Reijntjes et al., 2011), being the target of discrimination based on a social stigma (Major, Spencer, Schmader, Wolfe, & Crocker, 1998) and rejection by strangers in a ball tossing game (Warburton, Williams, & Cairns, 2006). There is evidence for heightened and diminished responses to social rejection (see: DeWall & Bushman, 2011) and evidence examining the effects of race-based social rejection on African Americans (Mendoza-Denton, Downey, Purdie, Davis, & Pietrzak, 2002) and Asians (Chan & Mendoza-Denton, 2008). However, it may be that societal rejection shapes social cognition such that over time, the effects of social rejection are evident outside of direct instances of personal rejection. In other words, for those who experience persistent rejection, similar to the way in
which low status groups are rejected by society, the effects of those experiences may become so deeply embedded that they shape global social cognition and behavior.

To my knowledge, the social rejection literature has not addressed a conceptualization of rejection related to social hierarchy. As peer rejection defines social status within the developmental literature (Crick & Dodge, 1994), social status among adults can represent a form of rejection or acceptance that is embedded within social hierarchies. Relative to high status groups, those who are stigmatized or have low social status are marginalized within social hierarchies and this can be construed as a form of social rejection. The effects of this form of societal rejection may be in part what causes threatened social worth and increased vigilance and may exert a more generalized influence on social cognition and behavior outside of acute social rejection experiences. Future investigations that successfully integrate this research with social rejection paradigms may be particularly useful in further understanding threatened social worth and its influences on cognition and behavior.

Lastly, evidence from the health psychology literature suggests that non-Whites and those with lower incomes, education and occupational prestige score higher on a measure of general hostility (Cook-Medley Hostility Scale; Cook & Medley, 1954) than Whites, those with relatively higher income, education and occupational prestige (Barefoot, et al., 1991). This pattern is robust (for review see e.g., Gallo & Matthews, 2003); however, the health psychology literature tends to focus on hostility as a mechanism that explains the relationship between social status and health (see: Adler & Rehkopf, 2008). Recent theorizing suggests that the increased prejudice, discrimination, and (I would argue) lower social worth associated with being a member of a minority group causes increased stress that is additive and unique to those groups (Hatzenbuehler, 2009; Meyer, 2003). Termed the minority stress hypothesis (e.g., Meyer, 2010)
this perspective argues that the increased stress associated with minority status produces and increased risk for diseases and this can help to explain status based health disparities (cf. Hatzenbuehler, Nolen-Hoeksema, & Dovidio, 2009; Meyer, 2003). Integrating these threads of evidence suggest that increased stress may produce increased hostility but it is unclear how increased stress as articulated in the minority stress hypothesis functions with regard to threatened social worth. It may be the case that threatened social worth plays a role in increasing stress however this remains an open question. Emerging research suggests that influencing perceptions of one’s relative social status reduces both hostile attributions and threatened social worth (Davis, 2012). In conjunction with the results presented, this suggests that stress and status based health disparities can potentially be reduced by addressing perceived status and social worth.

CHAPTER VI CONCLUSION

It is impossible to know what motivated the three young Hispanic men, described in the introduction, to open fire on the people attending the Halloween party. The results of this research suggest that it may have been a combination of an underlying sense of threatened social worth, coupled with an increased vigilance that led them to infer hostile or malicious intentions that warranted an aggressive response. Whatever the case may be it is clear that social status can influence how people interpret and respond to social situations. Low social status can push people to be vigilant toward threats to social value, and thus increases their likelihood of interpreting ambiguous provocations as intentionally hostile. This research makes an important step toward understanding the influence of social status on hostile attributions and reactive aggression. Future research should build on this work and determine the extent to which threatened social worth mediates the relationship between social status and other psychological processes and behaviors.
These data represent a potential integration of three relatively separate literatures and may provide an empirical foundation for a program of research investigating the relationship between social status and a bias toward attributing hostile intent and reactive aggression. Additionally, this research makes theoretical advancements in terms of exploring predictions of both SIP and STC theory. Finally, these data can foster applied research aimed toward reducing reactive aggression, by highlighting the potential effects of low social status on psychological defensiveness and information processing.
REFERENCES


Inquisit 3.0.4.0 [Computer software]. (2010). Seattle, WA: Millisecond Software.


Appendix A Social Information Processing-Attribution and Emotional Response Questionnaire
(SIP-AEQ) Instructions: Please read these short stories about relationships with other people and answer all questions asked about the story as honestly as possible. Please circle your answers where indicated.

**Story 1:** You tell a friend something personal and ask your friend not to discuss it with anyone else. However, a couple of weeks later, you find out that a lot of people know about it. You ask your friend why she/he told other people and your friend says: “Well, I don’t know, it just came up and I didn’t think it was a big deal.”

A. Why do you think your friend shared your secret when you told them not to share it with anyone? Rate the likelihood of each statement on a scale of 0–3:

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1. My friend wanted to expose my secret.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>A2. My friend wanted to impress other people with their secret knowledge about me.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>A3. My friend forgot that this was an important secret for me.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>A4. My friend wanted me to feel stupid for asking to keep my secret.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

B. How likely is it that you would be angry if this happened to you?

C. How likely is it that you would respond aggressively if this happened to you?

**Story 2:** Imagine that you are in a karate class competition and you have to demonstrate your abilities to your instructor. You are matched up to “fight” with someone in the class who you do not know well. While you are being evaluated, your karate classmate hits you in a way other than the way you were taught and you are hurt.

A. Why do you think your classmate hit you in a way other than the way you were taught? Rate the likelihood of each statement on a scale of 0–3:

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1. My Karate classmate wanted to physically hurt me.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>A2. My Karate classmate wanted to win the match</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>A3. My Karate classmate did it by accident.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>A4. My Karate classmate wanted me to look “bad”.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

B. How likely is it that you would be angry if this happened to you?

C. How likely is it that you would respond aggressively if this happened to you?

Not at all  Unlikely   Likely   Very
**Story 3:** Early one morning (at “rush hour”) you go to a busy local coffee shop to get a cup of coffee. While you are waiting, someone you see at the coffee shop regularly, but do not know personally, cuts in the line in front of you.

A. Why do you think this person cut in line in front of you? Rate the likelihood of each statement on a scale of 0–3:

- A1. The person wanted to make me wait longer for my coffee. 
  - Not at all likely: 0  
  - Unlikely: 1  
  - Likely: 2  
  - Very likely: 3

- A2. This person was in a hurry to get to work.  
  - Not at all likely: 0  
  - Unlikely: 1  
  - Likely: 2  
  - Very likely: 3

- A3. This person didn’t realize that he (or she) cut in front of me.  
  - Not at all likely: 0  
  - Unlikely: 1  
  - Likely: 2  
  - Very likely: 3

- A4. This person wanted to make me feel unimportant.  
  - Not at all likely: 0  
  - Unlikely: 1  
  - Likely: 2  
  - Very likely: 3

B. How likely is it that you would be angry if this happened to you?  
C. How likely is it that you would respond aggressively if this happened to you?

**Story 4:** Imagine that you and a group of your co-workers went on a business trip. While at the hotel, waiting to meet a customer, you stop to buy a cup of coffee. Suddenly, one of your co-workers bumps your arm and spills your coffee over your shirt. The coffee is hot and your shirt is wet.

A. Why do you think your coworker bumped your arm making you spill your coffee? Rate the likelihood of each statement on a scale of 0–3:

- A1. My co-worker wanted to burn me with hot coffee.  
  - Not at all likely: 0  
  - Unlikely: 1  
  - Likely: 2  
  - Very likely: 3

- A2. My co-worker was focused on the meeting.  
  - Not at all likely: 0  
  - Unlikely: 1  
  - Likely: 2  
  - Very likely: 3

- A3. My coworker did it by accident  
  - Not at all likely: 0  
  - Unlikely: 1  
  - Likely: 2  
  - Very likely: 3

- A4. My co-worker wanted to make me look “bad” to the customer.  
  - Not at all likely: 0  
  - Unlikely: 1  
  - Likely: 2  
  - Very likely: 3

B. How likely is it that you would be angry if this happened to you?  
C. How likely is it that you would respond aggressively if this happened to you?
Story 5: You make plans with one of your friends to go on a short trip for the weekend. You’re very excited about these plans and have been looking forward to the trip. However, at the last minute, your friend says that he (or she) no longer wants to go on the trip and has made plans with another friend for the weekend.

A. Why do you think your friend said he (or she) no longer wanted to go on the trip? Rate the likelihood of each statement on a scale of 0–3:

<table>
<thead>
<tr>
<th>A1. My friend doesn’t want to be with me.</th>
<th>Not at all likely</th>
<th>Unlikely</th>
<th>Likely</th>
<th>Very likely</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A2. My friend wanted to do something else.</th>
<th>Not at all likely</th>
<th>Unlikely</th>
<th>Likely</th>
<th>Very likely</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A3. My friend forgot about the plans we made.</th>
<th>Not at all likely</th>
<th>Unlikely</th>
<th>Likely</th>
<th>Very likely</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A4. My friend wanted me to feel unimportant</th>
<th>Not at all likely</th>
<th>Unlikely</th>
<th>Likely</th>
<th>Very likely</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

B. How likely is it that you would be angry if this happened to you?

C. How likely is it that you would respond aggressively if this happened to you?

Story 6: One day at work you decide to go to the cafeteria for lunch. After you purchase your lunch, you notice that the seating area is very crowded and no empty tables are available. You notice one of your co-workers sitting alone at a small table and ask if you can join him (or her) for lunch. Your co-worker says “no”.

A. Why do you think your co-worker said “no”? Rate the likelihood of each statement on a scale of 0–3:

<table>
<thead>
<tr>
<th>A1. My co-worker wanted to exclude me.</th>
<th>Not at all likely</th>
<th>Unlikely</th>
<th>Likely</th>
<th>Very likely</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A2. My co-worker wanted to be alone at that time.</th>
<th>Not at all likely</th>
<th>Unlikely</th>
<th>Likely</th>
<th>Very likely</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A3. My co-worker was “lost in thought” and didn’t realize I’d asked to join him (or her).</th>
<th>Not at all likely</th>
<th>Unlikely</th>
<th>Likely</th>
<th>Very likely</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A4. My coworker wanted me to feel bad.</th>
<th>Not at all likely</th>
<th>Unlikely</th>
<th>Likely</th>
<th>Very likely</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

B. How likely is it that you would be angry if this happened to you?

C. How likely is it that you would respond aggressively if this happened to you?
*(SIP-AEQ continued)*

**Story 7:** Imagine that you go to the first meeting of a club you want to join. You would like to make friends with the other people in the club. You walk up to some of the other club members and say, “Hi!” but they don’t say anything back.

A. Why do you think the club members didn’t say anything back to you? Rate the likelihood of each statement on a scale of 0–3:

<table>
<thead>
<tr>
<th></th>
<th>Not at all likely</th>
<th>Unlikely</th>
<th>Likely</th>
<th>Very likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1. The club members wanted to ignore me.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>A2. The club members were more interested in talking among themselves.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>A3. The club members didn’t hear me say “hi”.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>A4. The club members wanted me to feel unimportant.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

B. How likely is it that you would be angry if this happened to you?

C. How likely is it that you would respond aggressively if this happened to you?

<table>
<thead>
<tr>
<th></th>
<th>Not at all likely</th>
<th>Unlikely</th>
<th>Likely</th>
<th>Very likely</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

**Story 8:** You are driving in to work one day and just after you pull into a parking space, another car pulls up into the space to your right. As the person in the other car, a co-worker, gets out of his/her car, their car door hits your passenger side door and leaves a scratch on your car. The person walks away as you get out of your car.

A. Why do you think this person acted this way? Rate the likelihood of each statement on a scale of 0–3:

<table>
<thead>
<tr>
<th></th>
<th>Not at all likely</th>
<th>Unlikely</th>
<th>Likely</th>
<th>Very likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1. This person wanted to damage my car.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>A2. This person was in a hurry to get to work.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>A3. This person scratched my car by accident and didn’t notice</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>A4. This person wanted me to feel unimportant.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

B. How likely is it that you would be angry if this happened to you?

C. How likely is it that you would respond aggressively if this happened to you?

<table>
<thead>
<tr>
<th></th>
<th>Not at all likely</th>
<th>Unlikely</th>
<th>Likely</th>
<th>Very likely</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Appendix B Social Worth Scale
(SWS) Instructions: For the following scale, we are interested in how you see yourself in relation to the world around you. Please answer the following items using the included scale

1. I feel my worth as a human being is challenged by others in society.
2. I believe that others in society feel that I am a less worthy human being.
3. When I walk down the street, people react to me as though I am not a worthy person.
4. Society takes people like me for granted.
5. Society doesn’t recognize my true potential
6. Society values people like me less than others.
7. The media portrays people like me in a negative way.
8. I am not respected by the broader society
9. It is important to always be on guard.
10. Most people will take advantage of you given the chance.
11. In this world, you can really only trust yourself.
12. I am always ready to defend what’s mine.

Threatened Social Worth (Items 1-8)
Vigilance Toward Threats (Items 9-12)
Appendix C Buss-Perry Aggression Questionnaire
(BPAQ) Instructions: Please rate each of the following items in terms of how characteristic they are of you. Use the following scale for answering these items.

1  2  3  4  5  6  7
extremely uncharacteristic of me
extremely characteristic of me

1) Once in a while I can't control the urge to strike another person.
2) Given enough provocation, I may hit another person.
3) If somebody hits me, I hit back.
4) I get into fights a little more than the average person.
5) If I have to resort to violence to protect my rights, I will.
6) There are people who pushed me so far that we came to blows.
7) I can think of no good reason for ever hitting a person.
8) I have threatened people I know.
9) I have become so mad that I have broken things.
10) I tell my friends openly when I disagree with them.
11) I often find myself disagreeing with people.
12) When people annoy me, I may tell them what I think of them.
13) I can't help getting into arguments when people disagree with me.
14) My friends say that I'm somewhat argumentative.
15) I flare up quickly but get over it quickly.
16) When frustrated, I let my irritation show.
17) I sometimes feel like a powder keg ready to explode.
18) I am an even-tempered person.
19) Some of my friends think I'm a hothead.
20) Sometimes I fly off the handle for no good reason.
21) I have trouble controlling my temper.
22) I am sometimes eaten up with jealousy.
23) At times I feel I have gotten a raw deal out of life.
24) Other people always seem to get the breaks.
25) I wonder why sometimes I feel so bitter about things.
26) I know that "friends" talk about me behind my back.
27) I am suspicious of overly friendly strangers.
28) I sometimes feel that people are laughing at me behind me back.
29) When people are especially nice, I wonder what they want.
Appendix D Self-Report of Aggression and Social Behavior Measure
Instructions: rate the degree to which for each of the following statements describe you. Do not spend a lot of time thinking about the items—just give your first response.

1. When I am not invited to do something with a group of people, I will exclude those people from future activities

2. When I have been angry at, or jealous of someone, I have tried to damage that person’s reputation by gossiping about him or her or by passing on negative information about him/her to other people

3. When someone does something that makes me angry, I try to embarrass that person or make them look stupid in front of his/her friends

4. When I am mad at a person, I try to make sure she/he is excluded from group activities (going to the movies or to a bar)

5. I have spread rumors about a person just to be mean

6. I have threatened to break up with a romantic partner in order to get him/her to do what I wanted

7. I have tried to make my romantic partner jealous when mad at him/her

8. I have cheated on my romantic partner because I was angry at him/her

9. I have given my romantic partner the silent treatment when my feelings were hurt in some way by him or her

10. If my romantic partner makes me mad, I will flirt with another person in front of him/her

Relational Aggression (Items 1-5)
Romantic aggression (items 6-10)
Appendix E Exposure to Violence Measures
(CREV) **Instructions:** These questions ask about VIOLENCE. Violence is when somebody attacks or hurts another person. The questions are about things that may have happened at home, school, or in your neighborhood.

<table>
<thead>
<tr>
<th>Question</th>
<th>Never</th>
<th>One Time</th>
<th>A Few Times</th>
<th>Many Times</th>
<th>Every Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Have you ever watched somebody being beaten up on TV or in the movies?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. Has anyone ever told you that someone you did not know was beaten up?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. Have you ever seen someone you did not know being beaten up?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. Have you ever watched somebody being chased or seriously threatened on TV or in the movies?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. Has anyone ever told you that someone you did not know was chased or seriously threatened?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. Have you ever seen someone you did not know being chased or seriously threatened?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. Have you ever watched somebody being robbed or mugged on TV or in the movies?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. Has anyone ever told you that someone you did not know was robbed or mugged?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. Did you see someone you did not know being robbed or mugged?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. Have you ever watched somebody being shot or stabbed on TV or in the movies?</td>
<td>0</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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<tr>
<td>11. Has anyone ever told you that someone you did not know was shot or stabbed?</td>
<td>0</td>
<td>1</td>
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</table>
12. Have you ever seen someone you did not know being shot or stabbed?  

<table>
<thead>
<tr>
<th>Never</th>
<th>One Time</th>
<th>A Few Times</th>
<th>Many Times</th>
<th>Every Day</th>
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<tbody>
<tr>
<td>0</td>
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<td>3</td>
<td>4</td>
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</table>

13. Have you ever watched somebody being killed on TV or in the movies?  

<table>
<thead>
<tr>
<th>Never</th>
<th>One Time</th>
<th>A Few Times</th>
<th>Many Times</th>
<th>Every Day</th>
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<tbody>
<tr>
<td>0</td>
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<td>4</td>
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14. Has anyone ever told you about someone you did not know being killed?  

<table>
<thead>
<tr>
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15. Have you ever seen somebody you know being killed?  

<table>
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<tr>
<th>Never</th>
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<th>Many Times</th>
<th>Every Day</th>
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<tr>
<td>0</td>
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</table>

16. Have you ever been beaten up (slapped, kicked, bitten, hit, punched)?  

<table>
<thead>
<tr>
<th>Never</th>
<th>One Time</th>
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<th>Many Times</th>
<th>Every Day</th>
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<tbody>
<tr>
<td>0</td>
<td>1</td>
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</tbody>
</table>

17. Have you ever been chased (had somebody come after you to hurt you) or threatened (or warned) to have your body badly or seriously hurt?  

<table>
<thead>
<tr>
<th>Never</th>
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<th>A Few Times</th>
<th>Many Times</th>
<th>Every Day</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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</table>

18. Have you ever been robbed (or held up) or mugged?  

19. Have you ever been shot (hit with a bullet from a gun) or stabbed with a knife?
Appendix F Harsh Parenting Measures
Harsh parenting items. **Instructions:** The following items concern your interactions with your parent(s) while you were growing up.

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
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</thead>
<tbody>
<tr>
<td>1. When you were growing up, how often did you and your parents yell at each other?</td>
<td>0</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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<tr>
<td>2. When you were growing up, how frequently did your parent(s) threaten to spank you and not actually do it?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. When you disobeyed your parents how often were you punished by spanking?</td>
<td>0</td>
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<td>4</td>
</tr>
<tr>
<td>4. When you were growing up, how frequently did your parent(s) shout or scream at you?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. When you were growing up, how frequently were you physically punished in ways other than spanking?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
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</tr>
<tr>
<td>6. When you were growing up, how frequently did your parent(s) threaten to physically punish you (other than spanking) and not actually do it?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Appendix G Normative Beliefs about Aggression Scale
(NOBAGS) Instructions: The following questions ask you about whether you think certain behaviors are WRONG or are OK. Circle the answer that best describes what you think. Circle ONE and only one answer.

Suppose a man says something bad to another man, Tyler:

1) Do you think it's OK for Tyler to scream at him?  
   Perfectly OK: 1  
   Sort of OK: 2  
   Sort of Wrong: 3  
   Really Wrong: 4

2) Do you think it's OK for Tyler to hit him?  
   Perfectly OK: 1  
   Sort of OK: 2  
   Sort of Wrong: 3  
   Really Wrong: 4

Suppose a man says something bad to a woman:

3) Do you think it's wrong for the woman to scream at him?  
   Perfectly OK: 1  
   Sort of OK: 2  
   Sort of Wrong: 3  
   Really Wrong: 4

4) Do you think it's wrong for the woman to hit him?  
   Perfectly OK: 1  
   Sort of OK: 2  
   Sort of Wrong: 3  
   Really Wrong: 4

Suppose a woman says something bad to another woman, Sarah:

5) Do you think it's OK for Sarah to scream at her?  
   Perfectly OK: 1  
   Sort of OK: 2  
   Sort of Wrong: 3  
   Really Wrong: 4

6) Do you think it's OK for Sarah to hit her?  
   Perfectly OK: 1  
   Sort of OK: 2  
   Sort of Wrong: 3  
   Really Wrong: 4

Suppose a woman says something bad to a man:

7) Do you think it's wrong for the man to scream at her?  
   Perfectly OK: 1  
   Sort of OK: 2  
   Sort of Wrong: 3  
   Really Wrong: 4

11. Suppose a man hits another man, Tyler?  
    Perfectly OK: 1  
    Sort of OK: 2  
    Sort of Wrong: 3  
    Really Wrong: 4

8) Do you think it's wrong for the man to hit her?  
   Perfectly OK: 1  
   Sort of OK: 2  
   Sort of Wrong: 3  
   Really Wrong: 4
(NOBAGS Continued)
Suppose a man hits another man, Tyler?
9) Do you think it's wrong for Tyler to hit him back?
Suppose a man hits a woman.
10) Do you think it's OK for the woman to hit him back?
Suppose a woman hits another woman, Sarah?
11) Do you think it's wrong for Sarah to hit her back?
12) Do you think it's OK for the man to hit her back?
13. In general, it is wrong to hit other people.
14. If you are angry, it is OK to say mean things to other people.
15. In general, it is OK to yell at others and say bad things.
16. It is usually OK to push or shove other people around if you're mad?
17. It is wrong to insult other people?
18. It is wrong to take it out on others by saying mean things when you're mad?
19. It is generally wrong to get into physical fights with others?
20. In general, it is OK to take your anger out on others by using physical force?

<table>
<thead>
<tr>
<th></th>
<th>Perfectly OK</th>
<th>Sort of OK</th>
<th>Sort of Wrong</th>
<th>Really Wrong</th>
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<tbody>
<tr>
<td>1</td>
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<tr>
<td>20</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Appendix H Demographics Measures
1. SEX (circle one): Female Male

2. AGE________

3. (YEARSCH) Your current standing in college:
   a. First year
   b. Second year
   c. Third year
   d. Fourth year
   e. Fifth year
   g. Sixth year
   f. Other ____________________

4. (SEXORI) What is your sexual orientation?
   a. Gay/Lesbian
   b. Heterosexual/straight
   c. Bisexual
   d. Questioning/not sure
   e. I would prefer not to respond
   g. Other ____________________

5. (ETHNI) What is your Ethnicity:
   a. Black
   b. White
   c. Latino/Latina
   d. Asian/Pacific Islander
   e. Middle Eastern
   f. Native American
   g. (OETH) Other _________________

6. (RELIG) What religion do you identify with?
   a. Muslim
   b. Hindu
   c. Christian
   d. Jewish
   e. Buddhist
   f. (ORELIG) Other ____________________

7. (LIBCONS) When it comes to politics, do you usually think of yourself as a liberal, a conservative or a moderate? (circle the letter that best applies)
   a. Very conservative
   b. Conservative
   c. Somewhat conservative
   d. Moderate/middle of the road
   e. Somewhat liberal
   f. Liberal
   g. Very liberal

8. (PID) Generally speaking, do you usually think of yourself as a Republican, Democrat or an Independent? (circle the letter that best applies)
   a. Strong Republican
   b. Not very strong Republican
   c. Independent, leaning toward Republican
   d. Independent
   e. Independent—leaning toward Democrat
   f. Not very strong Democrat
   g. Strong Democrat
   
9. (INCOME) What do you estimate your parents’ combined yearly income to be?
   a. less than $20,000
   b. $20,000-$29,999
   c. $30,000-$39,999
   d. $40,000-$49,999
   e. $50,000-$59,999
   f. $60,000-$69,999
   g. $70,000-$79,999
   h. $80,000-$89,999
   i. $90,000-$99,999
   j. 100,000- 149,999
   k. 150,000-199,999
   l. greater than $200,000

Demographic items
10. (COMFORT1) Which of the following statements best describes how financially comfortable your family was while you were growing up?

a. Always struggling to make ends meet.
b. Not very comfortable but not always struggling.
c. Not very comfortable, but we did ok sometimes.
d. Not too comfortable, but not too uncomfortable either.
e. Pretty comfortable but it was tough sometimes.
g. Pretty comfortable, but not well off.
f. Very comfortable, we rarely had to worry about money.

11. (COMFORT2) Which of the following statements best describes how financially comfortable your family is currently?

a. Always struggling to make ends meet.
b. Not very comfortable but not always struggling.
c. Not very comfortable, but we do ok sometimes.
d. Not too comfortable, but not too uncomfortable either.
e. Pretty comfortable but it is tough sometimes.
g. Pretty comfortable, but not well off.
f. Very comfortable we rarely have to worry about money.

12. What is your Socio-Economic Class (circle one):
   A. Below poverty line
   B. Lower working class
   C. Working class
   D. Upper working class
   E. Bottom middle class
   F. Middle class
   G. Upper middle class
   H. Lower upper class
   I. Upper class
   J. Higher upper class

13. When you think about your identity as a whole, how would you rate your status in society?

Low 1 2 3 4 5 6 7 High
Status Status
Think of this ladder as representing where people stand in the United States.

At the **top** of the ladder are the people who are the best off—those who have the most money, the most education and the most respected jobs. At the **bottom** are the people who are the worst off—who have the least money, least education, and the least respected jobs or no job. The higher up you are on this ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom.

**Where would you place yourself on this ladder?**

Please place a large “X” on the rung where you think you stand at this time in your life, relative to other people in the United States.
Appendix I Study 2 Stimuli
<table>
<thead>
<tr>
<th>Ambiguous Provocation Sentences</th>
<th>Target Words</th>
</tr>
</thead>
<tbody>
<tr>
<td>The electrician looks at his friend and starts laughing.</td>
<td>ridicule</td>
</tr>
<tr>
<td>The receptionist raises his voice when Kelly starts talking.</td>
<td>mean</td>
</tr>
<tr>
<td>The policeman pushes Pat out of the way.</td>
<td>aggressive</td>
</tr>
<tr>
<td>The lawyer strongly disagrees with the client.</td>
<td>angry</td>
</tr>
<tr>
<td>The secretary walks into the room, and shuts off Rene's computer.</td>
<td>sabotage</td>
</tr>
<tr>
<td>The man in the second row starts screaming when the athlete runs by.</td>
<td>insulting</td>
</tr>
<tr>
<td>The receptionist raises his voice when Kelly starts talking.</td>
<td>loud</td>
</tr>
<tr>
<td>The other driver's door hits Lee's car and leaves a scratch.</td>
<td>asshole</td>
</tr>
<tr>
<td>Someone bumps Jackie's arm and spills coffee on his shirt.</td>
<td>nasty</td>
</tr>
<tr>
<td>The policeman yells at the man crossing the street.</td>
<td>threaten</td>
</tr>
<tr>
<td>The bank teller shuts his window when its Morgan's turn.</td>
<td>ignoring</td>
</tr>
<tr>
<td>The manager tells Kasey to clean the toilet.</td>
<td>racist</td>
</tr>
<tr>
<td>Skylar's supervisor did not respond to his email.</td>
<td>absent</td>
</tr>
<tr>
<td>The manager lost Chris' application.</td>
<td>rejected</td>
</tr>
<tr>
<td>The teacher gave Hayden a bad grade.</td>
<td>Biased</td>
</tr>
<tr>
<td>Addison's co-worker said nothing about the presentation.</td>
<td>rude</td>
</tr>
<tr>
<td>Reese took Shannon's damp clothes out of the dryer.</td>
<td>selfish</td>
</tr>
<tr>
<td>The student kicked Sam's chair.</td>
<td>bully</td>
</tr>
<tr>
<td>The man tells Zane &quot;this seat is taken&quot;.</td>
<td>lies</td>
</tr>
<tr>
<td>A person tells Tristan to &quot;watch out&quot;.</td>
<td>Intimidate</td>
</tr>
<tr>
<td>A person hangs up on Parker.</td>
<td>Hates</td>
</tr>
<tr>
<td>A person finds Madison's wallet and puts it in their pocket.</td>
<td>Stealing</td>
</tr>
<tr>
<td>A man tells Shea to &quot;be quiet&quot;.</td>
<td>Murderously</td>
</tr>
<tr>
<td>The woman mumbles when Kerry walks by.</td>
<td>Disrespecting</td>
</tr>
<tr>
<td>The boy throws a toy at Kennedy.</td>
<td>harm</td>
</tr>
<tr>
<td>A student spills coffee on Casey's term paper.</td>
<td>jealous</td>
</tr>
<tr>
<td>Jo jabbed Les in the ribs during the game.</td>
<td>payback</td>
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<table>
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<tr>
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<td>Filler Sentences</td>
<td>Non-Words</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
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</tr>
<tr>
<td>The plumber looks at his sister's new car.</td>
<td>allsento</td>
<td></td>
</tr>
<tr>
<td>The magician raises his hat to the crowd.</td>
<td>lettiL</td>
<td></td>
</tr>
<tr>
<td>The shopkeeper sells Marley a bunch of fruit.</td>
<td>bertooc</td>
<td></td>
</tr>
<tr>
<td>The professor receives an email from a student.</td>
<td>dofo</td>
<td></td>
</tr>
<tr>
<td>The instructor demonstrates the correct procedures.</td>
<td>mero</td>
<td></td>
</tr>
<tr>
<td>The pilot explains why the flight is delayed.</td>
<td>aturernfu</td>
<td></td>
</tr>
<tr>
<td>The intern leaves the director’s clipboard on the table.</td>
<td>kacr</td>
<td></td>
</tr>
<tr>
<td>The office manager asks for the correct paperwork.</td>
<td>picsymol</td>
<td></td>
</tr>
<tr>
<td>The other car stops in front of Jessie and makes a turn.</td>
<td>arisstup</td>
<td></td>
</tr>
<tr>
<td>A man moves past Rory toward the door.</td>
<td>twyent</td>
<td></td>
</tr>
<tr>
<td>The fireman climbs to the man in the building.</td>
<td>casteisu</td>
<td></td>
</tr>
<tr>
<td>Riley takes a long time at the tam machine.</td>
<td>gynth</td>
<td></td>
</tr>
<tr>
<td>A person moves Rowan’s grocery basket.</td>
<td>orctdo</td>
<td></td>
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<tr>
<td>The supervisor discusses Finley's performance evaluation.</td>
<td>yradckba</td>
<td></td>
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<tr>
<td>Quinn asks Avery to take the late shift.</td>
<td>iesespc</td>
<td></td>
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<tr>
<td>The telephone representative puts Taylor is put on hold.</td>
<td>milasa</td>
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<tr>
<td>Kendall's name is not drawn from the hat.</td>
<td>kinmpup</td>
<td></td>
</tr>
<tr>
<td>The employee is late for a meeting.</td>
<td>ineylsk</td>
<td></td>
</tr>
<tr>
<td>The reporter helps the victim at the accident site.</td>
<td>eynkmo</td>
<td></td>
</tr>
<tr>
<td>The surgeon remains composed during the operation.</td>
<td>imlugbe</td>
<td></td>
</tr>
<tr>
<td>The farmer says hello to Camryn as he enters the room.</td>
<td>eytriva</td>
<td></td>
</tr>
<tr>
<td>The teacher does not mind dancing in front of the crowd.</td>
<td>yanf</td>
<td></td>
</tr>
<tr>
<td>The barber looks for bob at lunchtime.</td>
<td>ressionlangco</td>
<td></td>
</tr>
<tr>
<td>Michelle tells Lilly to &quot;watch out&quot;.</td>
<td>onasse</td>
<td></td>
</tr>
<tr>
<td>Alexis finds a wet blanket at the beach.</td>
<td>tinginpa</td>
<td></td>
</tr>
<tr>
<td>Logan hears a cell phone ring during the movie.</td>
<td>hausenuncm</td>
<td></td>
</tr>
<tr>
<td>The woman watches Ryan run to the train.</td>
<td>urnbns</td>
<td></td>
</tr>
<tr>
<td>The skier goes quickly past the beginners.</td>
<td>ingenev</td>
<td></td>
</tr>
<tr>
<td>Logan asks the clerk to watch his bag.</td>
<td>anspdbpe</td>
<td></td>
</tr>
<tr>
<td>Bailey asks Parker for a rematch.</td>
<td>ourneblmbe</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Practice Sentences</th>
<th>Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Ice cream man drives away quickly</td>
<td>nishta</td>
</tr>
<tr>
<td>The driver throws garbage out the window</td>
<td>ealsttu</td>
</tr>
<tr>
<td>The editor made several corrections to the paper</td>
<td>earchum</td>
</tr>
<tr>
<td>The teacher rewards the student with a gold star</td>
<td>sumsuy</td>
</tr>
<tr>
<td>Sally does the dishes when it’s her turn</td>
<td>ewichut</td>
</tr>
<tr>
<td>The librarian tells Joe the book is overdue</td>
<td>fine</td>
</tr>
<tr>
<td>The shopkeeper closes early on the holiday</td>
<td>party</td>
</tr>
<tr>
<td>The speech is long and boring</td>
<td>sleepy</td>
</tr>
<tr>
<td>Jon gets the mail for his neighbor</td>
<td>nice</td>
</tr>
<tr>
<td>The landscaper leaves a big pile of debris</td>
<td>messy</td>
</tr>
</tbody>
</table>
Appendix J Positive Negative Affect Scale
PANAS Instructions: This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you have felt this way during the past few weeks. Use the following scale to record your answers.

1 2 3 4 5
very slightly a little moderately quite a Bit Extremely
or not at all

1. _____ interested
2. _____ irritable
3. _____ alert
4. _____ distressed
5. _____ excited
6. _____ ashamed
7. _____ inspired
8. _____ upset
9. _____ strong
10. _____ nervous
11. _____ determined
12. _____ guilty
13. _____ attentive
14. _____ scared
15. _____ active
16. _____ hostile
17. _____ enthusiastic
18. _____ jittery
19. _____ proud
20. _____ afraid