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The Development Of Hostile Cognitive Schemas And Adult Aggressive Tendencies

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THE DEVELOPMENT OF HOSTILE COGNITIVE SCHEMAS AND ADULT AGGRESSIVE
TENDENCIES

by

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Submitted to the Graduate Faculty

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in partial fulfillment of the requirements

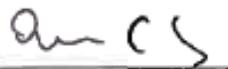
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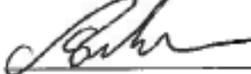
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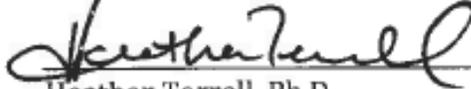
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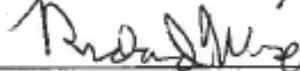
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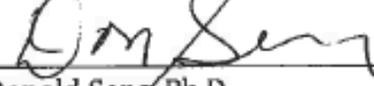
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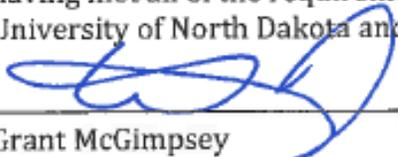


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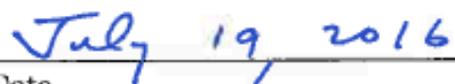


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This dissertation is being submitted by the appointed advisory committee as having met all of the requirements of the School of Graduate Studies at the University of North Dakota and is hereby approved



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Kristin Elisabeth Matson
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ABSTRACT

This dissertation research served as an exploration into the relationships between childhood maltreatment, personality factors (i.e. negative affect and antagonism), cognitive biases (i.e. hostile attribution bias and hypermasculinity), adult aggression, and gun enthusiasm. Previous literature has shown relationships between these variables individually and this research attempted to provide more insight into the complicated interplay between numerous factors often present in the life of an aggressive adult. The participants included 885 men over the age of 18 and residing in the United States who were recruited through Amazon Mechanical Turk survey service to complete eight assessments online. Results indicated aggressive ideation and tendencies were predicted by antagonism, negative affect, hypermasculinity, sibling hostility, domestic hostility, and gun enthusiasm, while a history of aggressive acts in adulthood was predicted by hypermasculinity, sibling hostility, and peer hostility. Strong interest in gun use and ownership was predicted by hypermasculinity, and individuals who owned guns reported engaging in more historical aggressive acts than those who did not own guns. Antagonism increased the relationship between hypermasculinity and aggression, hostile intent bias and aggression, and gun enthusiasm and aggression. While this study found several interesting relationships relating to adult aggression, more research is needed to isolate specific factors.

CHAPTER I

INTRODUCTION

The General Aggression Model (GAM: Anderson & Bushman, 2002; DeWall, Anderson, & Bushman, 2011) proposes that antagonistic biological predispositions (e.g., prefrontal inhibitory deficits, hormonal and biochemical imbalances, etc.) are magnified by early developmental history (e.g., child abuse, exposure to violent role models, etc.) leading to cognitive schemas (attention, memory and interpretation biases, hostile attribution bias, etc.) that mediate responses to perceived provocation and other situational stressors. An essential component in the model involves the extent to which hostile meaning is attributed to situational and interpersonal cues that may be otherwise viewed as benign and harmless. Cue interpretations are thought to develop as a partial function of both positive (e.g., close friendships, family values, academic and work success, etc.) and negative (e.g., child abuse, trauma, violent gaming, alcohol abuse) learning experiences. The GAM thus provides a comprehensive biosocial learning model, which can integrate most potential aggression contributors into coherent categories that will differ in their levels of importance on a case-by-case basis. Single factors analyzed in isolation are routinely found to account for limited variance (< 10%) in selected aggression dependent measures. Contemporary aggression researches have sought to identify factor interactions, which hold potential to account for substantial variance in

aggressive responding within selected subsets of the general population. Geen (1990) postulated that expression of aggression is the result of background variables such as genes, personality, and exposure to violence as well as environmental stimuli that produce stress or frustration. More specifically, if an individual with background variables that predispose the person to aggression interprets a situation as intentionally hostile, they will engage in aggressive behaviors, especially compared to a situation that the individual interprets as explanatory or unintentional. In another theory of aggression, Berkowitz (1993) theorized that aggressive behavior was caused by negative affectivity in response to situations of hostility and insult.

Personality traits have been defined in the contemporary psychological literature as simply generalized response tendencies that are acquired early in life and resistant to change during the lifespan. While definitional disputes have diminished since Allport (1921) and Cattell (1943; 1946), debates over the best way to measure traits remain active today. While psychology practitioners have preferred reliance on personality classifications (e.g., “clustering of extreme attributes into types”), factor analytic researcher have concluded that most of the variance in personality descriptions can be accounted for through ratings on five different trait dimensions (Costa & McCrae, 1992).

The two approaches have their own distinctive values and limitations. The traditional categorical approach often incorrectly infers similarities among people who prove to differ in important ways, and the dimensional approach generates rich trait score differences that may prove meaningless or incomprehensible in applied

settings. The DSM-5 debate seems to have ended in a draw. The traditional typology was maintained but a new five dimension model was endorsed for possible inclusion in the DSM-6 with a call for research on a suggested measurement protocol. In this sense the field is now in a moratorium regarding the best trait measurement strategy with the DSM-6 decision likely to be informed by research emerging on the newly proposed trait dimensions in the interim.

The GAM emphasizes the importance of cognitive intervening variables in transforming neutral or harmless interpersonal cues into hostile provocation. These information processing qualities represent response tendencies that are activated by a more narrow range of eliciting stimuli than personality traits. Recent research suggests that one cognitive schema, referred to as hostile attribution bias (HAB; Chen, Coccaro, & Jacobson, 2011) may prove to be especially important in transforming innocuous interpersonal cues into perceived provocation. HAB research will be extended in this study with the inclusion of gun ownership itself as measure of perceived threat from the environment. For example, a recent Gallup poll (Carroll, 2005) cited “personal safety/protection” as the number one reason Americans own their gun(s).

This dissertation research will offer one of the first attempts to establish links between cumulative lifetime aggression and two newly proposed DSM-5 personality disorder trait dimensions (PID-5; Personality Inventory for the DSM-5). The value of HAB and hypermasculinity in predicting self-protective and aggressive behavior will also be examined. Aggressive adults in this study are expected to show higher rates of childhood physical abuse. Most importantly, this analysis will focus on

interactions between these variables (HAB, childhood physical abuse, and the two new personality trait dimensions of Negative Affectivity and Antagonism). Gun enthusiasm will be used as a dependent measure indicator of perceived threat from the environment.

CHAPTER II

LITERATURE REVIEW

Childhood Maltreatment

Maltreatment in childhood has been associated with both aggression and development of personality factors. Family environment factors such as harsh punishment, parental rejection and neglect, parental conflict, and physical violence were found in children who were diagnosed with conduct disorder (Holmes, Slaughter, & Kashani, 2001). Children who were maltreated (Chen, Coccaro, Lee, & Jacobson, 2012) or even witnessed domestic violence (Moe, King, Bailly, 2004) have been found to be more anxious and fearful than their peers (Alessandri & Lewis, 1996) and as adults are more likely to be both verbally and physically aggressive (Haskett & Kistner, 1991) than those who did not experience childhood maltreatment. These individuals experience triggers that cue feelings of anger, as well as less developed emotional regulation to cope with these feelings. In relation to aggression in adulthood, children who were maltreated also have unique social information processing that interprets innocuous environmental cues as harmful and threatening. Thus, hostile attribution bias may be more present in children with a history of maltreatment due to the difficulties of emotional coping and the dysfunctional social information processing. Further, childhood maltreatment may result in a decreased sense of security in adults, which may lead individuals to take

proactive measures of self-defense (Chen, Coccaro, Lee, & Jacobson, 2012; Coccaro, Noblett, & McCloskey, 2009).

In a study of the impacts of parental maltreatment on bullying and victimization, 169 children who met criteria for maltreatment were compared to 98 children who did not meet these criteria. The children were between eight and 12 years of age and the two groups were not significantly different in gender, ethnicity, family socioeconomic status, or family composition. However, the majority of participants who were in the maltreated children category experienced more than one type of childhood abuse (i.e. physical abuse, sexual abuse, emotional abuse, and neglect). Bullying was measured by the Mount Hope Family Center Bully – Victim Questionnaire (Olweus, 1991). Emotional Dysregulation was measured by the Emotional Regulation Q-Scale (Shields & Cicchetti, 1997), the Emotional Regulation Checklist, (Shields & Cicchetti, 1997), and the Child Behavior Checklist Teacher’s Report Form (Achenbach, 1991). Finally, Social Behavior was measured by the Peer ratings (Singleton & Asher, 1977) and the Minnesota Behavior Ratings, Agency and Dependency (Sroufe, 1983). Results indicated that children who were maltreated were more likely to engage in bullying behavior than those without histories of maltreatment; also, boys were more likely than girls to engage in bullying behavior. Further, results indicated that children who were identified as bullies and children who were identified as victims of bullying were both more likely to endorse emotional dysregulation than children who did not identify in the bully or victim categories (Shields & Cicchetti, 2001).

Childhood maltreatment goes beyond the parent-to-child abusive relationship in its negative effects on adulthood. Sibling aggression is associated with aggressive peer interactions, dating violence, delinquency, substance abuse, and anxiety and depression, corporal punishment is associated with physical and verbal aggression, opposition, and interpersonal aggression (Bershoff & Bitensky, 2007) and peer bullying and relational aggression is associated with anxiety and depression (Reijntjes, Kamphuis, Prinzie, & Telch, 2010).

Personality Traits

Beyond aggressive behaviors, childhood maltreatment has a lasting impact on personality formation and development. Rogosh & Cicchetti (2004) studied the impacts of maltreatment on personality formation with a longitudinal study of children from the ages of six to nine. Children who had experienced any type of neglect, physical abuse, emotional abuse, and/or sexual abuse were considered maltreated. The maltreated group was compared to children of similar demographics that had not experienced this abuse. Results indicated that children who had experienced neglect and abuse were significantly different than non-maltreated children on personality dimensions, with the maltreated children exhibiting less gregariousness and reservation, and more dysphoria. Further, children who were maltreated were rated by their peers as significantly less cooperative and significantly more disruptive and engaged in more fights than their non-maltreated peers. In regards to the Big Five personality dimensions, trained research assistants rated maltreated children as significantly less agreeable, conscientious, and open to new experiences and significantly more neurotic than

their peer counterparts. These ratings remained consistent throughout the three-year longitudinal study, indicating that maltreatment in early childhood can have a significant impact on personality formation as measured at the age of nine (Rogosh & Cicchetti, 2004). In a study of 421 children at a summer camp, Kim and Cicchetti (2010) found that neglect, physical abuse, and sexual abuse were significantly negatively related to emotional regulation, indicating that childhood maltreatment was correlated with emotional dysregulation ($\beta = -.20$, $\beta = -.17$, and $\beta = -.12$, respectively). Further, emotional regulation was significantly negatively related to aggressive and delinquent behaviors ($\beta = -.38$; Kim & Cicchetti, 2010).

Recent literature has addressed the impact of personality factors on acts of aggression and aggressive characteristics. In a meta-analysis of fifty-three studies since 2000, Jones, Miller, and Lynman (2011) reviewed the literature that involved the Five Factor Model and aggression or antisocial behavior. They found that the five-factor model personality facets of angry hostility, vulnerability, impulsiveness, and assertiveness were significantly and positively correlated with aggression (in order of descending effect size). They also found that compliance, altruism, straightforwardness, warmth, trust, deliberation, tender-mindedness, competence, dutifulness, positive emotion, modesty, feelings, order, self-discipline, and achievement striving were significantly and negatively correlated with aggression (in order of descending effect size). The results of this meta-analysis suggest that certain personality facets may serve as possible predictors of aggressive behaviors, while others may be seen as protective factors against aggression. Further, the authors noted that previous literature has found correlations with the previously

mentioned five factor model personality facets and other dangerous externalizing behaviors such as alcohol use, pathological gambling, and risky sexual interactions.

Negative emotionality is a personality factor that has been associated with aggressive behaviors. According to Berkowitz (1989, 1990, 1993), aggression can result from uncomfortable environments and feelings of frustration because both fight and flight response processes are activated. The fight process activates feelings of anger while the flight activates a sense of fear or imminent threat, and the combination results in aggressive behavior. Laboratory-induced aggression was examined by Siebert, Miller, Pryor, Reidy, & Zeichner (2010) in relation to the five factor model of personality, impulsivity, and behavioral activation/inhibition. The authors found that the personality factor of antagonism is significantly correlated with aggressive behaviors. While the results did not support a correlation between negative affectivity and aggression, the authors suggest that the laboratory-induced aggression may not have created a hostile enough situation to induce negative affect such as anger. A correlation between impulsivity and aggressive behaviors was also not supported in this research. The authors also found that men who were elevated on extraversion and antagonism responded aggressively when they felt that they were being challenged by their opponent, and thus had to prove that they were not losing to the opponent (Seibert, Miller, Pryor, Reidy, & Zeichner, 2010).

Antisocial personality disorder has been associated with laboratory-induced aggression in the context of alcohol. In a sample of twenty-six male university students, Bailly and King (2006) found that individuals that scored high on the Sadistic-Aggressive scale on the Millon Multiaxial Clinical Inventory – Third Edition

(MCMI-III) had larger responding changes on the Point Subtraction Aggression Paradigm (PSAP) while under the influence of alcohol than the comparison group. However, results were inconclusive, in part due to the limited available increase of aggression scores due to the high baseline PSAP scores of the Sadistic-Aggressive group (Bailly & King, 2006). These same authors conducted a similar study with thirty-three college men without any elevations on the MCMI-III. Participants were separated into three groups, with an alcohol group consuming an ethanol and soda mixture and two placebo groups consuming soda with a small amount of ethanol, as to keep the participants blind to their group affiliation. They did not find any elevations in laboratory-induced aggression in either the alcohol or placebo groups (Bailly & King, 2004).

Hypermasculinity

Masculine honor ideology is a belief system that individuals (traditionally men) are to be honorable and respected, as well as maintain a reputation and social standing. According to Barnes, Brown, and Osterman (2012), masculine honor ideology seems to be related to reactive aggression in situations of perceived insult. They found that this trait is more predominant in the southern part of the United States than the northern. These authors found that individuals who were elevated on the Honor Ideology for Manhood scale were more likely to respond to ambiguously threatening hypothetical situations with hostility and hypervigilance. Individuals with elevations on this measure were also more likely to choose lethal retaliation as a necessary response for the individuals who were responsible for the September 11, 2001 attack on the World Trade Center. The results of the studies

conducted by Barnes, Brown, and Osterman (2012) suggest that males who are hypervigilant to threat and feel a need to present as tough and stereotypically masculine are more likely than other males to respond to threats with aggression. These men are also more likely to interpret innocuous or ambiguously threatening situations as a personal attack and insult, and respond in a reactive aggressive manner.

Children who experienced physical and/or emotional abuse and neglect may be more likely to develop negative and stereotypical gender patterns, with males exhibiting aggressive and rigid masculinity ideologies and characteristics such as arrogance and hostility (Rosen & Martin, 1998), though these data were collected in a military sample and may lack generalizability to the nonmilitary population. The correlations between negative masculinity and physical/emotional abuse, emotional neglect, and physical neglect were positive and significant for males (0.26, 0.12, and 0.17, respectively).

There is a significant relationship between negative emotional responding and externalizing aggression (i.e. general aggression and physical aggression) for males. Feelings of embarrassment and upset were associated with higher levels of relational aggression in males, but not physical or general aggression, which indicates that internalizing negative emotional responding is related to relational aggression while externalizing negative emotional responding is related to physical and general aggression (Chen, Coccaro, & Jacobson, 2012). In a meta-analysis of factors involved in workplace aggression, negative affectivity significantly correlated with interpersonal targeted aggression ($r = 0.22$; Hershcovis et al., 2007).

Hostile Attribution Bias

Hostile attribution bias (HAB), defined as “the tendency to interpret the intent of others as hostile when social context cues are ambiguous”, is what causes individuals to determine aggression as the necessary response to external stimuli, even when the external stimuli is neutral or benign (Chen, Coccaro, & Jacobson, 2008). Individuals who score high on measures of hostile attribution bias have been found to be hypervigilant to all stimuli that could provide information regarding another’s intent (Cohen, Nisbett, Bowdle, & Schwarz, 1996; Godleski, Ostrov, Houston, & Schlienz, 2010). As children learn to interpret their surroundings and the intentions of others, the stability and support of their environment will impact whether they develop adaptive or maladaptive social information processing skills. Further, hostile attribution bias has been found to act as a mediator between difficult childhood environments such as history of abuse and peer rejection and subsequent adult aggression (DeWall, Twenge, Gitter, & Baumeister, 2009; Reijntjes, Thomas, Kamphuis, Bushman, de Castro, & Telch, 2011).

Huesmann’s (1988) cognitive-behavioral information processing model explains aggressive behaviors as a response for ineffective judgment about the situation. This developmental perspective suggests that children learn how to respond to specific social situations by developing cognitive scripts. An individual who behaves aggressively is following a cognitive script that suggests aggression is an appropriate response in many social situations. This aggressive behavior further indicates that a person who behaves aggressively often has a cognitive schema that interprets the environment as generally hostile and unsafe. These schemas and

subsequent scripts will maintain unless that individual is taught to assess and respond to the environment in a non-aggressive manner. This model is consistent with other models of social information processing (Dodge, 1986; Milich & Dodge, 1984; Weiner, 1985) that suggest that emotions and behaviors are the result of the individual making causal attributions about the environment and the intentions of the others in the environment. Thus, when an individual attributes a negative event to the hostile intent of another, the result is anger and aggression.

The information processing model of hostile attribution bias suggests that individuals respond aggressively when they encode and interpret external cues as aggressive and then determine that an aggressive response will provide the most favorable outcome. Further, current negative emotions may be linked with one's interpretation of events as hostile as well as the hostile response to the stimuli.

Hostile attribution bias has been extensively researched and supported in children and adolescents. Epps and Kendall (1995) sought to extend the models of hostile attribution bias from children and adolescents to adults. The participants were 172 undergraduate students (89 male and 83 female) taking a psychology course. A final sample of 120 was included in the analysis due to scoring in the upper and lower one-third on measures of anger and aggression. The measures included that State-Trait Anger Expression Inventory (STAXI; Spielberger, 1988) and the Buss-Durkee Hostility Inventory (BDHI; Buss & Durkee, 1957). The participants also rated their response to twenty-two scenarios. Results indicated that male subjects who scored highly on a measure of internalized anger were more likely to attribute hostile intent in benign scenarios than males who did not indicate

high levels of internalized anger. Further, in all scenarios (hostile, ambiguous, and benign), subjects who were classified as experiencing high anger and aggression attributed hostile intent more than those who had less anger and aggression. Thus, not only did those in the low anger/aggression group not interpret hostility in the ambiguous and benign situations, they also interpreted less hostility in hostile situations than did those in the high anger/aggression group. These results support the presence of hostile attribution in adults and indicate that adults who indicate a high level of self-reported anger and aggression are more likely than those with low levels of anger and aggression to attribute situations as hostile, whether the situation is hostile, ambiguous, or benign (Epps & Kendall, 1995).

In an attempt to empirically evaluate the proposed correlation between hostile attribution bias and negative emotions, Chen, Coccaro, & Jacobson (2011) asked participants from the Pennsylvania Twin Cohort to complete questionnaires regarding social information processing and lifetime aggression. The authors had a total a sample of 2,749 twins from the PennTwins cohort in Pennsylvania who completed and returned the questionnaires. The twins were between the ages of 20 and 55, with the average age being 33.2, and the sample was 58.4% female. HAB and negative emotional responding were measured with the Social Information Processing-Attribution and Emotional Response Questionnaire (SIP-AEQ). The SIP-AEQ includes four written vignettes detailing direct aggressive scenarios and four relational aggressive scenarios. The participants then respond to the hostile intent of the vignettes on a 4-point Likert scale. The participants also responded to questions of negative emotions such as anger and embarrassment on a 4-point

Likert scale. General aggression was measured with the Lifetime History of Aggression Questionnaire, aggression subscale (LHA-AGG). Physical aggression was measured with the physical aggression subscale of the Buss-Perry Aggression Questionnaire. Relational Aggression was measured with the Self-Report of Aggression and Social Behavior Measure and verbal aggression was measured with the verbal aggression subscale of the Buss-Perry Aggression Questionnaire. Impulsivity was measured with the Barratt Impulsiveness Scale version 11. Finally, gender and socio-economic status were measured with a demographics questionnaire. Results indicate a positive main effect for external emotional response (i.e. anger) and physical, relational, verbal, and general aggression. Internal emotional response (i.e. embarrassment/upset) was inversely related to general and physical aggression, as well as negatively associated with verbal aggression. These relationships were stronger in males than females. The authors also found that higher levels of internal negative emotions were associated with higher levels of relational aggression in males but not in females. Results also suggest a main effect of HAB on aggression in both males and females. They also found that the positive relationship between HAB and general aggression is weaker at low levels of impulsivity and more significant with individuals with average and high levels of impulsivity, which suggests that that impulsivity is a moderating effect on aggression that is generalizable to both developmental stages and informational processing components. However, this interaction was not seen in physical, relational, or verbal aggression (Chen, Coccaro, & Jacobson, 2011).

Previous research has found a direct reciprocal relationship between hostile attribution bias and negative emotionality in aggression (Crick & Dodge, 1994; Guerra & Huesmann, 2004; Lemerise & Arsenio, 2000). In 2012, Chen, Coccaro, & Jacobson sought to examine the relationship between hostile attribution bias, negative emotional responding, and aggression with moderating variables of gender and impulsivity. Participants were recruited from the PennTwins Cohort and a sample of 2,749 adults (ages 20-55) completed and returned all measures. Impulsivity was measured using the Barratt Impulsiveness Scale version 11. Hostile attributional bias and negative emotional responding were measured with the Social Information Processing-Attribution and Emotional Response Questionnaire. Aggression was separated into four categories: general aggression, physical aggression, relational aggression, and verbal aggression. General aggression was measured with the Lifetime History of Aggression Questionnaire; Physical aggression and verbal aggression were measured with the Buss-Perry Aggression Questionnaire; and relational aggression was measured with the Self-Report of Aggression and Social Behavior Measure. The results indicated that there was a significant relationship for all of the four subtypes of aggression and impulsivity, hostile attribution bias, and anger. Hostile attribution bias was significant correlated with general aggression ($r = 0.17, p < 0.001$). These results support the theory that individuals who attribute hostile intention to another's actions are more likely to respond in an aggressive manner.

Measuring Aggression

Aggression Trait Measures

Self-report trait measures of aggression such as the Buss-Durkee Hostility Inventory (BDHI; Buss & Durkee, 1957) Aggression Questionnaire (AQ; Buss & Perry, 1992) are considered some of the most highly used measures of aggression (Bryant & Smith, 2001; Thornberry & Krohn, 2000) due to their efficiency and validity (Tremblay & Ewart, 2005; Webster et al., 2014). The BDHI was one of the first and most widely used self-report measure of anger and hostility (Buss & Durkee, 1957) and it was validated in a variety of populations (Bishop & Quah, 1998; Gunn & Gristwood, 1975; Lange, Dehghani, & DeBeurs, 1995). The BDHI made way for the AQ in 1992 due to a need for updated questions and concerns that the hostility subscale was misplaced (see Buss & Perry, 1992 for a full explanation).

An examination of over 300 university students found that all four subscales of the AQ (physical, verbal, anger, and hostility) were significantly correlated with acts of both direct and indirect aggression towards both partners and same-sex others. Further, there was a significant positive relationship between direct aggression towards a same-sex other and the physical and verbal aggression scales on the AQ (Archer & Webb, 2006). The AQ was also significantly correlated with an inability to inhibit responding to an angry face in an emotional response-inhibition task. Specifically, participants who received high scores on the total AQ had a more difficult time inhibiting responding when the task was to respond to happy faces but not to angry faces that appeared on the computer screen. These results were

specifically related to trait aggression and not other traits that were measured, such as impulsivity (Denny & Siemer, 2012).

Brief versions of the AQ have recently been developed, such as the Brief Aggression Questionnaire (BAQ; Webster et al., 2014) and the Buss-Perry Aggression Questionnaire – Short Form (BPAQ-SF; Bryant & Smith, 2001). Analysis of the BPAQ-SF revealed that the questions represent the same factor model as the original long form and the reliability and validity was not compromised (Bryant & Smith, 2001; Webster et al., 2014).

Laboratory – Provoked Aggression

A commonly used and well-validated laboratory measure of aggression is the Taylor Aggression Paradigm (TAP; Taylor, 1967), in which participants think they are playing a computer reaction game against an opponent and the slower reactor will receive a shock. The participants are given the opportunity to determine the level of shock the opponent receives prior to the trial. Early studies of the TAP and similar laboratory aggression measures found that individuals with a history of aggressive behavior chose to provide more intense shocks to their opponents than individuals without aggressive histories (Shemberg, 1968; Hartmann, 1969). A study comparing responding in a Point Subtraction Aggression Paradigm (PSAP) found that female offenders responded with significantly more aggression than their non-offending counterparts. The authors also found that the offenders scored significantly higher on the Brown History of Violence Questionnaire (BHVQ) and the assault measure of the BDHI, which is the predecessor to the AQ (Cherek, Lane, Dougherty, Moeller, & White, 2000).

While laboratory aggression paradigms remain a valid measure of aggression, there has been criticism regarding the generalizability to real-world situations (Tedeschi & Quigley, 1996). Further, in regards to the current study, the validity and reliability of a laboratory aggression paradigm does not provide enough incremental validity to outweigh the limitations that would result from limiting the sample to participants in the regional area willing to participate in a lengthy laboratory experiment.

Crime Indices

It would be logical to assume that a review criminal history would be an adequate measure of lifetime history of aggression. Criminal history has been significantly and positively correlated with psychopathy in juvenile offenders when accounting for the number of violent offenses and the number of technical violations while incarcerated. Further juvenile offenders with a history of violent or versatile criminal activity received significantly higher scores on the Psychopathy Checklist – Youth Version (PCL-YV; Forth, Kosson, & Hare, 2003) than juvenile offenders with a history of non-violent criminal offenses (Campbell, Porter, & Santor, 2004). This research indicates that criminal history may be a good indicator of trait aggression beyond aggressive acts.

While public records of criminal history provide an objective measure of a person's aggressive behavior, there are many limitations to using criminal history as a measure of aggression. Namely, an examination of criminal records only addresses aggression that has been identified, acknowledged, and prosecuted. Early studies on victimization indicated that barely over half of crimes were reported to authorities

and crimes that involved physical harm were less likely to be reported than crimes to property (Kilpatrick, Saunders, Veronen, Best, & Von, 1987). More recent data focusing on women has found that physical and sexual assaults are not reported seventy and eighty percent of the time, respectively.

Though criminal history is an important aspect of an individual's lifetime history of physical aggression, criminal history alone is clearly insufficient in measuring lifetime aggression. A significant number of crimes go unreported and not all reported crimes are prosecuted (see Koss, 2000 for a review of prosecution in physical aggression towards women).

Lifetime Aggression Self-Report

The most effective self-report measurements of aggression include a variety of aggressive behaviors and criminal activity of both minor and serious scopes, an understanding of the seriousness of the behavior and the frequency of the behavior. (Thornberry & Krohn, 2000). As previously discussed, acts of direct and indirect aggression towards partners and same-sex others was significantly related to all four scales on the AQ. Aggressive acts were measured on a five-point frequency scale: Never (1); A few times (2); Occasionally (3); Some of the time (4); and All the time (5). Examples of direct aggressive acts in this study included punch, shove, threaten with weapons, hit the person with an object, made obscene gestures, called obscene name, and beaten them up. Examples of indirect aggressive acts include spread rumors, made up stories about the person, said bad things behind back, stole from them, and told others not to associate with them This self-report measure of the four categories of aggressive acts (direct partner, direct same-sex other, indirect

partner, and indirect same-sex other) had Cronbach's alpha values ranging from 0.81 to 0.92 (Archer & Webb, 2006).

The Lifetime History of Aggression questionnaire (LHA; Coccaro, Berman, & Kavoussi, 1997) is an eleven-item self-report measure with subscales of Aggression, Antisocial behavior/consequences, and Self-directed aggression. This measure has significant concurrent validity with the BDHI and the Overt Aggression Scale – Modified for Outpatients (OAS-M; Coccaro, Harvey, Kupsaw-Lawrence, Herbert, & Bernstein, 1991). However, the brevity of the measure includes acts of physical aggression as a singular question. Due to the focus in the present research on physical aggression, it is imperative to evaluate the numerous behaviors and consequences associated with physical aggression.

The Lifetime Aggression Self-Report (LASR), first presented in dissertation research by Bailly (2005) is a modification and combination of the BPAQ and the OAS-M. Unlike the LHA, this measure focuses specifically on acts of physical aggression, such as hitting, kicking, and shoving during periods of anger. The LASR measures frequency of these acts and consequences that resulted from each of the first ten acts. Unlike other questionnaires addressing trait aggression, the LASR provides information about actual aggressive episodes that the person has engaged in. This information allows the examination of any differences between those who have trait aggression and those who engage in physically aggressive acts. A recently developed modification of the LASR was used for the current study (Lifetime Assessment of Violent Acts; LAVA; King, Bailly, & Russell, 2016). As mentioned above, most commonly used and well-validated measure of aggression characterize

aggression as a trait rather than specific acts committed. The current research conceptualized aggression acts committed, which allows for identification of individuals who have behaved with physical aggression but may not conceptualize themselves as having aggressive ideation or intention.

Gun Interest and Use

Defense and protection has recently been cited as the number one reason for owning a gun by 60% of gun owners¹. Recent statistics suggest that keeping a gun accessible in the home, as necessary for defensive purposes, is correlated with higher instances of deaths occurring in the home. Gunshot wounds are responsible for more than 31,000 deaths annually in the United States (Webster et al., 2012) and the majority of gunshot deaths occurring in the home are the result of suicide or homicide (Dahlberg, Ikeda, & Kresnow, 2004). Despite the most recent data suggesting that guns are actually used for self-defense by only approximately 2.5% of gun owners, it is still the number one reason for gun ownership. A common response to fear of being a victim of criminal action is to own a gun. When handgun owners were asked their reasoning for gun ownership, the most common response was fear of crime or perception of being at risk of criminal victimization, suggesting that gun ownership is a psychological coping mechanism for fear of victimization (Kleck, Kovandzic, Saber, & Hauser, 2011).

A meta-analysis examined studies that addressed fear of victimization and gun ownership. Many previous studies on protective gun ownership and fear of

¹ It should be noted that a Gallup Poll from November 22, 2005 indicates that a roughly equal amount of Republicans, Independents, and Democrats own guns for self-defense and protection, suggesting that this is not a partisan phenomenon.

threat found positive but nonsignificant associations. However, many of these studies were noted to have significant limitations that could have led to the null results (specifically differentiation between long-gun ownership for hunting/sporting purposes and handgun ownership for defensive purposes). The one study that controlled for these noted limitations found a significant association between fear of crime and defensive gun ownership. Other studies indicated that individuals who were more fearful of being the victim of future crime were more likely of owning guns for defensive purposes. Two studies in the meta-analysis found a negative relationship between fear and gun ownership. The authors explain this discrepant finding by noting that these studies did not differentiate between gun type (i.e. long-gun or handgun) or ownership purpose (i.e. sport or self-protection; Kleck, Kovandzic, Saber, & Hauser, 2011).

The current study addressed the previously noted methodological problems by only using non-gun owners in their sample and asking about future plans of gun-ownership for the respondent. The study also measured perceived risk of crime in the immediate neighborhood or at home. The results of a review of a 2006 Gallup Poll suggested a statistically significant association with fear and gun ownership when the question specified personal gun ownership specifically for protective purposes and perceived risk (not significant for household ownership or gun ownership for hunting/sporting purposes). The association became more significant when it controlled for planned gun ownership for protective purposes rather than current ownership for protective purposes (Kleck, Kovandzic, Saber, & Hauser, 2011).

A second meta-analysis by two of the previous authors found that, in the reviewed literature, three of sixteen studies that identified a statistically significant positive association between fear of crime and gun ownership. Four of the sixteen studies found significant positive results when subtype of gun was controlled; i.e. there was a significant positive association between handgun ownership and fear of crime, but not long-gun ownership. The remaining nine studies did not find a significant association between gun ownership and fear of crime. However, the authors noted that the methodology of the studies has impacted the inconsistent findings, with little agreement regarding what type of gun is included in gun ownership and whether gun ownership refers to individuals ownership of the respondent or simply having someone in the household owning a gun. Further, the measure of fear is not consistent across various studies (Hauser & Kleck, 2012).

A second difficulty in previous gun ownership literature is a problem of causality. Hauser and Kleck (2012) noted that while fear of crime may be a primary motivating factor in handgun ownership, the subsequent purchase of a handgun may decrease fear of crime victimization (Hauser & Kleck, 2012). To address these difficulties, the authors reviewed data that came from the survey of Community, Crime, and Health, a longitudinal phone-based survey in Illinois. Gun ownership was measured by asking the respondent if there was a gun in the household. The authors coded for whether a household gun was obtained between waves one and two, or whether a household gun was lost between waves one and two. Fear of victimization was measured with two Likert-scale questions (“I am afraid to walk alone at night near my home” and “My neighborhood is safe”), and three questions

measured by number of days in the past seven that the following had occurred; “Worried that your home would be broken into”, “felt afraid to leave the house”, and “feared being robbed, attacked, or physically injured”. The authors also controlled for crime rates in the respondent’s county of residence, and whether the respondent was a victim of assault, mugging, or burglary prior to the first wave in 1995. Results indicated that respondents who reported a high level of fear of victimization at wave one were more likely to obtain a gun by wave two, though the results did not reach significance. Similarly, respondents who were victimized shortly before wave one were significantly more likely to have obtained a gun by wave two. Results also indicated that, while there was not a significant change in fear of crime following gun acquisition, there was a significant increase in fear of crime following the loss of a gun. This research was limited in that the authors were unable to distinguish between purposes for gun ownership (i.e. sport versus self-defense). The authors also noted that the respondents at wave two included very few highly – victimized individuals compared with wave one, which may influence the results of fear of crime and gun acquisition (Hauser & Kleck, 2012)

Recent research has found a possibly genetic association with gun ownership and fear. Data from the National Longitudinal Study of Adolescent Health, between the dates of 2001 and 2008, and a corresponding DNA sample, was used to examine the interaction between the 5-HTT gene and gun ownership following the terrorist attacks on September 11, 2001 (Barnes, Beaver, & Boutwell, 2013). The 5-HTT gene has previously been linked to depression, substance abuse, and poor decision making when there is an interaction with stressful or traumatic

situations. The authors of the current study genotyped a sample of 2,350 twins and siblings and conducted three interviews, both before and after September 11, 2001. The results indicated that individuals with the short allele of the 5-HTT gene (484 bp) had significantly more gun ownership prior to September 11, 2001 than individuals without the short allele. The authors also found that study participants who were interviewed after the September 11, 2001 attack were more likely to carry a gun for daily use than those who were interviewed before this influential date (Barnes, Beaver, & Boutwell, 2013).

Gun use has also been linked to general aggressive behavior (Turner, Simmons, Berkowitz, & Frodi, 1977). A study by Buss, Booker, and Buss (1972) addressed the question: “does firing a weapon enhance nonweapon aggression?” The first study addressed this issue by running participants through an aggression paradigm after they fired a small air powered pellet rifle. Participants included twenty-two male psychology undergraduate students at Rutgers University. They were separated into a control group and two experimental groups. The control group completed a peg task and the aggression paradigm. The first experimental group completed the peg task, target shooting with the pellet gun, and then the aggression paradigm. The second experimental group completed the target shooting task, the peg task, and then the aggression paradigm. The authors did not find a significant difference between the control group and the experimental group regarding the mean intensity of shock delivered over 35 shock trials (Buss, Booker, and Buss, 1972).

A second experiment in the Buss, Booker, and Buss (1972) study was similar to the first experiment, except that the pellet gun used by the experimental group was replaced with a full-sized pistol equipped with a carbon dioxide cartridge, which released pellets. The authors did not find a significant difference between the experimental group and the control group. Both the experimental group and control group had a slight tendency to give higher intensity shocks in the second aggression paradigm. The third experiment expanded the participant pool to twenty male psychology students at the University of Texas. Students completed a four-question questionnaire regarding experience with weapons (a. I enjoy hunting birds and small game, b. When I was younger I liked target shooting, c. I have been handling and firing weapons since I was a child, and d. I have little or no experience with guns). The twenty participants were chosen from the two extremes (i.e. prior history with guns and no history with guns). Each extreme group was separated into a control group and an experimental group, and the study method was a replica of the method in the second study.

The authors found that experimental groups used higher intensity shocks in the second aggression paradigm than the first. They also found the group that had a previous history with guns continued to increase shock intensity over trials while the group that had no previous experience with guns did not significantly increase shock intensity. Further, the group with gun use history increased shock history more for the second aggression paradigm while the group with no gun use history increased shock more for the first aggression paradigm. Regarding the experimental groups, the authors found that the experimental group with a gun use history used

overall higher shock intensity than the experimental group with no gun use history. They also found that the shock intensity was higher for the second aggression paradigm than the first, and that those without a gun use history increased their shock frequency over trials more than those with a gun use history. Thus, while the experimental group with no gun use history increased the shock intensity more than the other group, the highest intensity of the shock did not reach the intensity used by those in the experimental group with a gun use history.

The fourth study was a replica of the third study, with ten male students in the gun use history group and ten male students in the no gun use history group. The authors did not find any significant results. The fifth experiment was a replication of an experiment done by Berkowitz and LePage (1967), though the authors of the current study changed the story regarding why a pistol and a shotgun were sitting next to the confederate (i.e. the initial study said that they were left there when the confederate, a supposed subject, was conducting a different study, while the current study told the participants that the weapons were there because the confederate was going to loan them to a friend who was conducting a different study). This change was intended to decrease the suspicion that the Berkowitz and LePage participants had about why another participant in the study (the confederate) would be conducting a different study. Buss, Booker, and Buss found that the presence of weapons associated with the confederate decreased the intensity of shocks the participants gave to the confederate. Due to the contradictory results of the current study and the Berkowitz and LePage study, the authors ran the procedure again with new participants. On this second attempt, they did not find

any significant results regarding the presence of the weapons and the shock intensity (Buss, Booker, and Buss, 1972).

One difficulty for comparing research on gun attitudes and use is the wide varying purposes of gun ownership (as noted in Hauser & Kleck, 2012), which complicates attempts to define gun interest. For example, an individual may own a shotgun that has been passed through the family but have very little interest in using guns, while another individual may have strong interest in using guns and protecting an individual's ability to purchase guns, but may not currently own a personal gun. Using gun ownership as a measure of gun attitudes and interest does not identify individuals for whom extenuating circumstances dictate ownership. Gun interest has also been measured by asking about beliefs on gun permits (Pederson, Hall, Foster, & Coates, 2015). While this allows for individuals to identify as having interest in guns without personally owning a gun, it still does not explore the nuances of gun use and gun interest. A new measure of gun enthusiasm was created for the purposes of this research to define gun interest through questions about personal experience with guns, beliefs about the second amendment, and purposes for gun use.

Current Study

The current study attempted to understand the previously described variables in their ability to predict adult aggression. It first looked to establish a link between cumulative lifetime aggression and personality by using two newly proposed personality traits dimensions of negative affectivity and antagonism (American Psychiatric Association, 2013). It also looks to establish a link between

lifetime aggression and hostile attribution bias and hypermasculinity. Further, this current study aimed to examine interactions between childhood maltreatment, negative affectivity, antagonism, hostile attribution bias, and hypermasculinity in predicting aggression and enthusiasm for firearms and weapon use. Finally, the current study sought to develop and initially analyze a new measure of gun enthusiasm.

The hypotheses of this study include: childhood maltreatment will significantly predict adult aggression and gun enthusiasm; personality factors will significantly predict adult aggression and gun enthusiasm; hostile attribution bias will significantly predict adult aggression and gun enthusiasm; and hypermasculinity will significantly predict gun enthusiasm. Further, it is hypothesized that the predictor variables will significantly correlate and the dependent variables will significantly correlate. Finally, it is hypothesized that gun enthusiasm will significantly predict adult aggression.

CHAPTER III

METHOD

Participants

A power analysis was conducted for a small effect size to include at least 20 subjects per factor with 19 factors; approximately 380 participants were necessary to achieve adequate power. A total of 1,190 initially accessed the survey and provided informed consent. Participation was restricted to American men over the age of 18 who completed the protocol on Mechanical Turk (M Turk). Research samples recruited from M Turk have been shown to be representative of the U.S. general population (Berinsky, Huber, & Lenz, 2012; Buhrmester, Kwang, & Gosling, 2011; Paolacci et al., 2010).

Respondents ranged in age from 19 to 73, with a mean age of 35.6 ($SD = 11.6$). The ethnic diversity seen in the sample (White, 77.9%; Black, 8.2%; Hispanic, 5.3%; Asian, 4.8%; Multi-Racial, 1.9%; & American Indian, 1.6%) approximated 2010 U.S. census figures (Colby & Ortman, 2015) for the general population (White, 62.2%; Black, 5.2%; Hispanic, 17.4%; Asian, 2%; Multi-Racial, 2.0%; American Indian, 0.7%). This sample was geographically diverse as well (Northeast, 17.5%; Midwest, 21.7%; South, 34.4%; & West, 22.2%).

Exclusion Criteria

One item was embedded in the middle of the survey directing respondents to affirmatively indicate a specified response. Respondents who failed to recognize and respond to this validity check ($n = 305$) were excluded from analysis. Respondents were excluded from analysis of the four LAVA dependent measures if they showed an inconsistency between two indicators described below. This resulted in the exclusion of 103 initial respondents in the LAVA analyses. The variables sample distributions for the remaining respondents are presented in Table 3.

Predictor Variables

Violent Experiences Questionnaire – Revised

The Violent Experiences Questionnaire-Revised (VEQ-R; King, 2012; King & Russell, 2016) provides retrospective, self-report screening indices for the experience during childhood and/or adolescence of 12 different forms of aggression that fall into a number of index windows: A) *Physical Acts with or without Physical Injury*: pushing, shoving, shaking, striking, kicking, punching, beating, burning, or use of a weapon to inflict pain or injury; B) *Threats of Physical Violence*: words or gestures expressing a *threat* to inflict physical injury; C) *Verbal Conflict*: yelling, cursing, mild to moderate pain *without physical injury*; D) *Peer physical taunting, bullying, or verbal teasing*; or E) *Parental Discipline*: spanking or other forms of reasonable physical discipline producing mild to moderate pain without physical injury (see Appendix A). VEQ-R scores for each of the 12 subscales indicate the number of days per year, on average, an act in the index group occurred during the 12 year (ages 5 to 16) retrospective recording period. The score for each scale is

interpreted as the number of days on average per year a specified class of behavior occurred during the respective time period. This frequency index allows scores to range from 0 to 104. The predecessor VEQ (King, Tuhy, & Harris, 1989) focused exclusively on parental physical abuse and exposure to intimate partner violence without sampling sibling abuse, peer bullying, or corporal punishment.

The VEQ-R physical abuse, verbal conflict, and threats of violence indices are also differentiated by perpetrator source or one of four “hostility” factors (Parental, Sibling, Peer, and Domestic Violence). These four factor scores were used for purposes of the present study. The total VEQ-R score reflects the wide range of “hostile” acts experienced over the 12 year recording period. While generalized in content, the total VEQ-R score reflects a unique index that aggregates the experience of a wide range of hostile acts that occurred in a range of interpersonal contexts over the 12 year retrospective period. The Total VEQ-R score is scaled as a *z*-score which reflects the average standard deviation difference of respondent scores from the normative sample across all of the individual indices.

A psychometric analysis of the VEQ-R (King & Russell, 2016) established the internal consistency of the factor dimensions in both a college ($n = 1,211$: Parental Hostility, $\alpha = .89$; Sibling Hostility, $\alpha = .92$; Domestic Hostility, $\alpha = .87$; & Peer Hostility, $\alpha = .88$) and national ($n = 1,259$: Parental Hostility, $\alpha = .95$; Sibling Hostility, $\alpha = .95$; Domestic Hostility, $\alpha = .93$; & Peer Hostility, $\alpha = .90$) sample. One-week test-retest reliability estimates were also generated within this same college sample (Parental Hostility, $r = .81$; Sibling Hostility, $r = .71$; Domestic Hostility, $r = .81$; & Peer Hostility, $r = .79$).

Elevated VEQ or VEQ-R subscale scores have been linked to a range of maladaptive outcomes in nine published studies to date. Subscale scores have been analyzed both dimensionally and categorically using percentile cutoffs that varied by sample. CPA scores (> 9) have been associated with higher ($d = 2.1$) experimentally induced aggression among college men (Moe, King, & Bailly, 2004). First-born college students with CPA elevations (> 1) have been found to generate relatively higher MMPI-2 *Pd* (Psychopathic Deviant) scores than counterparts from different birth orders (King, 2014a). College student recollections of CPA (> 0) have been associated with increased relative risks (ranging from 3.2 to 13.5) for past physical fighting, violence-related trouble, infliction of injury on others, homicidal threats, and other aggressive acts (King, 2014b). Similar relative risks increases were found in this same study for the SPA (> 12.5), IPV (> 0), and CORP (> 5) indices. Lower levels of dispositional mindfulness in another college sample (Walter & King, 2013) were found for respondents scoring higher on the VEQ-R CPA ($r = -.25, p < .01$), IPV ($r = .20, p < .01$), or SPA ($r = .22, p < .01$) indices. Trait impulsivity as measured by the PID-5 (Personality Inventory for DSM-5) has been linked to both CPA ($> 14, d = .23$) and IPV ($> 7, d = .32$) in a national sample (Russell, Veith, & King, 2015). College students recalling elevated CPA (> 4) or IPV (> 4) have been shown to elicit relatively less favorable first impressions from unfamiliar peers after unstructured lab-based interactions (King, 2016). College students with CPA or IPV elevations in this same sample were found to describe their best friendships as relatively less secure (CPA $> 9; d = .5$; Mugge, King, & Klophaus, 2009), rewarding (IPV $> 9, d = .31$; Green & King, 2009), or higher in maintenance difficulty ($r = -.13, p <$

.05; Walter & King, 2013). Bullying (BULL > 12) was negatively associated with perceived executive-functioning competencies (*ds* ranging from .50 to .74) in both college and national samples (Mugge, Chase, & King, 2015). The lack uniformity regarding the classification thresholds applied in these studies can hopefully be resolved in this study.

Retrospective self-reports of childhood maltreatment have met some controversy due to the reliance on accuracy of memory and truthfulness in reporting (Hardt & Rutter, 2004). While there are methodological concerns and measurement error inherent in any retrospective self-report, a meta-analysis of research on childhood maltreatment indicated that retrospective self-report measures that included operationalized definitions of childhood maltreatment are reliable measures of past events, though there are more false negative results than false positives, indicating an underestimation of prevalence rates (Hardt & Rutter, 2004; Widom & Shepard, 1996).

Personality Inventory for DSM-5 – Brief Form

The Personality Inventory for DSM-5 (PID-5; Krueger, Derringer, Markon, Watson, & Skodol, 2013) is a self-report personality trait measure developed by the American Psychiatric Association to assess for personality types denoted in the Diagnostic and Statistical Manual, 5th Edition (DSM-5). Hopwood, Wright, Krueger, Schade, Markon, & Morey (2013) found internal consistency ratings of greater than 0.7 for each of the scales. These authors found overlapping characteristics addressed by the PDI-5 and the PAI, including associations between high scores on the negative affect scale and interpersonal timidity, fear, and submission.

Associations were traced as well between PID-5 trait scores and a variety of other established personality inventories including the NEO Personality Inventory – Revised (NEO PI-R; Costa & McRae, 1992), the 5 Dimensional Personality Test (5DPT; van Kampen, 2012), and the Inventory of Personality Characteristics – 5 (IPC-5; Tellegen & Waller, 1987). PID-5 Antagonism scores were positively associated with the 5DPT Insensitivity and inversely with the NEO PI-R Agreeableness and IPC-5 Agreeability domains. PID-5 Negative Affects scores were associated with the NEO PI-R Neuroticism, IPC-5 Negative Emotionality, and 5DPT Neuroticism domains.

The present study utilized Antagonism and Negative Affect domain scores of the Brief Form of the PID-5 (PID-5-BF; American Psychiatric Association, 2013). The 25-item brief version of the PID-5 measures the same five personality domains with higher scores again indicating greater dysfunction. A recent psychometric analysis conducted on 877 Italian high school students found evidence of acceptable reliability (both internal consistency and 2-month temporal stability) and construct validity for this brief version of the PID-5 (Fossati, Somma, Borroni, Markon, & Krueger, 2015). The PID-5-BF questions are scaled on a four-point metric (0 = very false or often false; 1 = sometimes or somewhat false; 2 = sometimes or somewhat true; & 3 = very true or often true) with two items reversed. The measure produces domain scores ranging from 0 to 15. Domain scores are not calculated if more than 25% of the contributing items are left blank. Missing scores within this exclusion criterion are assigned the average of completed items.

Attribution Bias Questionnaire

Hostile attribution bias was measured by using ambiguous scenarios created by MacBrayer, Milich, & Hundley (2003). The Attribution Bias Questionnaire (ABQ) provides scenarios for parents and children interacting with other adults or other children. Only the parent with adult peer version of the scenarios was utilized for this research (See Appendix B). Permission to use these scenarios was provided by author Richard Milich. Participants read an ambiguous scenario (e.g., “Imagine that you are at work and lose some important equipment. You look for it but cannot find it anywhere. If you do not find it, you will not be able to finish your work. Just when you think it is lost for good, you notice that one of your co-workers has your equipment and has not told you.”). In an open text box, they responded to the questions “why do you believe this exchange occurred?” and “how would you respond in this situation?” The first question measured attribution and the second question measured intent. The attribution responses were given a numerical coding with a zero representing ambiguous responding (i.e. does not answer the question), a one, representing benign attribution (i.e., the event was seen as a misunderstanding or the fault of the participant), or a two, representing hostile attribution (i.e., the event was due to a negative characteristic of the other person or intended to cause harm to the participant). Two graduate students independently coded the qualitative data with good agreement ($\kappa = .716, p < .001$). In instances of disagreement, a third graduate student reviewed the statements and provided a final code. Each coder reviewed the coding documents provided by author Richard Milich (personal correspondence, July 2014).

Auburn Differential Masculinity Inventory

The Auburn Differential Masculinity Inventory (ADMI) is a 60-item inventory that measures hypermasculinity, sexual identity, dominance and aggression, conservative masculinity, and devaluation of emotion (Burk, Burkhart, & Sikorski, 2004). The items were rated on a 5-point scale using the following anchors: zero represents “not at all like me,” one represents “not much like me,” two represents “a little like me,” three represents “like me,” and four represents “very much like me.” Five items are reverse scored to allow for higher scores to identify more of the subscale trait. The ADMI-60 total score was significantly positively correlated with hostility toward women, sensation seeking, and antisocial practices. It was significantly negatively correlated with social desirability. Scale internal consistency was measured with alpha coefficients in two subsequent studies at 0.83 and 0.85, respectively, and subscale reliabilities ranged from 0.76 to 0.87. It has been validated on a sample of college-aged males. Only the Hypermasculinity subscale was analyzed in this study. Burk, Burkhart, and Sikorski define this construct as “the exaggeration of male traits, as well as a devaluation of feminine traits” (pg. 9; 2004).

Honor Ideology for Manhood Scale

The Honor Ideology for Manhood (HIM; Barnes, Brown, & Osterman, 2012) scale is a sixteen-item, nine-point scale (one represents strongly disagree and nine represents strongly agree) that measures the participants’ beliefs on honor and masculinity. Eight of the sixteen statements regard using physical aggression for purposes of defending self and reputation, and eight of the statements regard specific qualities that represent manhood and masculinity (see Appendix C). A factor

analysis indicated the presence of one primary factor and all items loaded positively (0.47-0.83) on this factor. An initial study of 328 Caucasian males from both southern and northern regions of the United States indicated that the internal reliability of this measure was 0.94 (Barnes, Brown, & Osterman, 2012). This measure was significantly and positively correlated with implicit honor ideology as measured by the affect misattribution procedure (Imura, Burkley, & Brown, 2014).

Dependent Variables

Buss Perry Aggression Questionnaire

The Buss-Perry Aggression Questionnaire (BPAQ; Buss & Perry, 1992) measures four factors of aggression: physical, verbal, anger, and hostility, with a total of twenty-nine questions. The statements were rated on a five-point Likert scale with anchors: (1) Never or hardly applies to me; (2) Usually does not apply to me; (3) Sometimes applies to me; (4) Often applies to me; & (5) Very often applies to me (Archer & Webb, 2006). These four factors were isolated and confirmed in exploratory and confirmatory factor analyses. The internal consistency of Physical Aggression, Verbal Aggression, Anger, and Hostility is 0.85, 0.72, 0.83, and 0.77, respectively, with a total score internal consistency of 0.89. Reliability of the dimensions were all above 0.70, in a sample of 372 subjects, with a total score reliability of 0.80 (Buss & Perry, 1992; Buss & Warren, 2000). BPAQ scores have been linked extensively in the literature to angry and aggressive behavior (Archer & Webb, 2006; Gerevich, Bacskai, & Czobor, 2007; Harris, 1997; O'Connor, Archer, & Wu, 2001).

Lifetime Assessment of Violent Acts

The Lifetime Assessment of Violent Acts (LAVA; King, Bailly, & Russell, 2016) provides a retrospective account of the number, target, situational precipitants, and resulting injuries associated with prior violent acts as they occurred in the natural environment (see Appendix D). Scoring modification from an original version (Aggressive Experiences Questionnaire; Bailly, 2005) provided the additional indices that are described below. The Lifetime Aggressive Acts (LAGG) score was calculated from a single item (*"How many times in your life have you acted aggressively?"*) scaled from 0 to 10. Respondents were then asked to specify (yes versus blank if not applicable) up to 14 different factors that motivated their most recent act(s). While of qualitative import, these descriptive data were also useful in the calculation of a Motivated Acts (MA) index, which counted only LAGG incidents that were described in some level of detail. An affirmative identification of *any* of the 14 extenuating factors for an identified act increased the MA score by one unit, culminating in a possible range of 0 to 5. Inconsistencies in LAGG and MA scores were seen to pose a validity concern (i.e., LAGG > 0, MA=0; LAGG=0, MA > 0). Three items (*"I used a weapon to threaten someone involved in a dispute;" "I used a weapon against someone involved in this dispute;" "I threatened to kill someone involved in this dispute."*) contributed to a Weapons Usage (WEAP) score that ranged from 0 to 15. A Legal Consequences (LEGAL) score was generated from three other items (*"police arrest;" "extended jail time;" "felony conviction"*). An Injury to Self (ITS) score ranging from 0 to 75 was calculated as the sum of 13 possible injuries (broken bone, bruise, black eye, head or facial injury, brain injury, superficial cut, deep cut, internal injury,

loss of consciousness, ambulance service, emergency room treatment, or hospitalization) that could have been sustained over five past altercations.

Roughly 14% of the present sample was excluded as a result of the LAVA validity exclusion in the present sample. One-week test-retest reliability estimates have been generated from 135 college students (King, Bailly, & Russell, 2016) for LAGG ($r = .74$), MA ($r = .74$), and ITO ($r = .83$) scores. LAGG and BPAQ scores were found as well to be significantly ($p < .001$) correlated in both a college ($N = 1,333$; Anger, $r = .38$, Hostility, $r = .33$; Verbal Aggression, $r = .28$; Physical Aggression, $r = .48$) and national ($N = 255$; Anger, $r = .41$, Hostility, $r = .38$; Verbal Aggression, $r = .35$; Physical Aggression, $r = .52$) sample. LAGG scores in these normative samples varied widely; over 35% and 50% of the college and national samples, respectively, acknowledged three or more past acts of aggression. Approximately 25% and 40% of these same samples described inflicting one or more injuries on other(s) through a violent act at some time in their lives. Roughly 10% and 25% acknowledged making at least one prior homicidal threat during an aggressive act.

Gun Enthusiasm Questionnaire

A customized scale was constructed for purposes of this study to differentiate gun enthusiasts from others expressing reservations about firearm usage. An initial team brainstorming session generated eight items that were tested on a five-point scale (*"I believe that the second amendment affords the best protection against a tyrannical government;" "I enjoy collecting assault rifles;" "I enjoy attending gun shows;" "I have been shooting firearms since childhood;" "I enjoy hunting small game such as fowl or rabbits;" "I have little or no experience with guns;" "I believe that*

gun laws need to be more restrictive;” “*I believe that guns do not belong in individual homes*”). All items were converted after data collection to assure that high scores reflected levels of gun enthusiasm. A principle component analysis (covariance matrix, no rotation, Eigenvalue > 1) generated a two-factor solution. Factor 1 accounted for 40.55% of the variance and included all eight of the items above with factor loadings of .64, .50, .67, .78, .64, .71, .57, & .53 respectively. The second factor accounted for 21.24% of the variance and was represented primarily by the last two items (loadings of -.15, .44, .38, .39, .49, -.06, -.68, & -.69 respectively). The resulting questionnaire, titled the Gun Enthusiasm Questionnaire (GEQ) was composed of the eight items on Factor 1 (see Appendix E). This questionnaire produced good internal consistency in the current study ($\alpha = .79$). Scores were not calculated if any of the items were left unanswered.

Procedure

The survey was described on the MTurk website as follows: “Participation in this study is expected to require approximately 30 minutes. A hyperlink will be provided for interested potential participants on Mechanical Turk that will link them to Qualtrics, the program used to conduct the survey and manage anonymous results. The purpose of this study is to identify the interactions between childhood maltreatment, negative affect, antagonism, hypermasculinity, and hostile attribution bias with lifetime aggression.”

After clicking on the hyperlink, individuals were brought to the Qualtrics website, where they were able to view the Informed Consent document. To begin the survey, participants were required to acknowledge they had read and

understood the document. Individuals who marked “no” to this statement were immediately linked to the final page of the survey and returned to the MTurk website. The eight measures were produced in random order. Once participants viewed the final measure, they were linked to a page that included a code that allowed them to receive reimbursement through MTurk. Reimbursement for completing the survey was initially set at 25 cents. It was increased to 75 cents after four months due to low participation. The average completion time for the entire survey was 23 minutes. No identifying information was collected, and all data was stored on the Qualtrics system. Analyses were completed using the IBM SPSS software. As noted above, exclusion criteria were applied to the data set, which resulted in a total of 885 participants included in the analysis. When the LAVA constructs were analyzed, an additional 103 participants were excluded, which resulted in a sample size of 782.

CHAPTER IV

RESULTS

Descriptive Statistics

The descriptive statistics for predictor and dependent variables are presented in Table 1. The central tendencies and variabilities of these distributions seemed consistent with those reported elsewhere in the literature. There was good internal consistency for the measures that could be calculated, ranging from 0.79 (Gun Enthusiasm) to 0.95 (VEQ-R Sibling Hostility). GEQ scores were widely distributed as well, and the index was used as both a predictor and criterion measure in all of the analyses.

| Table 1 Descriptive Statistics for Variables Included in the Analysis | | | | | |
|--|----------|-----|-------|-------|--------|
| Variable | α | n | M | SD | Range |
| <i>Lifetime Assessment of Violent Acts (LAVA)</i> | | | | | |
| Lifetime Aggressive Acts | NC | 782 | 4.36 | 3.38 | 0-10 |
| Injury to Self | NC | 782 | 2.71 | 4.13 | 0-33 |
| Weapon Usage | NC | 782 | 0.56 | 1.18 | 0-9 |
| Legal Consequences | NC | 782 | 0.39 | 1.01 | 0-6 |
| <i>Buss-Perry Aggression Questionnaire</i> | | | | | |
| Physical Aggression | .86 | 808 | 21.52 | 7.55 | 9-45 |
| <i>Personality Inventory for the DSM-5-Brief Form</i> | | | | | |
| Antagonism | .80 | 826 | 0.69 | 0.65 | 0-3 |
| Negative Affectivity | .82 | 828 | 0.92 | 0.74 | 0-3 |
| <i>Auburn Differential Masculinity Inventory (ADMI)</i> | | | | | |
| Hypermasculinity | .94 | 830 | 17.33 | 14.79 | 0-68 |
| <i>Honor Ideology for Manhood (HIM)</i> | | | | | |
| Manhood Honor Ideology | .95 | 820 | 73.31 | 30.96 | 16-144 |

| Table 1 continued | | | | | |
|--|----------|-----|-------|-------|-------|
| Variable | α | n | M | SD | Range |
| <i>Attribution Bias Questionnaire (ABQ)</i> | | | | | |
| Intent Bias | NC | 774 | 5.74 | 1.10 | 0-10 |
| Attributional Bias | NC | 763 | 6.36 | 1.50 | 1-17 |
| <i>Violent Experiences Questionnaire-Revised (VEQ-R)</i> | | | | | |
| Parental Hostility | .93 | 786 | 9.18 | 19.79 | 0-104 |
| Sibling Hostility | .95 | 788 | 10.41 | 22.72 | 0-104 |
| Domestic Hostility | .92 | 785 | 7.85 | 17.87 | 0-104 |
| Peer Hostility | .89 | 813 | 14.55 | 24.83 | 0-104 |
| <i>Gun Enthusiasm Questionnaire (GEQ)</i> | | | | | |
| Enthusiasm | .79 | 861 | 20.82 | 7.29 | 8-40 |
| Note. Guns owned by 26.7% of total sample. NC=Not calculable. | | | | | |

The Table 2 results illustrate that the LAVA aggression index scores varied widely in the sample.

| Table 2 Frequency Distributions for LAVA Aggression Indices | | | | |
|--|---------------------------------|-------------------------|---------------------|---------------------------|
| <i>Frequency</i> | <i>Lifetime Aggressive Acts</i> | <i>Injuries to Self</i> | <i>Weapon Usage</i> | <i>Legal Consequences</i> |
| 0 | 86 | 356 | 614 | 656 |
| 1 | 93 | 108 | 36 | 37 |
| 2 | 105 | 74 | 20 | 16 |
| 3 | 107 | 38 | 99 | 65 |
| 4 | 78 | 42 | 8 | 4 |
| 5 | 80 | 34 | 2 | 2 |
| 6 | 43 | 17 | 2 | 1 |
| 7 | 18 | 14 | 1 | 1 |
| 8 | 12 | 4 | | |
| 9 | 8 | 5 | | |
| 10 | 152 | 4 | | |
| 11 | | 8 | | |
| 12 | | 58 | | |
| 13 | | 6 | | |
| 14 | | 6 | | |
| 15 | | 4 | | |
| 16 | | 2 | | |
| 21 | | 1 | | |
| 33 | | 1 | | |

Table 3 provides a summary of the extenuating circumstances that contributed to the acts of aggression that were identified by respondents.

| <i>Motive or Extenuating Factor</i> | <i>Number of Prior Incidents</i> | | | | | |
|--|----------------------------------|-------|------|------|------|------|
| | 0 | 1 | 2 | 3 | 4 | 5 |
| I felt threatened with physical harm to self or others | 39.6% | 48.6% | 4.9% | 3.5% | 1.2% | 2.2% |
| I felt threatened with loss of personal property | 67.1% | 30.4% | 1.8% | 0.3% | 0.3% | 0.1% |
| I felt threatened by the loss of a relationship | 69.4% | 29.7% | 0.5% | 0.3% | 0% | 0.1% |
| I felt threatened by a loss of pride in a conflict | 62.7% | 32.2% | 2.3% | 1.3% | 0.5% | 1.0% |
| I felt verbally or physically harassed | 45.3% | 43.5% | 4.7% | 2.3% | 1.8% | 2.4% |
| I felt personally insulted | 51.4% | 39.5% | 3.6% | 2.0% | 1.4% | 2.0% |
| I felt betrayed by someone | 63.4% | 32.0% | 2.6% | 0.8% | 0.4% | 0.9% |
| I was involved in competition and lost my temper | 72.5% | 26.0% | 1.0% | 0.4% | 0% | 0.1% |
| Target of the act was <i>not</i> trying to provoke me | 75.3% | 22.8% | 1.4% | 0.3% | 0% | 0.3% |
| The target of the act was a romantic partner | 70.1% | 27.4% | 1.2% | 0.6% | 0.4% | 0.4% |
| The target of my act was drinking alcohol | 66.1% | 29.7% | 2.8% | 0.9% | 0.3% | 0.3% |
| Under influence of alcohol (less than legal limit) | 75.8% | 22.4% | 1.3% | 0.3% | 0.3% | 0% |
| Under influence of alcohol (over the legal limit) | 75.6% | 22.3% | 1.7% | 0.5% | 0% | 0% |
| Under influence of alcohol (well over legal limit) | 75.3% | 22.0% | 1.9% | 0.5% | 0.3% | 0% |
| I threatened to kill someone | 82.1% | 16.6% | 0.9% | 0.3% | 0.1% | 0% |
| I used a weapon to threaten someone | 83.8% | 15.5% | 0.8% | 0% | 0% | 0% |
| I used a weapon against someone | 82.2% | 16.9% | 0.6% | 0.1% | 0.1% | 0% |

Correlation Analyses

Bivariate correlations between predictor and criterion measures were generally positive and statistically significant (see Table 4). Antagonism and ADMI Hypermasculinity were the only predictor measures that were significantly correlated with all six criterion measures.

| Table 4 | | | | | | |
|---|---------------------|---------------------|------------------|----------------|----------------|----------------|
| Bivariate Correlation Coefficients for Predictor and Aggression Indices | | | | | | |
| Predictor Variables | BPAQ | LAVA | | | | GEQ |
| | Physical Aggression | Lifetime Aggression | Injuries to Self | Weapon Usage | Legal Damage | Gun Enthusiasm |
| <i>Personality Inventory for the DSM-5-Brief Form</i> | | | | | | |
| Antagonism | .479*** | .147*** | .342*** | .341*** | .314*** | .143*** |
| Negative Affectivity | .401*** | .128*** | .199*** | .208*** | .183*** | -.065 |
| <i>Auburn Differential Masculinity Inventory (ADMI)</i> | | | | | | |
| Hypermasculinity | .430*** | .102*** | .279*** | .305*** | .261*** | .266*** |
| <i>Honor Ideology for Manhood (HIM)</i> | | | | | | |
| HIM | .602*** | .288*** | .208*** | .200*** | .174*** | .308*** |
| <i>Attribution Bias Questionnaire (ABQ)</i> | | | | | | |
| Intent Bias | .243*** | .182*** | .029 | .068 | .013 | .081* |
| Attributional Bias | .151*** | .080* | .010 | .089* | .031 | .033 |
| <i>Violent Experiences Questionnaire-Revised (VEQ-R)</i> | | | | | | |
| Parental Hostility | .171*** | .206*** | .076* | .025 | -.002 | .049 |
| Sibling Hostility | .186*** | .286*** | .068 | .002 | .017 | .037 |
| Domestic Hostility | .198*** | .158*** | .095* | .037 | .014 | .026 |
| Peer Hostility | .082* | .168*** | .038 | -.049 | -.046 | -.015 |
| <i>Gun Enthusiasm Questionnaire (GEQ)</i> | | | | | | |
| Gun Enthusiasm | .240*** | .131*** | .155*** | .140*** | .103** | X |
| <p>Note. Statistically significant coefficients indicated in bold. BPAQ=Buss-Perry Aggression Questionnaire. AEQ=Aggressive Experiences Questionnaire. Sample sizes: PID-5 ($N = 786$); ADMI ($N = 785$); ABQ ($N = 740$); VEQ-R ($N = 750$); HIM ($N = 771$), & GEQ ($N = 808$). $* p < .05$. $** p < .01$. $*** p < .001$. Significant coefficients bolded.</p> | | | | | | |

Interrelationships between the predictor variables tended to be modest in size (see Table 5).

| <i>Label</i> | A | B | C | D | E | F | G | H | I | J | K |
|--------------|------------|------------|------------|------------|------------|------------|------------|-------------|------------|------------|---|
| A | X | - | - | - | - | - | - | - | - | - | - |
| B | .50 | X | - | - | - | - | - | - | - | - | - |
| C | .15 | .14 | X | - | - | - | - | - | - | - | - |
| D | .09 | .10 | .42 | X | - | - | - | - | - | - | - |
| E | .06 | .08 | .07 | .01 | X | - | - | - | - | - | - |
| F | .03 | .08 | .02 | .00 | .45 | X | - | - | - | - | - |
| G | .06 | .12 | .10 | .02 | .57 | .36 | X | - | - | - | - |
| H | -.01 | .17 | .01 | .05 | .28 | .31 | .27 | X | - | - | - |
| I | .52 | .24 | .27 | .19 | .03 | -.01 | .03 | -.10 | X | - | - |
| J | .34 | .17 | .27 | .16 | .05 | .07 | .06 | -.02 | .50 | X | - |
| K | .14 | -.07 | .08 | .03 | .05 | .04 | .03 | -.02 | .27 | .31 | X |

Note. A=Antagonism; B=Negative Affectivity; C=Intent Bias; D=Attributional Bias; E=Parental Hostility; F=Sibling Hostility; G=Domestic Hostility; H=Peer Hostility; I=Hypermasculinity J=Honor Ideology for Manhood; K=Gun Enthusiasm. Significant coefficients **bolded** ($p < .01$, two tailed)

The primary criterion measures (BPAQ Physical Aggression & LAVA Lifetime Aggression) were closely associated ($r = .45$), and the remaining criterion measures showed related, but different, facets and consequences of trait aggression (see Table 6).

| <i>Label</i> | Variable | A | B | C | D | E | F |
|--------------|---------------------------------|---------------|---------------|---------------|---------------|--------------|---|
| A | <i>BPAQ Physical Aggression</i> | X | - | - | - | - | - |
| B | <i>Lifetime Aggressive Acts</i> | .45*** | X | - | - | - | - |
| C | <i>Injury to Self</i> | .33*** | .20*** | X | - | - | - |
| D | <i>Weapon Usage</i> | .29*** | .15*** | .59*** | X | - | - |
| E | <i>Legal Consequences</i> | .24*** | .09* | .73*** | .63*** | X | - |
| F | <i>Gun Enthusiasm</i> | .24*** | .13*** | .16*** | .14*** | .10** | X |

Note. $\alpha = .72$. $N = 789$. Significant coefficients: *** $p < .001$. ** $p < .01$. * $p < .05$.

Regression Analyses

General linear regression was used with 11 predictors to account for unique variance in the criterion measures (see Table 7).

| Predictor Variables | <i>BPAQ</i> | <i>Lifetime Assessment of Violent Acts</i> | | | | <i>GEQ</i> |
|-----------------------------|----------------------------|--|-----------------------|---------------------|----------------------|-----------------------|
| | <i>Physical Aggression</i> | <i>Lifetime Aggression</i> | <i>Injury to Self</i> | <i>Weapon Usage</i> | <i>Legal Conseq.</i> | <i>Gun Enthusiasm</i> |
| <i>Antagonism</i> | .181*** | .065 | .228*** | .202*** | .205*** | .072 |
| <i>Negative Affectivity</i> | .205*** | .038 | .062 | .093* | .074 | -.186*** |
| <i>Hypermasculinity</i> | .035 | -.095* | .126* | .149** | .129** | .164** |
| <i>HIM</i> | .440*** | .246*** | .040 | .015 | .024 | .236*** |
| <i>Intent Bias</i> | .036 | .125** | -.052 | -.040 | -.068 | -.002 |
| <i>Attributional Bias</i> | .017 | .001 | -.015 | .048 | .006 | -.026 |
| <i>Parental Hostility</i> | .025 | .079 | .007 | .005 | -.025 | .033 |
| <i>Sibling Hostility</i> | .089** | .201*** | .026 | -.004 | .029 | .013 |
| <i>Domestic Hostility</i> | .082* | -.009 | .058 | .029 | .016 | -.005 |
| <i>Peer Hostility</i> | .006 | .082* | .022 | -.050 | -.045 | .028 |
| <i>Gun Enthusiasm</i> | .073* | .05 | .083* | .075 | .042 | X |

Note. Pairwise exclusions used in cases of missing data. BPAQ=Buss-Perry Aggression Questionnaire; HIM = Honor Ideology for Manhood Scale
Significant standardized beta weights **bolded**: *** $p < .001$. ** $p < .01$. * $p < .05$.

BPAQ Physical Aggression was best predicted by the PID-5 traits (Antagonism & Negative Affectivity), child maltreatment (sibling hostility and exposure to domestic violence), gun enthusiasm, and most centrally, Honor Ideology for Manhood scores. HIM scores also provided the strongest predictor of LAVA Lifetime Aggression and Gun Enthusiasm. PID-5 Antagonism scores were associated as well with prior homicidal threats, legal consequences, and self-injury. PID-5 Negative Affectivity was inversely associated with GES scores. Gun enthusiasts were *less likely* to express symptoms of negative affectivity and more likely to acknowledge penchants toward

physical violence (BPAQ Physical Aggression) and past self-injuries associated with aggressive acts. With one exception (Intent Bias & LAGG), ABQ (Attribution Bias Questionnaire) scores were not associated with any of the trait aggression indicators.

All of the six regression models were highly significant and accounted for as much as 50% of the variance in BPAQ scores (see Table 8).

| Table 8 | | | |
|---|-----|-------------------|-----------------|
| Model Summary Using Enter Method to Include All Predictors in Each Model | | | |
| Dependent Variable | R | Adjusted R Square | F Change |
| <i>BPAQ Physical Aggression</i> | .72 | .508 | 67.13*** |
| <i>LAVA Lifetime Aggression</i> | .44 | .176 | 12.93*** |
| <i>LAVA Injury to Self</i> | .39 | .138 | 9.94*** |
| <i>LAVA Weapons Usage</i> | .39 | .137 | 9.88*** |
| <i>LAVA Legal Damages</i> | .35 | .106 | 7.66*** |
| <i>Gun Enthusiasm</i> | .39 | .127 | 11.22*** |

Note. Pairwise exclusions used in cases of missing data. BPAQ = Buss Perry Aggression Questionnaire. LAVA = Lifetime Assessment of Violent Acts
Significant F Change **bolded**: *** $p < .001$. ** $p < .01$. * $p < .05$.

The BPAQ Physical Aggression model was significant, $R(11,694) = .72 (SE=.70)$, $p < .001$, with 50.8% of the variance in aggression explained by the predictor variables.

The LAVA LAGG model was significant, $R(11,604) = .44 (SE=.90)$, $p < .001$, and accounted for 17.6% of the outcome variance. The LAVA Injury to Self model was significant, $R(11,604) = .39 (SE=1.07)$, $p < .001$, and accounted for 13.8% of the outcome variance. The LAVA Weapons Usage model was significant, $R(11,604) = .39 (SE=1.11)$, $p < .001$, and accounted for 13.7% of the outcome variance. The LAVA Legal Consequences model was significant, $R(11,604) = .35 (SE=1.17)$, $p < .001$, and accounted for 10.6% of the variance. Around 12.7% of Gun Enthusiasm variance was accounted for using the ten predictors, $R(10,605) = .39 (SE=.93)$, $p < .001$.

Gun Enthusiasm and Trait Aggression

Tables 5 and 6 identify the three predictor and five criterion variables that were significantly associated with gun enthusiasm. Regression analysis suggested that a high level of gun enthusiasm was most strongly predisposed by traits of hypermasculinity (as measured by both the HIM and ADMI scales) and, to a lesser extent, antagonism. Childhood maltreatment and generalized unhappiness (e.g., Negative Affectivity) were not predictive of gun enthusiasm. Additional analyses were conducted to assess the extent to which High (GEQ > 28, top 15%, M = 32.7, SD = 3.20), Average (GEQ = 13-28, middle 70%, M = 20.4, SD = 4.26), and Low (GEQ < 13, bottom 15%, M = 10.0, SD = 1.50) levels of gun enthusiasm predicted trait aggression. Significant group differences were found (see Table 9) for PID-5 Antagonism, $F(2,803) = 12.29, p < .001$, PID-5 Negative Affect, $F(2,804) = 3.79, p = .023$, ADMI Hypermasculinity, $F(2,805) = 16.45, p < .001$, Honor Ideology for Manhood, $F(2,795) = 26.58, p < .001$, BPAQ Physical Aggression, $F(2,786) = 17.58, p < .001$, LAVA Lifetime Aggression, $F(2,756) = 8.43, p < .001$, LAVA Injury to Self, $F(2,756) = 5.72, p = .003$, LAVA Weapon Usage, $F(2,756) = 7.95, p < .001$, and LAVA Legal Damages, $F(2,756) = 5.02, p = .007$. Group differences were not found for ABQ Intent Bias, $F(2,754) = 1.75, p = .17$. The lower half of Table 9 replicates these same contrasts using gun ownership as a predictor of aggressive traits and/or behavioral proclivities.

Table 9
Gun Enthusiasm and Possession Group Contrasts on Selected Predictors (z-scores)

| Predictor or Criterion Variable | Gun Enthusiasm (GEQ) | | | Post-Hoc Cell Difference (d) | | |
|--------------------------------------|----------------------|---------|--------------|------------------------------|-------------|--------------|
| | Low (< 15%) | Average | High (> 85%) | Low vs Avg. | Low vs High | Avg. vs High |
| Raw Score: | 8-12 | 13-28 | 29-40 | | | |
| <i>PID-5-BF Antagonism</i> | -.36 | .15 | .039 | .51 | .40 | NS |
| <i>PID-5-BF Negative Affectivity</i> | .00 | .08 | -.19 | NS | NS | .27 |
| <i>ADMI Hypermasculinity</i> | -.40 | .08 | .31 | .48 | .71 | .23 |
| <i>ABQ Intent Bias</i> | -.08 | -.03 | .14 | NS | NS | NS |
| <i>Manhood Honor Ideology</i> | -.50 | .04 | .40 | .54 | .90 | .36 |
| <i>BPAQ Physical Aggression</i> | -.43 | .07 | .30 | .50 | .73 | NS |
| <i>Lifetime Aggression (LAGG)</i> | -.21 | -.03 | .31 | NS | .52 | NS |
| <i>Injury to Self (ITS)</i> | -.17 | .22 | .26 | .39 | .43 | NS |
| <i>Weapon Usage</i> | -.24 | .25 | .18 | .49 | .42 | NS |
| <i>Legal Damages</i> | -.18 | .23 | .09 | .41 | NS | NS |
| <i>n</i> | 125 | 604 | 132 | | | |

| Predictor or Criterion Variable | Gun Ownership | | Statistical Probabilities |
|--------------------------------------|---------------|------------|---------------------------|
| | No | Yes | |
| <i>PID-5-BF Antagonism</i> | .05 | .12 | $t(819) = .84, p = .40$ |
| <i>PID-5-BF Negative Affectivity</i> | .05 | -.02 | $t(821) = .93, p = .35$ |
| <i>ADMI Hypermasculinity</i> | .00 | .22 | $t(823) = 2.77, p = .006$ |
| <i>ABQ Intent Bias</i> | -.05 | .13 | $t(767) = 2.20, p = .028$ |
| <i>Manhood Honor Ideology</i> | -.08 | .30 | $t(813) = 4.90, p < .001$ |

Table 9 Continued

| Predictor or Criterion Variable | Gun Ownership | | Statistical Probabilities |
|-----------------------------------|---------------|------------|---------------------------|
| | No | Yes | |
| <i>BPAQ Physical Aggression</i> | -.03 | .24 | $t(801) = 3.53, p < .001$ |
| <i>Lifetime Aggression (LAGG)</i> | -.01 | .04 | $t(774) = .66, p = .51$ |
| <i>Injury to Self (ITS)</i> | .13 | .32 | $t(774) = 2.12, p = .049$ |
| <i>Weapon Usage</i> | .16 | .25 | $t(774) = 1.00, p = .319$ |
| <i>Legal Damages</i> | .13 | .22 | $t(774) = .93, p = .353$ |
| <i>n</i> | 644 | 235 | |

Note. Tukey tests were used with Cohen's *d* cell effect size differences. NS = not significant. Significant differences bolded.

Selected Interaction Analyses

This study provided an opportunity to examine whether the strength of gun enthusiasm links to trait aggression might vary as a function of maladaptive personality traits such as antagonism and hypermasculinity. A question of interests was whether or not the combination of malicious traits and gun interest might culminate in even more extreme manifestations of trait aggression. Collateral interaction analyses were conducted to test whether combinations of these three predictors seemed to magnify criterion scores. Median splits of the three predictor (gun enthusiasm, antagonism, and manhood honor ideology) distributions were used in each of the five analyses of variance (see Table 10).

| Main and Interaction Factors | LAVA Lifetime Aggression | | | BPAQ Physical Aggression | | |
|-------------------------------|-----------------------------|------|--------------------------|-----------------------------|------|--------------------------|
| | F | p | Partial Eta ² | F | p | Partial Eta ² |
| Corrected Model (11,758) | 6.49 | .000 | .087 | 33.73 | .000 | .323 |
| A) Gun Enthusiasm | 5.09 | .006 | .013 | 7.43 | .001 | .019 |
| B) Antagonism | 12.63 | .000 | .017 | 37.44 | .000 | .046 |
| C) Honor Ideology for Manhood | 8.04 | .005 | .011 | 33.47 | .000 | .041 |
| A*B Interaction | 3.08 | .047 | .008 | .913 | .402 | NS |
| A*C Interaction | 0.02 | .977 | NS | .031 | .970 | NS |
| B*C Interaction | 0.81 | .367 | NS | 3.46 | .063 | NS |
| A*B*C Interaction | 0.82 | .443 | NS | .106 | .900 | NS |

| Table 10 Continued | | | | | | |
|-------------------------------|---------------------------|------|--------------------------|--------------------|------|--------------------------|
| Main and Interaction Factors | LAVA Legal Consequences | | | LAVA Weapons Usage | | |
| | F | p | Partial Eta ² | F | p | Partial Eta ² |
| Corrected Model (11,758) | 7.50 | .000 | .100 | 9.22 | .000 | .120 |
| A) Gun Enthusiasm | 1.71 | .182 | NS | 4.64 | .010 | .012 |
| B) Antagonism | 16.73 | .000 | .022 | 10.58 | .001 | .014 |
| C) Honor Ideology for Manhood | 0.55 | .457 | NS | 2.95 | .086 | NS |
| A*B Interaction | .581 | .560 | NS | 2.74 | .065 | NS |
| A*C Interaction | 3.09 | .046 | .008 | 1.71 | .181 | NS |
| B*C Interaction | .008 | .928 | NS | .014 | .905 | NS |
| A*B*C Interaction | 2.70 | .068 | NS | 1.77 | .172 | NS |
| | | | | | | |
| | LAVA Injury to Self (ITS) | | | | | |
| | F | p | Partial Eta ² | | | |
| Corrected Model (11,758) | 10.54 | .000 | .134 | | | |
| A) Gun Enthusiasm | 5.05 | .007 | .023 | | | |
| B) Antagonism | 15.29 | .000 | .020 | | | |
| C) Honor Ideology for Manhood | 3.06 | .081 | NS | | | |
| A*B Interaction | 4.80 | .008 | .013 | | | |
| A*C Interaction | 1.20 | .302 | NS | | | |
| B*C Interaction | .460 | .498 | NS | | | |
| A*B*C Interaction | 5.10 | .006 | .013 | | | |

Significant effects were found for only the: 1) GEQ x Antagonism interaction on LAGG scores, $F(11,758) = 6.49, p < .001 (\eta^2 = .087)$; 2) GEQ x HIM interaction on Legal scores, $F(11,758) = 7.50, p < .001 (\eta^2 = .10)$; and 3) GEQ x Antagonism x HIM interaction on Injury to Self scores, $F(11,758) = 10.54, p < .001 (\eta^2 = .13)$.

Direct and Indirect Maltreatment Effects

Evidence suggesting the direct effect of childhood physical maltreatment on trait aggression was found to be limited and inconsistent (see Table 7). This data set did, however, provide an opportunity to examine the extent to which childhood maltreatment might elevate aggressive tendencies indirectly through maladaptive trait development, or perhaps even gun enthusiasm. A series of 25 *independent* mediation analyses (5 mediators x 5 outcome measures) were conducted to examine these potential indirect effects of aggregated childhood maltreatment as measured through the total VEQ-R score (see Table 11). BPAQ Physical Aggression scores were found to be indirectly elevated by childhood maltreatment (total VEQ-R) via the Hypermasculinity mediation effect.

| Table 11 | | | | | |
|--|---|---|---------------------------|--------------------------|-------------------------------|
| Total VEQ-R Abuse Direct and Mediated (Risk Factor) Effects on Aggression | | | | | |
| Risk Factor a ↗ ↘ b Abuse ----c'----> AGG | <i>BPAQ Physical Aggression</i> | <i>Lifetime Aggression Acts</i> | <i>Injury to Self</i> | <i>Weapons Usage</i> | <i>Legal Consequences</i> |
| <i>Honor Ideology for Manhood</i> | | | | | |
| Risk Direct Effect (b) | .628 | .308 | .252 | .255 | .233 |
| Abuse Direct Effect (c') | .300 | .462 | .267 | .005 | .061 |
| Abuse Indirect Effect (ab) | .052 | .015 | .012 | .012 | .011 |
| <i>N</i> | 643 | 584 | 584 | 584 | 584 |
| <i>Hypermasculinity (ADMI)</i> | | | | | |
| Risk Direct Effect (b) | .429 | .115 | .332 | .388 | .133 |
| Abuse Direct Effect (c') | .377 | .480 | .235 | -.017 | .019 |
| Abuse Indirect Effect (ab) | .099 | .037 | .033 | .030 | .028 |
| <i>N</i> | 655 | 597 | 597 | 597 | 597 |
| <i>Antagonism (PID-5-BF)</i> | | | | | |
| Risk Direct Effect (b) | .462 | .134 | .405 | .387 | .374 |
| Abuse Direct Effect (c') | .301 | .468 | .221 | -.010 | .027 |
| Abuse Indirect Effect (ab) | .027 | .002 | .007 | .007 | .006 |
| <i>N</i> | 658 | 601 | 601 | 601 | 601 |

| Table 11 Continued | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|
| <i>Intent Bias (ABQ)</i> | | | | | |
| Risk Direct Effect (b) | .207 | .149 | .006 | .152 | .017 |
| Abuse Direct Effect (c') | .318 | .473 | .254 | .003 | .049 |
| Abuse Indirect Effect (ab) | .016 | .010 | .000 | .003 | .001 |
| <i>N</i> | 623 | 567 | 567 | 567 | 567 |
| <i>Gun Enthusiasm (GEQ)</i> | | | | | |
| Risk Direct Effect (b) | .214 | .150 | .148 | .152 | .118 |
| Abuse Direct Effect (c') | .298 | .472 | .223 | -.019 | .021 |
| Abuse Indirect Effect (ab) | .013 | .013 | .013 | .013 | .010 |
| <i>N</i> | 653 | 600 | 600 | 600 | 600 |
| Note. Significant ($p < .05$) direct or mediated effects are bolded (1,000 bootstrap samples) | | | | | |

CHAPTER V

DISCUSSION

The overarching purpose of this dissertation research was to explore predictors that have been linked to adult maladjustment, and their relationships to adult aggressive tendencies and interest and use of firearms. Previous research suggests that biological predisposition and early development lead to personality factors and cognitive schemas, which mediate current environmental stressors (Anderson & Bushman, 2002; DeWall, Anderson, & Bushman, 2011). This theory served as a gross model that directed this research. Specifically, the research focused on the impact of childhood maltreatment, personality factors, and cognitive schemas on aggression and gun enthusiasm. The descriptive statistics calculated for these measures with this participant population suggest that they are reliable and sufficiently varied in responses.

The LAVA version used in this study provided respondents with maximum latitude to define what constituted prior “aggressive” acts. Over 50% of the sample acknowledged three or more past aggressive acts, and roughly 20% described ten prior incidents with one or more involving homicidal threats and/or legal ramifications. These prevalence rates were generally consistent with those found in the normative national sample (King, Bailly, & Russell, 2016) and testify to the pervasive nature of aggression in the naturalistic environment. The LAVA indices

were, as predicted, closely associated with BPAQ Physical Aggression scores ($r = .45$) which reflected respondent inclinations to react violently to perceived provocation (e.g. “Once in a while I can’t control the urge to strike another person,” “Given enough provocation, I may hit another person,” “I sometimes feel like a powder keg ready to explode,” and “If I have to resort to violence to protect any rights, I will”). These collective criterion measures provided multiple indices of trait aggression as it is manifested in the general population. The five most common triggers for those who engaged in aggressive acts were physical threats to self or others, verbal or physical harassment, personal insult, loss of pride, and personal betrayal (Table 3).

The bivariate correlations (Tables 4, 5, and 6) provide evidence of strong relationships between many of the predictor and criterion variables. All eleven predictor variables were significantly and positively correlated with BPAQ Physical Aggression and LAVA Lifetime Aggression. Gun Enthusiasm was significantly correlated with Antagonism, ADMI hypermasculinity, ABQ Intent Bias, and HIM. However, some of these predictors do not account for significant variance when compared with other, stronger, predictor variables (see Table 7). Specifically, the predictive value of the childhood maltreatment variables was diluted by antagonism, and hypermasculinity variables. Thus, these variables all warrant further study independent of the other variables to evaluate their strength in predicting the criterion variables in other circumstances.

Gun enthusiasm occupied a central focus in this study and was tested as both a predictor and criterion variable in these analyses. The impact of gun ownership,

and particularly gun enthusiasm, on broader society remains a hotly contested issue within and without political and scientific circles. There appears to be many developmental contributors to gun enthusiasm (Branscombe, Weird, & Crosby, 1991; Cooke & Puddifoot, 2000; Heath, Weeks, & Murphy, 1997), and links between gun ownership and penchants toward violence have been established (Berkowitz & LePage, 1967; Buss, Booker, & Buss, 1972; Klimesmith, Kasser, & McAndrew, 2006).

The Gun Enthusiasm Questionnaire (GEQ; Appendix E) created for this study relied on distinct and extreme firearm opinions to differentiate respondents from one another. The resulting scale was found to be internally consistent ($\alpha = .79$) and significantly correlated with all five of the trait aggression indicators (see Table 4). Gun enthusiasm also seemed to also serve as a visible manifestation of antagonism and, more centrally, hypermasculinity. There was a strong link of gun ownership and hypermasculinity (as measured by both the ADMI and HIM) BPAQ, and LAVA ITS. In other words, those who endorsed owning guns were more likely than those who did not endorse owning guns to be hypermasculine, aggressive, and sustaining injuries as a result of aggressive acts. There were significant differences in the presentation of participants in high, average, or low gun enthusiasm. Further, individuals who were highly enthusiastic about guns were significantly different than those who endorsed low levels of gun enthusiasm in hypermasculinity, antagonism, and aggression. These results suggest there are significant differences in the personalities, belief systems, and behaviors of people who are enthusiastic about guns and those who are not. These results have shown a clear link between aggression and gun enthusiasm. Further, the results also suggest the new Gun

Enthusiasm Questionnaire uniquely identifies subgroups of individuals who have varying interest in firearms. Interestingly, gun enthusiasm was associated with lower levels of negative affectivity and was not predicted by childhood maltreatment. Further, there is a negative relationship between low levels of gun enthusiasm and aggression measures, suggesting individuals who are not interested in using guns or protecting individual gun ownership are also not engaging in aggressive acts in general.

The operational definitions of hypermasculinity relied upon in the ADMI and HIM used in this study warrant closer attention. Respondents who endorsed strong traditional male characteristics and denied stereotypic female attributes were most likely to report aggressive urges, ideations, and behaviors. This group of individuals also showed more gun enthusiasm and interest in firearms. These results are consistent with previous research that found that men associated gun possession with masculinity and fulfilling the role of protector (Stroud, 2012). In a multiple regression analysis, hypermasculinity was the strongest predictor of BPAQ physical aggression scores, LAVA lifetime aggression scores, and Gun Enthusiasm Questionnaire scores. In interaction analyses, hypermasculinity, measured with the HIM scale, had a small but statistically significant effect on LAVA LAGG and a small to medium statistically significant effect on the BPAQ Physical Aggression scale. The interaction between Gun Enthusiasm and hypermasculinity had a significant effect on LAVA legal consequences. Thus, there is a link between hypermasculinity and aggression and those who have hypermasculine beliefs and gun enthusiasm are most likely to engage in aggressive behavior that results in legal consequences.

Hypermasculinity was investigated with two different measures. Hypermasculinity, as measured by the Honor Ideology for Manhood scale correlated with right-wing authoritarianism, social dominance, and general aggressiveness (Barnes, Brown, & Osterman, 2012). The questions on the HIM measure the outward manifestations of hypermasculine attitudes and beliefs, including physical aggression and dominance (e.g. “A man has the right to act with physical aggression toward another man who calls him an insulting name,” “A real man can always take care of himself,” and “A real man never leaves a score unsettled”). In contrast, the hypermasculinity scale of the Auburn Differential Masculinity Inventory identifies beliefs about male superiority over females and male gender roles (e.g. “Women, generally, are not as smart as men,” “I value power over people,” and “I know feminists want to be like men because men are better than women”). The two measures combined provide a robust understanding of hypermasculinity, as it presents in relationships, attitudes, and actions. The HIM identifies hypermasculinity as a proactive, externalizing behavior while the ADMI identifies hypermasculinity as an interpersonal, relational interaction.

The childhood maltreatment indices were not as strongly and pervasively linked to the criterion measures as hypothesized. Sibling hostility was the third of six significant predictors of BPAQ physical aggression, and it was the second strongest of five predictors of LAVA lifetime aggression. Domestic hostility was a significant predictor of BPAQ physical aggression and peer hostility was a significant predictor of LAVA lifetime aggression. Parental hostility was not significantly predictive of any of the dependent variables. Further, no measure of childhood

maltreatment was predictive of or correlated with gun enthusiasm. This suggest that the individuals who endorse high levels of gun interest and participation are not more likely to come from homes or childhoods in which violence is prevalent than those without that same interest in firearms.

Two general personality tendencies that have been associated with aggression in previous literature (Bailly & King, 2006; Jones, Miller, and Lynman, 2011; Seibert, Miller, Pryor, Reidy, & Zeichner, 2010) were negative affect and antagonism. Negative affect as measured with the questions “I worry about almost everything,” “I get emotional easily, often for very little reason,” “I fear being alone in life more than anything else,” “I get stuck on one way of doing things, even when it’s clear it won’t work,” and “I get irritated easily by all sorts of things.” Antagonism was measured with the questions “It’s not big deal if I hurt other peoples’ feelings,” “I crave attention,” “I often have to deal with people who are less important than me,” “I use people to get what I want,” and “It is easy for me to take advantage of others.” This is one of the first studies that used the PID-5 assessment to compare these traits, as conceptualized in the DSM-5, and aggression. Antagonistic tendency was a significant predictor of aggression and gun enthusiasm, and it was significantly correlated at moderate strength with negative affect and hypermasculinity. Antagonism also had a mediating effect on hypermasculinity , intent bias, and gun enthusiasm on aggression. Thus, the presence of antagonism elevates the relationship between those factors and aggressive acts. Though the effects shown were small, it suggests there is a unique relationship that needs to be further studied. Since antagonism is a personality trait proposed by the DSM-5,

there is a possibility for early identification and treatment to dampen its impact in adult aggression. Further research will be instrumental in isolating the effects of antagonism and determining possible interventions.

Unsurprisingly, negative affect was significantly correlated with intent bias, attributional bias, domestic hostility, and peer hostility, though the correlations were weak in strength. It was also a significant predictor of BPAQ physical aggression, historical aggressive acts, injuries sustained in aggressive acts, weapons used in aggressive acts, and legal consequences following aggressive acts. There was not a significant relationship between negative affect and gun enthusiasm. It seems that, while higher in hypermasculinity and antagonism tendencies, participants with strong interest in guns did not experience significant negative or distressing emotions. Further, negative affect was negatively predictive of gun enthusiasm in a multiple regression analysis, suggesting that individuals with negative emotionality and poor self-concept were less likely to be interested in firearms than those without these negative emotions.

Of note, hostile attribution bias did not have the strong link to aggression that was originally hypothesized. Previous research found relationships between hostile attribution bias and adult aggression (Chen, Coccaro, & Jacobson, 2012; Crick & Dodge, 1994; Guerra & Huesmann, 2004; Lemerise & Arsenio, 2000). There is not currently a well validated and reliable measure of hostile attribution bias. The Social Information Processing-Attribution and Emotional Response Questionnaire (SIP-AEQ; Coccaro, Noblett, & McCloskey, 2009) has been used in some of the previous research that has found the link between hostile attribution bias and aggression;

however, it was not chosen for use in this research because the internal consistency results have been varied ($\alpha = .57$ to $\alpha = .82$). Hostile intent bias (i.e. hostile responses to the question “How would you respond in this situation?”) was significantly predictive of LAVA LAGG scores; it was the third strongest predictor in a regression with five significant predictors. This suggests that, though it was not as strongly predictive as hypothesized, hostile attribution bias remains an interesting construct that should continue to be evaluated in relation to aggression. One probable explanation for the results of attribution bias is this variable was overshadowed by other, stronger, predictors such as hypermasculinity and antagonism. The bivariate correlations support the hypothesis that attribution bias is correlated with physical aggression. As a predictive factor, however, attribution bias did not stand out when paired with other variables. The previous research that found links between aggression and attribution bias did not include other factors that could explain more of the variance. Further, the scenarios in the Attribution Bias Questionnaire may not have adequately identified the situations that result in aggression for those individuals who are hypermasculine and antagonistic. The scenarios included both overt provocations (i.e. a coworker is in possession of your equipment and you are at a bar when another patron bumps into you and laughs) and relational provocation (i.e. a friend tells an unflattering story about you, you overhear coworkers talking about a party to which you were not invited, and you pass acquaintances on the street and they do not return your acknowledgement; see Appendix B).

Limitations

There were several limitations in this research design that should temper conclusions drawn from the results. While items contributing to the criterion scales were face valid, the resulting scores were derived from retrospective self-reports. Two validity checks were used to exclude inattentive responding, but the validity of scale scores could not be independently validated. Further, aggression was not defined in the survey as physical aggression; however, the options listed for injuries sustained clearly result from physical aggression (i.e. broken bone, bruise, or black eye). Participants could have construed items in substantially different way. It was also clear that a subset (~12%) of respondents with LAAG scores exceeding zero described those act(s) using an improper sequencing column (i.e., “second most recent aggressive act” when LAAG=1). This additional error might be reduced through more detailed instructions in future LAVA administrations. Interpretations from Table 3 regarding changes in aggression motivation over successive acts should be balanced with recognition of this additional error source.

Hypermasculinity was measured with two separate assessments, and they were positively significantly correlated with moderate strength. Though the measures appeared to identify two different, but integrally related aspects of hypermasculinity, it seems that the data was complicated by the use of two measures for one construct, and future research should be done to determine which measure most accurately and reliably identifies hypermasculinity. This argument can also be made for the measurement of hostile attribution bias as including both attribution bias and intent bias. The variety of measures and constructs produced a

broad range of data that provokes many relationships that can be looked into further in future research, though it also created a barrier in isolating any of the factors and gleaning specific information into the relationships and effects of these factors.

APPENDICES

Appendix A
Violent Experiences Questionnaire (VEQ-R) and Scale Item Assignments

Please indicate how often one or more of the target acts occurred during the specified time frame.

| Frequency Index of Incident: A) never happened B) happened only once C) happened only twice D) happened less than four times E) happened about once a year F) happened about twice a year G) happened about once a month H) happened about once a week I) happened more than once a week | ACTS TOWARD YOU BY A PARENT or STEP-PARENT | | | ACTS TOWARD YOU BY A SIBLING or STEP-SIBLING | | | ACTS OBSERVED BETWEEN PARENTS or STEP-PARENTS | | |
|--|---|------|-------|---|------|-------|--|------|-------|
| | during each of these age ranges | | | during each of these age ranges | | | during each of these age ranges | | |
| TARGET ACT | 5-8 | 9-12 | 13-16 | 5-8 | 9-12 | 13-16 | 5-8 | 9-12 | 13-16 |
| Parental Discipline: spanking or other forms of reasonable <i>physical</i> discipline producing mild to moderate pain <i>without physical injury</i> | 1 | 2 | 3 | | | | | | |
| Verbal Conflict: yelling, cursing, damaging property, or other expressions of anger <i>without physical injury</i> | 4 | 5 | 6 | 13 | 14 | 15 | 22 | | |
| Threats of Physical Violence: words or gestures expressing a <i>threat</i> to inflict physical injury | 7 | 8 | 9 | 16 | 17 | 18 | 25 | | |
| Physical Acts with or without Physical Injury: pushing, shoving, shaking, striking, kicking, punching, beating, burning or use of a weapon to inflict pain or injury | 10 | 11 | 12 | 19 | 20 | 21 | 28 | | |

| ACTS DIRECTED TOWARD YOU BY A BULLY | 5 - 8 | 9 - 12 | 13 - 16 |
|---|--------------|---------------|----------------|
| <i>How often were you: Physically taunted or bullied by peers during or after school?</i> | 31 | 32 | 33 |
| <i>Called names or verbally teased by peers during or after school?</i> | 34 | 35 | 36 |

| VEQ-R Primary Indices | Label | Items | Component Indices | Items |
|-------------------------------|-------|-------|--------------------------|----------------------------------|
| Corporal Punishment | CORP | 1-3 | Parental Hostility | 1-3 & 7-12 |
| Parent-Child Verbal Discord | PVD | 4-6 | Sibling Hostility | 13-21 |
| Sibling Verbal Discord | SVD | 13-15 | Domestic Hostility | 22-30 |
| Observed Parental Discord | OVD | 22-24 | Peer Hostility | 31-36 |
| Parent-Child Physical Threats | PPT | 7-9 | | |
| Sibling Physical Threats | SPT | 16-18 | Age Indices | <i>z-score summations</i> |
| Observed Parental Threats | OPT | 25-27 | Childhood | 1,4,7,10,13,16,19,22,25,28,31,34 |
| Child-Parent Physical Abuse | CPA | 10-12 | Pre-Teen | 2,5,8,11,14,17,20,23,26,29,32,35 |
| Sibling Physical Abuse | SPA | 19-21 | Adolescence | 3,6,9,12,15,18,21,24,27,30,33,36 |
| Intimate Partner Violence | IPV | 28-30 | | |
| Peer Bullying | BULL | 31-33 | Total | 1-36 |
| Peer Teasing | TEAS | 34-36 | | |

Appendix B
Attribution Bias Questionnaire (ABQ)

1. 1. Imagine that you are at work and lose some important equipment. You look for it but cannot find it anywhere. If you do not find it, you will not be able to finish your work. Just when you think it is lost for good, you notice that one of your co-workers has your equipment and has not told you.
 - a. Why do you believe this exchange occurred?
 - b. How would you respond in this situation?
2. Imagine you are seated at a bar in a restaurant. The people next to you are laughing and talking. One of them brushes against you. You do not pay any attention to this. This same person then bumps into you, causing you to spill your drink. You look over at the person and s/he is laughing.
 - a. Why do you believe this exchange occurred?
 - b. How would you respond in this situation?
3. Imagine that you are with a group of friends and acquaintances. One of your friends tells a story about you which is funny but it presents you in a really bad light.
 - a. Why do you believe this exchange occurred?
 - b. How would you respond in this situation?
4. Imagine that you are in the bathroom at work. You hear two of your co-workers talking about a party that is going on this weekend. They mention who is coming, and all your friends are invited. You have not gotten an invitation.
 - a. Why do you believe this exchange occurred?
 - b. How would you respond in this situation?
5. Imagine that you are going to the mall to do some shopping with a friend. You are supposed to meet near the food place where you and your friend always eat together. Just as you are walking toward the place where you are supposed to meet, you see your friend coming out of another store with a person that you really don't like. They look like they have been shopping for

- a while because they have a bunch of bags with them. *Note: This item was omitted due to investigator error and was not included in the current study.*
- a. Why do you believe this exchange occurred?
 - b. How would you respond in this situation?
6. Imagine that you are taking a walk to the store one day. After you walk a block or two, you see two people you know. As you pass by them, you say “hi.” They act as if you are not there—they don’t say anything to you. Then they say something to each other that you can’t hear and they keep on walking the other way.
- a. Why do you believe this exchange occurred?
 - b. How would you respond in this situation?

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Appendix C
Honor Ideology for Manhood Scale (HIM)

Please rate your level of agreement with the following statements:

| | Strongly Disagree | | | | | | | | Strongly Agree |
|--|-------------------|---|---|---|---|---|---|---|----------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1. A man has the right to act with physical aggression toward another man who calls him an insulting name. | | | | | | | | | |
| 2. A real man doesn't let other people push him around. | | | | | | | | | |
| 3. A man has the right to act with physical aggression toward another man who slanders his family. | | | | | | | | | |
| 4. A real man can always take care of himself. | | | | | | | | | |
| 5. A man has the right to act with physical aggression. | | | | | | | | | |
| 6. A real man never lets himself be a "door mat" to other people. | | | | | | | | | |
| 7. A man has the right to act with physical aggression toward another man who trespasses on his personal property. | | | | | | | | | |
| 8. A real man can "pull himself up by his bootstraps" when the going gets tough. | | | | | | | | | |
| 9. A man has the right to act with physical aggression toward another man who mistreats his children. | | | | | | | | | |
| 10. A real man will never back down from a fight. | | | | | | | | | |

| | Strongly Disagree | | | | | | | | Strongly Agree |
|---|-------------------|---|---|---|---|---|---|---|----------------|
| 11. A man has the right to act with physical aggression toward another man who steals from him. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 12. A real man never leaves a score unsettled. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 13. A man has the right to act with physical aggression toward another man who vandalizes his home. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 14. A real man doesn't take any crap from anybody. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 15. A man has the right to act with physical aggression toward another man who insults his mother. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 16. A real man is seen as tough in the eyes of his peers. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

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Appendix D
Lifetime Assessment of Violent Acts (LAVA)

| How many times in your life have you acted aggressively? | | | | | | | | | | | |
|--|-----------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|---|---|---|---|---|----|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Please identify injuries or outcomes that you personally experienced from these acts (leave blank if no)? | Most Recent Act | 2 nd Most Recent | 3 rd Most Recent | 4 th Most Recent | 5 th Most Recent | | | | | | |
| broken bone | 0 | 0 | 0 | 0 | 0 | | | | | | |
| bruise | 0 | 0 | 0 | 0 | 0 | | | | | | |
| black eye | 0 | 0 | 0 | 0 | 0 | | | | | | |
| head or facial injury | 0 | 0 | 0 | 0 | 0 | | | | | | |
| brain injury | 0 | 0 | 0 | 0 | 0 | | | | | | |
| superficial cut | 0 | 0 | 0 | 0 | 0 | | | | | | |
| deep cut | 0 | 0 | 0 | 0 | 0 | | | | | | |
| internal injury | 0 | 0 | 0 | 0 | 0 | | | | | | |
| loss of consciousness | 0 | 0 | 0 | 0 | 0 | | | | | | |
| ambulance call | 0 | 0 | 0 | 0 | 0 | | | | | | |
| ER treatment | 0 | 0 | 0 | 0 | 0 | | | | | | |
| hospitalization | 0 | 0 | 0 | 0 | 0 | | | | | | |
| police arrest | 0 | 0 | 0 | 0 | 0 | | | | | | |
| extended (> 1 week) jail time | 0 | 0 | 0 | 0 | 0 | | | | | | |
| felony conviction | 0 | 0 | 0 | 0 | 0 | | | | | | |
| Identify any of these factors that contributed to your aggression: | | | | | | | | | | | |
| I felt threatened with physical harm to self or others | 0 | 0 | 0 | 0 | 0 | | | | | | |
| I felt threatened with loss of personal property | 0 | 0 | 0 | 0 | 0 | | | | | | |
| I felt threatened by the loss of a relationship | 0 | 0 | 0 | 0 | 0 | | | | | | |
| I felt threatened by a loss of pride in a conflict | 0 | 0 | 0 | 0 | 0 | | | | | | |
| I felt verbally or physically harassed | 0 | 0 | 0 | 0 | 0 | | | | | | |
| I felt personally insulted | 0 | 0 | 0 | 0 | 0 | | | | | | |
| I felt betrayed by someone | 0 | 0 | 0 | 0 | 0 | | | | | | |
| I was involved in competition and lost my temper | 0 | 0 | 0 | 0 | 0 | | | | | | |
| The target of the act was <i>not</i> trying to provoke me | 0 | 0 | 0 | 0 | 0 | | | | | | |
| The target of the act was a romantic partner | 0 | 0 | 0 | 0 | 0 | | | | | | |
| The target of my act was drinking alcohol | 0 | 0 | 0 | 0 | 0 | | | | | | |
| I was under the influence of alcohol (probably <i>less</i> than the legal limit) | 0 | 0 | 0 | 0 | 0 | | | | | | |
| I was under the influence of alcohol (probably <i>over</i> than the legal limit) | 0 | 0 | 0 | 0 | 0 | | | | | | |
| I was under the influence of alcohol (definitely <i>over</i> than the legal limit) | 0 | 0 | 0 | 0 | 0 | | | | | | |
| I threatened to kill someone involved in this act | 0 | 0 | 0 | 0 | 0 | | | | | | |
| I used a weapon to threaten someone in this act | 0 | 0 | 0 | 0 | 0 | | | | | | |
| I used a weapon against someone | 0 | 0 | 0 | 0 | 0 | | | | | | |

Appendix E
Gun Enthusiasm Questionnaire (GEQ)

| Please describe for us your current interests and experiences involving guns. | | | | | |
|--|--------------------|---|---|---|-----------------------|
| Firearm Beliefs & Behavior | Very Similar to Me | | | | Very Dissimilar to Me |
| | 1 | 2 | 3 | 4 | 5 |
| I enjoy hunting small game such as fowl and rabbits. | 0 | 0 | 0 | 0 | 0 |
| I have been shooting firearms since childhood. | 0 | 0 | 0 | 0 | 0 |
| I believe that guns do not belong in individual homes. | 0 | 0 | 0 | 0 | 0 |
| I believe that gun laws need to be more restrictive. | 0 | 0 | 0 | 0 | 0 |
| I have little or no experience with guns. | 0 | 0 | 0 | 0 | 0 |
| I enjoy collecting assault rifles. | 0 | 0 | 0 | 0 | 0 |
| I enjoy attending gun shows. | 0 | 0 | 0 | 0 | 0 |
| I believe that the Second Amendment affords the best protection against a tyrannical government. | 0 | 0 | 0 | 0 | 0 |

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