PSYCHOPATHIC TRAITS IN COLLEGE POPULATIONS: AN EXAMINATION OF BIOLOGICAL SEX, AGGRESSION, AND DEFICITS IN FACIAL AFFECT RECOGNITION

Nikole K. Bonacorsi

Thesis Submitted in Partial Fulfillment of the Requirements for the Bachelor of Arts Degree at Hamilton College

May 11, 2015

Advisor: Tara McKee

Abstract

Psychopathy is an extensively researched personality disorder that has traditionally been considered important to study because of the high rates of the disorder in forensic populations. However, an increasing number of studies have turned to examining the disorder in community samples to better understand the relationships between psychopathic traits and outcomes for non-incarcerated individuals. Some emphasis has been placed upon the potential relationship between aggressive behavior and deficits in facial affect processing that individuals with psychopathy exhibit, and whether this relationship, if present, may vary based on biological sex. The present examination was an exploratory study conducted to better understand the relationships among psychopathic traits, biological sex, aggression, and facial affect recognition. Higher levels of psychopathic traits were associated with increased use of both relational and physical aggression for both men and women, though this relationship was stronger for women as compared to men in both cases. Men high in psychopathic exhibited a trend towards worse fear recognition and performed significantly more poorly in the recognition of disgust than men low in psychopathy; these relationships were not observed for women. Further research is needed to better understand the intricacies of these relationships.

Psychopathic Traits in College Populations:

An Examination of Biological Sex, Aggression, and Deficits in Facial Affect Recognition

Psychopathy is an extensively researched and often sensationalized personality disorder. Psychopaths present with a combination of antisocial personality disorder and narcissistic personality disorder, which results in deficits in cognition, affect, impulse control and interpersonal relationships (Hare, 2003). The prevalence of psychopathy in the population is about 1%; there is a 5:1 male to female ratio in this disorder, making psychopathy rare in females (Forouzan & Cooke, 2005). Additionally, psychopaths make up about 25% of prison populations, which provides practical implications for research in this area (Gregory, 2011). Psychopathy is present in community samples (non-prison populations) as well (Neumann & Hare, 2008). Additionally, it is important to note that not all psychopaths commit violent crimes; many individuals with this personality disorder go undetected in their communities, rising to success in the modern workplace (Babiak & Hare, 2006).

Psychopathy is divided into four domains based on Robert Hare's Psychopathy Checklist – Revised (PCL-R; Hare, 2003). The PCL-R is considered responsible for the rapid increase in psychopathy research that has taken place over the course of the past twenty years; the instrument has been widely adopted, and is considered the gold standard measure for assessing and diagnosing psychopathy (Hare & Neumann, 2008). The four domains fall under two factors: Factor 1 (F1): Aggressive Narcissism (also known as primary psychopathy), and Factor 2 (F2): Chronic Irresponsibility and Antisociality (also known as secondary psychopathy). Factor 1 is further divided into the two facets of interpersonal grandiosity and manipulation, and callousness or deficient affective experience, whereas Factor 2 is divided into the two facets of chronic antisocial behaviors, and lifestyle choices that are impulsive and pleasure seeking (Hare, 1991).

Psychopathic Traits in Community Samples

Research examining psychopathic traits in non-clinical populations is important because, as Paul Babiak and Robert Hare suggested in *Snakes in Suits* (2006), individuals who are high in psychopathic traits who remain undetected (i.e., not in a forensic population) may be more detrimental to society than the violent criminal offenders that are more often associated with psychopathy. These individuals may pose a greater threat to society because, as Babiak and Hare (2006) suggested, they often find success in their careers. The careers that individuals with these traits select, in theory, are high-risk high-reward jobs, often in business and finance. When individuals in these fields become successful, they may be in charge of funds other than their own. This success is concerning, because proneness to risky behavior is common among psychopaths. Therefore, individuals in charge of this vast wealth, who may be making important decisions regarding other peoples' -- or even entire nation's -- money, could impulsively take enormous gambles simply to quell their own boredom. As a result of these concerns, an increasing number of researchers are examining psychopathic traits in community samples rather than in forensic populations. In fact, a great deal of research on psychopathy now uses non-clinical populations and several measures have been developed specifically for use with community samples.

The Levenson Self Report Psychopathy Scale (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995) is one such measure that is based on the PCL-R and has been validated in college populations. Though the PCL-R is the gold standard method for assessing psychopathy in clinical populations, it is not an appropriate measure of psychopathic traits in community samples; the PCL-R was developed specifically for use with criminal populations and relies in part on criminal records (Hare, 1991). Additionally, the clinical interview format of the PCL-R

makes it an expensive and time-consuming tool to use, since administrators must be trained on the instrument. Instead of relying on criminal records, the LSRP measures antisocial traits in an everyday context that is more representative of life for non-clinical populations. The LSRP is a brief measure that does not require training to administer, making it much more practical for measuring trait levels of psychopathy in large community samples.

Sex Differences in Psychopathy

Although the first images that come to mind when presented with the term "psychopath" may be of men, women can also display this personality disorder. The LSRP provides the opportunity to collect information about the prevalence of psychopathic traits in large community samples, which is particularly helpful in the study of sex differences in psychopathy. In the past researchers have focused on psychopathy in men; due to the higher prevalence of the disorder in men and the use of the PCL-R exclusively in forensic populations, large samples of female psychopaths have been difficult to obtain. Use of the LSRP and other self-report measures of psychopathy in community samples allows for psychopathic traits to be easily assessed in both men and women, providing much more insight into sex differences in presentation and correlates of the disorder than was previously possible. Marion and Sellbom (2011) found evidence of gender-moderated intercept bias on the LSRP, indicating that scores on this measure may not mean the same thing for men and women; similar suggestions have been made regarding scores on the PCL-R, but inadequate samples have yielded inconclusive results. Gummelt, Anestis, and Carbonell (2012) administered the LSRP to a large sample of undergraduate men and women and found that men reported higher overall levels of psychopathic traits. A comparison of all participants high on psychopathic traits showed that men and women with similar overall scores endorsed different items on the LSRP. Men high in

psychopathy reported greater proneness to boredom, impulsivity, giving up on tasks, and egotism; men also reported more instances of intentionally causing others pain. Women high in psychopathy endorsed items related to manipulation and self-serving behavior. Without use of self-report measures designed for community samples like the LSRP, it would be difficult to obtain a large enough sample size to make these comparisons between men and women.

Additionally, there is evidence for sex differences in the manifestation of the disorder, both in trait levels in community samples as previously described, and in forensic populations (Cale & Lilienfeld, 2002; Forouzan & Cooke, 2005; Gummelt et al., 2012). Forouzan and Cooke (2005) found evidence to suggest that there may be sex differences in the characteristic expressions of psychopathic traits, as well as in the central traits (narcissism and antisociality) themselves. These researchers stated that, not only did men and women express psychopathic behavior differently, they also displayed differences in interpersonal interactions, and in their psychological motivations (Forouzan & Cooke, 2005).

Impulsivity. Women high in secondary psychopathy-associated impulsivity have been shown to be more likely than men to manifest this trait in acts of theft or fraud; men high in these same traits were more likely to manifest them in acts of violence (Forouzan & Cooke, 2005). Other researchers have shown that impulsivity associated with high F2 psychopathy was more strongly related to trouble with impulse control when experiencing a good mood, greater inclination to look for and engage in dangerous or risky activities, and difficulty thinking about potential consequences before acting for a community sample of women than for their male counterparts (Miller, Watts, & Jones, 2011). Finally, Neumann, Schmitt, Carter, Embley, and Hare (2012) found that impulsive and disinhibited behaviors, as indexed by the lifestyle facet of

the Self Report Psychopathy Scale (SRP-E), were the most pronounced psychopathic traits for both men and women in a worldwide community sample.

Personality traits. Psychopathy has been differentially associated with some, but not all, major personality traits based on sex. Miller et al. (2011) reported that both primary and secondary psychopathy were negatively associated with agreeableness and conscientiousness across sex in a sample of college-aged men and women. However, the same researchers found that secondary psychopathy was more strongly related to openness for women than men (Miller et al., 2011). Hicks, Vaidyanathan, and Patrick (2010) found that women high in secondary psychopathy scored higher than men in "Absorption," which is analogous to the trait of openness in the five-factor model. These same researchers also found that women high in secondary psychopathy scored higher on a trait similar to neuroticism and lower on conscientiousness than their male counterparts (Hicks et al., 2010). These results suggest that the different facets of psychopathy may be differentially related to some of the traits of the five-factor model depending on sex. Agreeableness, however, appeared to be negatively related to psychopathic traits regardless of sex (Hicks et al., 2010; Miller et al., 2011).

Additionally, Forouzan and Cooke (2005) found that manipulative women were more likely to behave flirtatiously, whereas manipulative men were more likely to display conning behaviors. They also described the traits of grandiose sense of self worth, glibness, and superficial charm in female psychopaths, claiming that these traits were more muted in women than in their male counterparts, except in very extreme female presentations of psychopathy. This finding suggests the potential influence of a cultural mechanism, meaning that Western ideas about the societal roles of women (e.g. as wives and mothers who defer to their husbands)

may influence the expression of psychopathic personality traits in women (Forouzan & Cooke, 2005).

Sexual behavior. High levels of psychopathic personality traits have been associated with earlier sexual activity, cheating on a romantic partner, and more sexual partners in college-aged men and women (Visser, Pozzebon, Bogaert, & Ashton, 2010). However, Forouzan and Cooke (2005) reported that the motivation behind the risky sexual behavior observed in both male and female psychopaths may vary by sex; women seemed driven by a desire to exploit their mate, whereas men were more motivated by sensation-seeking. Visser et al. (2010) found that women high in psychopathic traits had lower self-esteem and higher body shame than men high in psychopathy. In fact, there was no relationship between psychopathy and self-esteem for men. Additionally, psychopathic traits were negatively correlated with body shame and overall appearance anxiety for men (Visser et al., 2010). They also found a relationship between psychopathic traits and attractiveness (as rated by both self and others) for men, but no such relationship for women (Visser et al., 2010). However, it is important to note that "other-rated" attractiveness was based only on ratings by two female researchers. These findings suggest that the risky sexual behavior exhibited by both men and women high in psychopathic traits may be motivated by precisely opposite feelings of self-worth.

Comorbidity. There is also considerable evidence to support the correlation of substance abuse disorder, borderline personality disorder, somatization disorder, and histrionic personality disorder with antisocial personality disorder across sex (Cale & Lilienfeld, 2002). Some researchers have shown that antisocial personality disorder was more strongly correlated with alcoholism in men than in women, but these findings are mixed (Cale & Lilienfeld, 2002). However, Rutherford, Alterman, Cacciola, and McKay (1998) found that there was a stronger

correlation between primary psychopathy and antisocial behaviors in female substance abusers than in their male counterparts. Several researchers have suggested that somatization disorder, histrionic personality disorder, and borderline personality disorder may be largely female expressions of psychopathic traits, whereas more pronounced antisocial features may be the male manifestation of the same underlying traits (Cale & Lilienfeld, 2002). Overlap among these disorders has been observed in female inmates, but comparable research in men is lacking (Cale & Lilienfeld, 2002).

Specifically, covariation among somatization disorder, histrionic personality disorder, and antisocial personality disorder has been found more consistently for women than for men (Cale & Lilienfeld, 2002). It is important to note, though, that some researchers contend that there is a bias towards men in the diagnosis of antisocial personality disorder, since the PCL-R was developed based on populations of male inmates. Researchers have found that men were significantly more likely than women to be diagnosed with antisocial personality disorder, even when case descriptions were similar (Belitsky et al., 1996). Despite their predictions, the authors did not find that the diagnosis of histrionic personality disorder was female biased in the same way (Belitsky et al., 1996). Findings are mixed regarding the consistency of such diagnostic sex biases (or lack thereof) for both antisocial personality disorder and histrionic personality disorder (Cale & Lilienfeld, 2002).

Psychopathy and Aggression

Various types of aggression have been examined in relation to both sex and psychopathic behavior because of the close association between violent and/or manipulative behavior and psychopathic personality traits in both community and forensic samples (Neumann & Hare, 2008). Violent behavior is an important and well-examined type of aggression; however,

relational aggression, also known as indirect or social aggression, can often be just as damaging to victims. Relationally aggressive behaviors are those that adversely affect others by damaging relationships or excluding the targets from a group; these behaviors include gossip, manipulation, and social exclusion (Czar, Dahlen, Bullock, & Nicholson, 2011; Werner & Crick, 1999). Relational aggression is subtler than overt physical or verbal aggressive behaviors, and can affect both peer and romantic relationships (Linder, Crick, & Collins, 2002). In adults, it is important to examine relational aggression in both peer and romantic contexts. Romantic relational aggression (e.g. emotionally manipulating a romantic partner) has been shown to be uniquely related to a host of outcomes, such as hostility, abuse, anger, and impulsivity (Murray-Close, Ostrov, Nelson, Crick, & Coccaro, 2010).

In addition, aggressive behaviors may be either reactive or proactive in nature (Cima & Raine, 2009). Reactive aggression is emotionally driven, characterized by uncontrollable outbursts, and related to specific emotions such as anger and frustration. Acts of reactive aggression usually occur when the aggressor feels threatened. Conversely, proactive aggression is considered a "predatory" form of aggression, requiring planning. Proactive aggression is a goal-driven pursuit, and is not associated with autonomic arousal.

Sex differences. Direct aggression can be physical or verbal, and is employed more often by men than women (Archer, 2004). Men use physical aggression more often than women beginning early in childhood and continuing through adulthood; this finding has been consistent across several cultures (Archer, 2004). Additionally, men use aggressive behavior instrumentally (i.e. in the pursuit of goals) more often than women do (Cummings, Hoffman, & Lesheid, 2004, as cited in Falkenbach, 2008).

Indirect or relational aggression, on the other hand, is often viewed as a "female" form of aggression (Czar et al., 2011). However, only researchers examining samples of children and adolescents have found that women practice relationally aggressive behaviors more often than men (Archer, 2004; Archer & Coyne, 2005). Researchers have not found overall sex differences in relational aggression in college populations (Archer, 2004; Czar et al., 2011; Murrary-Close et al., 2010). However, sex differences in subtypes of relational aggression have been observed in these populations (Murray-Close et al., 2010). Women have been shown to be more likely to engage in romantic relational aggression than men, whereas men have been shown to be more likely to be relationally aggressive in peer relationships than women (Murray-Close et al., 2010). However, other researchers have found that men and women are equally likely to engage in romantic relational aggression (Linder et al., 2002). In addition, emotionally manipulative behaviors, a type of relational aggression that can be directed towards peers as well as romantic partners, have different predictors in men and women (Grieve & Panebianco, 2013). Men higher in emotional intelligence, social information processing skills, and self-serving thought processes have been shown to be more emotionally manipulative than men lower in these traits. In the same study, younger women with high emotional intelligence and low social awareness were the most emotionally manipulative (Grieve & Panebianco, 2013).

Relationship with psychopathic traits. Psychopathic traits have been linked with different displays of aggression (Cima & Raine, 2009; Czar et al., 2011; Marsee, Silverthorn, & Frick, 2005; Miller & Lyman, 2003; Schmeelk et al., 2008). Higher levels of psychopathic traits are related to increased use of relational aggression (Czar et al., 2011; Marsee et al., 2005; Miller & Lynam, 2003; Schmeelk, Sylvers, & Lilienfeld, 2008). However, the literature is mixed on whether this relationship changes depending on sex of the participant (Czar et al., 2011; Miller &

Lynam, 2003). The literature is also inconclusive in regards to the differential contributions of primary and secondary psychopathy (Czar et al., 2011; Grieve & Panebianco, 2013; Schmeelk et al., 2008).

Relational aggression. Psychopathic personality traits in college students have been shown to predict relational aggression directed towards peers and towards romantic partners (Czar et al., 2011). In one study, both male and female participants who displayed higher levels of psychopathic traits reported significantly more instances of relational aggression than participants low in psychopathic traits; psychopathic traits did not differentially predict relational aggression based on sex (Czar et al., 2011). Similar results have been found for older adolescents (Marsee et al., 2005). However, in another examination of psychopathic traits and relational aggression in college students, Miller and Lynam (2003) found that the relationship between psychopathic traits and relationally aggressive behavior varied as a function of sex; there was a stronger relationship between psychopathic traits and relational aggression for women than there was for men.

Examinations of the associations among relational aggression, psychopathic traits, and the two factors of psychopathy in college students have also yielded mixed results (Czar et al., 2011; Schmeelk et al., 2008). Traits related to secondary psychopathy, such as impulsiveness, have been shown to be predictive of relational aggression (Czar et al., 2011; Schmeelk et al., 2008). Primary psychopathic traits have had the same relationship with relational aggression in some cases (e.g. Czar et al., 2011), but not in others (e.g. Schmeelk et al., 2008). Others have found that only primary psychopathy is associated with relational aggression across sex (Vaillancourt & Sunderani, 2011). Another pair of researchers found that primary psychopathic

traits were important in predicting emotionally manipulative behaviors in women, but not in men, further adding to this mixed literature (Grieve & Panebianco, 2013).

Proactive and reactive aggression. Psychopathy is mainly associated with proactive aggression in populations of incarcerated men (Cima & Raine, 2009; Nouvion, Cherek, Lane, Tcheremissine, & Lieving, 2007). In particular, the trait of fearless dominance has been closely associated with proactive aggression in this population (Cima & Raine, 2009). These findings suggest that psychopathic criminals are more likely to commit crimes as a premeditated means to an end rather than as the result of emotionally charged reactively aggressive behavior (Cima & Raine, 2009). Though psychopathy is primarily associated with proactive aggression, fearlessness has been associated with reactive aggression (Cima & Raine, 2009). The relationships among proactive aggression, reactive aggression, and the different facets of psychopathy are not well researched in samples other than incarcerated men.

Emotion Processing Deficits in Psychopathy

Displays of aggression by psychopathic individuals may be related to the deficits in emotion processing that have been observed in individuals with this disorder. Three major methodologies have been used to examine emotion-processing deficits in men and women: emotional face tasks, lexical decision tasks, and the affect-startle paradigm. In men, individuals high in psychopathic traits displayed dampened psychophysiological reactions to non-neutral stimuli, slower responses to emotional words on lexical decision tasks, poorer performance on emotional face tasks, and lower startle responses in an affect-startle paradigm than those low in psychopathic traits (Rogstad & Rogers, 2008; Snowden, Craig, & Gray, 2013). Recent research has sought to determine whether the deficits in emotion processing found in male psychopaths are also found in their female counterparts.

Facial affect recognition. The use of emotional face tasks is a common methodology to examine deficits in emotion processing (Eisenbarth, Alpers, Segre, Calogero, & Angrilli, 2008; Snowden et al. 2013; Wilson, Juodis, & Porter, 2011). This methodology is the most intuitive choice in the consideration of a potential relationship between aggressive acts and emotion processing deficits since facial expressions are our main source of emotional cues. If individuals high in psychopathic traits do not recognize signals of submission such as a fearful facial expression, they may be more likely to behave violently towards other people. If individuals high in psychopathy are deficient at recognizing other emotional faces, such as those expressing sadness, they may be more likely to pursue relationally aggressive behaviors towards others.

Some researchers have found that psychopathic males perform poorly on emotional face tasks, particularly in identifying ambiguous fearful expressions; however, these findings are more mixed than research using other methodologies (Wilson et al., 2011). Researchers have also found that male psychopaths are particularly deficient in processing emotional information conveyed by the eye region; this finding was most pronounced for fearful expressions (Wilson et al., 2011). Researchers have shown that these deficits can be remedied by instructing the subjects to focus on the eyes of emotional face stimuli (Wilson et al., 2011). If the deficit in the recognition of fearful faces is an important part of the link between violent behavior and psychopathic traits, this relationship would allow for a better understanding of the disorder. However, other researchers found that individuals high in psychopathy were superior in detecting vulnerability in others than individuals low in psychopathic traits. This finding raises the possibility that attempting to remedy the deficit in emotion processing may only serve to increase the ease with which psychopaths could detect targets for physical or relational aggression (Wilson et al., 2011).

Researchers have not found a correlation between deficient processing of fearful faces and high levels of psychopathic traits in women, despite the fact that this deficit is observed in male psychopaths (Eisenbarth et al., 2008; Snowden et al. 2013). Eisenbarth and colleagues (2008) compared the categorization of emotional faces across incarcerated psychopathic women, incarcerated non-psychopathic women, and a control group of non-incarcerated, non-psychopathic women. They found a decline in accuracy across groups in the recognition of upset expressions, with the incarcerated psychopaths having the poorest performance and the non-incarcerated non-psychopathic control group performing the best. All three groups performed equally well when categorizing happy faces and equally poorly when categorizing fearful expressions (Eisenbarth et al., 2008). Another research team, Snowden et al. (2013) undertook a study using a similar emotional face task in a community sample of men and women; their findings provide further support for the results observed by Eisenbarth et al. (2008). Snowden et al. (2013) found that although performance on the fear trials of the emotional face tasks was negatively correlated with a measure of psychopathy for men, no such relationship was observed for women.

Lexical decision tasks. Emotional face paradigms may be the most intuitive approach to examine deficits in emotion processing, but such a design is not the only method that has been employed to quantify these deficits. Nearly as common are the use of lexical decision tasks, which generally consist of the presentation of emotionally positive, negative, and neutral words, as well as non-words on a computer screen; participants must indicate as quickly as possible whether the word they are viewing is an actual word. The literature concerning the evaluation of emotion processing deficits in psychopathy with lexical decision tasks is mixed (Reidy, Zeichner, & Foster, 2009; Vitale, MacCoon, & Newman, 2011). Vitale and colleagues (2011)

found no relationship between levels of psychopathy in women and performance on a lexical decision task, suggesting that women high in psychopathic traits do not display the deficits in emotion processing found in male psychopaths. Reidy et al. (2009), though, found that F1 predicted poorer performance in the processing of sadness words; this finding was particularly pronounced in the group that was first primed with violent imagery, suggesting that this prime could make deficits in emotion processing more evident when using a lexical decision task (Reidy et al., 2009).

Affect-startle paradigm. Finally, a less-used method of assessment is the affect-startle paradigm, which attempts to provoke the blink startle response by administering unexpected noises through headphones while participants view a range of images (Verona, Bresin, & Patrick, 2013). Deficits in this startle response, particularly when presented with images that are upsetting or threatening are interpreted as indicators of deficits in emotion processing. Verona's team (2013) used this paradigm and found that incarcerated women scoring high on psychopathy did indeed exhibit deficits in defense reactivity; the same relationship has been described for men high in psychopathy. More specifically, this deficit was related to higher F1 scores on the PCL-R, but not to measures of child or adult antisocial symptoms (Verona et al., 2013). These findings provide additional evidence for a link between F1 traits and deficits in emotion processing in women (Verona et al., 2013).

Limitations of Previous Research

Prevalence of psychopathic traits. Though a considerable amount of research has addressed the prevalence of psychopathic traits in both forensic and community samples, there are still remaining questions regarding whether specific facets of psychopathy are more prevalent in particular populations. For example, since some psychopaths are thought to have risen to

success in the modern workplace (Babiak & Hare, 2006), it is of interest to consider whether the prevalence of psychopathic traits differs between white-collar criminals and those accused of impulsive or violent crimes. Considering relationships with education, intelligence, and socioeconomic status across these different types of inmates may prove interesting as well. Researchers have considered all of these variables in the past, but have not, to my knowledge, made comparisons between psychopathic offenders accused of different types of crime.

In community samples, comparisons among different types of students and institutions may prove illuminating as well. If some psychopathic traits are correlated with success in the modern workplace, these same traits may be correlated with academic success as well. Perhaps students admitted to highly selective colleges and universities possess higher levels of these particular psychopathic traits. A comparison among institutions with varying degrees of selectivity in the college admissions process could provide insight to whether the prevalence of psychopathic personality traits differs depending upon the specific college population that is examined. If there were differences, this information would be crucial to studies of psychopathic traits in community samples, since the bulk of this research has been conducted using samples of college students. Additionally, comparisons of trait psychopathy across different college majors could raise another interesting avenue for future research. Are individuals higher in certain psychopathic traits more likely to major in competitive disciplines that lend themselves to lucrative careers in business or finance? Future examinations into any of these questions could seek to determine, if there are differences among colleges and/or college majors, whether these differences are more strongly correlated with particular facets of psychopathy.

Aggression and psychopathic traits. Despite the considerable body of research linking relational and physical aggression with psychopathic traits, there is certainly much more that we

can still learn. For instance, as previously described, some results regarding the use of relational aggression across sex have been mixed. The respective roles of primary and secondary psychopathy in relation to both sex and aggression remain somewhat unclear as well. These issues may be resolved in time with more research. In addition, research incorporating the reactive or proactive nature of aggressive behaviors, both physical and relational, in relation to psychopathic traits across sex is sorely lacking.

Emotion processing deficits. While researchers have provided evidence for some kind of deficit in emotion processing in women high in psychopathic traits (particularly F1), there are still several gaps in the current body of literature that must be filled before more definitive conclusions can be drawn. The use of various methods to determine the presence of emotion-processing deficits is a limitation of the emotion-processing literature. While researchers have compared various emotional face tasks to one another (Snowden et al., 2013), no investigator has yet examined whether the three major paradigms (emotional face tasks, lexical decision tasks, and affect-startle paradigms) are measuring emotion-processing ability in the same way. The three tasks run the gamut from the obvious face validity of the emotional face tasks, to the subtler approach of the lexical decision tasks, to the biological approach of the affect-startle paradigm. Having a variety of measures that can accurately assess the same construct is useful, but also makes results of different methodologies difficult to compare. The difficulty in making comparisons among the results of these tasks is problematic; the literature on female psychopaths as a whole is lacking, and being unable to adequately make comparisons among the few studies that examine the same aspect of the disorder is troubling.

Additionally, many researchers have examined either community populations of men and women or forensic populations (with a community control) in a sample consisting only of

women. Researchers have yet to recruit a forensic sample of both men and women for direct comparison. Though taking such an approach would require a significant amount of time and resources, the most straightforward way to determine whether female psychopaths are deficient in processing the same emotions as male psychopaths (or not) would be to compare them directly.

Finally, though a link between psychopathic traits, emotion processing deficits, and aggressive behaviors has been suggested numerous times in the literature, no researchers have yet examined all three of these areas in a single sample.

The Current Study

Though there are many areas that need to be investigated in detail concerning the sex differences in the expression of and deficits in psychopathy, the deficit in emotion processing exhibited by psychopaths is particularly important to examine due to its possible link with displays of aggression. The aim of the current study was to examine psychopathic traits and correlates of those traits across sex in a non-clinical college population by administering the LSRP, NPI-16, and SRASBM as measures of psychopathic, narcissistic, and aggressive traits, respectively. The results of these measures were then used to recruit participants especially high or low in psychopathic traits; these participants then completed the Facial Displays of Emotion Task. This examination provided, to my knowledge, the first demonstration of the relationships among aggressive behaviors, psychopathic traits, and emotional face processing deficits in a single large sample of college students.

First, I expected that overall levels of psychopathic traits would be low. I also predicted that trait levels of primary psychopathy would be higher than secondary psychopathy in this population. I expected that men would have higher trait levels of both primary and secondary

psychopathy than women would. In agreement with Archer (2004), Czar et al. (2011), and Murray-Close et al. (2010), I did not expect relational aggression towards romantic or peer relationships to vary based on sex. I anticipated that men would report more instances of physically aggressive behavior than women (Archer, 2004).

In accordance with Marion and Sellbom (2011) and Gummelt et al. (2012), I anticipated that a high total psychopathy score on the LSRP would have different meanings across sex, with men high in psychopathy more often endorsing items related to greater proneness to boredom and impulsivity and women high in psychopathy more often endorsing items related to manipulation.

I expected individuals reporting higher levels of psychopathic traits would also report higher instances of relational and physical aggression (Cima & Raine, 2009; Czar et al., 2011; Marsee et al., 2005; Miller & Lynam, 2003; Schmeelk et al., 2008). The mixed literature on whether relational aggression varies across men and women high in psychopathy made a hypothesis difficult; if a difference was present, I predicted that women high in psychopathy would engage in more relationally aggressive behavior than men high in psychopathy. Relationally aggressive behavior may be related to primary psychopathy, secondary psychopathy, or both; I did not anticipate this relationship to vary across sex. I expected that proactive aggressive behavior would be more strongly associated with psychopathic traits than reactive aggressive behavior.

Third, based on Eisenbarth et al. (2008), Snowden et al. (2013), and Wilson et al. (2011), I predicted that men and women high in psychopathy would both be deficient at processing emotional expressions. I expected these deficiencies to manifest differently. I anticipated that men high in psychopathy would perform more poorly at categorizing fearful expressions than

men low in total psychopathy would. I also expected that women high in psychopathy would perform more poorly at categorizing sad expressions than women low in total psychopathy would.

Finally, I expected that individuals high in psychopathic traits who reported more instances of physical aggression would be more deficient at recognizing fearful expressions than all other participants. I also expected that individuals high in psychopathy who reported more instances of relational aggression would be more deficient at recognizing sad expressions than all other participants.

Method

Participants

Two hundred nineteen undergraduates (61 men, 158 women) participated in part one of the present study, and 55 of those 219 participants (18 men, 37 women) also completed part two. Participants were recruited via email and online through Sona subject pools at Hamilton College and the State University of New York at Oswego. Participants ranged in age from 18 to 22 years (M = 19.31, SD = 1.07). Participants were compensated with extra credit in their psychology courses or the $10.

Materials

Levenson Self-Report Psychopathy Scale (LSRP). The LSRP is a 26-item self-report measure of psychopathic traits that was developed using college students in order to assess such traits in community samples (Levenson et al., 1995). Items are rated on a 4-point Likert scale, with responses ranging from “disagree strongly” to “agree strongly.” Results of the LSRP produce a total score as well as primary (16 items) and secondary (10 items) psychopathy scale scores. The primary scale is meant to assess narcissistic and callous personality traits (e.g., “I

enjoy manipulating other peoples' feelings"), whereas the secondary scale examines impulsivity and antisocial tendencies (e.g., "I find myself in the same kinds of trouble, time after time"). Research has shown that the F1 subscale of the LSRP is slightly more reliable (α=.82) than the F2 subscale (α=.63) (Gummelt et al., 2012). The LSRP has been shown to correlate moderately with the PCL-R, suggesting moderate convergent validity (Brinkley, Schmitt, Smith, & Newman, 2001). However, some studies have found that the primary psychopathy scale does not correlate strongly with the PCL-R F1 scale (Book, Quinsey, & Langford, 2007); other researchers have even found a strong correlation between the primary and secondary psychopathy scales of the LSRP (Brinkley et al., 2001), which has led some researchers to question whether the LSRP is accurately assessing primary psychopathic traits (Seibert, Miller, Few, Zeichner, & Lynam, 2010). Salekin, Chen, Selbom, Lester, and MacDougall (2014) found evidence for the convergent and discriminant validity of the LSRP, with the primary and secondary scales associating with other measures of various corresponding traits (and not associating with traits such as agreeableness and conscientiousness).

Narcissistic Personality Inventory (NPI-16). The NPI-16 (Ames, Rose, and Anderson; 2006) is a 16-item measure adapted from the 40-item Narcissistic Personality Disorder (NPI; Raskin & Terry, 1988) that assesses the characteristics of narcissistic personality disorder captured by the full NPI, but with fewer items. It was included in the current study to ensure that LSRP primary psychopathy scores were accurate reflections of narcissistic traits in this population. Participants were presented with two alternatives (e.g., (1) It makes me uncomfortable to be the center of attention, or (2) I really like to be the center of attention) and were asked to select which statement best described him or her. Narcissism-consistent responses were coded as 1 and narcissism-inconsistent responses were coded as 0; scores were then

computed as a summed score across the 16 items. The NPI-16 has been shown to have adequate reliability and good convergent validity with the original NPI, which correlates well with measures of interpersonal dominance and observer ratings of self-confidence and narcissism (Gentile et al., 2013; Raskin & Terry, 1988). Ames et al. (2006) showed acceptable internal, discriminant, and predictive validity for the NPI-16.

Self-Report of Aggression and Social Behavior Measure (SRASBM). Aggressive behavior was assessed via self-report using the SRASBM, a 56-item measure with subscales assessing relational aggression and victimization, physical aggression and victimization, exclusivity, and prosocial behavior in peer and romantic relationships (Linder et al., 2002). The relational and physical aggression subscales are further divided into reactive and proactive questions. Items are rated on a 7-point scale, with responses ranging from "not true at all" to "very true." The total relational aggression scale has been shown to have acceptable internal consistency, and test-retest reliability has been shown to be strong (Linder et al., 2002; Miller & Lynam, 2003; Ostrov & Houston, 2008).

Facial Displays of Emotion Task. The Facial Displays of Emotion Task developed by Beaupre and Hess (2005) was used to assess proficiency in facial affect recognition. The task presents facial expressions of happiness, anger, sadness, fear, disgust, and shame using the photographs of faces of men and women of various cultures. The task consists of 96 total stimuli (6 emotions x 2 sexes x 4 cultures x 2 replicates per sex/culture). Stimuli were presented in a random order to each participant. Each facial stimulus was presented for .5 seconds. Participants were then asked to rate the intensity of the facial expression on 10 emotion labels (happiness, serenity, anger, sadness, fear, surprise, disgust, contempt, shame, and embarrassment) on a sliding scale from 1 to 100, with 1 representing "emotion not at all present," and 100

representing "emotion expressed very intensely." Participants "matched" (i.e. angry face and angry slider percentage response) and "unmatched" (i.e. angry face and other 9 emotional slider percentage responses) responses were recorded.

Procedure

After giving informed consent, all participants completed an online survey that contained the LSRP, NPI, SRASBM, and a demographics form. The order of these measures was randomly presented to each participant, with the exception of the demographics form, which was always presented last. Participants were informed that they may be recruited for a follow up study. LSRP responses were analyzed to determine which participants were eligible for the second part of the study. Participants with LSRP scores in the upper 25th and lower 25th percentiles were preferentially recruited via email for the second part of the study; anyone who participated in the first part of the study were allowed to sign up for part two via Sona. These participants completed the Facial Displays of Emotion Task in the lab.

Results

Descriptive statistics for psychopathy, narcissism, and aggression are displayed in Table 1. As expected, LSRP scores were low; M=1.87, SD=0.40. Contrary to the hypothesis that F1 subscale scores would be higher than F2 subscale scores in this population, participants reported similar levels of both trait factors. NPI scores as well as all measures of aggression were also low.

Sex Differences

A series of independent groups *t* tests were conducted to determine whether sex differences in psychopathic traits, aggressive behavior, and facial affect recognition were present (see Tables 2 through 4). In line with expectations, men reported significantly higher levels of

psychopathic traits than women (Table 2). As predicted, men also reported higher levels of F1 and F2 traits than women did (Table 2). As expected and in line with the literature on college-aged populations, there were not significant sex differences in overall relational aggression, romantic relational aggression, or proactive and reactive relational aggression (Table 3). As anticipated, men reported significantly more physical aggression than women. This difference was observed for both proactive and reactive forms of physical aggression as well (Table 3). Men performed significantly more poorly than women in the identification of the strength of the emotions of anger, disgust, and fear. There were not significant sex differences in the identification of happiness, sadness, or shame (Table 4). A series of repeated measures ANOVAs were conducted to determine whether men and women differed in their ratings of non-target emotions. None of these results were significant.

LSRP Item Endorsement

To determine whether men and women in general, and men and women reporting in the upper 25th percentile of psychopathic traits, endorsed LSRP items at different frequencies, a series of chi-squared analyses were run. "Endorsing" an item was defined as reporting a 3 or a 4 (once all reverse-worded items were recoded); responses of 1 or 2 were coded as "not endorsing" the item.

Full sample. Men and women significantly differed in their frequency of endorsement of six of the sixteen items on the F1 subscale on the LSRP; three of the six items were reverse worded (see Table 5). For all items in which the frequency of men and women's endorsements differed, women failed to endorse the items more often than expected (and did endorse them less often than expected), whereas men endorsed the items more frequently than expected (and failed

to endorse them less frequently than expected). For the F2 subscale, men and women significantly differed in their endorsement of two of the ten items (see Table 6).

Upper quartile. Contrary to prediction, men and women in the upper 25th percentile of psychopathic traits marginally significantly differed in their frequency of endorsement of only one item on the F1 subscale of the LSRP: "I would be upset if my success came at someone else's expense (R)," (see Table 7). Women endorsed this item significantly less often than expected (and failed to endorse it significantly more often than expected), whereas men endorsed this item significantly more frequently than expected (and failed to endorse it significantly less frequently than expected). Upper quartile men and women also differed in frequency of endorsement for only one item of the F2 subscale: "I don't plan anything very far in advance," (see Table 8). Again, women endorsed this item significantly less often than expected (and failed to endorse it significantly more often than expected), whereas men endorsed this item significantly more frequently than expected (and failed to endorse it significantly less frequently than expected).

Psychopathic Traits and Aggression

Relational aggression. Since psychopathic traits were correlated with several dependent measures of relational and physical aggression (see Table 9), a series of regression analyses were conducted to determine if those relationships varied as a function of biological sex, total LSRP score, or their interaction. Each of the measures of aggression were regressed onto the following independent variables: sex (dummy coded so that women were the omitted group), LSRP score centered around its mean, and a term representing the interaction between the two. As Figure 1 depicts, there was a strong positive association between psychopathic traits and relational aggression for both men and women; there was also a significant 2-way interaction between

psychopathic traits and sex such that this relationship was stronger for women (t =9.89, p<.001) as compared to men (t=4.58, p<.001). A similar, yet stronger, pattern was observed when proactive relational aggression was used as the dependent variable (women: t =9.75, p<.001; men t=3.63, p<.001; see Figure 2). Though a significant main effect of psychopathy was observed for all four types of relational aggression, there were no significant interactions between sex and psychopathic traits for reactive or romantic relational aggression (see Table 10). Similar results were observed when F1, sex, and their interaction were used as independent variables instead of LSRP fullscale scores (see Table 11).

When F2 subscale traits, sex, and their interaction were used as independent variables instead of either LSRP fullscale scores or F1 traits there was a trend towards the same pattern for general relational aggression (see Table 12). For reactive relational aggression, there was a significant 2-way interaction between F2 traits and sex such that there was a significantly stronger relationship between F2 traits and reactive relationally aggressive behavior for women (t=6.51, p<.001) as compared to men (t=1.90, p=.060; see Figure 3). There were not significant interactions when proactive relational aggression and romantic relational aggression were the dependent variables (see Table 12).

Physical aggression. The same regression analyses were run with physical aggression as the dependent variable. There was a strong positive relationship between psychopathic traits and physical aggression such that individuals higher in psychopathy were reporting significantly more physically aggressive behavior than individuals low in psychopathy (see Table 10). There was a marginally significant 2-way interaction between psychopathic traits and sex such that this relationship was stronger for women (t=7.67, p<.001) as compared to men (t=3.13, p=0.002; see

Figure 4). There was a similar pattern for reactive physical aggression, but not for proactive physical aggression (see Table 10).

When F1 subscale traits, sex, and their interaction were used as independent variables instead of LSRP fullscale scores (seeTable 11); however, there were significant 2-way interactions between F1 traits and sex for overall physical aggression, proactive physical aggression, and reactive physical aggression such that the strong positive relationship between psychopathic traits and physical aggression was stronger for women as compared to men for all three types of physical aggression (men: total t=2.68, p=.008, proactive t=3.59, p<.001, reactive t=1.67, p=.097; women: total t=6.89, p<.001, proactive t=7.93, p<.001, reactive t=4.91, p<.001; see Figure 5 for proactive physical aggression). When F2 subscale traits, sex, and their interaction were used as independent variables instead of either LSRP fullscale scores or F1 traits there were no significant two-way interactions for any of the types of physical aggression (see Table 12).

Psychopathic Traits and Facial Affect Recognition

There was a strong negative correlation between identification of fearful faces and fullscale LSRP, F1 subscale, and F2 subscale scores (see Table 9). Contrary to prediction, none of the measures of psychopathic traits were correlated with identification of the other emotional expressions (see Table 9). A series of regression analyses were conducted to determine whether any of these relationships changed as a function of biological sex, total LSRP score, or their interaction. Each of the emotions to be recognized were regressed onto sex (dummy coded such that women were the omitted group), LSRP score centered around its mean, and a term representing the interaction between the two as independent variables. There was a trend such

that men high in psychopathic traits seemed to perform more poorly in the identification of fearful expressions than men low in psychopathic traits (t=-1.71, p=.094; see Figure 6).

Surprisingly, there was a significant 2-way interaction between LSRP full-scale score and sex for the recognition of disgust, such that men high in psychopathy performed significantly worse than men low in psychopathy in the identification of disgusted expressions (t=-2.19, p=.033), whereas there was no relationship between psychopathic traits and the identification of disgust for women (t=0.29, p=.774; see Figure 7). There was also a significant 2-way interaction between LSRP full-scale score and sex for the recognition of happiness such that men high in psychopathy performed significantly worse than men low in psychopathy in the identification of the strength of happy expressions (t=-2.49, p=.016), whereas there was no relationship between psychopathic traits and the identification of happiness for women (t=-0.06, p=.950; Figure 8). No other significant interactions were observed (see Table 13). When F1 subscale traits, sex, and their interaction were used as independent variables instead of LSRP full-scale scores, similar results were obtained (see Table 14); however, the 2-way interactions for both disgust and happiness as the dependent variables became marginally significant. The same pattern was evident when F2 traits were substituted as the independent variable (see Table 15).

NPI as an Independent Variable

To determine whether narcissistic traits as indexed by the NPI predicted aggressive behavior and facial affect processing above the F1 subscale of the LSRP, all of the previously described regression analyses were rerun with biological sex, F1 subscale scores, NPI scores, and their interactions as the independent variables. The 3-way interaction among these variables was significant for three of the dependent variables: physical aggression (t=-2.41, p=.017), proactive physical aggression (t=-2.638, p=.009), and sadness recognition (t=-2.28, p=.028).

For physical aggression, women with high NPI scores traits had a significantly stronger relationship between F1 traits and physical aggression than women with low NPI scores (t=2.23, p=.027) and men with either high (t=-3.17, p=.002) or low (t=-2.03, p=.044) NPI scores (see Figure 9). For proactive physical aggression, a similar pattern was observed, such that women with high NPI scores had a stronger relationship between F1 scores and physical aggression than women with low NPI scores (t=2.67, p=.008), and men with either high (t=-3.44, p=.001) or low (t=-2.68, p=.008) NPI scores (see Figure 10).

Finally, men and women with high NPI scores did not differ in their ratings of sad expressions regardless of their F1 trait levels, t=-0.64, p=.525 (see Figure 11). However, men with low NPI scores and high F1 trait levels actually performed better than men low in F1 traits in the identification of sad expressions; the opposite was true for women with low NPI scores (t=2.21, p=.032), who performed significantly worse in the recognition of sad expressions when they were high in F1 traits (as compared to women with low NPI scores and low F1 traits).

Facial Affect Recognition and Aggressive Behavior

Finally, to more directly examine the relationship between facial affect recognition and aggressive behavior, a series of correlations were conducted (see Table 16). There was a marginally significant correlation between reactive physically aggressive behavior and the recognition of fearful expressions. There was a significant positive correlation between reactive relational aggression and the recognition of sad expressions. None of the other measures of aggression were correlated with the recognition of any of the other emotions.

Discussion

Overall, participants reported low levels of psychopathic traits, which was not surprising given the nature of the sample (small liberal arts college students). Contrary to the hypothesis

that F1 scores would be higher than F2 scores for this sample, F1 and F2 responses were very similar. This similarity was probably due to the very low levels of psychopathic traits that were reported overall.

Sex Differences

As expected, and in line with many other findings (e.g. Cale & Lilienfeld, 2002; Neumann & Hare, 2008; Neumann et al., 2012) men reported higher overall levels of psychopathic traits than women did, as well as higher F1 and F2 subscale scores. Because of the 5:1 male to female sex ratio for psychopathy (Cale & Lilienfeld, 2002; Forouzan & Cooke, 2005), these results were very reasonable.

In accordance with Archer (2004), Czar et al. (2011), and Murray-Close et al. (2010), there were no sex differences in any form of relational aggression. Also in line with Archer (2004) men reported significantly more physical aggression than women did; this finding held true for both proactive and reactive forms of physical aggression as well.

Consistent with Thayer and Johnsen (2000), women performed significantly better in the identification of the strength of the emotions of anger, disgust, and fear than men did. It is important to note that for the most part men did rate these faces as expressing at least moderate levels of these emotions, but women rated the faces as more strongly expressing the correct emotion in each case. There were no sex differences in the identification of sadness, shame, or happiness, which may have been considered less ambiguous emotions by all viewers.

LSRP Item Endorsement

Contrary to my hypothesis that men and women high in psychopathy would obtain those higher scores by endorsing different items on the LSRP, men and women in the upper quartile of psychopathic traits only differentially endorsed two of the 26 LSRP items. This finding was

contrary to the results of prior studies in samples of college students that found men high in psychopathy were more likely to endorse items related to boredom and impulsivity, whereas women high in psychopathy were more likely to endorse items related to manipulations (Gummelt et al., 2012; Marion & Sellbom, 2011). Men did endorse the item "I don't plan anything very far in advance," significantly more often than expected, and this item does represent an impulsive response, but this effect was not observed for other items relating to impulsivity (e.g., the reverse worded item, "Before I do anything, I carefully consider the possible consequences"). This result suggests that, for this sample, higher levels of psychopathic traits were the result of similarly endorsed items across sex.

When the entire sample was considered, men endorsed 8 of the 26 items significantly more frequently than expected, whereas women endorsed 7 of those 8 significantly less often than expected. The majority of these items (six of the eight) were related to F1 traits. This outcome was in line with the overall higher level of psychopathic traits and higher level of F1 traits reported by men in the sample.

Psychopathic Traits and Aggression

In line with previous research (Cima & Raine, 2009; Czar et al., 2011; Marsee et al., 2005; Miller & Lynam, 2003; Schmeelk et al., 2008) I expected that individuals reporting higher levels of psychopathic traits would also report more instances of relational aggression, and that expectation was supported. This relationship was stronger for women as compared to men, which was in line with predictions for relational aggression. There was a significant main effect of psychopathy for all types of relational aggression, but proactive relationally aggressive behavior was the only subtype to yield a significant interaction between sex and psychopathy. This finding suggests that although individuals high in psychopathic traits were more likely to

engage in all measured types of relational aggression, only engagement in proactive (planned, calculated) relational aggression varied as a factor of the interaction between sex and psychopathic traits. This finding is in line with previous literature that has suggested women high in psychopathic traits may be more likely to engage in relationally aggressive behavior, particularly with the purpose of planned manipulation, than men high in psychopathic traits (Foruzan & Cooke, 2005; Miller & Lynam, 2003).

Though similar results were observed when F1 traits in particular were examined instead of total psychopathy, when F2 traits were considered some different patterns arose. In this case, it was reactive relational aggression, rather than proactive that yielded a significant interaction between sex and Factor 2 traits. Specifically, there was a strong positive association between F2 psychopathic traits and reactive relational aggression, and this relationship was stronger for women as compared to men. These findings suggest that F1 traits may be key in the stronger relationship between psychopathic traits and proactive relational aggression for women as compared to men, but F2 traits become key in that same pattern for reactive relational aggression. These results make sense, considering F1 traits such as conning behaviors seem more closely related to proactive relationally aggressive behaviors that have been planned and carried out for a specific purpose, whereas F2 traits such as impulsivity intuitively relate to the spur-the-moment heated outbursts of reactive relationally aggressive behavior. Since some examinations have found women high in psychopathy to be more manipulative than their male counterparts (Forouzan & Cooke, 2005), the stronger relationship between F1 traits and proactive relational aggression for women makes sense. The stronger relationship between F2 traits and reactive relational aggression for women as compared to men was somewhat surprising, but makes sense when considered in the broader context that the positive relationship between psychopathic traits

and general relational aggression was stronger for women as compared to men, suggesting that women high in psychopathy are most prone to using relational aggression in general.

As predicted, there was also a strong positive relationship between psychopathic traits and physical aggression such that individuals higher in psychopathy were reporting more instances of physically aggressive behavior. Surprisingly, this relationship was stronger for women as compared to men. This pattern was similar for reactive physical aggression, but not proactive physical aggression. These findings suggest that women high in psychopathic traits were more prone to reactive (emotion driven and impulsive) violent outbursts than men high in psychopathic traits, but that men and women high in psychopathy were equally likely to engage in proactive (calculated, planned) violent outbursts.

However, when F1 subscale traits were examined instead of total LSRP traits, the interaction between sex and F1 traits was significant for all three types of physical aggression such that there was a stronger relationship between these traits for women as compared to men. Conversely, when F2 traits were taken into account instead, there were no significant interactions between F2 traits and sex for any of the types of physical aggressions. Taken together these results suggest that F1 traits seemed to be key in the stronger relationship between psychopathy and physical aggression for women. This result was surprising because violent behavior has been shown to be more characteristic behavior for men high in psychopathy rather than women (Cale & Lilienfeld, 2002; Forouzan & Cooke, 2005). The stronger relationships between all three types of physical aggression for women when F1 traits alone (but not F2 traits) were examined suggests that F1 traits, are key in making the relationship between psychopathic traits and physical aggression stronger for women. A previous investigation in a forensic sample of men found that psychopathy was mainly associated with proactive aggression rather than reactive

aggression, but that certain characteristics of psychopathy (i.e. fearlessness and alienation) were more related to reactive aggression (Cima & Raine, 2009). The relationship between F1 traits and proactive physical aggression suggests that women high in psychopathy more so than their male counterparts are goal-driven in their proactive physically aggressive acts; F1 traits falling under the interpersonal grandiosity and manipulation facet of psychopathy may be most responsible for this relationship. It was somewhat surprising that F1 traits and reactive physical aggression also had the same relationship; previous investigators have found psychopathic offenders to be stress-reactive, suggesting that reactive displays of physical aggression may be occurring as a sort of fight or flight response (Cale & Lilienfeld, 2006; Cima & Raine, 2009). Since Cima and Raine (2009) found that specific traits such as fearlessness, which falls under F1, were more related to reactive aggression (rather than proactive aggression), perhaps the second F1facet of callousness or deficient affective experience is responsible for this relationship. Future investigations could more carefully examine specific F1 and F2 traits to parse apart these relationships.

Psychopathic Traits and Facial Affect Recognition

Despite the strong negative correlation between the identification of fearful faces and fullscale LSRP, F1, and F2 subscale scores, there was not a main effect for psychopathic traits, nor a significant interaction between sex and psychopathic traits for the identification of fearful expressions. However, when these relationships were graphed, the was a marginally significant trend for men such that men higher in psychopathic traits seemed to perform more poorly than men low in psychopathic traits in the identification of fearful expressions. When F1 was considered instead of total psychopathy this trend was not observed, but when F2 was considered instead, there was a trend for both men and women such that individuals high in psychopathy

seemed to perform more poorly in the identification of fearful expressions than individuals low in psychopathy. Perhaps with a larger sample (particularly of men, since only 18 men participated in the emotional face task) some of these trends may have reached significance. Overall, however, the hypothesis that individuals high in psychopathy who reported more instances of physical aggression would be deficient at processing fearful expressions was not convincingly supported. Also contrary to prediction, individuals high in psychopathic traits (who also tended to report more relationally aggressive behavior) were not deficient in the recognition of sad expressions.

Unexpectedly, there was a significant interaction between LSRP fullscale score and sex for the recognition of disgust such that men high in psychopathy performed significantly more poorly than men low in psychopathy in the identification of disgusted expressions, but there was no such relationship for women. This relationship was similar when either F1 or F2 were examined instead of fullscale LSRP scores. This finding suggests that although disgust has not been examined as an emotion of particular importance in the context of deficits in facial affect processing and psychopathy, perhaps future examinations should examine this emotion further. However, it is worth noting that, men high in psychopathy unlike in their ratings of fear, which was only rated as about 45% expressed, still rated disgusted expressions as about 70% disgusted, indicating that these individuals did recognize the face to be somewhat disgusted, but were interpreting the degree of disgust as significantly less severe than men low in psychopathy were. Perhaps individuals high in psychopathy who tend to have an inflated sense of self-worth are not particularly attuned to an emotion like disgust that would be providing direct negative feedback, since individuals high in psychopathy would be unlikely to think they were doing anything reprehensible.

Finally, there was an unexpected result such that men high in psychopathic traits performed more poorly in the identification of happy faces compared to men low in psychopathic traits (there was no such relationship for women). As was the case with disgust, men high in psychopathy were still rating these faces as approximately 80% happy, so they clearly did recognize the faces as happy, but merely rated them as less happy then men low in psychopathy did. This result suggests that participants may have been approaching the task in an unexpected way. The majority of participants seemed hesitant to place any of the sliders, even those for the opposite emotion (e.g., the happy slider for a sad face) at zero, and they also did not tend to put any one slider at 100% expressed, despite the intensity with which all of the emotions were supposedly expressed on the faces of the stimuli. Forcing participants into more specific choices and ratings than the slider scales may have yielded a different outcome.

NPI as an Independent Variable

To address concerns that the F1 subscale of the LSRP may not fully capture narcissistic traits (Seibert et al., 2010), NPI scores were also examined as an independent variable. For physical aggression, women with high NPI scores traits had a significantly stronger relationship between F1 traits and physical aggression than women with low NPI scores and men with either high or low NPI scores. A similar pattern was observed for proactive physical aggression, but not reactive aggression. These findings suggest that the NPI may be getting at facets of narcissism that the F1 subscale of the LSRP does not, at least for women, and that the combination of these measures may be the best predictor of physically aggressive behavior for women, rather than one or the other, particularly for planned, instrumental types of physical aggression.

Men and women with high NPI scores did not differ in their ratings of sad expressions regardless of their F1 trait levels. However, men with low NPI scores and high F1 trait levels

actually performed better than men low in F1 traits in the identification of sad expressions; the opposite was true for women with low NPI scores, who performed significantly worse in the recognition of sad expressions when they were high in F1 traits (as compared to women with low NPI scores and low F1 traits). These findings seem to suggest that F1 traits are key in deficits in sadness recognition, but only for women with low NPI scores. The finding that men with low NPI scores and high levels of F1 traits actually performed better in the recognition of sad expressions was surprising, and suggests that when NPI scores are low, F1 traits differently predict sadness recognition in men and women.

Facial Affect Recognition and Aggressive Behavior

Though it seemed likely that individuals behaving more aggressively may also be more deficient at identifying some emotional expressions (irrespective of their level of psychopathic traits), for the most part there were not strong relationships among facial affect recognition and aggressive behavior. The only exceptions to this finding were a marginally significant negative correlation between the recognition of fear and reactive physical aggression and a significant positive correlation between reactive relational aggression and the recognition of sadness. The marginally significant negative relationship between fear recognition and reactive physical aggression suggests that individuals who were reporting more instances of reactive (emotionally charged, unplanned) physical displays of aggression also appeared to perform more poorly in the recognition of fearful expressions. This finding makes sense; perhaps this dampened recognition of fear makes it more likely for a reactive, impulsive, display of physical aggression to be carried out (whereas individuals not deficient at recognizing fear would see the expression and manage to stop their physical attack). The positive correlation between reactive relational aggression and sadness recognition, however, seems counterintuitive. This finding suggests that participants

who reported more reactive relationally aggressive behavior also performed better in the recognition of sad expressions, which is the opposite of expectations. This result seems to suggest, as some of the other results involving the Detection of Emotional Face Task did, that participants were not interacting with the task in an expected manner, perhaps leading to some of these strange results.

Limitations and Future Directions

There were several limitations in the present examination. The current study used self-report measures to assess psychopathic traits and aggressive behaviors, which are not desirable traits. Participants may be less likely to endorse these types of items even in anonymous self-reports. The reports used here were not anonymous since participants reporting both high and low levels of psychopathic traits needed to be recruited for the second part of the investigation; including their name and email address in the survey likely dissuaded participants from reporting on these undesirable traits even though they may have been present at higher levels than the results reflected. Additionally, the LSRP, though suitable for use in this population, is freely available online, rather short, and has a few oddly worded items. Future examinations might instead use the Self-Report Psychopathy Scale-II (SRP-II; Hare, Harper, & Hemphill, 1989) which was developed by Robert Hare and is not freely available online, making it less likely that participants would have familiarity with the items on this measure.

Additionally, the ecological validity of the Detection of Emotional Face Task is somewhat questionable. The task presents participants with the faces of actors who have been instructed to express a particular emotion, and who are facing forward in a very staged manner. This way of viewing emotional expressions is likely not common on a daily basis, and therefore the task may not be assessing ability in emotion processing in a manner that is applicable to real

life interactions. To add to issues with this task, participants were allowed to adjust all 10 sliders to represent whatever percentage of emotional expression they wished; in theory, they could have noted that all 10 emotions were 100% expressed on every face they viewed. Perhaps a different version of this task, such as one that forces a single choice among the emotions or forces the slider percentages to add to 100% would be a better measure of facial affect recognition.

Furthermore, all of the stimuli used in the current study were expressing "100%" of the given emotion, which may have been too extreme to get at more subtle differences in facial affect recognition that may exist. Future examinations could use different emotional morphs of the same faces expressing emotions to varying degrees to determine if there might be a threshold beyond which individuals high in psychopathy can no longer accurately detect the emotion, whereas individuals low in psychopathy may still be able to make the distinction.

In the future, it might be interesting to examine the role of facial affect recognition as a mediator between psychopathic traits and aggression. Though the current study did not provide strong associations between facial affect recognition and either aggressive behavior or psychopathic traits, if strong relationships were found in the future, testing this mediator model would be a good avenue.

Future examinations may also investigate whether levels of psychopathic traits differ among different types of colleges and universities. Since it has been suggested that individuals with psychopathy may rise to success in the modern workplace (Babiak & Hare, 2006), it would be interesting to see whether more selective institutions happen to preferentially select individuals with these traits. It would also be interesting to examine whether the F1 or F2 traits are more or less prevalent at different types of schools, or within certain college majors. Perhaps

individuals drawn to major in particular fields, such as economics, that are associated with positions in business later in life may be more likely to wind up as one of Babiak and Hare's (2006) "white-collar psychopaths," than students in other fields such as psychology that require active consideration of other people. Perhaps individuals more likely to be high in psychopathy and yet remain undetected in our population are higher in F1 traits such as lacking guilt and empathy that may make them more likely to get ahead in school or in a job, and lower in F2 traits such as impulsivity and lacking long-term goals, so that they are able to succeed and perhaps control some of their more destructive impulses.

Finally, a similar version of the current study could be carried out using other types of community samples. It would be particularly interesting to compare the relationships among sex, psychopathic traits, aggressive behavior, and facial affect recognition between business professionals and other professions, such as teachers. It would also be interesting to compare these variables between criminals incarcerated for white-collar crimes and criminals serving time for violent offenses.

Conclusions

Based on these findings, men and women high in psychopathic traits reported behaving more relationally and physically aggressively than their peers, even in this community sample. The lack of a relationship between psychopathic traits and sadness recognition for either sex suggests that failure to recognize sad expressions may not be the reason that relational aggression was employed more often by individuals high in psychopathy, at least in this population. The trend towards worse fear recognition for men high in psychopathic traits (and the trend for both men and women when F2 traits were considered) could be related to the increased use of physical aggression by individuals high in psychopathy. Overall, it is entirely possible that

individuals high in psychopathic traits in sub-clinical samples may behave more aggressively towards others, not because they do not recognize emotional expressions of distress or submission, but because they simply do not care about the emotional consequences of their actions for others. Future research is needed to examine these hypotheses.

References

Ames, D., Rose, P. & Anderson, C. (2006). The NPI-16 as a short measure of narcissism. *Journal of Research in Personality*, *40*, 440-450. doi: 10.1016/j.jrp.2005.03.002

Archer, J. (2004). Sex differences in aggression in real-world settings: A meta-analytic review. *Review of General Psychology*, *8*, 291-322. doi: 10.1037/1089-2680-2680.8.4.291

Archer, J. & Coyne, S.M. (2005) An integrated review of indirect, relational, and social aggression. *Personality and Social Psychology Review*, *9*, 212-230. doi: 10.1207/s15327957pspr0903_2

Babiak, P. & Hare, R.D. (2006). *Snakes in Suits*. New York, NY: Harper Collins.

Beaupre, M.G. & Hess, U. (2005). Cross-cultural emotion recognition among Canadian ethnic groups. *Journal of Cross-Cultural Psychology*, *36*, 355-370. doi: 10.1177.0022022104273656

Belitsky, C.A., Toner, B.B., Ali, A., Yu, B., Osborne, S.L., & deRooy, E. (1996). Sex-role attitudes and clinical appraisal in psychiatry residents. *Canadian Journal of Psychiatry*, *41*, 503-508.

Book, A.S., Quinsey, V.L., & Langford, D. (2007). Psychopathy and the perception of affect and vulnerability. *Criminal Justice and Behavior*, *34*, 531-544. doi: 10.1177/0093854806293554

Brinkley, C.A., Schmitt, W.A., Smith, S.S., & Newman, J.P. (2001). Construct validation of a self-report psychopathy scale: Does Levenson's self-report psychopathy scale measure the same constructs as Hare's Psychopathy Checklist-Revised? *Personality and Individual Differences*, *31*, 1021-1038. doi: 10.1016/s0191-8869(00)00178-1

Cale, E.M. & Lilienfeld, S.O. (2002). Sex differences in psychopathy and antisocial personality disorder: A review and integration. *Clinical Psychology Review*, *22*, 1179-1207. doi: 10.1016/s0272-7358(01)00125-8

Cima, M. & Raine, A. (2009). Distinct characteristics of psychopathy relate to different subtypes of aggression. *Personality and Individual Differences*, *47*, 835-840. doi: 10.1016/j.paid.2009.06.031

Czar, K.A., Dahlen, E.R., Bullock, E.E., & Nicholson, B.C. (2011). Psychopathic personality traits in relational aggression among young adults. *Aggressive Behavior*, *37*, 207-214. doi: 10.1002/ab.20381

Eisenbarth, H., Alpers, G.W., Segre, D., Calogero, A., & Angrilli, A. (2008). Categorization and evaluation of emotional faces in psychopathic women. *Psychiatry Research*, *159*, 189-195. doi: 10.1016/j.psychres.2007.09.001

Falkenbach, D.M. (2008). Psychopathy and the assessment of violence in women. *Journal of Forensic Psychology Practice*, *8*, 212-224. doi: 10.1080/15228930801964125

Forouzan, E. & Cooke, D.J. (2005). Figuring out *la femme fatale*: Conceptual and assessment issues concerning psychopathy in females. *Behavioral Sciences and the Law*, *23*, 765-778. doi: 10.1002/bsl.669

Gentile, B., Miller, J.D., Hoffman, B.J., Reidy, D.E., Zeichner, A., & Campbell, W.K. (2013). A test of two brief measures of grandiose narcissism: The Narcissistic Personality Inventory-13 and the Narcissistic Personality Inventory-16. *Psychological Assessment*, *25*, 1120-1136. doi: 10.1037/a0033192

Gregory, R.J. (2011). *Psychological testing: History, principles, and applications*. (6th ed). Boston: Pearson Education.

Grieve, R. & Panebianco, L. (2013). Assessing the role of aggression, empathy, and self-serving cognitive distortions in trait emotional manipulation. *Australian Journal of Psychology*, *65*, 79-88. doi: 10.1111/j.1742-9536.2012.00059.x

Gummelt, H.D., Anestis, J.C., & Carbonell, J.L. (2012). Examining the Levenson Self Report Psychopathy Scale using a graded response model. *Personality and Individual Differences*, *53*, 1002-1006. doi: 10.1016/j.paid.2012.07.014

Hare, R.D. (1991). *The psychopathy checklist – revised manual*. Toronto, ON: Multi-Health Systems.

Hare, R.D. (2003). *The Hare Psychopathy Checklist-Revised*, *2nd Edition*. Toronto, ON: Multi-Health Systems.

Hare, R.D. & Neumann, C.S. (2008). Psychopathy as a clinical and empirical construct. *Annual Review of Clinical Psychology*, *4*, 217-246. doi: 10.1146/annurev.clinpsy.3.022806.091452

Hicks, B.M., Vaidyanathan, U., & Patrick, C.J. (2010). Validating female psychopathy subtypes: Differences in personality, antisocial and violent behavior, substance abuse, trauma, and mental health. *Personality Disorders: Theory, Research, and Treatment*, *1*, 38-57. doi: 10.10.37/a0018135

Levenson, M., Kiehl, K., & Fitzpatrick, C. (1995). Assessing psychopathic attributes in a noninstitutionalized population. *Journal of Personality and Social Psychology*, *68*, 151-158. doi: 10.1037//0022-3514.68.1.151

Linder, R.L., Crick, N.R., & Collins, W.A. (2002). Relational aggression and victimization in young adults' romantic relationships: Associations with perceptions of parent, peer, and

romantic relationship quality. *Social Development*, *11*, 69-86. doi: 10.1111/1467-9507.00187

Marion, B.E. & Sellbom, M. (2011). An examination of gender-moderated test bias on the Levenson Self-Report Psychopathy Scale. *Journal of Personality Assessment*, *93*, 235-243. doi: 10.1080/00223891.2011.558873

Marsee, M.A., Silverthorn, P., & Frick, P.J. (2005). The association of psychopathic traits with aggression and delinquency in non-referred boys and girls. *Behavioral Sciences and the Law*, *23*, 803-817. doi: 10.1002/bsl.662

Miller, J.D. & Lynam, D.R. (2003). Psychopathy and the five-factor model of personality: A replication and extension. *Journal of Personality Assessment*, *81*, 168-178. doi: 10.1207/s15327752JPA8102_08

Miller, Watts, & Jones (2011). Does psychopathy manifest divergent relations with components of its nomilogical network depending on gender? *Personality and Individual Differences*, *50*, 564-569. doi: 10.1016/j.paid.2010.11.028

Murray-Close, D., Ostrov, J.M., Nelson, D.A., Crick, N.R., & Coccaro, E.F. (2010). Proactive, reactive, and romantic relational aggression in adulthood: Measurement, predictive validity, gender differences, and association with intermittent explosive disorder. *Journal of Psychiatric Research*, *44*, 393-404. doi: 10.1016/j.jpsychires.2009.09.005

Neumann, C.S. & Hare, R.D. (2008). Psychopathic traits in a large community sample: links to violence, alcohol use, and intelligence. *Journal of Consulting and Clinical Psychology*, *76*, 893-899. doi: 10.1037/0022-006X.76.5.893

Neumann, C.S., Schmitt, D.S., Carter, R., Embley, I., & Hare, R.D. (2012). Psychopathic traits in females and males across the globe. *Behavioral Sciences and the Law*, *30*, 557-574. doi: 10.1002/bsl.2038

Nouvion, S.O., Cherek, D.R., Lane, S.D., Tcheremissine, O.V., & Lieving, L.M. (2007). Human proactive aggression: Association with personality disorders and psychopathy. *Aggressive Behavior*, *33*, 552-562. doi: 10.1002/ab.20220

Ostrov, J.M. & Houston, R.J. (2008). The utility of forms and functions of aggression in emerging adulthood: Association with personality disorder symptomatology. *Journal of Youth and Adolescence*, *37*, 1147-1158. doi: 10.1007/s10964-008-9289-4

Raskin, R. & Terry, H. (1988). A principal-components analysis of the Narcissistic Peraonlity Inventory and further evidence of its construct validity. *Journal of Personality and Social Psychology*, *54*, 890-902. doi: 10.1037//0022-3514.54.5.890

Reidy, D.E., Zeichner, A., & Foster, J.D. (2009). Psychopathy, aggression, and emotion processing of violent imagery in women. *Journal of Research in Personality*, *43*, 928-932. doi: 10.1016/j.jrp.2009.06.004

Rogstad, J.E. & Rogers, R. (2008). Gender differences in contributions of emotion to psychopathy and antisocial personality disorder. *Clinical Psychology Review*, *28*, 1472-1484. doi: 10.1016/j.cpr.2008.09.004

Rutherford M.J., Alterman, A.I., Cacciola, J.S. & McKay, J.R. (1998). Gender differences in the relationship of antisocial personality disorder criteria to Psychopathy Checklist-Revised scores. *Journal of Personality Disorders*, *12*, 69-76. doi: 10.1521/pedi.1998.12.1.69

Salekin, R.T., Chen, D.R., Selbom, M., Lester, W.S., & MacDougall, E. (2014). Examining the factor structure and convergent and discriminant validity of the Levenson Self-Report

Psychopathy Scale: Is the two-factor model the best fitting model? *Personality Disorders, Theory, Research, and Treatment*, *5*, 289-304. doi: 10.1037/per0000073

Schmeelk, K.M., Sylvers, P., & Lilienfeld, S.O. (2008). Trait correlates of relational aggression in a nonclinical sample: DSM-IV personality disorders and psychopathy. *Journal of Personality Disorders*, *22*, 269-283. doi: 10.1521/pedi.2008.22.3.269

Seibert, L.A., Miller, J.D., Few, L.R., Zeichner, A., & Lynam, D.R. (2010). An examination of the structure of self-report psychopathy measures and their relations with general traits and externalizing behaviors. *Personality Disorders, Theory, Research, and Treatment*, *2*, 193-208.

Snowden, R.J., Craig, R., & Gray N.S. (2013). Detection and recognition of emotional expressions: Effects of traits of personality disorder and gender. *Personality and Individual Differences*, *54*, 158-163. doi: 10.1016/j.paid.2012.08.007

Thayer, J.F. & Johnsen, B.H. (2000). Sex differences in judgment of facial affect: A multivariate analysis of recognition errors. *Scandinavian Journal of Psychology*, *41*, 243-246.

Vaillancourt, T. & Sunderani, S. (2011). Psychopathy and indirect aggression: The roles of cortisol, sex, and type of psychopathy. *Brain and Cognition*, *77*, 170-175. doi: 10.1016/j.bandc.2011.06.009

Visser, B.A., Pozzebon, J.A., Bogaert, A.F., & Ashton, M.C. (2010). Psychopathy, sexual behavior, and esteem: It's different for girls. *Personality and Individual Differences*, *48*, 833-838. doi: 10.1016/j.paid.2010.02.008

Vitale, J.E., MacCoon, D.G., & Newman, J.P. (2011). Emotion facilitation and passive avoidance learning in psychopathic female offenders. *Criminal Justice and Behavior*, *38*, 641-658. doi: 10.1177/0093854811403590

Verona, E., Bresin, K., & Patrick, C.J. (2013). Revisiting psychopathy in women: Cleckley/Hare conceptions and affective response. *Journal of Abnormal Psychology*, *122*, 1088-1093. doi: 10.1037/a0034062

Werner, N.E. & Crick, N.R. (1999). Relational aggression and social-psychological adjustment in a college sample. *Journal of Abnormal Psychology*, *108*, 615-623. doi: 0021-843X/99/$3.00

Wilson, K., Juodis, M., & Porter, S. (2011). Fear and loathing in psychopaths: A meta-analytic investigation of the facial affect recognition deficit. *Criminal Justice and Behavior*, *38*, 659-668. doi: 10.1177/0093854811404120

Table 1

Means and Standard Deviations for Psychopathy, Narcissism, and Aggression

Measure	*N*	*M*(*SD*)
LSRP	220	1.87(0.40)
F1	219	1.82(0.47)
F2	221	1.96(0.45)
NPI	219	4.50(3.03)
Relational Aggression	219	2.08(0.81)
Proactive	220	1.82(0.83)
Reactive	219	2.35(0.97)
Romantic	125	1.94(0.95)
Physical Aggression	220	1.51(0.80)
Proactive	220	1.46(0.79)
Reactive	217	1.56(0.95)

Note. LSRP = Levenson Self-Report Psychopathy Scale; NPI = Narcissistic Personality Inventory. Psychopathy was measured on a scale from 1 = low to 4 = high; narcissism was measured on a scale from 0 to 16; aggression was measured on a scale from 1 to 7.

Table 2

Sex Differences in Psychopathic Traits

	M(*SD*)	*t*	*p*
Psychopathic Traits			
Total LSRP		3.32	.001
Women	1.82(0.38)		
Men	2.01(0.43)		
F1		-3.10	.002
Women	1.75(0.44)		
Men	1.91(0.52)		
F2		-2.54	.012
Women	1.91(0.44)		
Men	2.08(0.46)		

Note. LSRP = Levenson Self-Report Psychopathy Scale; F1 = Aggressive Narcissism LSRP subscale ; F2 = Antisocial Behavior LSRP subscale. Psychopathy was measured on a scale from 1 = low to 4 = high.

Table 3

Sex Differences in Aggressive Behavior

	M(*SD*)	*t*	*p*
Relational Aggression			
Total		0.29	.930
Women	2.06(0.82)		
Men	2.10(0.79)		
Proactive		-1.60	.111
Women	1.77(0.84)		
Men	1.97(0.79)		
Reactive		-0.55	.581
Women	2.32(0.95)		
Men	2.40(0.98)		
Romantic		1.39	.166
Women	2.02(0.98)		
Men	1.76(0.87)		
Physical Aggression			
Total		3.28	.001
Women	1.40(0.78)		
Men	1.79(0.82)		
Proactive		-2.31	.022
Women	1.38(0.77)		
Men	1.66(0.83)		
Reactive		-3.62	.000
Women	1.42(0.92)		
Men	1.94(0.94)		

Note. Aggressive behavior was measured on a scale from 1 (low) to 7 (high).

Table 4

Sex Differences in Facial Affect Recognition

	M(*SD*)	*t*	*p*
Anger		2.33	.024
Women	62.20(14.52)		
Men	51.88(17.11)		
Disgust		2.21	.031
Women	84.23(10.72)		
Men	75.73(17.78)		
Fear		2.45	.018
Women	60.10(19.85)		
Men	46.00(20.47)		
Happiness		1.83	.073
Women	90.12(8.09)		
Men	84.65(14.08)		
Sadness		1.28	.207
Women	74.57(16.51)		
Men	68.36(17.74)		
Shame		1.11	.274
Women	71.30(13.96)		
Men	66.51(17.17)		

Note: Rating is percentage reported for the emotion that matched each face

Table 5

Frequency of Endorsement of Factor 1 Psychopathy Items by Sex

LSRP Item	Women		Men			
Endorsed?	Yes	No	Yes	No	X^2 (df)	*p*
1. Success is based on survival of the fittest; I am not concerned about the losers.	36[b]	122[a]	26[a]	35[b]	10.98 (2)	.004
2. For me, what's right is whatever I can get away with.	20	138	10	51	0.68 (2)	.712
3. In today's world, I feel justified in doing anything I can get away with to succeed.	25	133	15	46	6.62 (2)	.037
4. My main purpose in life is getting as many goodies as I can.	30	128	8	52	1.18 (2)	.554
5. Making a lot of money is my most important goal.	55	102	21	40	0.54 (2)	.763
6. I let others worry about higher values; my main concern is with the bottom line.	19	138	11	49	1.58 (2)	.454
7. People who are stupid enough to get ripped off usually deserve it.	19[b]	138[a]	14[a]	47[b]	9.41 (2)	.009
8. Looking out for myself is my top priority.	73	84	32	29	1.55 (2)	.460
9. I tell other people what they want to hear so that they will do what I want them to do.	52	106	23	38	2.351 (2)	.309
10. I would be upset if my success came at someone else's expense. (R)	25[b]	133[a]	16[a]	42[b]	6.71 (2)	.035
11. I often admire a really clever scam.	38[b]	120[a]	28[a]	33[b]	12.22 (2)	.002
12. I make a point of trying not to hurt others in pursuit of my goals. (R)	27	131	7	54	1.25 (2)	.537
13. I enjoy manipulating other people's feelings.	10	147	8	53	13.10 (2)	.001
14. I feel bad if my words or actions cause someone to feel emotional pain. (R)	13	144	7	54	0.641 (2)	.726
15. Even if I were trying very hard to sell something, I wouldn't lie about it. (R)	39[b]	118[a]	26[a]	35[b]	8.93 (2)	.012
16. Cheating is not justified because it is unfair to others. (R)	25[b]	132[a]	20[a]	41[b]	11.31 (2)	.004

Note. LSRP = Levenson Self-Report Psychopathy Scale. [a] indicates that count was greater than expected. [b] indicates that count was less than expected

Table 6

Frequency of Endorsement of Factor 1 Psychopathy Items by Sex

LSRP Item	Women		Men			
Endorsed?	Yes	No	Yes	No	X^2 (df)	*p*
1. I find myself in the same kinds of trouble, time after time.	39[b]	119[a]	28[a]	33[b]	9.80 (2)	.007
2. I am often bored.	69	89	28	33	1.34 (2)	.512
3. I find that I am able to pursue one goal for a long time. (R)	36	121	18	43	1.35 (2)	.509
4. I don't plan anything very far in advance.	45	112	26[a]	35[b]	4.39 (2)	.111
5. I quickly lose interest in tasks I start.	48	110	25	36	2.73 (2)	.255
6. Most of my problems are due to the fact that other people just don't understand me.	40[b]	118[a]	27[a]	34[b]	7.90 (2)	.019
7. Before I do anything, I carefully consider the possible consequences. (R)	22	136	12	49	1.30 (2)	.523
8. I have been in a lot of shouting matches with other people.	20	138	13	48	2.76 (2)	.251
9. When I get frustrated, I often "let off steam" by blowing my top.	24	134	10	51	0.23 (2)	.890
10. Love is overrated.	25	133	11	50	5.12 (2)	.077

Note. LSRP = Levenson Self-Report Psychopathy Scale. [a] indicates that count was greater than expected. [b] indicates that count was less than expected

Table 7

Frequency of Endorsement of Factor 1 Psychopathy Items by Sex for Those Scoring in Upper 25% on Total Psychopathy

LSRP Item Endorsed?	Women		Men			
	Yes	No	Yes	No	X^2 (df)	*p*
1. Success is based on survival of the fittest; I am not concerned about the losers.	16	12	14	6	1.42 (2)	.491
2. For me, what's right is whatever I can get away with.	13	15	9	11	0.84 (2)	.657
3. In today's world, I feel justified in doing anything I can get away with to succeed.	16	12	10	10	1.07 (2)	.585
4. My main purpose in life is getting as many goodies as I can.	17	11	7	13	4.07 (2)	.131
5. Making a lot of money is my most important goal.	21	7	12	8	3.30 (2)	.192
6. I let others worry about higher values; my main concern is with the bottom line.	13	15	8	12	0.96 (2)	.618
7. People who are stupid enough to get ripped off usually deserve it.	8	20	14	6	2.33 (2)	.313
8. Looking out for myself is my top priority.	22	6	16	4	3.54 (2)	.170
9. I tell other people what they want to hear so that they will do what I want them to do.	20	8	11	9	1.93 (2)	.381
10. I would be upset if my success came at someone else's expense. (R)	8[b]	20[a]	12[a]	8[b]	5.47 (2)	.065
11. I often admire a really clever scam.	14	14	12	8	1.30 (2)	.521
12. I make a point of trying not to hurt others in pursuit of my goals. (R)	13	15	5	15	2.90 (2)	.235
13. I enjoy manipulating other people's feelings.	4	23	6	14	4.94 (2)	.085
14. I feel bad if my words or actions cause someone to feel emotional pain. (R)	8	19	5	15	0.50 (2)	.777
15. Even if I were trying very hard to sell something, I wouldn't lie about it. (R)	13	14	12	8	1.51 (2)	.469
16. Cheating is not justified because it is unfair to others. (R)	8	19	11	9	4.47 (2)	.107

Note. LSRP = Levenson Self-Report Psychopathy Scale. [a] indicates that count was greater than expected. [b] indicates that count was less than expected

Table 8

Frequency of Endorsement of Factor 1 Psychopathy Items by Sex for Those Scoring in Upper 25% on Total Psychopathy

LSRP Item Endorsed?	Women		Men		X^2 (df)	*p*
	Yes	No	Yes	No		
1. I find myself in the same kinds of trouble, time after time.	15	13	12	8	1.45 (2)	.485
2. I am often bored.	21	7	14	6	0.52 (2)	.772
3. I find that I am able to pursue one goal for a long time. (R)	10	18	9	11	1.07 (2)	.586
4. I don't plan anything very far in advance.	11[b]	17[a]	15[a]	5[b]	7.13 (2)	.028
5. I quickly lose interest in tasks I start.	13	15	12	8	1.92 (2)	.382
6. Most of my problems are due to the fact that other people just don't understand me.	13	15	13	7	2.77 (2)	.250
7. Before I do anything, I carefully consider the possible consequences. (R)	10	18	6	14	0.67 (2)	.716
8. I have been in a lot of shouting matches with other people.	7	21	8	12	1.69 (2)	.430
9. When I get frustrated, I often "let off steam" by blowing my top.	9	19	5	15	0.70 (2)	.705
10. Love is overrated.	11	17	10	10	1.79 (2)	.408

Note. LSRP = Levenson Self-Report Psychopathy Scale. [a] indicates that count was greater than expected. [b] indicates that count was less than expected

Table 9

Correlations Among Outcome Measures, Narcissism, and Psychopathy

	Total LSRP		LSRP F1		LSRP F2		NPI	
	r	*p*	*r*	*p*	*r*	*p*	*r*	*p*
Relational Aggression	.57	.000	.51	.000	.45	.000	.25	.000
Proactive	.56	.000	.49	.000	.44	.000	.26	.000
Reactive	.54	.000	.49	.000	.42	.000	.23	.001
Romantic	.38	.000	.33	.000	.30	.001	.13	.152
Physical Aggression	.50	.000	.44	.000	.40	.000	.32	.000
Proactive	.52	.000	.50	.000	.35	.000	.35	.000
Reactive	.42	.000	.34	.000	.39	.000	.25	.000
Facial Affect Recognition								
Anger	-.16	.249	-.18	.206	-.11	.431	-.05	.731
Disgust	-.16	.245	-.14	.322	-.14	.311	-.08	.582
Fear	-.33	.014	-.28	.038	-.32	.017	-.24	.082
Happiness	-.21	.121	-.18	.194	-.20	.141	-.13	.362
Sadness	-.02	.884	-.02	.893	-.04	.768	-.08	.555
Shame	-.09	.517	-.11	.436	-.04	.753	-.12	.386
NPI	.41	.000	.48	.000	.14	.038		

Note. LSRP = Levenson Self-Report Psychopathy Scale; F1 = Factor 1 traits LSRP subscale; F2 = Factor 2 traits LSRP subscale ; NPI = Narcissistic Personality Inventory .

Table 10

Prediction of Aggressive Behavior as a Function of Total Psychopathy and its Interaction with Sex

	Total LSRP		LSRP*Sex	
Dependent Variable	*β*	*p*	*t*	*p*
Relational Aggression	0.67	.000	-2.03	.043
Proactive	0.67	.000	-2.66	.008
Reactive	0.60	.000	-1.46	.146
Romantic	0.49	.000	-0.24	.808
Physical Aggression	0.56	.000	-1.45	.066
Proactive	0.56	.000	-1.36	.176
Reactive	0.47	.000	-1.85	.066

Note. LSRP = Levenson Self-Report Psychopathy Scale.

Table 11

Prediction of Aggressive Behavior as a Function of Factor 1 Psychopathy Traits and Their Interaction with Sex

	F1		F1*Sex	
Dependent Variable	*β*	*p*	*t*	*p*
Relational Aggression	0.60	.000	-1.66	.098
Proactive	0.62	.000	-2.94	.004
Reactive	0.53	.000	-0.76	.446
Romantic	0.44	.000	-0.40	.691
Physical Aggression	0.51	.000	-2.17	.031
Proactive	0.58	.000	-2.13	.035
Reactive	0.39	.000	-1.74	.084

Table 12

Prediction of Aggressive Behavior as a Function of Factor 2 Psychopathy Traits and Their Interaction with Sex

	F2		F2*Sex	
Dependent Variable	*β*	*p*	*t*	*p*
Relational Aggression	0.53	.000	-1.75	.082
Proactive	0.48	.000	-0.86	.393
Reactive	0.49	.000	-2.17	.031
Romantic	0.35	.001	0.17	.865
Physical Aggression	0.41	.000	-0.57	.571
Proactive	0.34	.000	0.07	.945
Reactive	0.41	.000	-1.11	.270

Table 13

Prediction of Facial Affect Recognition as a Function of Total Psychopathy and its Interaction with Sex

	LSRP		LSRP*Sex	
Dependent Variable	*β*	*p*	*t*	*p*
Anger	-0.09	.556	-0.29	.776
Disgust	0.04	.774	-2.00	.051
Fear	-0.25	.112	-0.56	.580
Happiness	-0.01	.950	-2.06	.045
Sadness	0.04	.800	-0.43	.668
Shame	0.01	.943	-0.92	.364

Note. LSRP = Levenson Self-Report Psychopathy Scale

Table 14

Prediction of Facial Affect Recognition as a Function of Factor 1 Psychopathy Traits and Their Interaction with Sex

	F1		F1*Sex	
Dependent Variable	*β*	*p*	*t*	*p*
Anger	-0.09	.578	-0.33	.743
Disgust	0.09	.586	-1.92	.060
Fear	-0.18	.257	-0.53	.600
Happiness	0.03	.841	-1.88	.066
Sadness	0.03	.849	-0.20	.840
Shame	-0.01	.959	-0.78	.439

Table 15

Prediction of Facial Affect Recognition as a Function of Factor 2 Psychopathy Traits and Their Interaction with Sex

	F2		F2*Sex	
Dependent Variable	*β*	*p*	*t*	*p*
Anger	-0.09	.581	-0.05	.962
Disgust	0.02	.879	-1.74	.088
Fear	-0.27	.081	-0.45	.656
Happiness	-0.03	.847	-1.87	.067
Sadness	0.03	.873	-0.64	.522
Shame	0.04	.801	-0.86	.396

Table 16

Correlations Among Facial Affect Recognition of Six Emotions and Aggressive Behavior

	Anger		Disgust		Fear		Happiness		Sadness		Shame	
	r	*p*	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*
Relational Aggression	.10	.482	.15	.286	.01	.926	-.02	.897	.21	.117	.00	.997
Proactive	.03	.806	.07	.596	-.02	.904	-.07	.612	.15	.261	-.03	.806
Reactive	.19	.161	.19	.166	.11	.416	.06	.675	.34	.011	.17	.222
Romantic	-.05	.789	.24	.202	-.23	.206	.07	.727	.02	.923	-.12	.507
Physical Aggression	.06	.663	-.02	.893	-.17	.230	-.04	.797	.03	.844	-.06	.652
Proactive	.13	.359	.10	.467	-.05	.710	.01	.972	.10	.450	-.01	.948
Reactive	-.01	.950	-.13	.342	-.26	.057	-.07	.607	-.49	.724	-.12	.436

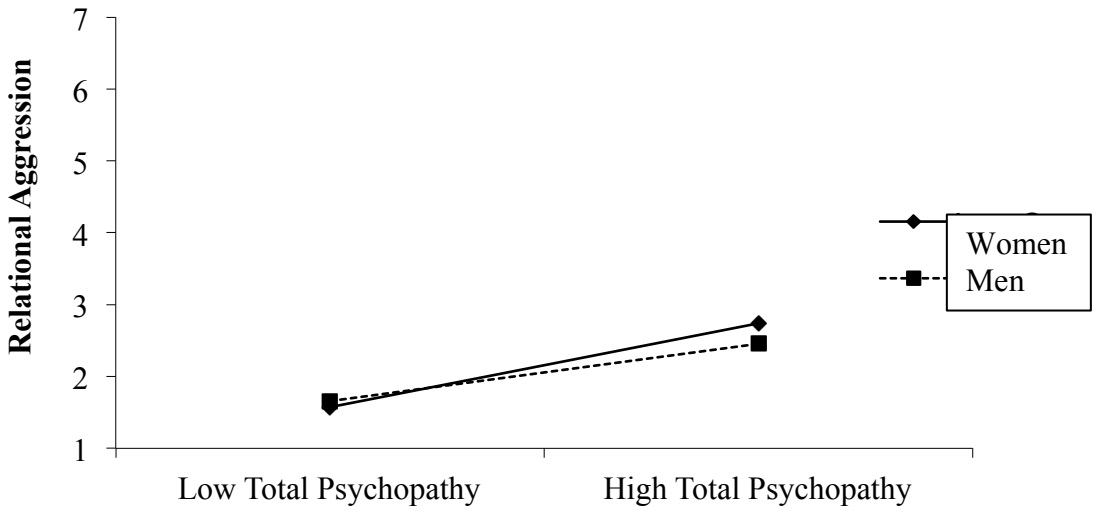

Figure 1. Sex moderates the relationship between total psychopathy and relational aggression.

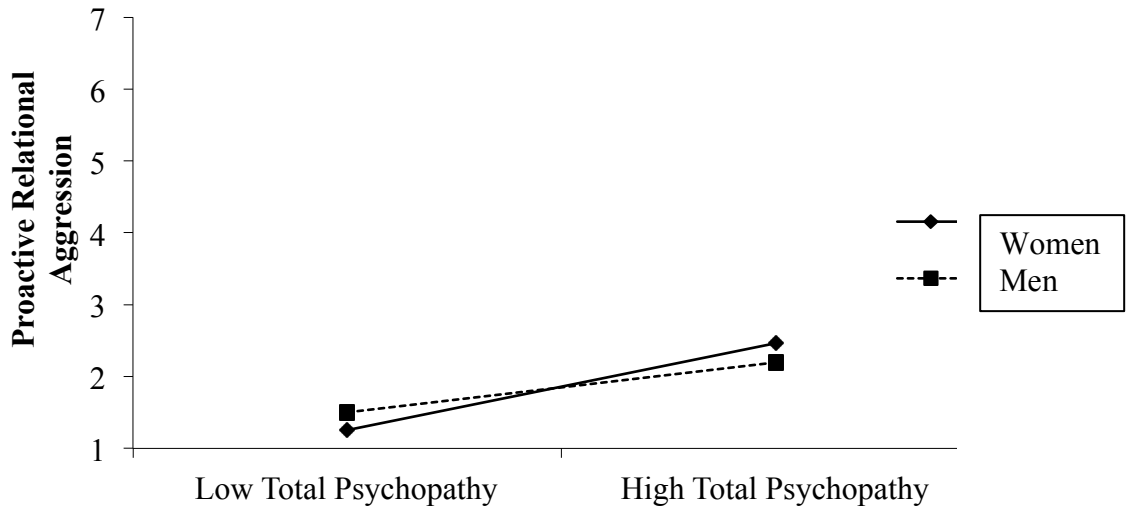

Figure 2. Sex moderates the relationship between total psychopathy and proactive relational aggression.

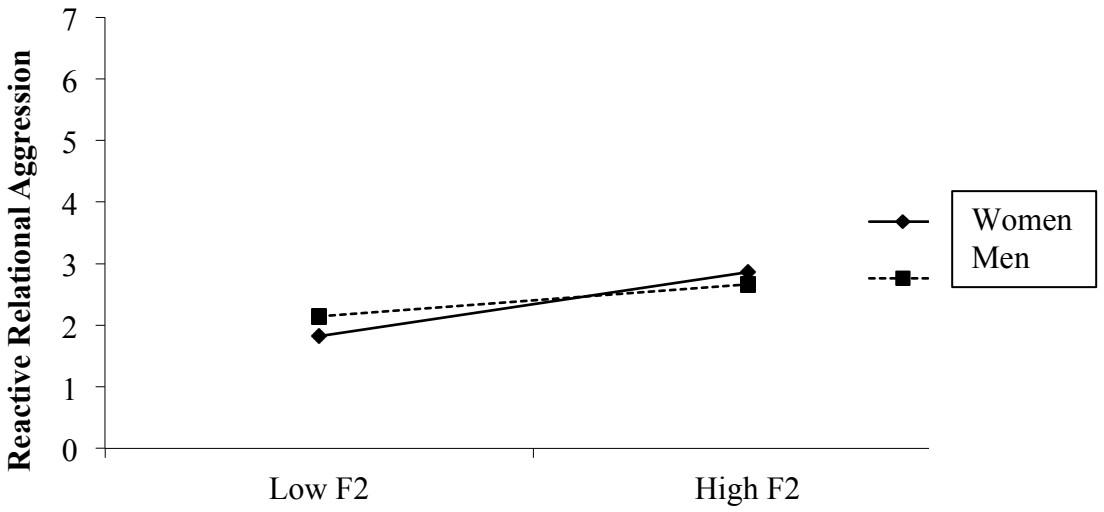

Figure 3. Sex moderates the relationship between total psychopathy and reactive relational aggression.

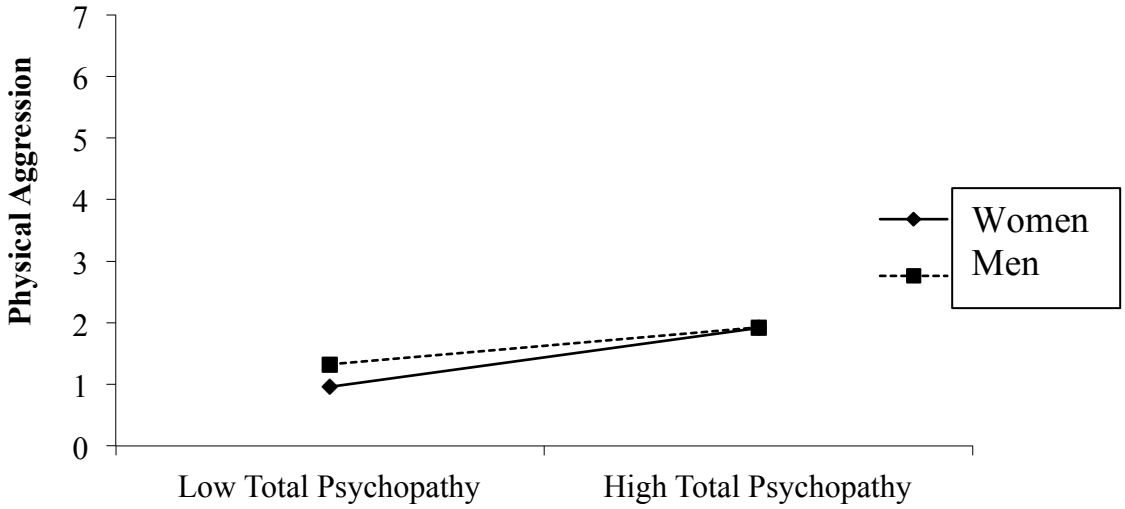

Figure 4. Sex moderates the relationship between total psychopathy and physical aggression.

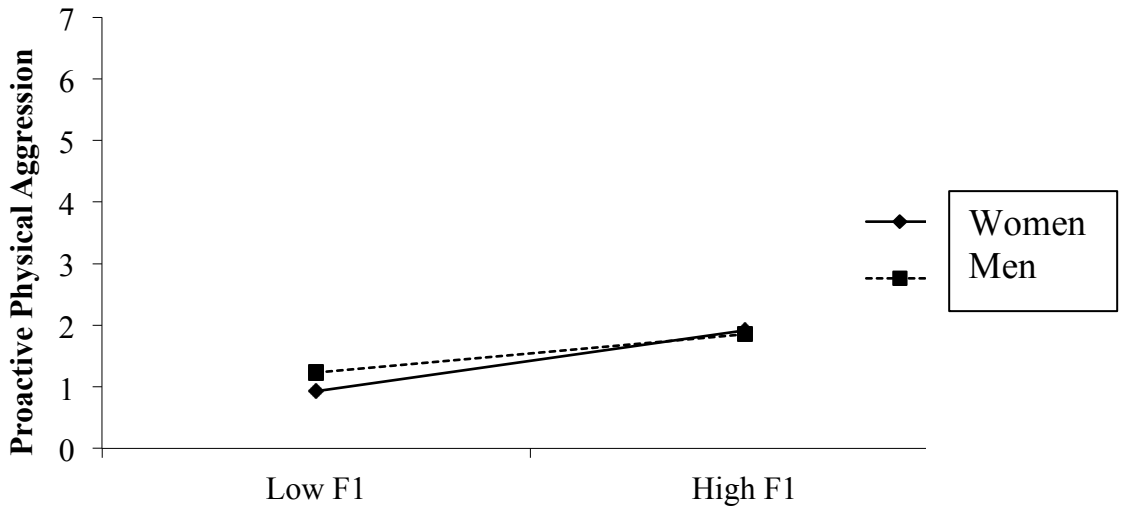

Figure 5. Sex moderates the relationship between total psychopathy and proactive physical aggression.

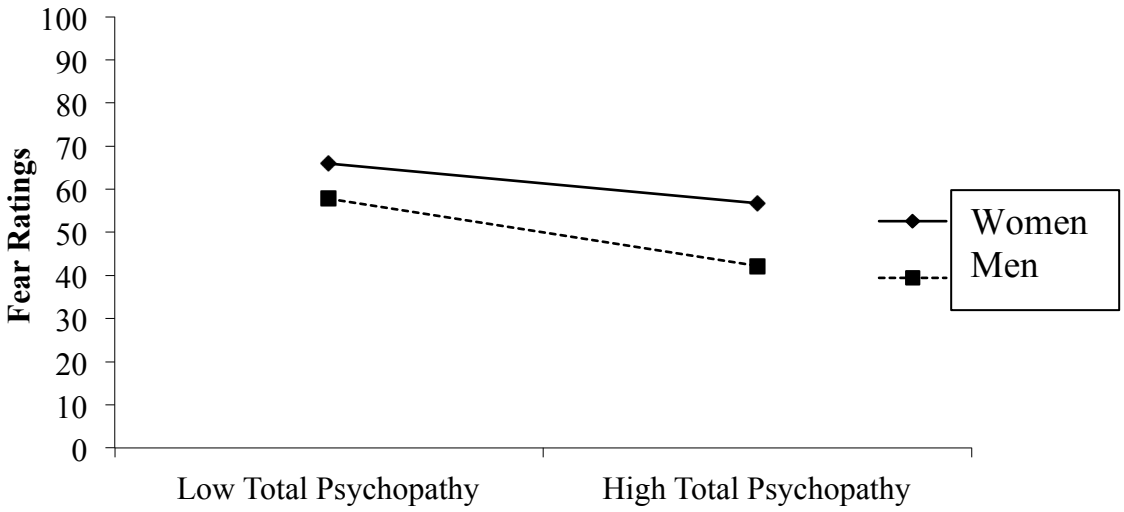

Figure 6. Sex may moderate the relationship between total psychopathy and facial fear recognition.

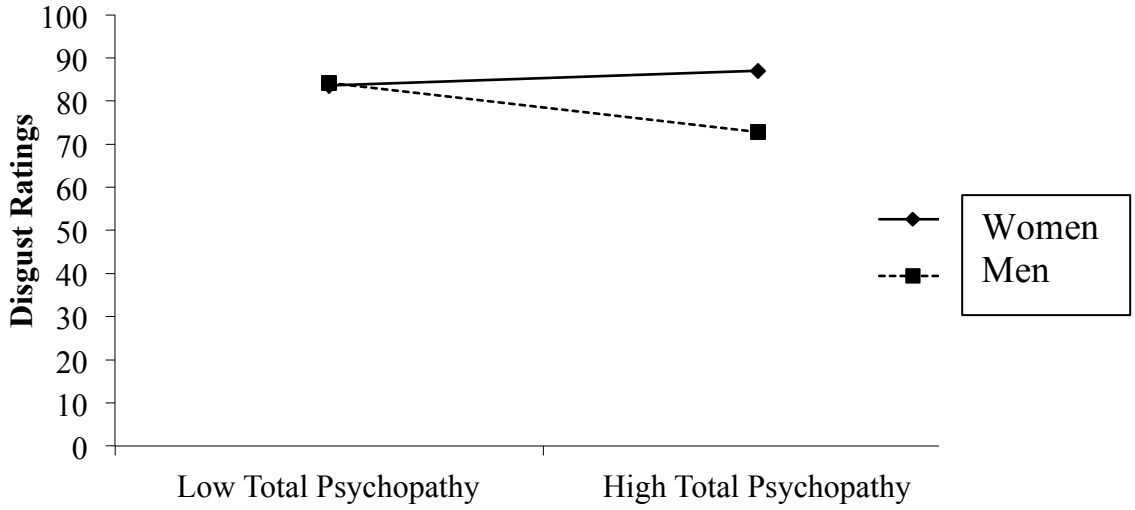

Figure 7. Sex moderates the relationship between total psychopathy and facial disgust ratings.

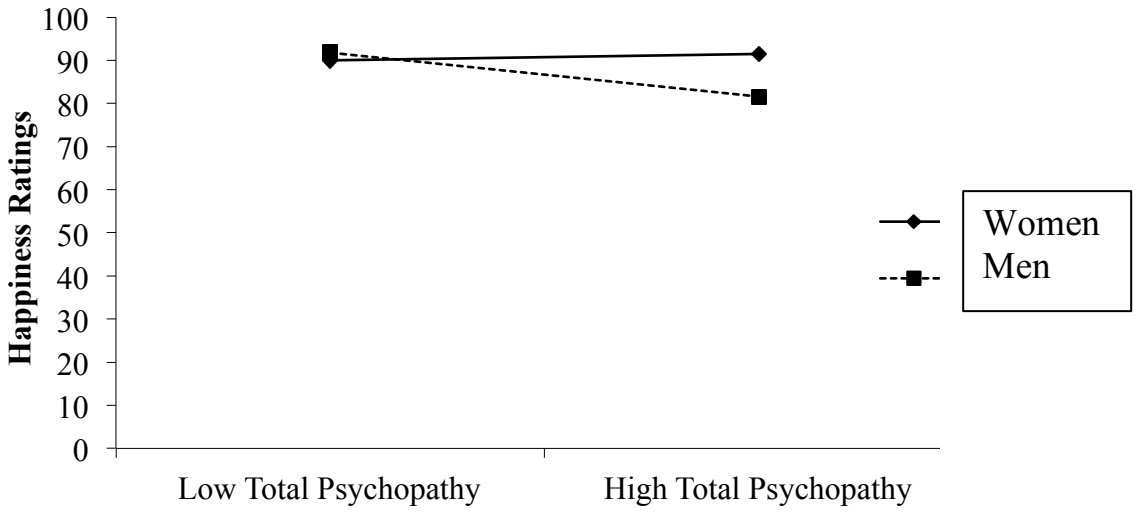

Figure 8. Sex moderates the relationship between total psychopathy and facial happiness ratings.

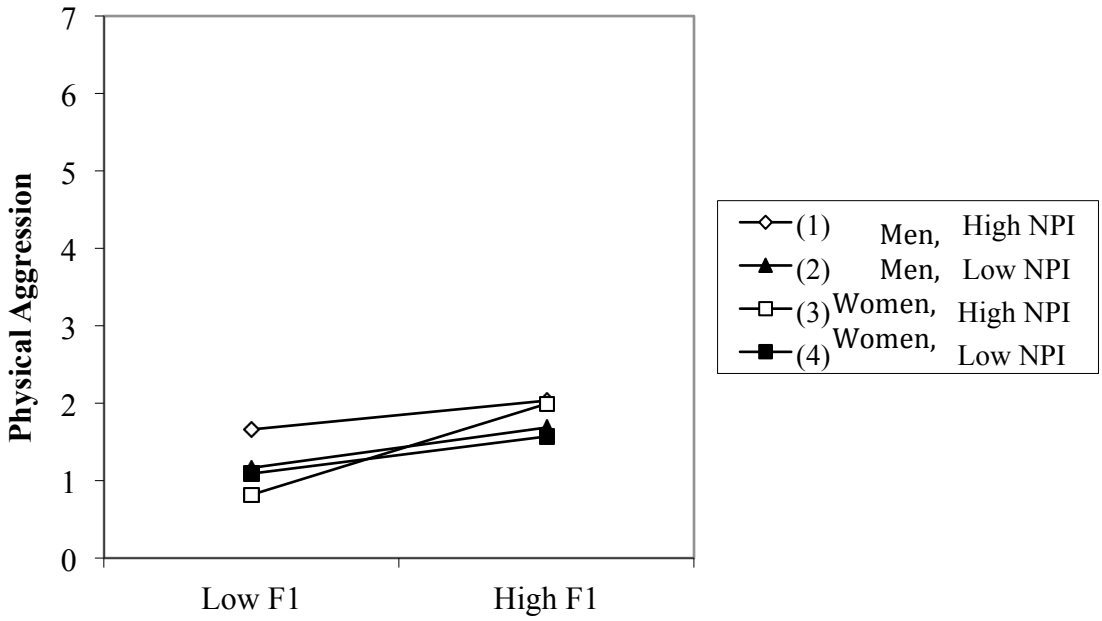

Figure 9. F1 psychopathic traits differentially predict physical aggression for women when NPI scores are high.

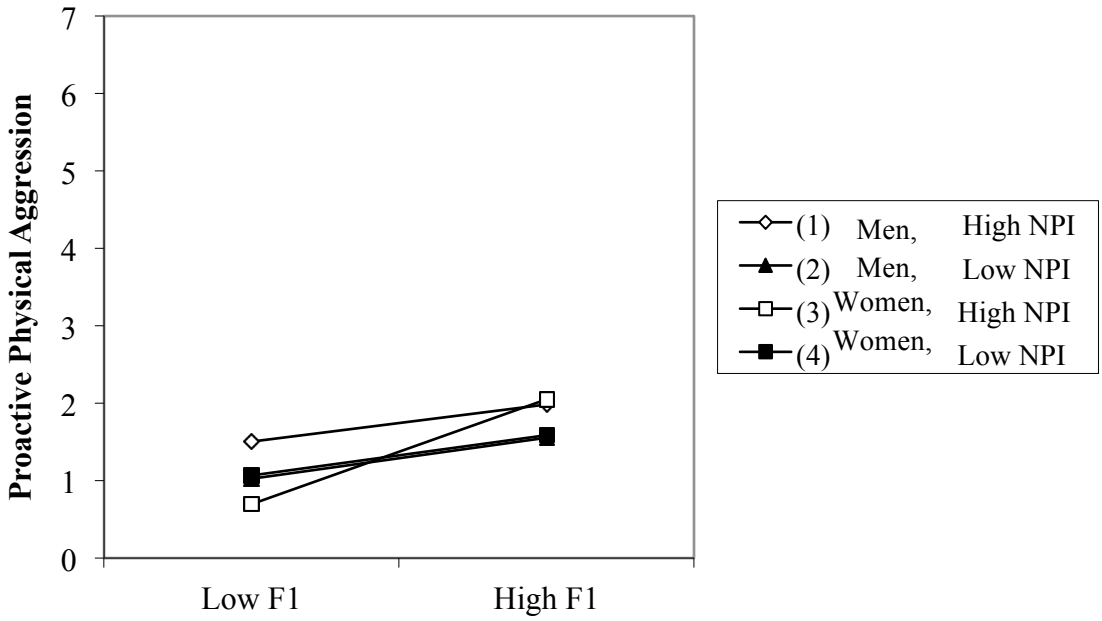

Figure 10. F1 psychopathic traits differentially predict proactive physical aggression for women when NPI scores are high.

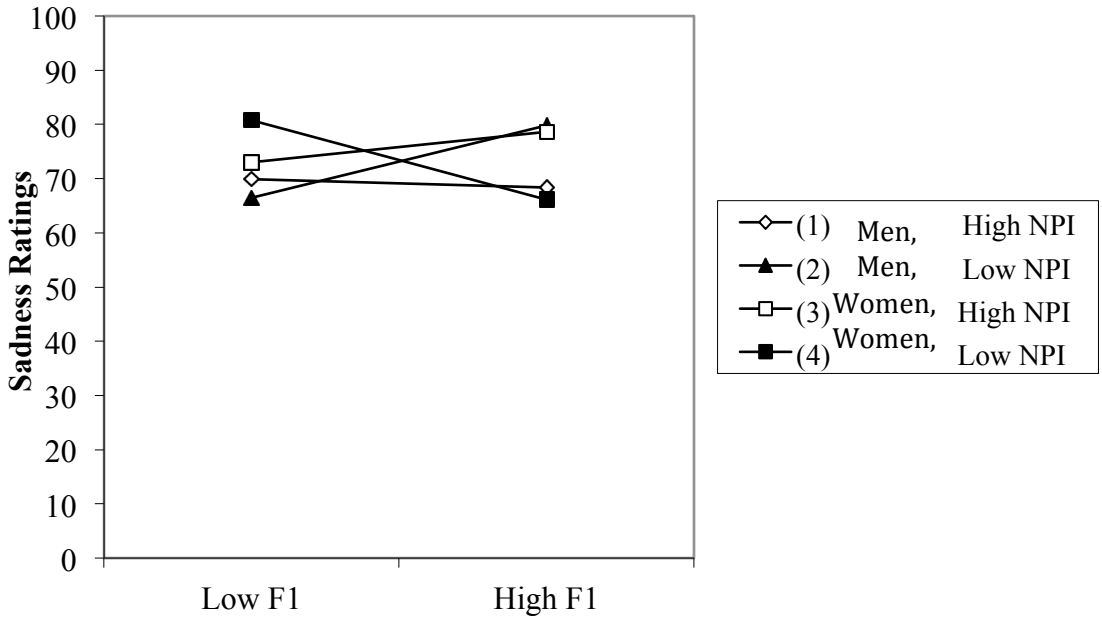

Figure 11. F1 psychopathic traits differentially predict sadness recognition for men and women when NPI scores are low.