How to Fish Like a Psychopath: Facial Expression Recognition in Individuals with
Psychopathic Tendencies and Explicit Attitudes of Sexual Coercion and
Aggression

by

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Abstract

The current study explored the extent to which psychopathic traits and explicit evaluations of sexual aggression predicted accuracy of overall emotion recognition, and fear specifically. Participants (139 undergraduate and community men) were asked to complete self-report measures, including a psychopathy scale, explicit evaluations of sexual aggression and sexual preference indicators. They viewed photographs of adults, adolescents, and children, and indicated which of six universal emotions the images expressed. The findings suggested that psychopathy and evaluation of sexual aggression had minute implications on accuracy of emotion recognition, though gender, gaze direction, and age of the individuals pictured in the images influenced overall and fear emotion recognition accuracy. There was no perceived difference between the undergraduate and community samples. Replication of this study should include a forensic population to see whether this deficit in affect recognition exists with these predictor variables but with individuals with higher levels of psychopathy. This could impact risk assessment and therapeutic interventions used.

Keywords: explicit evaluations, sexual aggression, psychopathy, emotion recognition, fear

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How to fish like a psychopath: Facial expression recognition in individuals with psychopathic tendencies and explicit attitudes of sexual coercion and aggression

A person's facial expression can convey information about their internal state, whether they are happy or sad, angry or surprised. A facial expression can also provide information to those who would exploit perceived weaknesses in others. In this thesis, I investigated how individuals varying in psychopathic characteristics responded to facial expressions in children, adolescents, and adults that conveyed emotional information. I also measured the explicit attitudes of these individuals to sexual coercion and aggression.

I began to think about the relationship among these variables as I interacted with juvenile delinquents at the Edmonton Young Offender Centre as a facilitator for individualized psycho-educational program sessions. I found that sexual offenders were unable to detect victims' facial expressions of fear. What was more surprising was that this inability to detect fear was more prominent for the demographic of the victims they had committed their offences against. For example, when showing clients pictures of facial expressions and asking them to identify fearful facial expressions, a sexual offender who had primarily committed crimes against young women between the ages of 12-17 was more likely to exhibit deficits identifying fear in this age group and gender demographic. The same trend was exhibited when asking an offender to draw an example of a fearful expression within this specific demographic of young females. When given a situation-based question, offenders struggled in choosing the appropriate individual who would exhibit fear if the answer fell within the demographic of their victim offence history.

One way to view the present project is to see it as a formal way to make sense of these observations. I begin by describing psychopathy, a personality disorder that is characterized by problems identifying emotion information expressed by others. Next, I focus on describing

studies that explore the mechanisms underlying sexual aggression, followed by an overview of the literature on emotion recognition by individuals with psychopathic characteristics. I then review studies examining how psychopaths select victims. I end the introduction by providing a brief description of the present study.

Psychopathy

Psychopathy is a personality disorder incorporating narcissism, glibness, superficial charm, callousness, and a lack of affect. These features can be categorized into two distinct factors based on an analysis of data (Neumann, Hare, & Newman, 2007) from Hare's Psychopathy Checklist (Hare, 1993). Factor one consists of two facets targeting affective and interpersonal features, whilst factor two consists of social deviance features, primarily antisocial behaviors and lifestyle. The most salient features in the context of victim selection are the affective and interpersonal symptoms found within factor one. A psychopath possessing such characteristics would exhibit glibness in their speech, superficial qualities, and even a sense of charm due to their deceitful and manipulative tactics (Hare, 1993). Their egocentricities and grandiose character lends them to display a callous lack of remorse and guilt for their crimes, including harmful and potentially violent acts. Psychopaths have a complete disregard for their victims and their lack of empathy translates into the various tactics used when selecting and harming their victims (Hare, 1993).

What constitutes this discrepancy between the behaviors and emotional perceptions of a psychopath versus a non-psychopath? Blair, Mitchell, and Blair (2005) suggest that functional and structural abnormalities in the amygdala underlies psychopathic behaviour. Reduced activity or volume of the amygdala is thought to cause impairments in aversive conditioning, instrumental learning, and more importantly, the processing of fearful and sad facial expressions.

These deficits constitute a psychopath's inability to understand appropriate interpersonal relationships and a hindered ability to make decisions in emotional moral dilemmas (Blair et al., 2005; Blair, 2007). Thus, social cognition is affected as the individual does not learn to avoid actions that cause harm to another being. A psychopath will capitalize on the opportunity to offend for their own personal gain at the expense of others. Blair et al. (2005) also suggested that dysfunction in the orbital frontal cortex could also play a role in impairments of socialization.

In addition to amygdala-based deficits, abnormalities have been observed in other subcortical regions of the brain. Raine et al. (2004) note that psychopathic individuals with previous criminal offences often have structural hippocampal asymmetries that may affect emotion regulation, cause poor contextual fear response conditioning, and insensitivity to cues signaling danger when engaged in risky activities. The hippocampus connects various areas of the brain, including the amygdala and the prefrontal cortex, regions underlying emotion processing and higher order cognition, respectively.

Blair et al. (2005) indicate that individuals who display high levels of psychopathic tendencies and antisocial behaviors present with reduced empathic responses to the distress displayed by their victims, particularly fear or sadness. This empathic impairment was prominent in the reduced autonomic responses psychopaths had when viewing the sadness of other individuals. In these studies, sadness was displayed by viewing images of those who were clearly afraid and upset or when psychopaths were made to believe confederates were being administered an electric shock. Not only were the psychopath's emotional perceptions stunted in these studies, they also had difficulty in naming these fearful emotional expressions, consistent with the neural deficits associated with processing these emotions.

Blair et al. (2005) concluded that these impairments in identifying fearful and sad facial expressions were also apparent in a psychopath's inability to recognize fearful vocal intonation of individuals. Subsequent research examining startle blink modulation in psychopathic offenders indicated that startle was inhibited when viewing victim scenes and only weakly potentiated during victim threat scenes (Patrick, 2007). These findings suggest that psychopaths have a higher threshold for defense activation, physically reacting to threatening situations, and diminished fear reactivity. Psychopaths' underlying abnormalities in processing affective information from others results in callous interpersonal relationships (Patrick, 2007).

Glenn and Raine (2009) describe neurobiological discrepancies during development between the brains of psychopaths and non-psychopaths. The differences become increasingly apparent in regions specific to guiding moral behavior, affect recognition, and empathic responses. Reduced functioning in areas generating emotions such as fear, guilt, remorse, and empathy result in a lack of inhibition when engaging in harmful behavior affecting others. Glenn and Raine propose that increased functioning in the reward pathways in the brain may result in psychopaths feeling pleasure when causing harm to others.

Reduced functioning in the amygdala may be indicative of an increased risk of instrumental aggression in psychopaths (Blair, 2007). Instrumental aggression, defined by Glenn and Raine (2009) as predatory aggression, is calculated, controlled and purposeful in nature and is used to achieve a distinct goal for a personal gain (e.g., drugs or money). (Instrumental aggression is typically contrasted with reactive aggression, which is unplanned and occurs spontaneously, often with a strong emotional component.) Instrumental aggression is often emotionless and callous, especially for serious offences where injury or harm to other individuals is secondary to obtaining what is desired. As a premeditated form of aggression, it is not

predicated on a strong emotional reaction. Unlike individuals with other mental health disorders, such as schizophrenia or bipolar disorder, who may have increased reactive aggression that are emotionally driven forms of impulsive aggression in response to threats or being provoked, psychopaths engage in aggression to benefit themselves at the expense of others. Reactive and instrumental aggression are not mutually exclusive and tend to be integrated with one another. Glenn and Raine note that individuals may experience both types of aggression within a situation although a psychopaths' affinity to engage in instrumental aggression distinguishes them from others with antisocial behaviors and may have the most serious repercussions.

Sexual Aggression

Hersh and Gray-Little (1998) point out that many characteristics associated with psychopathy – aggression, impulsivity, manipulation, lack of empathy, and sensation-seeking behaviors – overlap with features of sexual aggression and coercion. Pathological levels of psychopathy may contribute more to the rape of strangers versus acquaintances, as the rape of strangers deviates significantly from societal norms. Hersh and Gray-Little describe how victims tend to report more instances of sexual assault when raped by a stranger compared to rape committed by an acquaintance. Sexually aggressive acts committed by individuals within the community are more likely to be directed towards acquaintances in socially accepted situations, such as a date or a party, circumstances that are especially associated with the behaviour of college males. When differentiating between sexual aggressors within the non-criminogenic population, overarching personality measures assessing personality disorders may not be a good indicator of who would commit sexually aggressive acts compared to those who wouldn't. According to Hersh and Gray-Little, those who are not incarcerated possess a higher level of

functioning that have diverted them from encounters with the criminal justice system so far, suggesting that more subtle personality indicators should be used within the general population.

As sexual aggression and manipulation work in tandem, sexually aggressive males are more likely to manipulate their partners into complying with unwanted sexual acts by creating an environment where these sexual instances are more likely to occur – lowering inhibitions using drugs or alcohol – or encouraging compliance of nonconsenting sexual acts through false promises, ruining ones' reputation, financial abuse, etc. (DeGue, DiLillo, & Scalora, 2010; Hersh & Gray-Little, 1998). These types of sexual coercion tactics are used as indicators to explicitly detect sexual offending in sexual aggression measures (Evaluation of Sexual Aggression against Women Scale, Hermann & Nunes, 2015; Evaluation of Sexual Offending against Children Scale, Nunes & Hermann, 2015). Personality characteristics may not be the only indicators of an individuals' predisposition to commit sexually aggressive acts. In addition, a misogynistic societal culture of attitudes condoning rape may also play a sizeable role. Participants who have reported more severe sexual aggression are more likely to believe in rape myths, have strong prosocial rape attitudes, and view heteronormative relationships as antagonistic than those who have reported mild or no sexual aggression (Hersh & Gray-Little, 1998; Hermann, Nunes, & Maimone, 2016; DeGue, DiLillo, & Scalora, 2010).

Hersh and Gray-Little (1998) explored the relationship between psychopathic personality traits, rape-supportive attitudes and self-reported sexual aggression within 191 college males. They used varying personality and sexual aggression measures including widely used measures of rape supportive attitudes such as The Rape Myth Acceptance (RMA) Scale, the Adversarial Benefits (ASB) Scale, and the Acceptance of Interpersonal Violence (AIV) Scale (Burt, 1980). The RMA scale evokes beliefs that minimizes perceived injury in victims and blames them for

these nonconsenting sexual acts. The ASB evokes the emotion that relationships are antagonistic and solely used for exploitation and manipulation of everyone involved. The AIV evaluates the attitudes that aggression and coercion are appropriate ways to gain compliance from a partner in intimate and sexual relationships (Burt, 1980).

Hersh & Gray-Little (1998) hypothesized that participants who reported severe sexually aggressive acts would exhibit more extreme psychopathic traits than participants who reported less aggressive sexual acts. They also hypothesized that psychopathy would play a role as a unique identifier in severe sexual aggression, over and above the contributions of prosocial rape attitudes. They found validation for their first hypothesis but did not find that psychopathic traits would outweigh the contribution of rape supportive attitudes on sexually aggressive behavior. This indicated that perhaps traits and attitudes are not mutually exclusive when influencing sexually aggressive behavior.

In a longitudinal study, Hermann and Nunes (2016) investigated the impact that implicit and explicit evaluations of sexual aggression had on predicting subsequent sexually aggressive behavior. Implicit evaluations of behavior can be defined as an individual's immediate thoughts about a specific psychological object. These types of immediately activated evaluations are assessed through latency response measures via implicit association tasks. Explicit evaluations of behavior can be defined as an individuals' deliberate thoughts about a psychological object or construct and are usually measured via self-report instruments. Some past and current research findings have found a distinctive relationship between positive implicit evaluations of rape cognition and sexual aggression and all studies have found more positive explicit evaluations of rape associated with sexually aggressive behavior and the inclination to commit rape (Hermann & Nunes, 2016; Hermann et al., 2016).

Hermann and Nunes (2016) recruited a total of 248 male participants from an online panel of male participants living in North America (via Qualtrics survey software), to complete measures of implicit and explicit sexual aggression, as well as self-reported sexual aggression across two separate time periods four months apart. For those participants who reported that they had engaged in sexual aggression, they tended to use verbal coercion tactics, such as arguments or pressure rather than sexually aggressive acts using physical force or incapacitation by substance use. Current aggressors were found to endorse more positive implicit evaluations of rape than past sexual aggressors or non-aggressors. Overall, past aggressors supported more negative implicit evaluations of rape than non-aggressors. The same results were true for explicit evaluations. Hermann and Nunes concluded that more positive implicit and explicit evaluations of sexual aggression could independently predict increased self-reported sexual behavior at the second assessment four months later. Explicit evaluations of sexual aggression can be indicative of both types of sexually aggressive behavior, verbal and physical. The researchers noted that these evaluations could then be important future determinants of behavior. This finding could be important for assessing and managing risk in the community, and, if used in a forensic population, could possibly be used in assessing recidivism rates of those who have been convicted of sexually aggressive acts.

A major limitation of Hermann and Nunes (2016) was the use of self-report measures to assess sexually aggressive behavior. Previous research has questioned the accuracy of self-reported sexual aggression, as participants may not be able to accurately recall former sexually aggressive acts or may choose to misrepresent their sexual aggression tendencies due to a desire to appear socially acceptable in public. Nonetheless, these measures have proven to be valid and reliable in previous work. Hermann and Nunes note that future research may address this

limitation by replicating these findings and use additional indicators of sexual aggression, such as convictions and offenses to enhance these self-report measures.

Hermann et al. (2016) investigated the relationship between implicit and explicit evaluations of sexual coercion and aggression, cognitive distortions regarding rape, former self-reported sexually aggressive behavior, and self-reported inclinations to commit acts of sexual aggression. Participants were 150 male undergraduate students and 378 community men recruited online. All sexual aggression measures were completed by the participants online. Hermann et al. found in both samples that more positive explicit evaluations of sexual aggression were positively correlated with self-reported history of sexual aggression and proclivity for future sexual aggression. Implicit evaluations of sexual aggression, however, did not yield the same pattern of results.

Watts, Bowes, Latzman, and Lilienfeld (2017) note that attitudes of rape myth acceptance (RMA) or cognitive distortions of rape that may influence sexual assault are heavily influenced by psychopathic traits. Watts et al. recruited a sample of 608 racially diverse males and female undergraduates. Psychopathic traits were significant predictors of RMA, specifically, callousness, lack of empathy and guilt, antagonism and disinhibition. Females showed a larger relationship between cold-heartedness and RMA. Such findings suggest that psychopathic traits can play a role in the attitude of distorted rape cognitions and could be a precursor to unwanted sexual acts. In a sample of 102 male college students, Deitzel (2008) found that dysfunctional attitudes towards women about gender roles predicted endorsements of sexually coercive behaviors. Endorsing sexually coercive behaviors was also related to deficits in emotion recognition.

Babock, Green, and Webb (2008) used an emotion recognition task to assess whether subtypes of intimate partner abusers differed in their abilities to label various facial affect stimuli. They recruited a total of 110 couples, with 69 men who were categorized as engaging in intimate partner violence and 32 men who were categorized as nonviolent. There are three types of intimate partner violence: generally violent or antisocial (GVA), family-only (FO), and borderline or dysphoric (BD) (Holtzworth-Munroe & Stuart, 1994). GVA batterers exhibit moderate to severe forms of aggression both inside and outside the home and have an increased likelihood to have the most extensive criminal history. Babock et al. found that individuals in this group tended to meet the criteria of antisocial personality disorder and consistently reported elevated levels of psychopathic traits, specifically, callousness and lack of remorse. Therefore, individuals in the GVA category of intimate partner violence would be expected to show increased deficits in emotion recognition, especially for fearful and sad faces, as indicated by the levels of psychopathy.

Babock et al. (2008) asked participants to label facial affect displays based on Ekman and Friesen's (1976) standardized facial stimuli. They hypothesized that BD batterers would make the fewest errors, whereas GVA batterers would make the most errors in facial emotion recognition. Babock et al.'s predictions were validated; GVA batterers were significantly worse than BD batterers at recognizing anger, happiness, neutral, and surprise emotions. GVP men had an increased likelihood to mistake neutral and anger emotions as disgust and misidentify surprise as fear compared to the other groups. Additionally, GVP batterers misidentified anger as happiness and happy as sad more frequently than the other participants. The patterns of errors made in this group reflect a tendency in labeling neutral and positive emotional cues in a more negative direction. Babock et al. argued that the tendency to make these mistakes may be

indicative of a fundamental deficit of emotional affect recognition and may render GVP batterers to readily respond to perceived emotions in retaliation. Further analysis of the results indicated that GVP batterers may have a hostile attribution bias in their social interactions when misinterpreting complex social-emotional stimuli as provocative. Babock et al. noted that future research could 1) examine psycho-physiological responding to facial affect stimuli to test whether autonomic arousal predicts violence inhibition, and 2) assessing higher-order levels of social information processing using social contexts and emotional scenarios.

Intimate partner abusers may display a specific method of responding that encourages their use of violence when viewing specific emotions in their partners. Holtzworth-Munroe and Smutzler (1996) compared self-reported emotional reactions and behavioral intentions of violent and nonviolent husbands to scenarios depicting wife behaviors. Four subject groups were recruited; one was a clinically-based sample and the other three were recruited from the community. The first group consisted of 25 men beginning domestic violence treatment programs, followed by 21 maritally violent and distressed men, 23 nonviolent and distressed men, and 28 nonviolent and non-distressed men. Participants were asked to read written descriptions and examples of various wife statements and view video footage of wives' behaviors varying in verbal content and nonverbal affect. The videotapes were either standardized, consisting of the same heterosexual couple, or they were depictions of more realistic relationship consisting of different heterosexual couples. In response to these wife behaviors the male participants rated what their emotional reactions and their behavioral responses would be. Holtzworth-Munroe and Smutzler found that in response to a wide range of wife behaviors, violent men were more likely to respond with anger and irritation than nonviolent men and maritally distressed men. Violent men were also less likely to report

sympathetic/positive emotions. Specifically, when presented with stimuli depicting a sad or anxious wife, they were less likely to offer comfort and support. Overall, intimate partner abusers were also more likely to report negative behavioral intentions and less likely to report positive intentions. Holtzworth-Munroe and Smutzler asked why these group differences exist. Do intimate partner abusers' inappropriate responses result from deficits in decoding emotional expression cues in social situations, or is there a deficit in higher order processing that involves the interpretation or mental representation of these cues? Exploration of this concept may question whether intimate partner abusers have basic deficits in differentiating and recognizing various negative emotions in all social interactions, consistent with a general deficit of facial affect. Is there deficit only attributed to recognition of women's facial emotions or only their wives' emotions? Perhaps intimate partner abusers respond inappropriately because they incorrectly attribute the behavior and emotions of others?

Marshall and Holtzworth-Munroe (2010) investigated these questions further in a community sample of 88 heterosexual couples and found that husbands' diminished sensitivity to their wives' expression of happiness partially mediated the relationship between psychopathic and borderline personality traits and perpetration of intimate partner violence (IPV). This was specifically in relation to the emotional expressions displayed by the husbands' wives and not to unfamiliar faces of men and women. This finding further supports the theory of IPV that suggests that men high in these specific personality characteristics become violent after perceived rejection or abandonment from their wives. Misperceiving their wives' positive affect (happiness) as negative may lead husbands to assume that their wives are discontented with the relationship, resulting in the use of violence. Husbands frequently misidentified their wives' happiness and fear as disgust, which is a possible emotion that depicts potential rejection or

abandonment. Husbands' diminished sensitivity to their wives' expressions of fear was also associated with their use of violence.

Emotion Recognition

Ekman (2003) recognized fear as one of the seven distinct universal facial expressions, alongside happy, sad, surprise, disgust, anger, and contempt. Any threat of physical or psychological harm characterize triggers for fear. According to Ekman, individuals vary in the way they exhibit and perceive emotions. If an individual looks terrified when someone harms them or is about to harm them, an attacker may hesitate or cease to continue their attack because they are satisfied that whatever the victim has done to provoke them will no longer be pursued. Alternatively, an attacker who perceives a victim as more vulnerable may interpret a fearful expression as a sign that the victim will be unable to fight back and will be easily overcome. The latter scenario may characterize how a psychopath makes a choice about who take advantage of.

Hastings, Tangney, and Stuewig (2008) examined the association between psychopathy and facial expression recognition. A hundred and forty-five male inmates participated in a facial affect recognition task and were administered the Psychopathy Checklist: Screening Version (Hart, Cox, & Hare, 1995) to assess their psychopathic traits. These inmates were shown pictures of faces containing one of five emotions (happiness, sadness, fear, anger, or shame) displayed at two varying intensities, sixty percent and one hundred percent. Hastings et al. predicted that increased levels of psychopathy would be associated with decreased affect recognition, particularly for sad and fearful emotional expressions, and decreased recognition for less intensive displays of emotion. They found that psychopathy was associated with deficits in overall affect recognition, and specifically, sad affect recognition. Psychopathic individuals also exhibited deficits in recognizing less intense displays of affect. Unexpectedly, they also found a

deficit in happy affect recognition suggesting that psychopathy may be associated with a more general deficit in facial recognition. This coincides with the long-standing belief that psychopathic individuals have a general poverty in affect. Hastings et al. noted several limitations in their study. First, an overwhelmingly large number of participants misidentified fearful facial expressions for surprised expressions. Therefore, it is not entirely clear what deficits were found in the study as surprise had not been included as a response option. Also, the study only included male incarcerated offenders, thus limiting generalizability to female offenders, non-offenders exhibiting psychopathy, and individuals with subclinical levels of psychopathy. Hastings et al. discussed the importance of using emotional expressions varying in levels of intensity, in consideration of individuals in the real world often exhibiting their emotions in various intensities, thus invoking ecological validity.

Gaze direction accuracy has often been examined in tandem with facial emotion expression recognition (Adams, 2003). Evolutionarily, Darwin (1872/1988) suggested that facial expressions are a means by which internal states and intentions are translated externally. He speculated that facial expressions were initially a behaviorally adaptive response to overcoming recurring obstacles in order to survive. Those animals that took advantage and understood that their facial expressions could assist in predicting their internal states seemed to have an elevated level of survival. Adams (2003) proposed that the integration of both gaze direction and emotion recognition can be viewed as signalling approach or avoidance behaviors. Adams predicted that when gaze direction matches the underlying intent of the facial expression, emotion perception will be enhanced. Conversely, when it opposes the underlying intent of the facial expression it will inhibit emotion perception in the observer. Adams found support for his hypothesis in a study with 64 undergraduate students, concluding that direct gaze stimuli enhanced participants'

perception and processing of approach-orientated emotions such as anger and happiness, whereas averted gaze stimuli enhanced the perception and processing of avoidance-orientated emotions such as fear and sadness. Additionally, he found in a group of 10 males and 18 female undergraduate students that gaze direction affected the perception of ambiguous facial expressions that were blends of anger and fear. As blends of emotions are more common in day-to-day interactions than highly intense, easily recognizable emotions, this was an important finding. Gaze direction modulated the processing speed of emotion perception in participants and shifted the participants' ability to perceive one emotion over another.

To further explore the influence of gaze direction on emotion perception, Hadjikhani, Hoge, Snyder, and de Gelder (2008) examined the relationship between gaze direction and the processing of fearful facial expressions in the brain. A fearful facial expression provides a strong signal to an observer. This fear signal can either evoke empathy from the observer or can display threat depending on gaze direction. Fear expressions can be ambiguous depending on whether the individual is trying to emphasize communicating an emotion and empathy or providing a signal of imminent danger where the observer needs to prepare to act. Hadjikhani and colleagues expected that different brain networks would be involved as a function of gaze direction and fearful facial expression. They hypothesized that a fearful facial expression with averted gaze signals imminent danger in the environment and will activate areas in the brain involved in the flight and fight response, a characteristic response associated with fear. Participants viewed images from the NimStim Emotional Face Stimuli Database and were instructed to observe and fixate on the images. Hadjikhani et al. found that threat-related fearful facial expressions, those with averted gaze (vs. fearful facial expressions with direct gaze) activated areas in the brain involved in stimulus detection, fear processing, and preparation for action. This pattern of results

was consistent with their hypothesis and validates the importance of gaze direction in the processing of facial expression and the implications this may have for an observer.

Participants' sexual orientation may also play a role in the identification of facial expressions, especially when identifying stimuli that are of different genders. Steffens, Landmann, and Mecklenbräuer (2013) noted that previous research found that women had a gender bias in facial recognition, identifying female faces more accurately than males. In an online study, Steffens and colleagues looked at differences between 1147 heterosexual and homosexual men and women. They found that gay men recognized male faces more accurately than female faces and heterosexual men recognized more female faces more accurately than male faces. Women (both hetero and homosexual) showed an own-gender bias and recognized female faces more accurately than male faces. Steffens et al. argued that this pattern of results could be due to a variety of reasons. Lesbians could have a higher inclination to identify female faces as a potential partner, although women in general do not place as much importance as males on facial attractiveness in their potential partners. Heterosexual women could have an increased inclination to identify and recognize female faces due to a potential threat to their relationships or perhaps Western culture has made outer appearance and attractiveness extremely important in women vs men.

Emotion recognition can be difficult for faces from ethnic groups different from one's own. When participants' view faces from other ethnic backgrounds they show a significant reduction in emotion recognition accuracy (cross-race effect) compared to their ability to accurately identify facial expressions from their own race (Sporer, 2001). Individuals also tend to respond less cautiously when identifying faces outside of their own ethnic groups and the cross-

race effect seems to be amplified when specific ethnic groups are viewing stimuli of faces with ethnic backgrounds that they are less familiar or have less contact with.

Victim Selection

The presence of emotion processing deficits in individuals with psychopathic characteristics has been clearly demonstrated. Surprisingly, these same individuals can accurately determine who would make an optimal choice as a victim. Book's (2004) dissertation examined victim selection as a function of affect and vulnerability. She predicted that psychopaths would show no deficits in understanding the intentions, motivations, and emotions of other individuals. As psychopathic traits coincide with the social predator hypothesis, this would lead to the prediction that psychopathy is not associated with deficits in recognizing vulnerability cues in other individuals, including facial expressions and non-verbal behaviors that lead to victimization. Given that displays of emotion are important in determining vulnerability for victimization, psychopaths should not show a deficit in identifying emotion.

Following up on Book's (2004) proposal, Book, Quinsey, and Langford (2006) investigated psychopaths' ability to perceive affect and vulnerability in their victims via facial expressions and other nonverbal cues. Participants included fifty-nine male inmates and sixty male community members. The Psychopathy Checklist Revised and the Levenson Self Report Psychopathy Scale (Levenson, Kiehl, & Fitzpatrick, 1995) was administered to measure psychopathic traits in the inmate and community samples, respectively. In phase one of the study participants were asked to categorize and rate the intensity of the facial expressions in 24 photographs of Caucasian male and females displaying happy, sad, fearful, angry, disgusted, and neutral emotion. Book et al. found that individuals who measured high on psychopathy accurately judged the intensity of these emotions, including fear, a finding that differs from most

past studies. In phase two, participants were asked to view three 2-minute videotapes involving an interpersonal interaction between a target individual and a confederate. Following each video, participants were asked to judge the assertiveness of the target from the perspective of the confederate in the video using the Rathus Assertiveness Scale (RAS; Nevid, & Rathus, 1978). A lack of assertiveness indicates vulnerability to victimization and high assertiveness would indicate lowered vulnerability. Book et al. found that individuals high in psychopathy accurately judged the assertiveness ratings. These findings suggest that psychopathic traits may enable increased accuracy in judging the vulnerability of others in an interpersonal context.

Although some of the findings from Book et al. (2006) differ from other researchers, their results may provide evidence that individuals high in psychopathic traits know an individual is exhibiting distress but lack any understanding or empathy for the individual in distress. Book et al. note that the fact these individuals high in psychopathic characteristics can judge emotions but don't react emotionally to an individual's emotional state seems to be an oxymoron. Book et al. discuss the concept of "callous empathy" to describe a psychopath's lack of feeling for other individuals while exhibiting an understanding of their mental and emotional states. The ability to read other's affect and vulnerability would give psychopaths a definite advantage during victim selection to deceive and manipulate their victims. Book et al. argued that future research should investigate this concept further by including physiological measures of heart rate and skin conductance responses. They predicted an attenuated distress response accompanied by no deficit in describing the feelings felt by others. A significant limitation of Book et al. involved explaining the accurate perception of emotions by psychopathic participants. This could be due to a ceiling effect of the categorization task as there were only four photographs per emotion,

limiting the likelihood of mistakes and observing any potential relationship that may have existed between psychopathy and facial recognition accuracy.

Demetriooff (2013) analyzed psychopaths' ability to judge the personality traits and emotions of others to determine if they could find those individuals harboring characteristics that made them easily manipulated and vulnerable. Participants were 132 undergraduate students, 66 females and 66 males, assessed on the Self-Report Psychopathy Scale. They were asked to complete three tasks. The first one involved judging the personality traits and emotional states of the individuals shown in brief video clips. The second phase was to complete a memory task and select who they would like to get to know better, while judging these individuals' vulnerability in being taken advantage of, from viewing their photographs and reading a brief description about them. Lastly, participants were asked to judge brief displays of emotions from a choice of five emotions (happiness, sadness, fear, anger, and disgust). Demetriooff found that psychopaths tended to view others more negatively overall, making them appear more vulnerable to manipulation. Discrepancies between psychopathic traits and their indicated differences in judging vulnerability varied between males and females. Female participants had increased vulnerability accuracy, particularly when they were judging male targets. In male participants, higher levels of psychopathic traits were related to a tendency to rate others as less vulnerable overall, particularly male targets. Both male and female participants with high psychopathic traits exhibited increased judgment accuracy of empathy in female targets. The relationship between psychopathic traits and increased accuracy was dependent on the sex of the participant. A possible explanation for the observed difference between genders is that the same psychopathic trait may manifest itself in different ways for males and females.

A positive aspect of Demetriofoff's (2013) study was the assessment of multiple vulnerability traits to explore how psychopathic traits are related to interpersonal judgment across a multitude of different facets. Including both male and female participants and targets also enhanced the generalizability of the findings. A limiting factor was that, aside from empathy, assessment of vulnerability variables was based solely on the victimization literature rather than variables relevant to victims of psychopaths. Use of an undergraduate sample may have limited the generalizability of the findings to other populations, such as offender populations. Demetriofoff suggests further research should examine individuals who solely score high on the trait of interpersonal manipulation and compare their judgment accuracy to those individuals high in other psychopathy facets.

Book et al. (2015) followed up their earlier work (Book et al., 2006) by examining the ability of individuals with psychopathic traits to mimic emotions, which would be consistent with the social predatory hypothesis. Three studies were completed. The first study included 40 male undergraduate students, 50 male community members, and 31 male inmates. Each of these samples all posed fearful facial expressions whilst looking at a prototypical fearful face. Expressions were coded by a separate group of undergraduate students on facial movements associated with fear and on genuineness. Across all three samples, psychopathic traits were associated with increased use of typical action units for fearful facial expressions. In the second study, undergraduate students completed the Psychopathic Personality Inventory and told a story about a time when they did something that they should have felt remorse for but didn't. Book et al. (2015) found Factor 1 traits in psychopathy were positively related to genuineness scores. In the last study, four videos were shown to a sample of undergraduate students who rated false remorse stories told by violent offenders. The two videos with violent offenders who exhibiting

higher Factor 1 scores were perceived as more genuine and rated higher. Overall, Book et al. concluded that psychopathic traits, particularly elevated Factor 1 traits involving affective and interpersonal facets, may be associated with the ability to accurately mimic emotional facial expressions, such as fear and remorse. This affective mimicry is perceived to be emotionally genuine when objectively viewed by other individuals. Moreover, Book et al. argue that the results imply that the expression of emotion is not necessarily dependent on affect and may be a separate component. Given that fear and remorse are attenuated in psychopaths, their abilities to emulate these emotions so accurately is likely a learned skill. To be able to learn such facial expressions one must understand and be able to recognize these emotions in other human beings. Book et al. acknowledge that the sample size limits the ability to discover significant associations between psychopathic traits and affective mimicry in fearful facial expressions. Additionally, they note that posed facial expressions are typically easier to recognize than genuine facial expressions, making it important to replicate these findings with more naturalistic facial expressions as prototypes. Finally, cues other than facial expression convey emotion, necessitating a look at other verbal and nonverbal behaviors that may be associated with fear.

Wilson, Demetriooff, and Porter (2008) extended research on victim profiling in psychopaths by exploring the representation of victim information in memory. They designed a social memory experiment using a non-forensic sample of 44 male undergraduate students assessed on the Psychopathy Personality Inventory. These participants were shown eight fictional unique profile characters categorized in the following experimental groups: happy and successful people, happy but unsuccessful people, sad but successful people, or sad and unsuccessful people. The participants were shown photographs and profiles indicating hobbies, occupation, etc. They were then asked to recall the faces and biographical details of these

fictional characters who differed in their career success and emotional vulnerability. Wilson et al. found that participants with high psychopathic traits had near perfect recognition of sad unsuccessful female characters, arguably the most vulnerable population amongst the fictional characters, but impaired memory for other characters. The presence of psychopathic traits did not enhance memory, rather it shifted existing memory resources away from some characters and enhanced recognition for the sad unsuccessful female character. Both groups had the same memory resources, but the high psychopathy participants applied these resources towards recognizing the most vulnerable character at the cost of recognizing the others. The findings suggest that psychopathic traits are associated with ‘predatory memory’. Wilson et al. discuss the potential limitations of the study as 1) findings that are from solely an undergraduate sample, 2) having a larger database of emotional faces would allow for the creation of more character profiles, possibly creating a wider range of performance scores.

It is apparent that psychopaths gravitate towards a specific ‘type’ when choosing their victims. Williamson, Hare, and Wong (1987) analyzed participants who had committed serious offences and reviewed their criminal history as well as police reports for the offences responsible for their current incarceration. They categorized them into two groups based on the PCL: 55 psychopathic offenders and 46 non-psychopathic offenders. Williamson et al. hypothesized that psychopaths rarely commit crimes involving intense emotional arousal; instead, their victims are more likely to be complete strangers. Williamson et al. found that most of the murders committed by the non-psychopathic group involved a domestic dispute or occurred during a period of extreme arousal whilst none of this was true for the psychopathic group. The psychopathic group’s motives involved retribution or committing acts while under the influence of alcohol which coincided with their callous aggressive behavior. When looking at victim

selection, most of the victims of the non-psychopathic group were females and known to them whilst the victims of the psychopathic group were predominantly male and strangers. Williamson et al. explain the discrepancy in victim selection as attributable to a psychopaths' lifestyle, with few attachments or interpersonal relationships. Williamson et al. suggested further research investigate gender differences.

Current study

Our emotional responses are linked to our evolutionary past via innately determined behaviors, as well as our personal past and present behaviors via our learned experiences. Together, these emotional responses allow us to respond to situations quickly and involuntarily (Ekman, 2003). A psychopaths' ability to perceive and interpret emotional expressions in potential victims has focused on facial expressions and other nonverbal cues. Non-verbal cues are known to be reliable indicators of vulnerability and some individuals are more attuned to analyzing such behaviors than others (Book, Costello, & Camilleri, 2013).

Could these ideas be extrapolated to psychopaths asked to identify fearful facial expressions in the specific demographic they are likely to offend against, in accordance with their criminal histories? An example of a study that investigated a similar question was Fernandez and Marshall (2003). They compared the responses of 27 incarcerated rapists and 27 incarcerated nonsexual offenders using the Rapist Empathy Measure to target victim-specific empathy deficits. The purpose of the study was to examine the relationship between empathy, self-esteem and psychopathy. Fernandez and Marshall found that rapists demonstrated more empathy than the nonsexual offenders toward women overall and the same degree of empathy toward a woman who had been a victim of a sexual assault by another male. Looking more closely at the within-group comparisons across victim type for the rapists, they found significant

empathy deficits toward their own victims. Fernandez and Marshall noted that rapists may suppress empathy primarily towards their own victims rather than suffer from a generalized empathy deficit. Fernandez and Marshall suggest that empathy deficits in rapists might be better interpreted as cognitive distortions specific to their victims and should be further addressed in treatment.

Fernandez and Marshall's (2003) results are intriguing. However, their work raises several questions. Do psychopaths have an increased deficit in understanding and processing fear emotions specifically towards the demographic they choose to offend against? Are they able to understand such emotions but choose to ignore them? A more distressing possibility is that psychopaths continue to use their deceitful tactics to mimic emotional expressions and fool society at large in believing they don't understand other individuals' emotions.

Previous research has shown a relationship between psychopathy and the deficits in interpreting or recognizing emotions. More recent research in the field has begun to define a stronger relationship between explicit evaluations and cognitive distortions of sexual coercion and its indication of sexually aggressive behavior. Knowing that psychopathy and sexual aggression can work in tandem, the present study extended this previous research by exploring whether psychopathic characteristics and explicit evaluations of sexual aggression would predict an individuals' ability to identify emotions and facial expressions. The study aimed to identify whether participants with psychopathic characteristics would have an increased deficit in recognizing the emotion of fear in their potential victims compared to individuals from the general population.

Understanding this relationship may assist in creating better psycho-educational programming in correctional institutions and therapeutic tactics in rehabilitative and residential

treatment facilities. Research in this field may improve our understanding of emotional processing in individuals who present with psychopathic and aggressive characteristics and the types of emotional recognition deficits they may present. Overall, I hoped to promote a more theoretical understanding of psychopathy and explicit aggressive behaviors and the relationship it may have in one's cognitive processes. To this end, I measured psychopathic characteristics in a sample of undergraduates and individuals from a community sample who were presented photographs of male and female children, adolescents, and adults. I measured how accurately participants could identify the emotion depicted in the photographs, as well as measuring participants' explicit attitudes towards sexual aggression and coercion.

I hypothesized that individuals who display higher psychopathic tendencies and explicit attitudes towards sexual aggression and coercion will have an increased deficit in affect recognition, more specifically a deficit in identifying the emotion of fear. Specifically, I posited that these individuals would have a deficit in recognizing fearful facial expressions in the demographic they choose to 'victimize' – the terminology used here is akin to those they engage in sexual relations with or fantasize about – versus a general deficit in recognizing fearful facial expressions across demographic groups. I also examined whether gaze direction would affect emotion recognition accuracy.

Method

Participants

The sample consisted of 139 participants, including Carleton University undergraduate students ($n = 52$) and a diverse group of individuals from the general population ($n = 87$). All participants were English speaking males ranging in age from 18- 65 years. A majority (~66%) of the participants were Caucasian. Roughly, 34% of the participants were from diverse ethnic

backgrounds. Only nine males engaged in homosexual relationships, the remainder engaged in heteronormative relationships. Of the heteronormative relationships, three individuals fantasized about sexual relations with males 18 years or older and three individuals fantasized about sexual relations with females between the ages of 12 to 17. A majority (68%) of the participants were not involved in a romantic relationship. Student participants were recruited from an undergraduate cognitive science course at Carleton University (CGSC 1001-Mysteries of the Mind) through SONA, an online platform listing available research studies at Carleton University and were awarded course credit for their participation. Participants from the general population were recruited online through a social media posting on Facebook and received no compensation for their participation.

Prior to participating in the study, participants received an informed consent form. This document included information about the study, including the goals of the study, potential risks, confidentiality issues and an overview of the procedure. Due to the sensitivity of the questions asked within the measures, participants were explicitly informed of their right to withdraw from the study at any time without penalty. Upon accepting the terms disclosed within the informed consent participants proceeded with the research study.

Stimuli

Photographs displaying emotion in facial expressions were obtained from several sources: The Montreal Set of Facial Displays of Emotion (MSFDE; Beaupré, Cheung & Hess, 2000), Radboud Faces Database (RAFD; Langner, Dotsch, Bijlstra, Wigboldus, Hawk & Van Knippenberg, 2010), National Institute of Mental Health Child Emotional Faces Picture Set (NIMH-chEFS; Egger, Pine, Nelson, Leibenluft, Ernst, Towbin & Angold, 2011) and The Child Affective Facial Expression Set (CAFE; LoBue & Thrasher, 2015). The photographs depict

emotion expression from a variety of different age demographics and were all developed for research on emotion recognition skills.

The MSFDE (Beaupré, Cheung & Hess, 2000) consists of facial expressions by men and women of Caucasian, Asian, Sub-Saharan African, and Hispanic ethnicities. The stimuli set contains direct gaze expressions of anger, happiness, sadness, fear, disgust, and shame. Shame was omitted in this study as only Ekman's six basic universal emotions were used; therefore, the first five direct gaze emotions were used in the overall facial recognition task. Each expression was created using a directed facial action task and was coded according to the Facial Action Coding System (FACS; Ekman & Friesen, 1978). This was to ensure that each facial expression was identical across actors. The mean overall recognition rates for expressions by the African, Asian and French Canadian Caucasian encoders was 58%, 57% and 56% respectively, meaning the recognition accuracy for the correct emotions displayed was significantly above chance (Beaupré & Hess, 2005).

The RAFD (Langner, Dotsch, Bijlstra, Wigboldus, Hawk, & Van Knippenberg, 2010) stimuli set contains pictures of 67 models, including Caucasian adults and adolescents both male and female and Moroccan Dutch males. Using the FACS (Ekman & Friesen, 1978), each model was trained to display seven emotional expressions including: anger, disgust, surprise, happiness, sadness, contempt, and neutral. The stimuli set contained pictures with different gazes: direct and averted. In the present study, pictures from the first five emotions with averted gazes were selected, along with pictures from both gaze directions of surprise for adult faces. Both gaze directions for disgust and surprise adolescent faces were also used in my stimulus set. Contempt was omitted from the stimulus set as there have been some controversial results in the emotion recognition of Ekman's newest universal emotion across cultures (Ekman & Friesen, 1986;

Rosenburg & Ekman, 1995). Validity was calculated based on the agreement between the chosen emotions and targeted emotions. Overall the percentage agreement calculated by Langner et al. was 82% (median 88%, SD 19%).

The NIMH-ChEFS (Egger, Pine, Nelson, Leibenluft, Ernst, Towbin, & Angold, 2011) stimuli set originally contained 534 pictures of adolescents aged 10 to 17 years of age exhibiting five emotions, fearful, happy, sad, angry, and neutral, with two gaze conditions: direct and averted. Both gaze directions for the first four emotions were selected for the present study. The NIMH research team reviewed the pictures and chose the best picture for each individual for each emotion in each gaze condition which resulted in 482 photos. Though the ethnicities are not explicitly stated in the picture set, based on appearance, many of the adolescents are Caucasian with four girls and one boy appearing non-Caucasian. The measurement of validity in picture stimuli set tends to be the agreement between the **a priori** emotion and the rater's identification label, calculated as a percent agreement. Egger et al. (2011) found the overall percent agreement as 94.8 % with a Kappa of 0.94 and a Wagner's index of accuracy of 0.84.

The CAFÉ (LoBue & Thrasher, 2015) is a picture stimuli set that consists of approximately 1200 affective facial expressions of over 100 children from ages 2 to 8 years. A variety of ethnicities are included in the set, including Caucasian, Native Hawaiian, Other Pacific Islanders, Asian, South Asian, African American and Hispanic/Latino. The children made seven different facial expressions, including angry, sad, happy, fearful, surprise, disgust, and neutral expressions. Though not explicitly stated, the stimuli set contained pictures that displayed two different gaze directions: direct and averted. Pictures from both gaze directions for the first six emotions were selected for use in the facial recognition task. Participants overall accuracy of identifying each affective expression full CAFÉ set was 66%, with a Cronbach's $\alpha = 0.77$.

Identification accuracy was variable, although a subset of faces identified accurately over 60% of the time were selected in a separate evaluation, the overall accuracy was 81% with an alpha score of $\alpha = 0.82$.

Due to constraints in the facial picture databases, the set of photographs selected for use in the facial recognition task led to an unbalanced design. A total of 36 photographs were selected that represented a majority of the cells in a factorial design. However, not all facial emotion expressions were represented in the databases across all three variables (gaze direction, age, and gender). This constraint will be discussed further in the results section.

Measures

Modified Self-Report Psychopathy Scale (SRP-III). The SRP-III (Paulhus, Hemphill & Hare, in press) is a 29-item scale that assesses the degree to which psychopathic traits are present in an individual. This questionnaire asks the participants to rate the extent to which a statement relates to them on a 5-point Likert scale from 1 (*Disagree strongly*) to 5 (*Agree strongly*) (see Appendix B). The overall score is calculated by adding up each item out of 5 for 28 items. (The second item on the scale needs to be reversed score, by subtracting the score on the item from 6.) The maximum total score for this scale is 145 points.

Evaluation of Sexual Aggression Against Women (ESAW) Scale. The ESAW (Hermann & Nunes, 2015) is a brief self-report measure designed to evaluate male participants' attitudes towards sexual aggression against women. This is based on a 7-item scale with each item consisting of three subcategories. Each group of questions consists of describing a sexually exploitive situation and asks the individuals to evaluate their attitude towards sexual aggression on a seven-point Likert Scale. Participants are asked to rate their negative or positive evaluation of each item from 1 (*Very Negative*) to 7 (*Very Positive*). Each category of questions varies in

gradients, ranging from whether the participants would **try** to perform the task, **perform** the task, or **forcefully** perform the task against the woman (see Appendix C). The average responses to all the items on the scale (ESAW total score) are computed by summing responses to all 21 items and then dividing by 21 (highest average score is 7). The ESAW Coercion subscale average is computed by summing up responses of all 9 items between questions 1-3 and dividing by 9 (highest average score is 7). This subscale reflects sexual coercion that would not meet the legal definition of rape or sexual assault. The ESAW Assault subscale average is computed by summing up responses of all 12 items between questions 4-7 and dividing by 12 (highest average score is 7). This subscale is reflective of sexual aggression that would be deemed as a legal definition of rape or sexual assault.

Evaluation of Sexual Offending Against Children (ESOC) Scale. The ESOC (Hermann & Nunes, 2015) is a brief self-report measure designed to evaluate male participants' attitudes towards sexual aggression children. This is based on a 5-item scale with each item consisting of 3 subcategories. Each group of questions describes a sexually exploitive situation, contextually specific to a child and asks the individuals to evaluate their attitude towards sexual aggression on a 7 point Likert Scale. Participants are asked to rate their negative or positive evaluation of each item from 1 (*Very Negative*) to 7 (*Very Positive*). Each category of questions varies in gradients akin to the ESAW mentioned above (see Appendix D). The average responses to all the items on the scale (ESOC total score) are computed by summing responses to all 15 items and then dividing by 15 (highest average score is 7). The ESOC Without (Non-Sexual) Violence subscale average is computed by summing up responses of all 6 items between questions 1-2 and dividing by 6 (highest average score is 7). This subscale reflects evaluation of sexual offending of children by using manipulation tactics or taking advantage without

threatening to use or using explicit (non-sexual) violence. The ESOC With (Non-Sexual) Violence subscale average is computed by summing up responses of all 6 items between questions 4-5 and dividing by 6 (highest average score is 7). This subscale reflects evaluations sexual offending against children through by threatening or using non-sexual violence.

Sexual Preference Indicators. This brief assessment included a 2-item questionnaire asking participants about the demographic information, specifically age and gender, of the individuals they prefer in a sexual context. The first question asks participants which individuals they would be more likely to engage in sexual fantasies with whilst the second question asks which individuals they would be more likely to engage in sexual relations with (see Appendix E).

Demographic Information. Participants were asked general demographic information about themselves. The seven items included: gender, age, race, language, education, employment and relationship status (see Appendix F).

Procedure

This research project received ethics clearance from the Carleton University Research Ethics Board-B (Clearance #105930). Male students were recruited through Carleton University, while males from the community were recruited through social media. All participants were presented with an online informed consent form outlining the study. If individuals agreed to participate in the study, they began by completing the facial emotion recognition task followed by the rest of the measures as an online survey. The facial recognition task required participants to view pictures from a variety of facial stimuli databases that portrayed Ekman's six universal emotions (happiness, sadness, anger, surprise, disgust, fear). Participants completed a total of 36 randomized trials. The trials used the NIMH-ChEFS database, MSFDE, RAFD, and CAFÉ

picture set consisting of adult, adolescent and child faces with direct and averted gaze, varying in gender. Participants were asked to select one answer from a multiple-choice list, consisting of the six universal emotions.

After completion of the facial recognition task, participants completed the Modified SRP-III, the ESAW Scale, and the ESOC Scale, followed by the sexual preference indicator questionnaire, and lastly, the demographic questionnaire. After all the measures had been completed, participants were presented with a debriefing form.

Results

Data were analyzed using R version 3.3.2 (R Core Team, 2017). For each variable, I examined skewness and kurtosis and made boxplots to determine if outliers were present. Examination of the undergraduate and community psychopathy scores indicated that neither measure was normally distributed, as depicted by the skew and kurtosis values in Table 1. Community participants' psychopathy scores had an approximately symmetric distribution, though the negative kurtosis indicates a moderately flat distribution with light tails. This distribution is comparable to the psychopathy scores in the student population. As the data, in Table 1 highlights, the mean psychopathy scores were similar for both samples.

Table 1

Descriptive statistics of participants' total psychopathy scores as a function of sample type

Sample	M	Psychopathy (overall score out of 145)			
		SD	Skew	Kurtosis	SE
Community	61.51	15.40	.21	-.43	1.65
Students	63.92	16.44	.48	-.34	2.28

Through visual inspection of Figure 1, outliers were observed in the student samples total psychopathy scores and lifestyle and antisocial facet scores, which constitute Factor 2 (Figure 2). Community participants had more outliers in their affective facet scores compared to their antisocial facets (Figure 1). This is further depicted in the outliers seen in Factor 1 (Figure 2).

Figure 1. Boxplots displaying participants' total SRP score and categorized by SRP facets for student (left) or community (right) samples (R- flagged outliers indicated with a 'o').

Figure 2. Boxplots displaying participants' total SRP score and SRP factor scores for student (left) and community (right) samples (R- flagged outliers indicated with a 'o').

Skew and kurtosis values for sexual aggression of women and children for each sample are presented in Table 2. Both measures displayed a distribution that is highly positively skewed and peaked with heavy tails, as shown by the positive kurtosis. This distribution was comparable in both types of sexual aggression evaluation. Both community and student participants had similar means in the evaluation of sexual aggression towards women and children.

Table 2

Descriptive statistics evaluating sexual aggression against women and children between samples

Sample	Sexual Aggression Women (out of 7)					Sexual Aggression Child (out of 7)				
	<i>M</i>	<i>SD</i>	Skew	Kurtosis	<i>SE</i>	<i>M</i>	<i>SD</i>	Skew	Kurtosis	<i>SE</i>
Community	1.18	.73	4.27	16.77	.08	1.15	.71	4.37	17.54	.08
Students	1.16	.51	3.89	14.87	.07	1.13	.57	4.64	21.35	.08

To determine whether outliers were the underlying cause of asymmetric distributions with the samples sexual evaluation against women and children, boxplots were created to detect such outliers. Through visual inspection of Figures 3 and 4, outliers were observed throughout all conditions and subscales of sexual aggression in both participant samples. The impact of these outliers may be substantial due to the small sample size and may affect results involving the evaluation of sexual aggression and accuracy of emotion recognition.

Figure 3. Boxplots displaying participants' evaluation of sexual offending against children on the ESOC Scale, including subtypes, for the student (left) and community (right) samples (R-flagged outliers indicated with a 'o').

Figure 4. Boxplot displaying participants' evaluation of sexual offending against women on the ESAW Scale, including subtypes, for the student (left) and community (right) samples (R-flagged outliers indicated with an 'o').

Table 3 shows skewness and kurtosis values for participants' total and fear emotion recognition accuracy for both participant samples. Total emotion recognition accuracy for both

participant groups indicates a distribution that is highly negative skewed and peaked with heavy tails. For community participants, fear recognition had an approximately symmetric distribution, though the negative kurtosis displays sporadic peaks with no tails. For student participants, fear had a moderately negative skewed distribution with multiple peaks and no tails, despite the negligible kurtosis. Means in each emotion recognition condition are similar for each sample.

Table 3

Descriptive statistics of participants' accuracy of total and fear emotions categorized by sample

Sample	Total Emotion (out of 36)					Fear Emotion (out of 6)				
	<i>M</i>	<i>SD</i>	Skew	Kurtosis	<i>SE</i>	<i>M</i>	<i>SD</i>	Skew	Kurtosis	<i>SE</i>
Community	28.53	3.78	-3.51	21.33	.41	3.49	1.29	-.23	-.74	.14
Students	27.81	3.55	-1.67	5.68	.49	3.31	1.15	-.60	.16	.16

As shown in Figure 5 and 6 extreme outliers were detected in both samples accuracy of total and fear emotion recognition.

Figure 5. Boxplot representing emotion recognition accuracy of all universal emotions separated by student (left) and community (right) participants (R-flagged outliers indicated with an 'o')

Figure 6. Boxplot depicting emotion recognition accuracy of fear between student (left) and community (right) participants (R-flagged outliers indicated with an 'o').

Table 4 shows skew and kurtosis values for accuracy as a function of gaze direction (directs vs. indirect) and sample. The distribution of direct gaze within community sample had a highly negative skew and was peaked with heavy tails, as indicated by the positive kurtosis. For direct gaze within the student sample had a moderate negative skew and was peaked with light tails, as indicated by the positive kurtosis. The distribution of indirect gaze within both groups of participants had a high negative skew and was peaked with heavy tails, as indicated by the positive kurtosis.

Table 4

Descriptive statistics of participants' accuracy of gaze direction among each sample

Sample	Direct (out of 18)					Indirect (out of 18)				
	<i>M</i>	<i>SD</i>	Skew	Kurtosis	<i>SE</i>	<i>M</i>	<i>SD</i>	Skew	Kurtosis	<i>SE</i>
Community	14.29	2.02	-2.61	13.53	.22	14.24	2.26	-2.37	11.48	.24
Students	14.04	1.86	-.94	2.19	.26	13.77	2.28	-1.15	2.30	.32

As shown in Figure 7, outliers were detected in the student participants' direct emotion perception and in the emotion perception of all demographics within community participants. An extreme outlier was observed in the student participants' indirect emotion perception of adolescents, while multiple outliers were observed throughout all the age groups within community participants' indirect emotion perception (Figure 8). Overall, outliers were detected in several gaze direction conditions (Figure 9).

Figure 7. Boxplot exhibiting emotion recognition accuracy of direct emotions within each demographic, between student (left) and community (right) participants (R-flagged outliers indicated with an 'o').

Figure 8. Boxplot displaying accuracy of indirect emotion recognition in each age group, for student (left) and community (right) participants (R-flagged outliers indicated with an 'o').

Figure 9. Boxplot showing overall accuracy of direct and indirect emotion recognition in both students (left) and community (right) samples (R-flagged outliers indicated with an ‘o’).

Several multiple regression analyses were done to determine whether, psychopathy, evaluation of sexual offending against children, and evaluation of sexual aggression against women predicted the accuracy of: overall emotion recognition¹, fear recognition and emotions varying in gaze direction², collapsed across participants. Sexual relations and sexual preferences were not used as predictor variables as participants predominantly chose females over the age of 18. Due to the lack of variation within this data, shown in Table 5, these two variables were not included in any further analyses.

¹ All six universal emotions were included: happy, sad, anger, disgust, fear, and surprise.

² Gaze direction is defined as direct (picture stimuli looking at the participant) and indirect (picture stimuli has averted eyes away from the participant)

Table 5
Participants' sexual relations and sexual fantasy preferences

Age	Female Sexual Relations	Female Sexual Fantasies	Male Sexual Relations	Male Sexual Fantasies
< 12 years	0	0	0	0
12-17	2	3	0	0
18+ years	128	124	9	12

Figure 10 is a scatterplot matrix that shows scatterplots for each pair of variables and their corresponding Pearson product moment correlations, together with histograms illustrating the distribution of each variable presented along the diagonal of the matrix. Psychopathy had a moderate positive relationship with evaluation of sexual aggression against woman and evaluation of sexual offending against children but was not strongly related to any of the facial emotion recognition variables. Evaluation of sexual aggression against women and sexual offending against children were strongly correlated with each other. Both sexual aggression measures showed moderate negative correlations with the facial recognition variables. As would be expected, the facial recognition variables were all positively correlated with each other. These correlations should be interpreted with caution, however, because the distribution characteristics for the evaluation of sexual aggression against women and sexual offending against children variables are extremely skewed, as noted earlier in the boxplots, and as seen in Figure 10.

Figure 10. Scatterplot matrix showing scatterplots (below diagonal) and correlation coefficients (above diagonal) for each pair of variables. The diagonal shows the frequency distribution for each variable.

Multiple regression analysis was used to test if total psychopathy score, evaluation of sexual aggression against women, and evaluation of sexual offending against children significantly predicted participants' overall emotion recognition accuracy. The results of the regression indicated the three predictors explained 9.5% of the variance ($F(3,135)=4.74$,

$p = <.005$, $R^2 = .09$, $R^2_{Adjusted} = .08$). However, no individual predictor significantly predicted overall emotion recognition accuracy (psychopathy: $B = .01$, $t(138) = .48$, $p = .63$; sexual aggression against women: $B = -.01$, $t(138) = -.10$, $p = .92$; sexual aggression against children: $B = -1.68$, $t(138) = -1.85$, $p = .07$). Because of the skewed distributions for the sexual aggression against women and sexual offending against children results, Cook's distance was calculated to determine the role of influential cases in the regression. Cases 35, 63, and 124 were identified as influential cases. These cases were influential due to combinations of extreme scores: case 35 had a high psychopathy score (86) combined with a very low facial recognition score (3); case 63 had a very high psychopathy score (108), and case 124 had a high psychopathy score (86), plus a high score on the evaluation of sexual offending against child measure (3.33). These cases were removed from the dataset and the regression was re-run. In this second version of the regression, no significant effects were found. The three predictors explained 1.6% of the variance ($F(3,132) = .69$, $p = .56$, $R^2 = .02$, $R^2_{Adjusted} = -.01$). However, no individual predictor significantly predicted overall emotion recognition accuracy (psychopathy: $B = .01$, $t(135) = .44$, $p = .66$; sexual aggression against women: $B = -.01$, $t(135) = -.01$, $p = .10$; sexual offending against children: $B = -.70$, $t(135) = -.73$, $p = .47$). In short, removing the influential cases also removed any effect of the predictor variables on overall facial emotion recognition.

Multiple regression analysis was used to test if total psychopathy score, evaluation of sexual aggression against women, and evaluation of sexual offending against children significantly predicted participants' recognition accuracy for faces expressing fear when the influential cases noted above were removed. The results of the regression indicated the three predictors explained a nonsignificant 2.2% of the variance ($F(3,132) = .99$, $p = .40$, $R^2 = .02$, $R^2_{Adjusted} = -.0001$). Similarly, no individual predictor significantly predicted fear recognition

accuracy (psychopathy: $B = -.01$, $t(135) = -1.70$, $p = .09$; sexual aggression against women: $B = .09$, $t(135) = .21$, $p = .83$; sexual offending against children: $B = .03$, $t(135) = .08$, $p = .93$).

Multiple regression analysis was used to test if total psychopathy score, evaluation sexual aggression against women, and evaluation sexual offending against children significantly predicted participants' recognition accuracy for faces expressing emotion via direct gaze when the influential cases noted above were removed. The results of the regression indicated the three predictors explained a nonsignificant 1.9% of the variance ($F(3,132) = .86$, $p = .46$, $R^2 = .02$, $R^2_{Adjusted} = -.00$). Similarly, no individual predictor significantly predicted emotion recognition accuracy for faces exhibiting a direct gaze (psychopathy: $B = .01$, $t(135) = 1.36$, $p = .18$; sexual aggression against women: $B = .04$, $t(135) = .07$, $p = .95$; sexual offending against children: $B = -.29$, $t(135) = -.55$, $p = .59$).

A final multiple regression analysis was used to test if total psychopathy score, evaluation of sexual aggression against women, and evaluation of sexual offending against children significantly predicted participants' recognition accuracy for faces expressing emotion via indirect gaze when the influential cases noted above were removed. The results of the regression indicated the three predictors explained a nonsignificant 1.7% of the variance ($F(3,132) = .75$, $p = .53$, $R^2 = .02$, $R^2_{Adjusted} = -.01$). Similarly, no individual predictor predicted emotion recognition accuracy for faces exhibiting an indirect gaze (psychopathy: $B = -.01$, $t(135) = -.47$, $p = .64$; sexual aggression against women: $B = -.04$, $t(135) = -.07$, $p = .95$; sexual offending against children: $B = -.41$, $t(135) = -.66$, $p = .51$).

A 3 x 2 x 2 repeated measures ANOVA was used to examine the effects of gaze direction (direct³ and indirect⁴), age (adult, adolescent/teen, and child), and gender (male and female) on accuracy of emotion recognition. Eta squared was used as the effect size measure, with effect sizes described as follows: .01 equates to a small effect size, .06 to a medium effect size and .14 to a large effect size. Mauchly's test indicated that the assumption of sphericity was not violated ($p > .05$), so the unadjusted statistics are reported. A significant main effect of age on emotion recognition accuracy was observed, $F(2, 276) = 34.83, p < .001$, with a small effect size ($\eta^2 = .04$). A significant main effect for gender was also observed, $F(1, 138) = 35.84, p < .001$, with a small effect size ($\eta^2 = .02$). A significant interaction between gaze and age was obtained, $F(2, 276) = 25.73, p < .001$, with a small effect size ($\eta^2 = .02$). As illustrated in Figure 11, this interaction occurs because viewing teenage faces with direct gazes ($M = 2.47, SD = .68$) resulted in increased emotion recognition accuracy compared to viewing adult and child faces with direct gazes respectively ($M = 2.30, SD = .66$; $M = 2.33, SD = .62$). In addition, emotion recognition accuracy was higher for indirect gazes of adult ($M = 2.49, SD = .67$) and teenage ($M = 2.50, SD = .64$) faces than child faces ($M = 2.04, SD = .77$).

³Picture stimuli eye gaze is directed towards the participant

⁴ Picture stimuli eye gaze is averted away from the participant

Figure 11. Mean accuracy of emotion recognition of each age group as a function of gaze direction, collapsed across samples (bars represent 95% confidence intervals)

A significant interaction between gaze and gender was observed, $F(1, 138) = 58.55, p < .001$, with a small effect size ($\eta^2 = .03$). Figure 12 suggests that direct gazes for both male ($M = 2.39, SD = .68$) and female ($M = 2.34, SD = .64$) faces resulted in comparable levels of emotion recognition accuracy, while indirect gazes in males ($M = 2.15, SD = .76$) resulted in much lower emotion recognition accuracy than females ($M = 2.54, SD = .64$).

Figure 12. Mean accuracy of emotion recognition between gender as a function of gaze direction, collapsed across samples (bars represent 95% confidence intervals)

Additionally, a significant interaction between age and gender was obtained, $F(2, 276) = 52.30, p < .001$, with a small effect size ($\eta^2 = .05$). Figure 13 shows increased emotion recognition accuracy for male teenage faces ($M = 2.60, SD = .60$) compared to male adult and child faces, respectively ($M = 2.19, SD = .71$; $M = 2.02, SD = .74$). Conversely, emotion recognition was highest for female adult faces ($M = 2.60, SD = .57$) compared to female teenage and child faces, respectively ($M = 2.37, SD = .70$; $M = 2.35, SD = .64$).

Figure 13. Average accuracy of emotion recognition of each age group between gender, collapsed across samples (error bars represent 95% confidence intervals)

A one-way ANOVA was conducted for the proportion of fear stimuli accurately identified, collapsed across both samples. (As the design was unbalanced, an equal number of stimuli constituting all three combinations of variables (gaze direction, demographic and gender) were unavailable, therefore the analysis was completed with the available fear stimuli, necessitating the use of the 1-way ANOVA.) Mauchley's test indicated a violation of sphericity ($p < .05$) so Greenhouse-Geisser adjusted degrees of freedom are reported. A significant effect of fear was observed $F(4.38, 604.47) = 18.94, p < .001$, with a medium effect size ($\eta^2 = .10$). As Figure 14 illustrates, fear is most accurately recognized in indirect adult female stimuli ($M = .91$, $SD = .29$), whereas the lowest accuracy was the same for direct and indirect child male ($M = .45$,

$SD = .50$). The remaining conditions, indirect teen male, direct adult male and direct teen female fell between the two extremes, respectively ($M = .60, SD = .49$; $M = .52, SD = .50$; $M = .49, SD = .50$).

Figure 14. Average proportion of fear recognition accuracy as a function of different face conditions⁵ (error bars represent 95% confidence intervals)

⁵ Face conditions include: gaze direction, age, and gender variables.

Discussion

The purpose of the present study was to investigate whether increased psychopathic traits, sexual aggression, and coercion affected emotion recognition abilities in general, and fear specifically. I found that psychopathy and the evaluation of sexual aggression against both women and children accounted for only a minute proportion of the variance in emotion recognition. Similarly, due to the lack of variance in the data the study was unable to detect whether participants showed an increased deficit in fear recognition of individuals they chose to engage in sexual relations/fantasies with (versus a general deficit in fear recognition).

However, the age and gender of individuals depicted in the photographs affected overall emotion recognition accuracy. Participants more accurately identified emotions depicted in direct and indirect gaze in teenage faces and indirect gaze in adult faces. Participants also more accurately identified emotions depicted in indirect gaze female faces. This finding is notable because I speculated that facial affect recognition of female faces may be low for participants who had higher levels of psychopathy and sexual aggression. Due to the low levels of psychopathy and sexual aggression present in the sample of participants in the present study, it follows from a social evolutionary perspective that they would have a better ability to identify facial affect in female faces. Participants were most accurate at identifying emotion in teenage male and adult female faces. This age range corresponds to the age range of the participants, so this effect may have been due to increased exposure to faces from this age range. Finally, participants were most accurate at identifying fear in indirect gaze adult female faces.

The regression analyses did not yield any significant findings. The combination of psychopathy scores, evaluation of sexual aggression against women scores, and evaluation of sexual offending against children scores failed to predict overall facial recognition accuracy, the

recognition of fear, emotion expressed via direct gaze, or emotion expressed via indirect gaze. Although a marginal effect of these predictors was present in one regression, when three extreme cases were removed to account for the results of the Cook's distance analysis, any effects were eliminated. One aspect of this null effect is surprising: in previous research (e.g., Blair, 2005), researchers have typically found that psychopathy is negatively correlated with facial emotion expression recognition accuracy. Some combination of participant and/or stimulus characteristics were undoubtedly responsible for this null result; potential explanations are explored below.

Limitations

Lack of diversity in the samples could have been a significant limitation as majority of the population recruited was Caucasian which could have affected the participants' opinions about sexual aggression. There may be a discrepancy between undergraduate and community ideologies for what is appropriate or inappropriate in various sexual contexts.

Despite my efforts to sample from a diverse pool of individuals, participants were more homogenous than expected. Although I posted a public recruitment notice on Facebook, and connected the recruitment notice to other public blogs and psychology forums such as Reddit, it was posted on my personal Facebook page as well, which included my own social circle. I believe that many of the individuals I would associate with would be unlikely to have extreme views on sexual aggression or evaluate it as appropriate, thus creating a floor effect in the data for these measures. In retrospect, participants also should have been recruited from an alternative social media outlet other than Facebook, or at the least, from a broader range of Facebook users. If these measures had been administered in a correctional population, for example, especially amongst those who had committed sexual offences, these sexual aggression measures may have exhibited different results and a higher level of scores. In short, my findings may have suggested

a relationship between increased psychopathic traits and sexual aggression and its effect on emotion recognition accuracy if no floor effect had been present within the evaluation of sexual aggression measures.

Another possibility for the limited range of scores in the sexual aggression measure for women and children was a self-presentation bias and the social desirability effect. Both work in tandem, as can be seen in the floor effect for the measure. The self-presentation bias is based on an individuals' need to maintain their self-esteem or view themselves more favorably. This leads to the social desirability effect that leads participants to answer questions in a manner that they think will be viewed favorably by others in society. This can be seen in this study as under-reporting 'bad' or unacceptable sexually aggressive behavior and over-reporting acceptable societal behavior. I tried to eliminate this bias by reassuring participants that confidentiality would be maintained and there would be anonymity of responses.

The sexual aggression scales do not consider those who identify with different sexual orientations and relationship styles. The scale solely identifies those participants who engage in heteronormative relationships, which impacted the overall results for those individuals who identified as homosexual within the study. Previous research has also indicated that inebriated individuals and alcohol use has contributed to an increased number of sexually aggressive acts. Parkhill and Abbey (2008) found that fifty-two percent of college men who perpetrated a sexual assault had committed at least one act while intoxicated. Using alcohol in sexual situations was positively related to the frequency of committing sexually aggressive and coercive acts when intoxicated. At low doses, alcohol activates expectations about the results of certain situations and provides justification for inappropriate behavior. At high doses, alcohol affects cognitive functioning by impairing an individuals' ability to plan, critically think, make decisions, or

inhibit responses and impulses. Therefore, men under the influence of alcohol in sexual contexts may justify focusing on their own sexual desires rather than acknowledge a women's clear signals of distress. The use of alcohol and its association with sexually aggressive acts could have impacted the generalizability and likelihood of how these individuals would respond when under the influence versus when they are sober.

Future Research

Future studies should consider replicating the study within an equal student and community population that is more culturally diverse and has been recruited through a variety of means, not just one social media outlet. This population should also be compared with a forensic population who have scored high on clinically elevated levels of psychopathy. As incarcerated offenders have a lengthy and varied criminal history, extrapolating what we may find in this niche population of sexual and violent offenders may be intriguing in comparison to the general population. Future experimental designs could adjust for the social desirability effect due to the nature of the questions on the self-report measures. To combat this effect, Babock et al. discuss the use of the Balanced Inventory of Desirable Responding (BIDR; Paulhus 1991), a 40-item measure assessing two factors, self-deceptive enhancement and impression management. This may alleviate the drastic floor effect found within the evaluation of sexual aggression measures. Instead of solely using explicit measures of sexual aggression and coercion, future research studies could also incorporate the use of implicit evaluations (implicit association tasks, galvanic skin responses) and other offences and criminal history.

Individuals who use online dating profiles should also be recruited in a future study to assess their levels of sexual aggression and facial recognition, considering the amount of unwanted sexual acts we see in this specific dating culture. Future analysis should include

women's' use of sexual coercion. Munoz, Khan, and Cordwell (2010) found that although males were more likely to exploit an intoxicated partner, females who had high levels of primary psychopathy traits were more likely to use physical forms of sexual coercion to obtain sexual acts. These findings may provide future insight for evaluations of sexual aggression and coercion and what impact that may have on a females' ability to detect facial expressions of emotion.

Contextual emotions could impact the accuracy of facial recognition. Future research should explore having the emotions match contextually specific situations and assess whether that may affect participants' abilities to accurately detect facial expressions. Replications of the study should investigate whether participants would be able to easily detect the facial expressions of individuals they knew versus complete strangers and whether that familiarity impacted their facial recognition abilities. Varying intensities of affect may also play a role in participants' emotion recognition abilities as this current study viewed emotions at the highest levels of intensity. Looking at differing degrees of intensity may affect the accuracy of emotion recognition.

Conclusion

Overall, the present study illustrated the challenges of investigating how personality characteristics influence cognition. The biggest challenge was accurately measuring participants' attitudes towards sexual coercion and aggression, a problem that was made even more difficult by the likely presence of presentation bias and social desirability effects, in a relatively homogeneous sample of individuals with low levels of psychopathy. The discussion outlines several routes to deal with these issues, none of which should pose an insurmountable difficulty. Future work in this area should be able to resolve these problems.

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Appendix A: Picture Stimuli (Example)

What emotion is displayed in this picture?

- ☐ Happy
- ☐ Sad
- ☐ Anger
- ☐ Disgust
- ☐ Surprise
- ☐ Fear

Appendix B: Self-Report Psychopathy Scale

SRP III

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

1	2	3	4	5
Disagree Strongly	Disagree	Neutral	Agree	Agree Strongly

1. I'm a rebellious person.
2. I have never been involved in delinquent gang activity.
3. Most people are wimps.
4. I've often done something dangerous just for the thrill of it.
5. I have tricked someone into giving me money.
6. I have assaulted a law enforcement official or social worker.
7. I have pretended to be someone else in order to get something.
8. I like to see fist-fights.
9. I would get a kick out of 'scamming' someone.
10. It's fun to see how far you can push people before they get upset.
11. I enjoy doing wild things.
12. I have broken into a building or vehicle in order to steal something or vandalize.
13. I don't bother to keep in touch with my family any more.
14. I rarely follow the rules.
15. You should take advantage of other people before they do it to you.
16. People sometimes say that I'm cold-hearted.
17. I like to have sex with people I barely know.
18. I love violent sports and movies.

19. Sometimes you have to pretend you like people to get something out of them.
20. I was convicted of a serious crime.
21. I keep getting in trouble for the same things over and over.
22. Every now and then I carry a weapon (knife or gun) for protection.
23. You can get what you want by telling people what they want to hear.
24. I never feel guilty over hurting others.
25. I have threatened people into giving me money, clothes, or makeup.
26. A lot of people are “suckers” and can easily be fooled.
27. I admit that I often “mouth off” without thinking.
28. I sometimes dump friends that I don’t need any more.
29. I purposely tried to hit someone with the vehicle I was driving.

Appendix C: Evaluation of Sexual Aggression Against Adults (ESAW) Scale

How old are you? _____

In the questions below, by “woman” we mean any female 16 years old or older.

Attitudes:

1	2	3	4	5	6	7
Very Negative	Mostly Negative	A bit Negative	Neutral	A bit Positive	Mostly Positive	Very Positive

1. **How positive or negative** is making a woman **believe** that you would make something bad happen to her reputation, finances, employment, or relationships with people she cares about, in order to...

- a. **Try to** kiss, sexually touch, or make her have some sort of sex (oral, vaginal, or anal) with you when she doesn't want to?
- b. Kiss and/or sexually touch her when she doesn't want to?
- c. **Make her** have some sort of sex with you (oral, vaginal, or anal) when she doesn't want to?

2. **How positive or negative** is making it so a woman **can't get away from you** (for example, blocking the doorway, taking her keys, following her everywhere, not leaving her room), in order to...

- a. **Try to** kiss, sexually touch, or make her have some sort of sex (oral, vaginal, or anal) with you when she doesn't want to?
- b. Kiss and/or sexually touch her when she doesn't want to?
- c. **Make her** have some sort of sex with you (oral, vaginal, or anal) when she doesn't want to?

3. **How positive or negative** is **scaring a woman** by yelling, swearing, or showing you are angry (for example, breaking stuff, punching the wall), in order to...

- a. **Try to** kiss, sexually touch, or make her have some sort of sex (oral, vaginal, or anal) with you when she doesn't want to?
- b. Kiss and/or sexually touch her when she doesn't want to?

c. **Make her** have some sort of sex with you (oral, vaginal, or anal) when she doesn't want to?

4. When a woman is **passed out** from drugs or alcohol or too drunk or high to know or stop what is happening, how **positive or negative** is it to ...

a. **Try to** kiss, sexually touch, or make her have some sort of sex (oral, vaginal, or anal) with you when she doesn't want to?

b. Kiss and/or sexually touch her when she doesn't want to?

c. **Make her** have some sort of sex with you (oral, vaginal, or anal) when she doesn't want to?

5. How **positive or negative** is it to **give** a woman drugs or pressure her to drink alcohol so that she passes out or gets too drunk or high to know or stop what is happening, in order to...

a. **Try to** kiss, sexually touch, or make her have some sort of sex (oral, vaginal, or anal) with you when she doesn't want to?

b. Kiss and/or sexually touch her when she doesn't want to?

c. **Make her** have some sort of sex with you (oral, vaginal, or anal) when she doesn't want to?

6. How **positive or negative** is it to **threaten** to physically harm a woman or someone she cares about, in order to...

a. **Try to** kiss, sexually touch, or make her have some sort of sex (oral, vaginal, or anal) with you when she doesn't want to?

b. Kiss and/or sexually touch her when she doesn't want to?

c. **Make her** have some sort of sex with you (oral, vaginal, or anal) when she doesn't want to?

7. How **positive or negative** is it to use **physical force** on a woman (for example, holding her down, pinning her arms, or using a weapon), in order to...

a. **Try to** kiss, sexually touch, or make her have some sort of sex (oral, vaginal, or anal) with you when she doesn't want to?

b. Kiss and/or sexually touch her when she doesn't want to?

- c. **Make her** have some sort of sex with you (oral, vaginal, or anal) when she doesn't want to?

Appendix D: Evaluation of Sexual Offending Against Children (ESOC) Scale

How old are you? _____

In the questions below, by child we mean someone who is 15 years old or younger.

Attitudes:

1	2	3	4	5	6	7
Very Negative	Mostly Negative	A bit Negative	Neutral	A bit Positive	Mostly Positive	Very Positive

1. How positive or negative is it to...

- Try to kiss, sexually touch, or have some sort of sex (oral, vaginal, or anal) with a child?
- Kiss and/or sexually touch a child?
- Have some sort of sex with a child (oral, vaginal, or anal)?

2. When a child is asleep or out of it (for example, passed out, drugged, or drunk), how positive or negative is it to...

- Try to kiss, sexually touch, or have some sort of sex (oral, vaginal, or anal) with the child?
- Kiss and/or sexually touch the child?
- Have some sort of sex (oral, vaginal, or anal) with the child?

3. How positive or negative is it to use your relationship with a child in order to ...

- Try to kiss, sexually touch, or have some sort of sex (oral, vaginal, or anal) with the child?
- Kiss and/or sexually touch the child?
- Have some sort of sex (oral, vaginal, or anal) with the child?

4. How positive or negative is it to threaten to physically harm a child (or someone they care about), in order to ...

- Try to kiss, sexually touch, or have some sort of sex (oral, vaginal, or anal) with the child?
- Kiss and/or sexually touch the child?
- Have some sort of sex (oral, vaginal, or anal) with the child?

5. **How positive or negative** is it to use **physical force** on a child (for example, holding them down, pinning their arms, or using a weapon), in order to ...

- a. Try to kiss, sexually touch, or have some sort of sex (oral, vaginal, or anal) with the child?
- b. Kiss and/or sexually touch the child?
- c. Have some sort of sex (oral, vaginal, or anal) with the child?

Appendix E: Sexual Preference Indicators

What demographic are you more likely to have sexual fantasies about?

- a) Females less than 12 years of age
- b) Females between the ages of 12 and 17
- c) Females 18 years or older
- d) Males less than 12 years of age
- e) Males between the ages of 12 and 17
- f) Males 18 years or older

What demographic are you more likely to engage in sexual relations with?

- a) Females less than 12 years of age
- b) Females between the ages of 12 and 17
- c) Females 18 years or older
- d) Males less than 12 years of age
- e) Males between the ages of 12 and 17
- f) Males 18 years or older

Appendix F: Demographic Information

What gender are you?

- a) Male
- b) Female
- c) Other

What is your age?

- a) 18 -24 years
- b) 25-34 years
- c) 35-44 years
- d) 45-54 years
- e) 55-64 years
- f) 65 or older

What race do you identify with?

- a) White
- b) Black
- c) Asian
- d) Aboriginal
- e) East Indian
- f) Hispanic/Latino
- g) Middle Eastern
- h) Other

Do you speak English fluently?

- a) Yes
- b) No

What is your highest level of education completed?

- a) Less than high school
- b) High school graduate
- c) College diploma/certificate
- d) Bachelor's degree
- e) Master's degree
- f) PhD
- g) Other

What is your employment status?

- a) Unemployed
- b) Part-time employment
- c) Full-time employment
- d) Student
- e) Social assistance

What is your relationship status?

- a) Single
- b) Married
- c) Divorced
- d) Separated
- e) Common-Law-Partner
- f) Other

Appendix G: Informed Consent Undergraduates

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Informed Consent

Title: Personality traits and the ability to identify facial expressions

Date of ethics clearance: December 07, 2016

Ethics Clearance for the Collection of Data Expires: December 31, 2017

This study aims to understand the relationship between specific personality traits and the ability to identify facial expressions. **The researcher for this study is Natasha Dharshi in the Institute of Cognitive Science, supervised by John Logan, a professor in the Institute of Cognitive Science.** This study will take approximately 30 minutes to complete. As compensation for your participation you will receive 0.5% course credit for CGSC 1001- Mysteries of the Mind, even if you withdraw from the study. Participants are eligible to partake in this study if they are English speaking males over the age of 18.

Your participation in the study will involve viewing pictures of facial expressions and identifying emotions, completing one personality questionnaire and two sexual behavior questionnaires. You will be asked to complete a brief personal questionnaire about your sexual preferences and answer questions about demographic information.

There are items on the questionnaires that ask about antisocial behavior you may have previously engaged in or consider engaging in as well as explicit evaluations of sexual coercion and aggression. While the risk in this study is expected to be minimal, the questions asked may be embarrassing or offensive because of their sexual connotation, explicit detail and words used. **If you feel uncomfortable participating in this study, you may withdraw, not answer questions, for any reason, without penalty. Due to the collected data sets being confidential you are unable to withdraw your responses after submitting the questionnaire as there is no way to link your personal identifying information to your responses.** Should you experience any distress during the study, you will be instructed to click the withdraw button which will direct you to the debriefing form, where you will be provided with contact information for counseling services and resources available to you.

Participation in this study will be kept confidential and no personally identify information (name, IP address etc.) will be collected. You will have the option of not answering certain questions that you would not want to have included in the final project. All data collected in this experiment, including questionnaire responses and personal demographic information will be kept **confidential**. Electronic data will be kept on password protected computers and any hard copies of data (including handwritten notes or USB keys) will be kept in a locked cabinet at

Carleton University. The data will be stored and collected on the Qualtrics server, a secure website with encrypted web pages. Only persons with authorized access can download the data from this server and all Qualtrics accounts are password-protected. Research data will only be accessible by the researcher and the research supervisor. As Qualtrics servers are in the United States, data will be subject to US laws on privacy and data security. All information collected will be used for research purposes only and be reported as aggregate (group) data. Aggregate data may be used in publications or presentations. Once the project is completed, all electronic data will be kept indefinitely on password-protected lab computers at Carleton University and potentially used for other research projects on this same topic.

You have the right to end your participation in the study at any time, for any reason, without penalty. You can withdraw by clicking the withdraw button or closing the browser window. It is recommended that you click the withdraw button in order to be directed to the debriefing form for additional information and access to counseling services. If you withdraw from the study, all information you have provided will be immediately destroyed.

If you would like a copy of the finished research project, you are invited to contact the researcher to request an electronic copy which will be provided to you.

The ethics protocol for this project was reviewed by the Carleton University Research Ethics Board-B, which provided clearance to carry out the research (Clearance #105930). Should you have questions or ethical concerns related to your involvement in this research, please contact:

REB contact information:

Dr. Andy Adler
Chair, Carleton University Research
Carleton University
511 Tory
1125 Colonel By Drive
Ottawa, ON K1S 5B6
Tel: 613-520-2517
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Researcher contact information:

Natasha Dharshi
Institute of Cognitive Science
Carleton University
natashadharshi@cmail.carleton.ca

Supervisor contact information:

John Logan
Institute of Cognitive Science
Carleton University
johnlogan@cmail.carleton.ca

Click “I Agree” to indicate that you understand the information above and would like to participate in this study or “I Disagree” if you do not want to participate.

Appendix H: Informed Consent General Population

Informed Consent

Title: Personality traits, behavior and the ability to identify facial expressions

Date of ethics clearance: December 07, 2016

Ethics Clearance for the Collection of Data Expires: December 31, 2017

This study aims to understand the relationship between specific personality traits and the ability to identify facial expressions. **The researcher for this study is Natasha Dharshi in the Institute of Cognitive Science, supervised by John Logan, a professor in the Institute of Cognitive Science.** This study will take approximately 30 minutes to complete. There will be no compensation for your participation however your participation will help us to better understand emotional processing in individuals and can assist in developing resources for better rehabilitative programming and therapeutic tactics. Participants are eligible to partake in this study if they are English speaking males over the age of 18.

Your participation in the study will involve viewing pictures of facial expressions and identifying emotions, completing one personality questionnaire and two sexual behavior questionnaires. You will be asked to complete a brief personal questionnaire about your sexual preferences and answer questions about demographic information.

There are items on the questionnaires that ask about antisocial behavior you may have previously engaged in or consider engaging in as well as explicit evaluations of sexual coercion and aggression. While the risk in this study is expected to be minimal, the questions asked may be embarrassing or offensive because of their sexual connotation, explicit detail and words used. **If you feel uncomfortable participating in this study, you may withdraw, not answer questions, for any reason, without penalty. Due to the collected data sets being confidential you are unable to withdraw your responses after submitting the questionnaire as there is no way to link your personal identifying information to your responses.** Should you experience any distress during the study, you will be instructed to click the withdraw button which will direct you to the debriefing form, where you will be provided with contact information for counseling services and resources available to you.

Participation in this study will be kept confidential and no personally identify information (name, IP address etc.) will be collected. You will have the option of not answering certain questions that you would not want to have included in the final project. All data collected in this experiment, including questionnaire responses and personal demographic information will be kept **confidential**. Electronic data will be kept on password protected computers and any hard

copies of data (including handwritten notes or USB keys) will be kept in a locked cabinet at Carleton University. The data will be stored and collected on the Qualtrics server, a secure website with encrypted web pages. Only persons with authorized access can download the data from this server and all Qualtrics accounts are password-protected. Research data will only be accessible by the researcher and the research supervisor. As Qualtrics servers are in the United States, data will be subject to US laws on privacy and data security. All information collected will be used for research purposes only and be reported as aggregate (group) data. Aggregate data may be used in publications or presentations. Once the project is completed, all electronic research data will be kept indefinitely on password-protected lab computers at Carleton University and potentially used for other research projects on this same topic.

You have the right to end your participation in the study at any time, for any reason, without penalty. You can withdraw by clicking the withdraw button or closing the browser window. It is recommended that you click the withdraw button in order to be directed to the debriefing form for additional information and access to counseling services. If you withdraw from the study, all information you have provided will be immediately destroyed.

If you would like a copy of the finished research project, you are invited to contact the researcher to request an electronic copy which will be provided to you.

The ethics protocol for this project was reviewed by the Carleton University Research Ethics Board-B, which provided clearance to carry out the research (Clearance #105930). Should you have questions or ethical concerns related to your involvement in this research, please contact:

REB contact information:

Dr. Andy Adler
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Researcher contact information:

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Supervisor contact information:

John Logan
Institute of Cognitive Science
Carleton University
johnlogan@cmail.carleton.ca

Click “I Agree” to indicate that you understand the information above and would like to participate in this study or “I Disagree” if you do not want to participate.

Appendix I: Debriefing Form

Canada's Capital University

Debriefing Form

Thank you for your participation in this research. Your time and effort are greatly appreciated. Without your participation, this research would not be possible.

What are we trying to learn in this research?

The aim of this study is to examine the relationship between psychopathic traits, explicit sexual coercion and the ability to recognize facial expressions, particularly fear. As part of the study you completed a personality questionnaire which assessed psychopathic characteristics. These traits are associated with maladaptive interpersonal relationships, impulsive and antisocial behaviors and decreased affect or emotional interpretation, specifically fear. We also asked you to complete two questionnaires assessing your willingness to engage in explicit sexual aggression or coercion and you participated in viewing picture stimuli and deciphered what emotions were being exhibited by the facial expressions. We are interested in learning whether psychopathic traits and explicit sexual aggression have an impact on ones' ability to identify the facial expression of fear in the individuals they victimize specifically or in the general population.

Why is this important to scientists or the general public?

Previous research has shown a relationship between psychopathy and the deficits in interpreting or recognizing emotions. Newer research in the field has begun to define a stronger relationship between explicit evaluations and cognitive distortions of sexual coercion and its indication of sexually aggressive behavior. Knowing that psychopathy and sexual aggression can work in tandem, understanding this relationship may assist in creating more effective rehabilitative programs and therapeutic measures than are currently offered in the field. Less is known about these individuals' ability to recognize emotions, specifically fear in their victim demographic which can be an important tool when developing individualized therapy modules or psycho-educational programming.

What are our hypothesis and predictions?

We predict that individuals with higher psychopathic characteristics and explicit sexually aggressive thoughts or behaviors will have a deficit in identifying the emotion of fear. More specifically we believe that those who exhibit these characteristics will have an increased deficit in recognizing fear in their victim demographic more so than in the general population. As a large gap remains in current research on this topic we hope to gain some insight in this area.

Where can I learn more?

The references provided below will allow you to learn more about this research area if you are interested:

Blair, J., Mitchell D. R., & Blair, K. S. (2005). *The psychopath: Emotion and the brain*.

London: Blackwell Publishing Professional.

Cleckley, H. (1976). **The mask of sanity** (5th ed.). St. Louis, MO: Mosby.

Ekman, P. (2003). *Emotions revealed: Recognizing faces and feelings to improve communication and emotional life*. New York, NY: Owl Books, Henry Holt and Company, LLC.

Hare, R. D. (1993). *Without conscience: The disturbing world of the psychopaths among us*. New York, NY: Guilford Press.

Contact information for questions or concerns:

If you have any questions or comments about this study, please contact:

Natasha Dharshi (Principal Investigator; natashadharshi@carleton.ca, M. Cog. Sci. student) or Dr. John Logan (Research Supervisor; johnlogan@carleton.ca).

Should you have any ethical concerns about this study, please contact:

Dr. Andy Adler (Chair, Carleton University Research, Tel: 613-520-2517 or email: ethics@carleton.ca).

This research has been cleared by Carleton University Research Ethics Board-B (Clearance # 105930).

If you experienced any psychological discomfort as a result of this study, please contact:

Carleton University Counseling Services: <http://www1.carleton.ca/health/counselling-services>.

Distress Centre of Ottawa and Region at 613-238-3311 (<http://www.dcottawa.on.ca>).

Mental Health Crisis Service: (613) 722-6914; 1-866-996-0991

The Men's Project: 1-877-677-6532

List of a variety of resources: <http://www.carleton.ca/health/emergencies-and-crisis/emergency-numbers/>

Mental health resources across Canada: <http://healthymindscanada.ca/resources/>

Mental Health America- List of American Mental Health Resources <http://www.nmha.org/go/help>