Psychopathic traits, compliance and likelihood of falsely confessing

by

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Abstract

False confessions present a unique problem for the justice system as they are difficult to prove false and can lead to devastating consequences. Research in the area of police-induced false confessions has identified two main types of risk factors: personal (i.e., suspect's age, sex, and personality) and situational (i.e., police interrogation techniques) that contribute to an individual's risk of falsely confessing (Kassin & Gudjonsson, 2004). The present study investigated three personality variables: (1) compliance, (2) psychopathy, and (3) anxiety, and their relationship with participants' self-reported likelihood of falsely confessing to police during interrogation. Few past experiences with police interrogation were reported by undergraduate students. Compliance and anxiety were positively correlated with likelihood of falsely confessing while psychopathic traits were negatively correlated with compliance and uncorrelated with likelihood of falsely confessing. The relationship between anxiety and other personality variables are discussed along with implications for policing and criminal justice procedures.

Keywords: psychopathy, compliance, false confessions, police interrogation, self-report

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Introduction

False confessions continue to be one of the major causes of wrongful convictions in North America (Blair, 2007; Drizin & Leo, 2004; Klaver, Lee, & Rose, 2008; Leo, 2009). In recent years, researchers in the areas of psychology, criminology and law have attempted to uncover the causes of false confessions by focusing mostly on individual differences (Gudjonsson, 2003; Horselenberg, Merckelbach, & Josephs, 2003) and situational influences (Leo, 1996; Perillo & Kassin, 2011). Findings from both self-reported false confessors and laboratory experiments suggest that there are certain personality traits and police practices that make a suspect more likely to confess to a crime he or she did not commit when interrogated by police (Kassin & Gudjonsson, 2004).

Police-induced false confessions have been linked to the suspect's sex (Gudjonsson & Sigurdsson, 1994; Sigurdsson & Gudjonsson, 1996a; Klaver et al., 2008), age (Goldstein, Condie, Kalbeitzer, Osman, & Geier, 2003; Redlich & Goodman, 2003), intellectual functioning (Drizin & Leo, 2004), mental health status (Redlich, 2004; Redlich, Summers, & Hoover, 2010), and personality (Sigurdsson & Gudjonsson, 1996a) as well as psychological tactics employed by police investigators during interrogation (Hartwig, Granhag, & Vrij, 2005; King & Snook, 2009). Much of the research on personality and police-induced false confessions revolves around compliance, the tendency to obey the instructions of others despite objecting to them (Gudjonsson, 1989), and antisociality, a general disregard for societal norms and values,

because of the inherent relationship of these traits with criminal investigations (Sigurdsson & Gudjonsson, 1996a).

Despite decades of research, a solid understanding of the causes of police-induced false confessions continues to evade academics, criminal justice officials, and the general public (Leo, 2009). This is, in part, due to the inherent difficulty in proving a confession to be false and a result of the contradictory findings reported in the literature. While the majority of current research examining the relationship between personality and police-induced false confessions agrees that compliance is positively related to police-induced false confessions (Kassin & Gudjonsson, 2004; Leo, 2009), the debate surrounding the relationship between antisociality and police-induced false confessions remains unresolved with some research studies reporting a positive correlation (Gudjonsson, Sigurdsson, & Sigfusdottir, 2009), some studies reporting a negative correlation (Gudjonsson, Sigurdsson, Bragason, Einarsson, & Valdimarsdottir, 2004) and others reporting no significant relationship at all (Gudjonsson & Main, 2008). The matter is further complicated by the confusion that exists around the concepts of antisociality and psychopathy as distinct behavioural or personality types (Ogloff, 2006).

The goal of the present study was to further explore the relationship between compliance and police-induced false confessions while examining the potential influence of psychopathic traits on an individual's decision to falsely confess during police interrogation. This study also attempted to clarify the nature of the relationship, if any, between compliance and psychopathy; an area of focus which has been lacking in the existing literature.

Review of the Literature

Defining False Confessions

In much of the literature a false confession is defined as an admission to a crime that the confessor did not commit (Kassin & Gudjonsson, 2004; Leo, 2009). This definition is problematic because it encompasses not only factual false confessions to police (a confession to a crime in which the confessor had no involvement) but also legal false confessions or false guilty pleas (i.e., an admission of guilt in exchange for a lesser charge) made during the criminal justice process (Redlich, 2010). The present study deals only with factual false confessions made during police interrogation otherwise known as police-induced false confessions. These types of confessions are troublesome for two reasons: first, they may result in the wrongful conviction of an innocent person and second, they allow the individuals who are in fact guilty of the crime to avoid detection and punishment (Redlich, 2010). While difficult, it is possible to prove such a confession is factually false.

In their review of the false confession literature, Kassin and Gudjonsson (2004) report a number of ways that confessions have been proven false. In some cases of wrongful murder convictions the supposed victim was found alive proving that no crime was actually committed. In other cases, physical evidence was discovered (i.e., DNA from bodily fluids) that excluded the confessor as a possible perpetrator. In fact, it is estimated that false confession evidence played a role in the original conviction in approximately 25% of DNA exoneration cases in the United States (Garrett, 2008;

Innocence Project, 2012). In many exoneration cases false confessions are cited as the primary cause of a wrongful conviction (Blair, 2007; Conti, 1999; Gudjonsson, 2003).

Types of Factual False Confessions

Using information from real case studies, Kassin and Wrightsman (1985) identified three distinct types of factual false confessions: 1) voluntary false confessions, 2) coerced-internalized false confessions, and 3) coerced-compliant false confessions. This taxonomy has been widely accepted and is referred to in much of the literature on the topic of false confessions.

Voluntary false confessions. A voluntary false confession is a self-incriminating statement made in the absence of police pressure (Conti, 1999; Kassin & Wrightsman, 1985). Kassin and Wrightsman (1985) cited the desire to relieve oneself of guilt for real or imagined actions and the desire to punish oneself for real or imagined actions as motives for voluntary false confessions. Gudjonsson, another prominent researcher in the area of false confessions, has speculated that such voluntary false confessions are motivated by alternative psychological states (Gudjonsson, 2003). The common element in these motives is the inability of the confessor to distinguish between fantasy and reality, a symptom of mental illness (Leo, 2009).

However, not all motives underlying voluntary false confessions are related to psychological disorders. Researchers have identified other motivations for voluntarily falsely confessing including the desire to be famous or receive notoriety, attempting to establish an alibi for a more serious crime (Conti, 1999), or trying to protect someone else by 'taking the rap' for them (Gudjonsson & MacKeith, 1990; Leo, 2009). Voluntary

false confessions are made surprisingly often. Bedau and Radelet (1987) stated that 34% of the false confessions they studied were made voluntarily; however, because voluntary false confessions are not attributed to police pressure, they are not the focus of the current study.

Coerced-internalized false confessions. Coerced-internalized false confessions are, by definition, made in response to police pressure (Kassin & Wrightsman, 1985). The defining characteristic of this type of false confession is that, as a result of psychologically coercive interrogation tactics including the presentation of misinformation, the confessor comes to believe he or she is guilty of the offence (Conti, 1999; Kassin & Wrightsman, 1985). In his investigation into false confessions, Kassin (1997) found two common elements in cases of coerced-internalized false confessions: a vulnerable suspect and the use of false evidence by police. Although coerced-internalized false confessions are attributed to police pressure and have been shown to occur in approximately 21% of false confession cases (Bedau & Radelet, 1987), they are also not the focus of the current study.

Coerced-compliant false confessions. Coerced-compliant false confessions are obtained by police, from suspects who know they are innocent, following the application of physical and/or mental pressure (Leo, 2009). Inducing stress during interrogation with the goal of eliciting a confession is considered a coercive strategy and has led to admissions of guilt from suspects who know they are innocent just to escape further interrogation (Conti, 1999). In fact, coerced-compliant false confessions are the most common type of false confession reported in the literature occurring in approximately

45% of cases studied by Bedau and Radelet (1987). As a result, the factors that influence this type of police-induced false confession are the focus of many studies, the present study included.

The Kassin and Wrightsman (1985) taxonomy provided the framework for the study of false confessions for many years (Kassin & Gudjonsson, 2004). However, as knowledge of the area grows, the taxonomy has been revised and refined (Kassin, 1998; Kassin & Gudjonsson, 2004). For example, some confessions once thought to be voluntary, because they occurred in the absence of police pressure, were found to have been the product of coercion by the suspects' family, friends, clergy, or another individual in custody (Kassin & Gudjonsson, 2004; McCann, 1998). To account for this and similar findings, Gudjonsson (2003) proposed an extended model of false confessions that included the original three false confession types identified by Kassin and Wrightsman (1985) as well as three possible sources of pressure: internal (pressure from oneself to confess due to delusions, guilt, desire for notoriety, etc.), custodial (pressure exerted by police or other investigative authority), and noncustodial (pressure exerted by another source such as a friend, family member, cell mate, or undercover police officer).

The variety of types of false confessions and possible sources of pressure suggests that a false confession may not be the result of a single event or motive but rather a complex interaction between characteristics and situations.

Prevalence of False Confessions

The true prevalence of factual false confessions is not known and no method of accurately calculating the rate has been proposed (Kassin & Gudjonsson, 2004). In fact, some researchers (Leo, 1998) go as far as to say it is impossible to estimate the prevalence of factual false confessions. This fact has led to considerable debate over the published estimates of false confessions (Kassin & Gudjonsson, 2004). Due to the difficulties involved in determining true rates of false confessions, most research to date has attempted to induce false confessions using experimental manipulation in a laboratory setting or has relied on measuring past false confession rates with self-report surveys.

Kassin and Kiechel (1996) were the first to investigate the phenomenon of false confessions in a laboratory setting. In their study, 79 undergraduate students were recruited to participate in an experiment supposedly measuring reaction time. Participants were instructed to type letters on a computer keyboard and were warned not to touch the "ALT" key because it would cause the computer to crash and all data would be lost. Although the participants were all innocent, the experimenter accused them of having pressed the forbidden key thereby causing the computer to crash. Initially, all participants denied having caused the crash; however, when asked to sign a confession stating that they were responsible for the loss of data, 69% of participants complied with the experimenter's request.

Since the 1996 study, Kassin and Kiechel's "computer-crash paradigm" has been used by a number of researchers to investigate other factors that contribute to false

confessions (Forrest, Wadkins, & Miller, 2002; Horselenberg et al., 2003; Klaver et al., 2008; Redlich & Goodman, 2003). In their 2003 study, Redlich and Goodman investigated the relationship between age, suggestibility, and falsely admitting to an act one did not commit. Initially, none of the participants admitted to the act of pressing the forbidden ALT key; however, when asked to sign a statement admitting to having pressed the key, 69% of participants complied with the request (Redlich & Goodman, 2003). This figure is identical to the rate found by Kassin and Kiechel in their original study.

In a similar study, Horselenberg et al. (2003) used the Kassin and Kiechel paradigm to investigate whether the presentation of false incriminating evidence affected the rate of false confessions in a small sample of female undergraduate students. Despite the addition of a monetary penalty for those who confessed, 82% of participants agreed to sign a confession (Horselenberg et al., 2003).

Also using the computer crash paradigm, Horselenberg et al. (2006) investigated individual differences such as compliance and suggestibility while manipulating the plausibility of the act (hitting the ESC key versus the ALT key) and found that 77% of participants falsely confessed to hitting the ALT key (high plausibility condition) while 58% falsely confessed to hitting the ESC key (low plausibility condition). These results are consistent with previous findings (see Klaver et al., 2008) suggesting that false confession rates are lower if the commission of the act is seen as less plausible by the participants.

In 2005, Russano, Meissner, Narchet, and Kassin used a novel experimental paradigm to compare rates of true and false confessions elicited in a laboratory setting through the use of popular psychological interrogation techniques. In this new paradigm, participants were recruited for participation in a study said to measure individual versus group problem-solving. In order to compare participants across conditions, participants were randomly assigned to one of eight groups formed by a 2 (guilt vs. innocence) x 2 (minimization vs. no minimization) x 2 (offer of leniency vs. no offer of leniency) between-participants factorial design. A confederate posing as another study participant asks each participant in the guilty condition for help on a task that the participants were specifically instructed to complete on their own in order to elicit the target 'cheating' behaviour. Those participants assigned to the innocent condition were not asked by the confederate for help. After the participants completed the assigned problem-solving tasks, the participant was escorted to another room where he or she was then confronted by the experimenter and accused of intentionally cheating on the individual task. The participants were all told that their answers on the individual task were identical to those submitted by the confederate. Approximately 72% of guilty participants confessed along with 20% of innocent participants (Russano et al., 2005).

In the Russano et al. (2005) study, the guilt or innocence of the participant was not known to the experimenter in an attempt to ensure the unbiased 'interrogation' of each participant. The type of interrogation technique used was also manipulated in the experiment. Two common interrogation techniques used by police investigators in real-life interrogations were manipulated: (1) minimizing the severity of the situation and (2)

offering the participant a deal. When employed separately, each tactic resulted in an increase in true and false confessions. When both tactics were used on the same participant, the rates of true and false confessions increased dramatically compared to the no-tactics condition. As a result, the use of either interrogation technique significantly reduced the diagnosticity of the interrogation (defined as the ratio of true to false confessions elicited) (Russano et al., 2005). In other words, the use of minimization and/or the explicit offer of a deal not only increased the rate of true confessions it also increased the rate of false confessions obtained. Ideally, the purpose of police interrogation is to obtain a true confession from the suspect; however, if the techniques used can also elicit false confessions from innocent people, the technique cannot be considered diagnostic of guilt.

Self-report rates of false confessions to police have been found to be much lower than those produced in laboratory studies. In a survey of over 500 Icelandic prisoners, 12% reported having made a false confession to police in the past (Sigurdsson & Gudjonsson, 1996a). The same figure was found in a separate study of 229 prison inmates in Iceland, of which 27 (12%) reported having made a false confession to police during a previous interview (Gudjonsson & Sigurdsson, 1994). More recently, a study of 90 Icelandic prisoners found that 24% of those surveyed claimed to have made a false confession to police during a past interrogation (Gudjonsson, Sigurdsson, Einarsson, Bragason, & Newton, 2010). Sigurdsson, Gudjonsson, Einarsson, and Gudjonsson (2006) found similar rates when they surveyed suspects who were being interviewed by police at four police stations in Iceland. Of the 47 suspects surveyed, 9 (19%) reported

having made a false confession to police at some point in their lives. Richardson (1991) found a similar rate (23%) when he surveyed a group of 60 juvenile delinquents living in a residential home in England.

Self-report rates of false confessions have also been collected from non-offender samples. A number of studies have been conducted in Iceland looking at self-report rates of false confessions among students in high school and university. In 2004, Gudjonsson, Sigurdsson, Bragason et al. surveyed over 1,000 college students and found that approximately 4% claimed to have made a false confession to police. When Gudjonsson, Sigurdsson, and Einarsson (2004) conducted the same survey with over 600 university students, they found a lower rate of self-reported false confessions (1%). In another study of over 10,000 Icelandic students, Gudjonsson, Sigurdsson, Asgeirsdottir, and Sigfusdottir (2006) found that 7% of students who had been interrogated by police reported making a false confession. The same authors reported finding the same rate of self-reported false confessions (7%) in a separate sample of just under 2,000 Icelandic secondary college students aged 16 to 24 years (Gudjonsson, Sigurdsson, Asgeirsdottir, & Sigfusdottir, 2007). A similar rate (7%) was also reported by Steingrimsdottir, Hreinsdottir, Gudjonsson, Sigurdsson, and Nielsen (2007) in their study of 715 further education students in Denmark (aged 16-25).

The largest scale study to date surveyed over 24,000 high school students in Europe to determine the rate of self-reported false confessions among adolescents. Of the 2,726 students who had been interrogated by police, 14% ($n = 375$) reported having made a false confession (Gudjonsson et al., 2009). The largest rate was found by

Gudjonsson, Sigurdsson, and Einarsson (2007) in a sample of over 1,400 college students in Iceland, 16% of who reported taking the blame for an antisocial act that someone else had committed. The difference in rates is likely due to the latter study's inclusion of some antisocial, although not illegal, acts (i.e., deception).

Recently, the self-report format has been utilized to determine the likelihood that an individual would falsely confess to a crime if interrogated by police. Using the Perceptions of Coercion during Holding and Interrogative Process scale (P-CHIP; Goldstein, Zelle, & Grisso, 2011), Goldstein et al. (2003) measured the likelihood of juvenile delinquents making a false confession during police interrogation. A group of young men (ages 13 to 18) in detention were asked to consider a variety of hypothetical police interrogation scenarios. Of the 57 adolescents surveyed, 42% reported considering falsely confessing to police in at least one of the 26 scenarios and 25% reported definitely offering police a false confession in at least one scenario (Goldstein et al., 2003). Considering the far more serious consequences that result from admitting guilt to a crime in an actual police interrogation compared to a laboratory setting, P-CHIP scores likely overestimate an individual's likelihood of falsely confessing to police.

The current literature in the area of false confessions, including both self-report and laboratory formats, provides evidence that false confessions can and do occur. Considering this information, it is important to acknowledge that false confessions will continue to occur unless steps are taken to use this information to prevent false

confessions from occurring by attempting to understand what makes a suspect confess to a crime he or she did not commit.

Characteristics of False Confessors

Research has established three main reasons why suspects confess to crimes they have committed: (1) they perceive the evidence against them to be strong, (2) they feel an internal need to confess (e.g., experiencing feelings of remorse and need to talk about the offence), and (3) external pressure (Gudjonsson & Sigurdsson, 1999). But what would cause a person to confess to a crime he or she did not commit?

According to the existing literature on false confessions, there are a number of characteristics commonly found in self-identified false confessors. Much of the research on false confessions has focused either on situational variables (i.e., interrogation tactics) or individual variables (i.e., age, race, sex, or personality of the suspect) (Deslauriers-Varin, Lussier, & St-Yves, 2011; Redlich, 2010). However, in much of this research the results have been contradictory suggesting that the reasons an individual would confess to a crime he or she did not commit are numerous and complicated.

Risk Factors: Situational Variables

Situational, or contextual, variables are factors related to the case or the environment that could persuade a suspect to offer police a false confession (Leo, 2009). Examples of situational variables include specific police interrogation tactics as well as characteristics of the custodial environment in which the suspect is held (Leo, 2009) and is most often related to coerced-compliant false confessions, the focus of the present study.

Despite constitutional safeguards intended to protect the rights of accused persons from police coercion, police investigators continue to develop new methods of psychological manipulation that can be used to persuade individuals to confess to crimes they did not commit (Redlich, 2010). In fact, many of the techniques used today are simply less overt versions of past strategies that have been ruled unlawful in the past (Redlich, 2010). In Canada, police investigators are trained to use the Reid model of interrogation when interviewing suspects (Snook, Eastwood, Stinson, Tedeschi, & House, 2010). The Reid model is a set of psychological techniques designed to elicit a confession from the subject of the interrogation. The main psychological techniques recommended by the authors of the Reid manual can be separated into two groups with complementary goals: (1) maximization techniques; and (2) minimization techniques (Kassin, 1997; Kassin & Gudjonsson, 2004).

Maximization. Maximization techniques are intended to portray the ‘costs’ associated with denying involvement in the crime (Blair, 2007; Leo, 2001). These tactics are employed to break down the suspect’s resistance through direct confrontation (Kassin & Gudjonsson, 2004). Although police cannot threaten a suspect outright, investigators can imply what negative consequences may arise if the suspect does not cooperate with the investigation by admitting to his or her involvement (Redlich, 2010). Examples of maximization tactics include: (a) exaggerating the seriousness of the crime and/or the expected punishment; and (b) presenting the suspect with false evidence said to prove the suspect is guilty of the crime in question whether or not such evidence exists (Blair, 2007; Klaver et al., 2008). Research has shown that a suspect’s perception

of the strength of the evidence against him or her is one of the most influential factors in the decision to confess to police (Deslauriers-Varin, Beauregard, & Wong, 2011; Deslauriers-Varin, Lussier, et al., 2011; Moston, Stephenson, & Williamson, 1992; Pearse, Gudjonsson, Clare, & Rutter, 1998).

Minimization. A complementary approach is to employ tactics intended to minimize the negative consequences and/or highlight the benefits of confessing to the crime (Blair, 2007). Suggested tactics include offering justification for the offence, down-playing the suspect's role in committing the crime, or blaming the victim (Blair, 2007). The Reid model even recommends offering positive reinforcement or praise when the suspect makes an admission of guilt (King & Snook, 2009). Although the law prohibits the police from offering explicit promises or deals in exchange for a confession, they can imply that there are positive consequences to admitting guilt (Redlich, 2010). In fact, research has demonstrated that interview participants often infer that their cooperation will lead to leniency in charging or sentencing (Kassin & Gudjonsson, 2004; Kassin & McNall, 1991; Russano et al., 2005).

The Reid model. In the Reid model, the decision to interrogate a suspect is made if the initial interview suggests to police that the individual is guilty of the crime (Inbau, Reid, Buckley, & Jayne, 2004). The training manual explicitly states that interrogators must collect sufficient information to support the accusation of the suspect before proceeding with the interrogation (Leo, 2009). Therefore, only suspects that appear guilty to police are subject to interrogation. However, in this scenario, the investigator has decided that the suspect is guilty even before entering the interrogation room (for

more information on the problems related to the human detection of guilt see Kassin & Gudjonsson, 2004; Leo, 2009).

Assuming the initial interview leads the investigator to believe the suspect is guilty, the interrogation process begins. In accordance with the Reid model, the suspect is isolated in an unfamiliar setting such as a police interview room (Kassin & Gudjonsson, 2004). Isolating the suspect from family and friends is intended to increase anxiety while investigators attempt to overcome the suspect's resistance to confessing through direct verbal confrontation (Hartwig et al., 2005).

The investigator begins by confronting the suspect with the 'knowledge' of his or her guilt (Davis, Leo, & Follette, 2010; Hartwig et al., 2005). In order to convince the suspect that the investigator is truly confident that he or she is guilty, the Reid technique recommends the 'false evidence technique' which involves referencing evidence that links the suspect to the crime regardless of whether or not such evidence exists (Frantzen, 2010; Hartwig et al., 2005; King & Snook, 2009; Snook et al., 2010).

The second step in the Reid technique involves developing a theme that explains the suspect's involvement in the crime in a way that minimizes the severity of the crime or provides a rational explanation for the situation (Dixon, 2010; Hartwig et al., 2005; King & Snook, 2009; Snook et al., 2010).

The third step in the interrogation process is said to be one of the most important (King & Snook, 2009). Assuming that most suspects will deny being involved in a crime, Inbau et al. (2004) describe ways investigators can deal with such denials or prevent them from occurring in the first place. By not allowing the suspect to voice any

denial during the interrogation, it is suggested that the investigator is paving the way for the suspect to confess (Hartwig et al., 2005).

The fourth step in the process is rooted in a similar idea. Investigators are encouraged to allow suspects to offer explanations of why they could not have been involved in the crime (called objections) and use them as reasons the suspect should confess (Hartwig et al., 2005). At this point in the interrogation, the suspect may feel discouraged, as though they have run out of defenses, and may withdraw from the interview (Hartwig et al., 2005). It is at this point (step five) that the Reid technique recommends the investigator continue the conversation with the suspect while maintaining eye-contact and decrease the distance between themselves and the suspect in order to keep his or her full attention (Hartwig et al., 2005; King & Snook, 2009).

Step six of the Reid technique recommends investigators express their sympathy for the suspect while reminding him or her of the justifications for the crime and the benefits of telling the truth (Hartwig et al., 2005; King & Snook, 2009).

The seventh step in the Reid technique involves providing the suspect with a choice between two alternative explanations for the crime (Hartwig et al., 2005; King & Snook, 2009). Both explanations involve admitting involvement in the crime; however, one choice should provide a socially acceptable explanation of the suspect's involvement in the crime (Hartwig et al., 2005; King & Snook, 2009). Providing the suspect with a socially acceptable explanation for the crime encourages the suspect to admit to having some involvement in the crime thereby opening the gates to a full confession later on (Hartwig et al., 2005; King & Snook, 2009).

The eighth and ninth steps both involve getting the suspect to provide details of the crime. Suspects are encouraged to verbally recount details of the crime to the investigator. At this point, the Reid model suggests investigators express relief on behalf of the suspect once there has been an admission of guilt (King & Snook, 2009). The final step of the process involves obtaining a signed confession of the suspect's involvement in the crime (Hartwig et al., 2005; King & Snook, 2009). Written confessions are preferred to oral confessions because they are less likely to be recanted after the fact (King & Snook, 2009).

Pearse et al. (1998) describe the Reid method as being "primarily concerned with suggesting ways to break down the reluctant suspect" (p. 4). Recent research suggests that the tactics advocated by the Reid technique are psychologically coercive (Russano et al., 2005) and such tactics are the main cause of police-induced false confessions (Leo, 2009; Ofshe & Leo, 1997).

Risk Factors: Individual Variables

Sex. Because most criminal offences are committed by men, it is understandable that the majority of past research on false confessions has focused on male offenders resulting in few studies looking at the possible influence of sex in false confessions. However, more recent research has included both men and women in correctional and community samples. Unfortunately, the results of these studies are mixed.

In their study of Icelandic prison inmates, Sigurdsson and Gudjonsson (1996b) discovered that a higher proportion of women reported offering police a false confession compared to men. Similar findings have been reported for community samples. In a

study of Danish students ages 16 to 25, Steingrimsdottir et al. (2007) found that women were more likely to confess to police during questioning than their male counterparts. On the other hand, some researchers have found no statistically significant sex differences. Using the “computer-crash” paradigm with a sample of American undergraduates, Forrest, Wadkins, and Larson (2006) found that the difference in rates of false confessions for men (72%) and women (86%) was not statistically significant. Similar findings were reported by Klaver et al. (2008) in their study of Canadian undergraduates. Therefore, although some self-report studies suggests that women may be more likely to make a false confession than men (Gudjonsson & Sigurdsson, 1994; Sigurdsson & Gudjonsson, 1996b; Steingrimsdottir et al., 2007), laboratory results have proved inconclusive (Forrest et al., 2006; Klaver et al., 2008).

Age. A number of researchers have found that the age of the suspect is related to offering police a false confession. In a study of the Miranda rights comprehension of juvenile offenders, Goldstein et al. (2003) found that age was the only significant predictor of juvenile offenders’ self-reported likelihood of offering a false confession to police when asked about hypothetical interrogation scenarios. Specifically, youth aged 13 to 15 were significantly more likely to offer a false confession than youth aged 16 to 18. The authors hypothesized that the comprehension of Miranda rights may be beyond the capacity of younger adolescents making them more vulnerable to police pressure.

Similar findings have been reported by Sigurdsson and Gudjonsson (1996b) in their study of adult and juvenile prisoners. Of the adult prisoners who reported making a false confession, 49% reported being between the ages of 16 and 20 at the time of the

confession. In contrast, no juveniles reported making false confessions to police. The difference between the two groups came down to prior experience with the justice system. The prisoners who reported making a false confession to police also reported being actively involved with criminal activity during that time, indicating that false confessions may be related to an individual's experience with the criminal justice system and not simply a result of his or her age (Sigurdsson & Gudjonsson, 1996b).

Criminal history. The criminal history of the suspect, defined as the number of previous convictions, has also been identified as a potential contributor to false confessions (Pearse et al., 1998; Redlich et al., 2010). In their study of self-reported false confessions, Sigurdsson and Gudjonsson (1997, 2001) found that prisoners who reported having given a false confession had significantly more experience with the criminal justice system, specifically with police interrogation, than those who did not report having made a false confession to police. The false confession rate for a first interrogation was 12% compared to 20% for a second interrogation, a statistically significant difference (Gudjonsson et al., 2009). In a similar study conducted with mentally ill offenders, Redlich et al. (2010) found that criminal justice experience successfully discriminated between individuals who had reported making false confessions and individuals who had not. For example, false confessors had, on average, 11 or more lifetime arrests and 5 or more years of offending experience than non false-confessors.

The increase in prevalence of false confessions given by experienced offenders may seem counter-intuitive considering that experienced offenders would know what to

expect in an interrogation scenario as compared to a first-time offender who has had no previous contact with law enforcement. A possible explanation for this phenomenon is that more experienced offenders have simply had more contact with law enforcement giving them more opportunities to falsely confess to a crime than less experienced offenders. In order to better understand the issue, more research should be conducted to clarify the reasons experienced offenders give for offering a false confession to police.

Crime type. Other factors found to be related to false confessions include the type and severity of the crime (property vs. violent crime) (Leo, 1996; Moston et al., 1992). Although most publicized cases involving proven false confessions involve serious violent crimes like rape and murder, findings from a number of self-report studies suggest that the majority of false confessions were related to more minor offences like theft and property damage (Kassin & Gudjonsson, 2004).

Sigurdsson and Gudjonsson (1996b) found that 58% of the false confessions reported by inmates involved property offences. A serious traffic violation was the next most common offence reported. Similarly, Gudjonsson et al. (2009) reported that having committed a burglary was a significant predictor of false confessions.

Risk Factors: Psychological Characteristics

The risk factors for false confessions that have received the most attention are psychological variables or vulnerabilities. Gudjonsson (2006) defines psychological vulnerabilities as “psychological characteristics or mental state which renders a witness prone, in certain circumstances, to providing information which is inaccurate, unreliable or misleading” (p. 68). According to Gudjonsson (2003), there are four types of

psychological vulnerabilities relevant to the study of false confessions: mental illness, abnormal mental state, intellectual functioning, and personality traits.

Mental illness. Gudjonsson et al. (2006) found that, compared to non-false confessors, false confessors scored higher on diagnostic tests of anxiety and depression. Similarly, individuals with diagnosed mental illnesses have been found to be significantly more likely to offer a false confession than others (Leo, 2009; Redlich et al., 2010). This may be compounded by the fact that individuals with mental illness are more likely to come in repeated contact with the justice system, providing them more opportunity to offer a false confession (Redlich et al., 2010).

Substance abuse has also been found to be a significant predictor of false confessions (Gudjonsson et al., 2009). In a large sample of college and university students predictors of false confessions included multiple victimizations and substance abuse (Gudjonsson, Sigurdsson, Asgeirsdottir, et al., 2007). In one study of Icelandic prisoners, Sigurdsson and Gudjonsson (1996b) found that 25% of self-reported false confessors were dependent on drugs compared to just 10% of the larger inmate population.

Although the majority of false confessions are given by mentally healthy people (Drizin & Leo, 2004; Leo & Ofshe, 1998), mental illness is a recognized risk factor for false confessions (Redlich et al., 2010). In addition to problems with memory and executive functioning, mentally ill individuals may experience psychiatric symptoms that make it difficult for them to distinguish between reality and fantasy, making them more susceptible to coercion or suggestion (Leo, 2009).

Abnormal mental state. In their 2006 study of Icelandic youth, ages 16 to 24 years, Gudjonsson and colleagues found a significant difference in anxiety scores between those youth who reported having made a false confession to police (false confessors) and those who had not (non-false confessors). However, the authors did not specify whether they had measured participants' levels state anxiety or trait anxiety.

According to Spielberger and Sydeman (1994) state anxiety can be defined as a transitory emotional state characterized by conscious feelings of tension and apprehension resulting in heightened arousal of the autonomic nervous system. Thus an individual's level of state anxiety can vary in intensity depending on the events or situation experienced. This situational anxiety is often exploited by police investigators specifically to elicit confessions as outlined in the Reid model.

The transitory nature of state anxiety is contrasted with the relatively stable construct of trait anxiety, described as the general tendency of an individual to respond to perceived environmental threats with anxiety (Spielberger & Sydeman, 1994). Trait anxiety can be used to describe an anxious personality type as well as the diagnosis of anxiety disorder. Both state and trait anxiety have been investigated with respect to their influence on false confessions with mixed results (Gudjonsson, 2003).

In their study of suspects questioned at two London police stations, Gudjonsson and colleagues (1993) found that one in five suspects reported above average levels of state anxiety citing the experience of police interrogation as the cause. In that same sample no significant differences in state anxiety were reported for suspects determined to be more vulnerable to falsely confessing compared to those deemed not vulnerable by

trained clinicians. However, significant differences in trait anxiety were discovered between the vulnerable and non-vulnerable suspects (Pearse et al., 1998). Both types of anxiety can affect an individual's ability to think rationally which in turn may make the individual more vulnerable to suggestion, putting him or her at greater risk for falsely confessing to police (Davison & Gossop, 1996; Sigurdsson & Gudjonsson, 1996b). Therefore, more research is needed to distinguish the effects of both state and trait anxiety on false confessions in the context of police interrogation.

The effects of some drugs and the associated withdrawal symptoms can also limit an individual's ability to think rationally and make informed decisions (Gudjonsson & Sigurdsson, 1999; Sigurdsson & Gudjonsson, 1994). This is especially probable when an individual has used drugs immediately prior to his or her arrest. Suspects who claimed to have used illicit drugs in the previous 24 hours were more likely to confess to police during an interview than those who reported no recent drug use (Pearse et al., 1998). These effects are not limited to the use of illicit substances. In two separate studies, individuals experiencing symptoms of withdrawal from alcohol were found to be at a significant disadvantage in terms of their ability to cope with interrogative pressure during police questioning (Gudjonsson, Hannesdottir, Petursson, & Bjornsson, 2002; Gudjonsson, Hannesdottir, Petursson, & Tyrfingsson, 2000).

Intellectual functioning. Gudjonsson (1990) has also reported that low intelligence is related to false confessions in forensic populations. Research shows that individuals who are developmentally or intellectually impaired are especially vulnerable to police pressure putting them at great risk of self-incrimination (Leo, 2009). Kassir

and Gudjonsson (2004) suggest this could be due to an increased need for approval from authority figures which may cause these individuals to respond in ways they think will please the investigator. Additionally, it may be difficult for intellectually impaired individuals to understand the consequences of their actions in the interrogation room (Clare & Gudjonsson, 1995; Kassin & Gudjonsson, 2004).

Personality. Personality characteristics have been the focus of much of the recent research into what makes an individual more likely to falsely confess to a crime (Gudjonsson, 2003). Studies have shown that certain personality traits can make an individual more vulnerable to pressure from others thus making them more vulnerable to confessing to a crime they did not commit (Leo, 2009). For example, compared to non-confessors, individuals who reported having made a false confession scored higher on scales measuring extraversion, psychoticism and anger, suggesting that these traits may make individuals more vulnerable to coercion or suggestion (Gudjonsson et al., 2006; Gudjonsson, Sigurdsson, & Einarsson, 2004).

Based on current research, the two personality traits shown to be most strongly related to false confessions are compliance (Gudjonsson, 1989) and antisociality (Sigurdsson & Gudjonsson, 1996b). First, compliance is defined by Gudjonsson (2003) as “the tendency of the individual to go along with propositions, requests or instructions, for some immediate instrumental gain” (p. 370). According to Gudjonsson (1989), the concept of compliance is comprised of two main traits: (1) an eagerness to please others and (2) an avoidance of conflict and confrontation. Compliant individuals are more susceptible to outside influence. This characteristic obedience is especially relevant in

situations involving authority figures, which explains why the main forensic application of the study of compliance involves its relation to false confessions (Blair, 2007; Gudjonsson, 2003, 2006; Gudjonsson & Main, 2008; Kassin & Gudjonsson, 2004).

Individuals prone to exhibiting compliance in any social situation may be especially vulnerable to the demands of police under interrogative pressure, and as a result may be more likely to falsely confess to a crime (Gudjonsson, Sigurdsson, Einarsson, & Einarsson, 2008; Kassin & Gudjonsson, 2004). A number of self-report studies have demonstrated a relationship between false confessions and compliance in both offender and community samples suggesting that false confessors tend to be more compliant than non-confessors (Gudjonsson, 1991; Sigurdsson & Gudjonsson, 1996b).

Compliance does not require that an individual accept a suggestion or request; however, a compliant individual makes a conscious decision to obey instructions regardless of whether or not he or she agrees with them (Gudjonsson, 1989). Measuring this type of compliance has at least two important forensic applications: (1) it allows for the assessment of an individual's vulnerability to coercion which may be in question in cases of alleged coerced-compliant false confessions (Gudjonsson & MacKeith, 1988); and (2) it allows for the assessment of an individual's general tendency towards compliance in situations where more than one offender is involved and may explain why one individual may be especially susceptible to exploitation by the other(s). It is the former that is of interest in the present study.

Compliance is most often assessed the using the Gudjonsson Compliance Scale (GCS; Gudjonsson, 1989). Sigurdsson and Gudjonsson (1996b) found that Icelandic

inmates who had reported making a false confession had higher GCS scores than inmates who had not falsely confessed. Research using the GCS suggests that compliance may also be related to other personality traits/disorders (Gudjonsson & Main, 2008). In a recent study of mentally ill offenders, Gudjonsson and Main (2008) discovered that compliance was significantly correlated with dependent and avoidant personality patterns. Compliance was also significantly correlated with schizotypal and borderline personality disorders suggesting that the relationship between compliance and these disorders may be explained by the high rate of anxiety and low self-esteem commonly associated with these disorders (Gudjonsson & Main, 2008).

In the same sample of offenders, compliance was not found to be correlated with antisocial personality disorder (Gudjonsson & Main, 2008). However, a number of other studies have demonstrated a positive relationship between antisocial personality characteristics and false confessions (Sigurdsson & Gudjonsson, 1996b). Gudjonsson and Sigurdsson (1994) reported that antisocial personality traits, as measured by the Gough Socialization Scale (So) of the California Psychological Inventory (CPI; Gough, 1960, 1987), along with number of previous imprisonments were the two best predictors of false confessions. In their survey of Icelandic prisoners, Sigurdsson and Gudjonsson (1996b) found that prisoners who reported having made a false confession to police were significantly more antisocial in their personalities, represented by low scores on the Gough Socialization Scale and high scores on the Psychoticism (P) subscale of the Eysenck Personality Questionnaire (EPQ; Eysenck & Eysenck, 1975), than the non-false

confessors in the remainder of the prison population. Similar findings have been reported in college students (Gudjonsson, Sigurdsson, Bragason, et al., 2004).

It appears from the existing research that false confessions are in some way related to antisocial personality traits and involvement in delinquent (criminal) activity (Sigurdsson & Gudjonsson, 1996b). Individuals with certain personality disorders, specifically the antisocial type, are more likely to lie for short-term instrumental gain (Gudjonsson & Main, 2008). They also tend to act impulsively in their own self-interest without considering the consequences of their actions (Sigurdsson & Gudjonsson, 1996b). As a result, these individuals may be more likely to falsely confess to a crime (or falsely deny involvement in criminal activity) if they see personal benefit in it at the time (Gudjonsson, 2003, 2006; Gudjonsson & Main, 2008). As a consequence of their impulsivity, disregard for others, and pursuit of their own interests, antisocial individuals are also involved in criminal activity at a higher rate bringing them into contact with police more often. This higher frequency of contact with police also allows these individuals more opportunities to offer false confessions (Sigurdsson & Gudjonsson, 1997, 2001).

Although related to the concept of antisocial personality, psychopathy has yet to be investigated with respect to false confessions.

Psychopathy

Psychopathy is the clinical term used to describe a personality disorder characterized by distinct set of affective, interpersonal, lifestyle and behavioural components (Cleckley, 1941; DeLisi, 2009; Hare, 2003; Hare & Neumann, 2008).

Although more prevalent in offender populations, psychopathy is thought to be present in approximately 1% of the general population (Coid, Yang, Ullrich, Roberts, & Hare, 2009; Neumann & Hare, 2008).

The interpersonal dimension of psychopathy is comprised of pathological lying, a grandiose sense of self-worth, manipulation, and superficial charm (Cleckley, 1941; DeLisi, 2009). Traits such as callousness and a lack of empathy along with a failure to accept responsibility and a lack of guilt make up the affective component of the disorder (DeLisi, 2009). With regards to lifestyle, psychopaths have been described as impulsive, irresponsible, parasitic, and lacking realistic life goals (DeLisi, 2009). Lastly, the antisocial behaviours typically associated with this personality disorder include behaviour problems early in life, juvenile delinquency, poor behavioural controls, criminal versatility, and revocation of conditional release (DeLisi, 2009).

The construct of psychopathy essentially describes an individual who is selfish, self-centered, and motivated solely by his or her self-interest (DeLisi, 2009). Psychopaths achieve what is in their self-interest by manipulating others or through sheer force while showing no concern for the interests of anyone else (DeLisi, 2009). This lack of concern for others is characteristic of psychopathy and is related to their lack of guilt or remorse, and their lack of empathy (DeLisi, 2009). It is this pathological pursuit of one's own self-interest that raises questions regarding whether or not an individual with psychopathic traits would be more or less likely to falsely confess to a crime.

Recently, there has been more interest in measuring the construct of psychopathy in non-forensic populations (Williams, Paulhus, & Hare, 2007). Due to the range of psychopathic traits found in criminal populations, it has been assumed that psychopathy does occur (albeit infrequently) in the general population as well (Neumann & Hare, 2008). However, due to the large amount of required information used to assess psychopathy with traditional instruments such as the Psychopathy Checklist – Revised (PCL-R; Hare, 1991, 2003), it is difficult to determine the prevalence of the disorder outside of criminal populations. In order to assess psychopathy in large populations, a shorter, less involved measure was required (Lilienfeld & Fowler, 2006).

Assessment using self-report. Self-report measures of psychopathy have been around almost as long as the modern concept itself as part of larger personality inventories such as the Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1940) (Williams et al., 2007). However, the development of self-report measures devoted to measuring psychopathy only has been a more recent occurrence.

The Self-Report Psychopathy scale (SRP; Hare, 1985) is one of the most prominent self-report measures of psychopathy (Williams, Nathanson, & Paulhus, 2003). Now in its third revision, the SRP-III (Paulhus, Hemphill, & Hare, in press) has proven to be an acceptably reliable and valid measure of sub-clinical psychopathy in non-criminal populations and is the only available measure that adheres to the four-factor structure of the widely used PCL-R (Hare, 1991, 2003; Williams et al., 2003). Figure 1 illustrates the four factor structure of the SRP-SF.

Figure 1. Factor Structure of the Self-Report Psychopathy scale - Short Form.

Developed around the same time as the SRP, the Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996) also purports to measure psychopathy in a self-report format. The PPI and its current revised form, the Psychopathic Personality Inventory - Revised (PPI-R; Lilienfeld & Widows, 2005), were developed based on clinical descriptions of psychopathy rather than on already established instruments like the PCL-R. As a result, the PPI/PPI-R represents a factor structure different from that of the SRP-III and the PCL-R. In the PPI-R the construct of psychopathy is represented by three factors: Fearless Dominance, Self-Centred Impulsivity and Coldheartedness. The third factor, Coldheartedness, is comprised of only one content scale by the same name. The validity of this third factor has been disputed and, as a result, is often left out of analyses. Figure 2 illustrates the three factor structure of the PPI-R.

Figure 2. Factor structure of the Psychopathic Personality Inventory - Revised.

While the validity of the four-factor structure of the SRP-III (and SRP-SF) has been supported empirically (Williams et al., 2007), questions have been raised regarding the statistical validity of the two-factor structure represented by the original PPI and the more recent PPI-R (Neumann, Malterer, & Newman, 2008; Seibert, Miller, Few, Zeichner, & Lynam, 2011; Uzieblo, Verschuere, Van den Bussche, & Crombez, 2010). More specifically, concerns have been raised regarding the lack of association the PPI-R's Fearless Dominance scale appears to have with measures of antisocial behaviour, considered to be one of the defining features of psychopathy (Andrade, 2008; Lynam & Miller, 2012).

Psychopathy and compliance. Little research has been conducted on the possible relationship between psychopathy and compliance. The only published study that has investigated the relationship between psychopathic traits and compliance was conducted by Ray and Jones (2012). Inspired by the existing research on antisocial behaviour and compliance, Ray and Jones (2012) examined the relationship between self-reported psychopathy (using the PPI-R) and compliance as measured by the GCS. Results indicated that although total PPI-R scores were unrelated to compliance, Fearless Dominance (FD) and Coldheartedness (C) were significantly negatively correlated with compliance, while Self-centered Impulsivity (SCI) was positively related to compliance although this correlation was not statistically significant. However, considering the uncertainty over the PPI-R's ability to accurately measure psychopathy (see meta-analysis by Miller & Lynam, 2012), these results may not be the best representation of the true relationship between psychopathic traits and compliance. Further investigation into the relationship between psychopathic traits and compliance could address this issue by using an alternative measure of psychopathic traits.

Psychopathy and false confessions. To date, no research has investigated the potential relationship between psychopathy and false confessions; however, past research has shown that persons experiencing guilt about a crime are more likely to confess to police than those who do not feel guilt (Deslauriers-Varin, Beauregard, et al., 2011; Deslauriers-Varin, Lussier, et al., 2011). Based on this finding, it could be hypothesized that a person with many psychopathic traits would be less likely to falsely confess to a crime because they would be less likely to experience guilt in the first place

as a lack of guilt is characteristic of psychopathy itself. On the other hand, characteristics of psychopathy such as grandiosity, impulsivity and juvenile delinquency may put individuals with these psychopathic traits at greater risk of offering a false confession. Furthermore, if an individual with psychopathic traits was more likely to falsely confess to a crime, would his or her reason for offering a false confession be the same as an individual who does not possess psychopathic traits?

Research has found that the decision to confess (whether true or false) is influenced by the suspect's analysis of the costs and benefits of confessing (Deslauriers-Varin, Beauregard, et al., 2011). One of the characteristics of psychopathy is a preoccupation with one's own interests (Weibe, 2004); therefore, if the benefits to him/her strongly outweigh the costs of confessing, would a person high in psychopathic traits be more inclined to lie to reap the rewards?

Study Purpose and Hypotheses

The primary purpose of this study was to investigate the relationship between psychopathic traits, compliance, and self-reported likelihood of offering a false confession to police in a sample of undergraduate university students. Secondly, this study aimed to replicate and extend previous findings regarding the relationship between compliance and psychopathic traits.

Psychopathic Traits and Compliance

Based on the results of previous research (Ray & Jones, 2012), it was hypothesized that PPI-R and SRP-SF total scores would not correlate with GCS total scores. However, factors scores were expected to be correlated with GCS total scores.

Scores on the PPI-R factor Self-Centered Impulsivity (SCI) were expected to be positively related to GCS total scores. On the other hand both Fearless-Dominance (FD) and Coldheartedness (C) scores were expected to be negatively related to GCS total scores.

Although no previous studies have looked at the relationship between compliance and psychopathy as measured by the SRP-SF, based on the correlations found by Ray and Jones (2012) between compliance and PPI-R factor scores, it was hypothesized that similar relationships would exist with SRP-SF factor scores. More specifically, it was hypothesized that scores on the Interpersonal Manipulation (IM) and Affective (A) factors of the SRP-SF would be negatively related to GCS total scores, while scores on the Lifestyle (LS) and Antisocial (AS) factors would be positively related to GCS total scores.

Compliance and Police-Induced False Confessions

Based on the results of previous self-report studies on compliance and false confessions (Gudjonsson, 1992; Gudjonsson, Sigurdsson, Bragason, et al., 2004; Horselenberg et al., 2003; Sigurdsson & Gudjonsson, 1996a; Steingrimsdottir et al., 2007) it was hypothesized that GCS total scores would be positively correlated with self-reported likelihood of offering a false confession to police.

Psychopathic Traits and Police-Induced False Confessions

No previous studies have looked at the relationship between psychopathy and false confessions; therefore, no predictions were made regarding the relationship

between PPI-R and SRP-SF total scores and self-reported likelihood of offering a false confession to police.

False Confessions

Based on self-report studies of college and university students (Gudjonsson et al., 2006; Gudjonsson, Sigurdsson, Bragason, et al., 2004; Gudjonsson, Sigurdsson, & Einarsson, 2004; Steingrimsdottir et al., 2007), it was expected that the base rate of actual past false confessions made to police would be very low in university students.

Method

Participants

Participants were 329 male ($n = 67$; 20%) and female ($n = 262$; 80%) university students enrolled in first or second year psychology courses at an Ontario university. Participants' ages¹ ranged from 16 to 52 ($N = 290$, $M = 20.1$, $SD = 4.7$).

The majority of participants described themselves as White/Caucasian ($n = 236$; 72%). Other ethnicities represented in the sample were Aboriginal/First Nations/Native Canadians ($n = 3$; 1%), Asian ($n = 28$; 9%), Black/African-Canadian ($n = 12$; 4%), East Indian ($n = 2$; 1%), Hispanic/Latino ($n = 6$; 2%), Middle Eastern ($n = 19$; 6%) and Other/Mixed ($n = 23$; 7%).

Materials

Perceptions of Coercion during Holding and Interrogation Process (P-CHIP). The measure entitled Perceptions of Coercion during the Holding and

¹ One 16 year old student participated in the study. Another 33 participants were 17 years of age. Analyses were conducted with and without participants under the age of 18. There were no statistical differences found in results after the under 18 group of participants were removed.

Interrogation Process (P-CHIP) was recently added to the battery of scales that make up the Miranda Rights Comprehension Instruments (MRCI; Goldstein, Zelle, & Grisso, 2011). While the four instruments of the MRCI assess an individual's understanding of, and appreciation for, his or her Miranda rights; the P-CHIP was designed to assess an individual's self-reported likelihood of offering incriminating information or confessing to a crime while under police pressure during an interrogation (Zelle, 2008). The scale employs a story of a hypothetical suspects and a variety of hypothetical situations involving police questioning strategies based on actual strategies suggested in the widely used *Criminal Interrogations and Confessions* (Inbau, Reid, & Buckley, 1986).

For use in the present study, the P-CHIP instructions were modified for undergraduates. The hypothetical suspect was removed allowing participants to report what they themselves would do in the given situation. Only two of the three original response sets were used in the present study. The focus of the present study was on false confessions, therefore the third response set, designed to measure the participant's likelihood of offering a confession if guilty, was removed. Both response sets (false confessions, perceptions of stress) were changed to a six-point scale.

Participants read a short story about an individual (same sex as the participant) who was being questioned by the police about an assault and theft that took place. Participants were presented with 26 different hypothetical scenarios describing the behaviour of the police during the interrogation. The participant was asked to imagine he or she is the suspect described in the story. First the participant was asked what he or she would do in response to each of the 26 police behaviours if he or she was innocent of the

crime in question. This response set (A) was intended to measure false confessions.

Responses were scored from 1 to 6 according to how sure the participant was that he or she would confess to police (1 = *definitely not*, 2 = *probably not*, 3 = *maybe not*, 4 = *maybe yes*, 5 = *probably yes*, and 6 = *definitely yes*). Higher scores on this scale indicate a greater likelihood of falsely confessing to police during interrogation.

Second, the participant was asked to rate how much stress he or she would be feeling during each of the 26 scenarios. Items on response set (B) are scored from 1 to 6 according to how stressed the participant thinks he or she would be in each situation (1 = *very relaxed*, 2 = *pretty relaxed*, 3 = *a little relaxed*, 4 = *a little stressed*, 5 = *pretty stressed*, and 6 = *very stressed*). Higher scores on this scale indicate a higher level of perceived stress during interrogation.

Two factor scores were calculated for the P-CHIP by summing the values on the 26 items for each response set: (A) self-reported likelihood of falsely confessing, and (B) perceived stress. Total scores were then calculated by summing the two factor scores providing an overall score on self-reported likelihood of falsely confessing to police during interrogation.

Use of the P-CHIP in empirical research has been limited, and as a result, information on the psychometric properties of the scale is scarce. Much of the research has been conducted using juvenile offenders and non-offenders. Arnold, Messenheimer Kelley, Burkard, NeMoyer, and Goldstein (2012) report good test-retest reliability with juvenile offenders ($r = .77$) and community samples ($r = .71$). Arnold et al. (2012) also report excellent internal consistency for both juvenile offenders ($\alpha = .96$) and

community samples ($\alpha = .97$). In the present study, both response sets measuring (A) false confessions and (B) perceived stress demonstrated excellent internal consistency producing Cronbach's alphas of .98 and .97 respectively. The P-CHIP total score also demonstrated excellent internal consistency ($\alpha = .95$). Due to copyright restrictions, the Perceptions of Coercion during Holding and Interrogation Process scale is not included in this document.

Self-Report Psychopathy – Short Form (SRP-SF; Paulhus, Neumann, & Hare, in press). The Self-Report Psychopathy scale – Short Form is a 29-item self-report questionnaire designed to measure psychopathic traits in non-offender samples. The items of the SRP-SF measure four different domains of psychopathy: interpersonal traits, affective traits, lifestyle traits, and antisocial traits. Respondents rate the degree to which they agree with each of the 29 statements on a five-point scale (1 = *strongly disagree*, 2 = *disagree*, 3 = *neutral*, 4 = *agree*, and 5 = *strongly agree*).

Item 2 ("I have never been involved in delinquent gang activity.") of the SRP-SF is reverse scored. Four factor scores are calculated. Scores for the Interpersonal factor are calculated by summing the values of items 7, 9, 10, 15, 19, 23, and 26. Scores for the Affective factor are calculated by summing the values of items 3, 8, 13, 16, 18, 24, and 28. The Lifestyle factor scores are calculated by summing the values of items 1, 4, 11, 14, 17, 21, and 27. Finally, the Antisocial factor scores are calculated by summing the values of items 20, 2 (reverse scored), 5, 6, 12, 22, 25, and 29. Finally, total scores on the SRP-SF are then calculated by summing the scores on the four factors.

The Self-Report Psychopathy–III scale (SRP-III; Williams et al., 2007), on which the SRP-SF was based, demonstrates acceptable reliability and validity as well as good internal consistency indicated by an overall alpha of .91 (Williams et al., 2003). Significant correlations with other self-report measures of psychopathy, namely the Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996), the Levenson Self-Report Psychopathy scale (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995), and the Psychoticism subscale of the Eysenck Personality Questionnaire (EPQ; Eysenck & Eysenck, 1975), provides evidence that the SRP-III is a valid measure of psychopathy (Williams et al., 2003). In a recent study of university students, the reliability of the SRP-SF factors were all acceptable ($\alpha > .74$) (Carré, Hyde, Neumann, Viding, & Hariri, 2012).

In the present study the SRP-SF demonstrated excellent internal consistency represented by an overall alpha of .93. Additionally, each of the four SRP-SF factors demonstrated good internal consistency with alphas ranging from .76 to .86.

Psychopathic Personality Inventory-Revised (PPI-R; Lilienfeld & Widows, 2005). The Psychopathic Personality Inventory-Revised is a 154-item self-report scale designed to measure psychopathic traits in community samples (Lilienfeld & Widows, 2005). Each item is answered on a four-point scale (1 = *false*, 2 = *mostly false*, 3 = *mostly true*, and 4 = *true*). The measure consists of eight subscales, organized into three factors. Factor 1, entitled Fearless Dominance, includes the Stress Immunity, Social Influence, and Fearlessness subscales. Factor 2, entitled Self-Centered Impulsivity, includes the Rebellious Nonconformity, Blame Externalization, Machiavellian

Egocentricity, and Carefree Nonplanfulness subscales. The remaining subscale entitled Coldheartedness is reported by the authors to load onto a third factor with the same name (Lilienfeld & Widows, 2005); however, analyses conducted by other researchers found only two distinct factors (Benning, Patrick, Hicks, Blonigen, & Krueger, 2003). In the present study analyses were conducted using all three factors of the PPI-R in order to compare results with previous research conducted using the original three factor structure.

Sixty-four items were reverse scored in accordance with the PPI-R user's manual. Eight content scale scores were then calculated. Factor scores were calculated by summing the scores on the corresponding content scales. Total scores were calculated by summing the scores on the three factors. Item 112 was removed from analysis and therefore, was not included in the calculation of content, factor or total scores.

In addition to measuring psychopathic traits, the PPI-R also contains three validity scales: (1) The Deviant Responding Scale, assesses malingering, random responding and comprehension problems; (2) the Inconsistent Responding Scales, included to assess the consistency in responding; and (3) the Virtuous Responding Scale, designed to detect impression management on the part of the participant. No participants presented atypical scores on the validity scales; therefore, all participants could be included in the analyses.

The PPI-R manual reports satisfactory internal consistency for total PPI-R scores in college/community samples ($\alpha = .93$) and offender samples ($\alpha = .86$), for PPI-R factor in college/community samples (α s = .92 and .91 for Self-Centered Impulsivity and

Fearless Dominance, respectively) and offender samples (α s = .91 and .86 for Self-Centered Impulsivity and Fearless Dominance, respectively), as well as excellent test-retest reliability demonstrated in community samples over a period of 12 to 45 days (r s range from .82 to .95) (Lilienfeld & Widows, 2005).

In the present study, the overall internal consistency of the PPI-R was excellent (α = .94). Although the Cronbach's alphas for each of the three factors were somewhat lower than the total score (Self-centered Impulsivity: α = .93, Fearless Dominance: α = .91, and Coldheartedness: α = .83), all were still within the good to excellent range. Questions have been raised regarding the convergent validity of the two-factor structure represented by the current PPI/PPI-R (see Miller & Lynam, 2012). Interestingly, the factor with the highest internal consistency in the present study was Coldheartedness which many researchers have questioned as to its validity as its own factor. Not surprisingly, the factor with the lowest internal consistency was the Fearless Dominance factor which has been the focus of much of the criticism directed towards the measure. Due to copyright restrictions, the Psychopathic Personality Inventory – Revised is not included in this document.

Gudjonsson Compliance Scale (GCS; Gudjonsson, 1989, 1997). The Gudjonsson Compliance Scale is a 20-item '*true*' or '*false*' self-report measure of compliance, or "the general tendency or susceptibility of individuals to comply with requests and obey instructions when they would rather not" (Gudjonsson & Main, 2008, p. 182). Two forms of the scale were created: Form D, which was designed to be completed by the participant him/herself; and Form E, which is intended to be

completed by an informant about the person in question. Examples of the items that make up the scale are: 'I give in easily when I am pressured', 'I tend to go along with what people tell me even when I know that they are wrong', 'I generally believe in doing as I am told', and 'I try to please others' (Gudjonsson, 1989, 1997). Form D was used and adapted to a four-point scale (1 - *false*, 2 - *mostly false*, 3 - *mostly true*, 4 - *true*).

Items 17 ("I am not too concerned about what people think of me."), 18 ("I strongly resist being pressured to do things I don't want to do."), and 19 ("I would never go along with what people tell me in order to please them.") of the GCS were reversed scored. Total scores for compliance were then calculated by summing the values for all 20 items. Factor scores were not calculated for the GCS because it was the overall construct of compliance that was of interest for this study, not its possible subcomponents. Additionally, the factor structure of the GCS, specifically the number of factors, is questionable (Gudjonsson, 1989).

An alpha coefficient of .71, as reported in Gudjonsson's Suggestibility Scales manual (Gudjonsson, 1997), suggests an acceptable level of internal consistency. In the present study the internal consistency of the GCS was higher ($\alpha = .82$) than what is reported in the manual. Due to copyright restrictions, the Gudjonsson Compliance Scale is not included in this document.

Welsh Anxiety Scale (WAS; Welsh, 1956). The WAS, adapted from the MMPI (Hathaway & McKinley, 1943), is a 39-item questionnaire used as a measure of an individual's disposition to experience negative affect and anxiety (Welsh, 1956). All

items are in a true-false form. True responses, except for item 20 – “I very seldom have spells of the blues” – which is reverse scored, are summed to produce the total score.

The WAS has demonstrated excellent internal consistency in previous studies of psychiatric patients: Kuder-Richardson 21 = .94 (Graham, 1987), and psychopathic inmates: $\alpha = .92$ (Hale, Goldstein, Abramowitz, Calamari, & Kosson, 2004). In the present study, the WAS again demonstrated very good internal consistency represented by a Cronbach’s alpha of .92. Due to copyright restrictions, the Welsh Anxiety Scale is not included in this document.

Experience with Police Interrogation. This set of four questions was adapted from a large scale survey of high-school students in Iceland conducted by the Icelandic Center for Social Research and Analysis, the Government Agency for Child Protection, the Ministry of Education and the Public Health Institute of Iceland (Gudjonsson et al., 2006). The original questionnaire was made up of 169 items which asked about the students’ education, family and social backgrounds, as well as their sexual experiences, any history of physical abuse, substance abuse, anxiety or depression. The questionnaire also asked about problems with anger and self-esteem. The four questions relevant to the present study were taken from section 103 which asked about the students’ experiences with police interrogation, true and false confessions, true and false denials, and any convictions they may have received. These items are rated on a five-point scale (*‘Never’*, *‘Once’*, *‘Twice’*, *‘Three to five times’*, *‘Six or more times’*) representing how often the participant experienced each of the four circumstances: 1) been interrogated by police at a police station about a suspected offence, 2) confessed during interrogation to an

offence that you did commit, 3) confessed during interrogation to an offence that you did not commit, 4) denied during interrogation an offence that you had committed.

Responses on each of the four items were summed to produce an overall score.

No information is available on the internal consistency of only these four items as used by Gudjonsson and colleagues. In the present study, a Cronbach's alpha of .82 indicates good internal consistency was obtained.

Procedure

Study participants were recruited from Carleton University's undergraduate student recruitment program. Interested students were provided with the address for the website hosting the survey. The participants were informed that they would be presented with a number of hypothetical scenarios involving police interrogations and that they would be asked whether or not they would confess to committing the crime in question when interrogated by police.

Before beginning the study, each participant was instructed to read and accept the terms outlined in the consent form (Appendix A). The participant was then directed to the online questionnaires hosted by surveymonkey.com. To ensure complete anonymity and confidentiality, participants were only identified by a number once informed consent was provided.

Participants were asked to indicate their age, sex, and racial/ethnic background (Appendix B). Participants were then instructed to read a scenario about a crime that had been committed and was being investigated by police. The participant was asked to imagine themselves as the suspect in custody. First, the participants were presented with

26 police behaviours and asked to respond to the questions as if they were innocent of the crime in question. The first response set was intended to measure the likelihood that the participant would falsely confess during a police interrogation. The second response set was intended to assess the level of stress perceived by the participant in response to each of the police behaviours.

Once the two response sets regarding the police interrogation were completed, participants were asked to complete the SRP-SF, PPI-R, GCS, and the WAS. The order of these scales was randomized to minimize testing effects. Lastly, participants were asked four questions regarding their personal past experience with police interrogations and confessions. Once all measures were complete, participants were presented with a debriefing form outlining the purpose of the research and providing them with additional resources should they have other questions. Participants were provided with course credit for their participation.

Results

Data Treatment

Beginning with the 499 cases collected using Survey Monkey, any students who visited the website but did not consent to participate in the study ($n = 1$) were deleted. The remaining 498 cases were then screened for completion. Eighty-three of the remaining cases were deleted because the participants failed to complete an entire scale. An additional 33 cases were deleted because more than ten percent of a scale was missing leaving 382 completed cases. Lastly, as it was estimated that the study would require approximately 60 minutes to complete participants who took less than 30

minutes to complete the surveys were excluded ($n = 53$) leaving 329 cases included in the final analyses.

Data screening. Data collected from the 329 participants were checked for entry errors. All participants' ages were formatted numerically. Participants' sex was re-coded (0 = *male*, 1 = *female*) to allow for easier interpretation of results.

Missing values. For the total sample, less than 1% of the data were missing. Missing values for individual participants ranged from 0% to 4% (0 to 13 of 300 items). Despite the small amount of data missing per participant, listwise deletion would have resulted in a loss of a large number of participants' data. Therefore, listwise deletion was not used because the loss of data would have been much greater than the maximum 5% recommended by Tabachnick and Fidell (2013). For demographic data, pairwise deletion was used to maximize sample size.

Considering the small amount of data missing it was decided that prorating scale/factor/total scores, according to the respective manuals, would provide a reasonable estimate of the true total score for each participant based on the number of items that were answered.

Evaluation of normality. Skewness and kurtosis values were examined for all variables. Individual histograms for each variable were also checked for skewness and kurtosis. As expected for university/community samples factor scores and total scores for the SRP-SF were all positively skewed. The prevalence of psychopathic traits is known to be very low in community samples (i.e., < 1%), therefore, more low end scores are representative of the population surveyed (Coid et al., 2009; Neumann &

Hare, 2008). Attempts were made to transform SRP-SF scores; however, no improvement in normality could be obtained. Content scale scores, factor scores and total scores for the PPI-R were approximately normally distributed as indicated by skewness and kurtosis statistics and histograms. Scores on the GCS and WAS were evaluated for normality. Both variables were within the acceptable range. Total scores on the EXPI were positively skewed. Again, this is to be expected with samples of university student in which the majority of individuals have had no prior contact with police. P-CHIP confession scores were highly positively skewed reflecting very low self-reported likelihood of falsely confessing, while P-CHIP stress scores were negatively skewed representing mostly high scores on perceptions of stress during interrogation. When confession and stress scores were combined to produce P-CHIP total scores, the resulting scores were approximately normally distributed.

Identification of univariate outliers. All variables were checked for extreme values. Individual cases with extreme scores (z scores > 3.0) on one or more variables were identified. Due to the large sample size obtained ($N = 329$) even small standard errors can produce significant values for skewness and/or kurtosis despite the appearance of a normal distribution. Therefore, only those values much greater than three standard deviations (i.e., z scores $> + 3.29$, z scores $< - 3.29$) were considered extreme (Field, 2009). These values were then transformed to bring the identified cases within approximately three standard deviations from the mean.

Identification of multivariate outliers and regression diagnostics. After each regression analysis was run, diagnostic statistics were examined to determine if the appropriate assumptions had been met and/or if any influential cases (outliers) were present. Values for Cook's distance, leverage, DFBeta, and DFFit were examined for the presence of outliers. Histograms and normal P-P plots of the standardized residuals for each predictor and outcome variable were checked for normality. Scatterplots of standardized residuals and predicted values were examined for evidence of heteroscedasticity. Durbin-Watson test statistics were calculated to test the independence of residuals. Variance inflation factor (VIF) values were assessed for evidence of multicollinearity between predictors.

Data analysis. Analyses of the data collected included calculation of Cronbach's alpha, Pearson product-moment correlation coefficients, and ordinary least squares regression models. All data analyses were conducted using SPSS 19.0.

Descriptive Statistics

As expected, scores on both measures of psychopathic traits were low. The maximum score possible on the SRP-SF is 145; however, the highest score calculated in the present study was 107. In fact 86% of participants scored below 70. With respect to the PPI-R, the maximum possible total score is 520. In the present study, the highest total score calculated was 392. Table 1 displays the means and standard deviations of the SRP-SF and PPI-R. Minimum and maximum values are also presented for each scale.

Table 1

Means (M) and standard deviations (SD) for psychopathy total, factor, and content scale scores

Scale	<i>M</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>
SRP-SF				
Interpersonal Manipulation	12.92	5.63	7	32
Affective	13.03	4.96	7	29
Lifestyle	14.52	5.53	7	33
Antisocial	10.68	3.32	8	25
Total	51.16	16.70	29	107
PPI-R				
Fearless Dominance	105.09	18.87	54	154
Social Influence	44.09	9.25	19	68
Fearlessness	31.55	8.69	14	55
Stress Immunity	29.45	7.35	13	52
Self-Centred Impulsivity	139.26	25.08	82	206
Machiavellian Egocentricity	42.19	9.72	22	74
Rebellious Nonconformity	32.18	7.97	16	57
Blame Externalization	29.81	7.76	14	52
Carefree Nonplanfulness	35.08	7.13	20	52
Coldheartedness	31.57	7.22	16	57
Total	275.93	37.84	174	392

Note. SRP-SF = Self-Report Psychopathy scale – Short Form. PPI-R = Psychopathic Personality Inventory – Revised.

SRP-SF total and factor scores were highly correlated with PPI-R total scores and scores on Self-Centred Impulsivity; however, the correlations between SRP-SF total and factor scores with scores on Fearless Dominance and Coldheartedness ranged from low to moderate. Table 2 presents the zero-order correlations between total and factor scores of both the SRP-SF and the PPI-R.

Table 2

Zero-order correlations between scores on two measures of psychopathic traits

	PPI-R Total	SCI	FD	C
SRP-SF Total	.71**	.71**	.32**	.39**
Interpersonal	.57**	.60**	.21**	.35**
Affective	.61**	.61**	.24**	.45**
Lifestyle	.67**	.69**	.35**	.23**
Antisocial	.54**	.51**	.30**	.30**

Note. SRP-SF = Self-Report Psychopathy – Short Form. PPI-R = Psychopathic Personality Inventory – Revised. SCI = Self-Centred Impulsivity. FD = Fearless Dominance. C = Coldheartedness.

** $p < .01$.

Table 3 displays the means and standard deviations of the GCS, WAS, and the P-CHIP. Minimum and maximum values are also presented for each measure.

Table 3

Means (M) and standard deviations (SD) for scores on compliance, anxiety and self-reported likelihood of falsely confessing

Scale	M	SD	Minimum	Maximum
GCS	49.77	8.63	26	74
WAS	17.16	9.02	0	39
P-CHIP				
Self-reported likelihood of falsely confessing	43.20	23.70	26	136
Perceived stress	118.64	25.00	26	156
Total	161.84	35.21	52	274

Note. GCS = Gudjonsson Compliance Scale. WAS = Welsh Anxiety Scale. P-CHIP = Perceptions of Coercion during Holding and Interrogation.

Sex differences. Significant differences in mean scores for male and female participants were found for SRP-SF, PPI-R, and P-CHIP total scores. Table 4 displays

the means and standard deviations of the SRP-SF, PPI-R, GCS, WAS, and the P-CHIP for men and women. Mean difference values are also presented for each scale.

Table 4

Means (M) and standard deviations (SD) for scores on psychopathy, compliance, anxiety, and self-reported likelihood of falsely confessing for men and women

	Men <i>n</i> = 67		Women <i>n</i> = 262		Mean Difference	<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
SRP-SF	61.12	19.29	48.62	14.98	12.50	4.94***
IM	16.51	6.44	12.00	5.02	4.50	5.32***
AF	16.30	5.43	12.19	4.48	4.11	5.71***
LS	16.25	5.94	14.08	5.34	2.17	2.90**
AS	12.05	4.38	10.33	2.90	1.72	3.05**
PPI-R	292.52	37.14	271.68	36.90	20.84	4.12***
SCI	144.37	23.75	137.96	25.30	6.42	1.88
FD	112.19	20.31	103.27	18.08	8.92	3.51***
C	35.96	7.26	30.45	6.78	5.51	5.84***
GCS	48.79	7.43	50.02	8.91	-1.23	-1.05
WAS	16.98	9.80	17.21	8.83	-0.18	-0.22
P-CHIP	143.51	34.95	166.53	33.78	-23.03	-4.94***
Confessions	38.91	19.00	44.30	24.67	-5.39	-1.94
Stress	104.60	28.11	122.24	22.85	-17.64	-5.37***

Note. SRP-SF = Self-Report Psychopathy scale – Short Form. IM = Interpersonal Manipulation. AF = Affective. LS = Lifestyle. AS = Antisocial. PPI-R = Psychopathic Personality Inventory – Revised. SCI = Self-Centred Impulsivity. FD = Fearless Dominance. C = Coldheartedness. GCS = Gudjonsson Compliance Scale. WAS = Welsh Anxiety Scale. P-CHIP = Perceptions of Coercion during Holding and Interrogation.

* $p < .05$ (2-tailed), ** $p < .01$ (2-tailed), *** $p < .001$ (2-tailed).

Independent samples t-tests were performed on each factor score and content scale score (where applicable) for each of the measures. Significant differences in mean

scores for male and female participants were found on all four factors of the SRP-SF. On average men scored higher than women on all SRP-SF factors.

Significant sex differences were also found on four of the eight PPI-R content scales (Machiavellian Egocentricity: $t = 3.66, p < .001$; Fearlessness: $t = 2.87, p = .004$; Stress Immunity: $t = 3.86, p < .001$; Coldheartedness: $t = 5.84, p < .001$), again with men reporting higher scores on average, resulting in significant differences in mean scores on one of the two remaining PPI-R factors: Fearless Dominance.

Significant sex differences in mean scores were also found on the P-CHIP perceptions of stress scale but not on scores of self-reported likelihood of falsely confessing. Interestingly, the trend was in the opposite direction for the P-CHIP stress scale with men reporting lower scores, on average, than women.

With respect to experience with police interrogation, significant differences between item scores for male and female participants were found on items 1, “been interrogated by police because of suspicion of criminal involvement”, ($t = 1.98, p = .051$) and 4, “denied an offence that you committed when interrogated by police”, ($t = 2.24, p = .029$) with men reporting higher scores on average than women.

Psychopathy and Compliance

To test whether there was a significant relationship between psychopathic traits, as measured by the SRP-SF, and compliance, the Pearson product-moment correlation coefficient was calculated. A small negative correlation was found between total scores on the SRP-SF and total scores on the GCS suggesting that individuals who scored higher on psychopathic traits, as measured by the SRP-SF, are slightly less compliant

than individuals who scored lower on psychopathic traits. Correlation coefficients for GCS total scores and SRP-SF total and factor scores are presented in Table 5.

Table 5

Correlations between compliance and SRP-SF total and factor scores

	GCS
Interpersonal	-.06
Affective	-.17**
Lifestyle	-.17**
Antisocial	-.18**
SRP-SF Total	-.16**

Note. GCS = Gudjonsson Compliance Scale.

SRP-SF = Self-Report Psychopathy scale – Short Form.

** $p < .01$ (2-tailed).

The relationship between compliance (GCS total scores) and psychopathy (SRP-SF total scores) was further examined using ordinary least squares (OLS) regression. In order to examine the unique relationship between compliance and each SRP factor, GCS total scores were subsequently regressed onto the four factors of the SRP-SF (Interpersonal, Affective, Lifestyle, and Antisocial). Table 6 displays the unstandardized regression coefficients (b), intercept, and standardized regression coefficients (β) of the regression of SRP-SF total and factor scores on GCS total scores.

Total scores on the SRP-SF accounted for only 3% of the variance observed in GCS scores ($F = 8.91, p = .003$). After the inclusion of the SRP-SF factor scores in the second step of the hierarchical regression, the model accounted for 6% of the variance in GCS scores ($F = 5.22, p < .001$). Although the small increase in variance accounted for was statistically significant (F change = 3.92, $p = .009$); the ability of psychopathic traits, as measured by the SRP-SF, to predict compliance, as measured by the GCS

remained low. No multivariate outliers were identified and the necessary regression assumptions were met for all variables except Interpersonal factor scores of the SRP-SF which were therefore excluded from the model.

Table 6

OLS regression of SRP-SF total and factor scores on compliance

Model	<i>b</i>	<i>SE_b</i>	β	<i>t</i>	Sig.
1. (Constant)	54.08	1.52		35.62	.000
SRP-SF total	-0.08	0.03	-0.16	-2.99	.003
2. (Constant)	55.90	1.66		33.78	.000
SRP-SF total	0.36	0.14	0.69	2.64	.009
Affective	-0.70	0.26	-0.40	-2.69	.008
Lifestyle	-0.51	0.19	-0.32	-2.59	.010
Antisocial	-0.73	0.25	-0.28	-2.94	.003

Note. SRP-SF = Self-Report Psychopathy scale – Short Form.

To test whether there was a significant relationship between psychopathic traits, as measured by the PPI-R, and compliance, the Pearson product-moment correlation coefficient was calculated. A small negative correlation was found between total scores on the PPI-R and total scores on the GCS suggesting that individuals who scored higher on psychopathic traits, as measured by the PPI-R, are less compliant than individuals who scored lower on the PPI-R. Correlation coefficients for GCS total scores and PPI-R total and factor scores are presented in Table 7.

The relationship between compliance (GCS total scores) and psychopathy (PPI-R total scores) was further examined using ordinary least squares (OLS) regression. In order to examine the unique relationship between compliance and each PPI-R factor, GCS total scores were subsequently regressed onto the three factors of the PPI-R (Fearless

Dominance, Self-Centred Impulsivity, and Coldheartedness). Table 8 displays the unstandardized regression coefficients (b), intercept, and standardized regression coefficients (β) of the regression of PPI-R total and factors scores on GCS total scores.

Table 7

Correlations between PPI-R total and factor scores and compliance

	GCS
Fearless Dominance	-.38***
Self-Centred Impulsivity	.012
Coldheartedness	-.33***
PPI-R Total	-.24***

Note. GCS = Gudjonsson Compliance Scale.

PPI-R = Psychopathic Personality Inventory – Revised.

*** $p < .001$ (2-tailed).

Table 8

OLS regression of PPI-R total and factor scores on compliance

Model	b	SE_b	β	t	Sig.
1. (Constant)	65.04	3.41		19.08	.000
PPI-R total	-0.06	0.01	-0.24	-4.52	.000
2. (Constant)	68.90	3.13		22.01	.000
PPI-R total	0.06	0.02	0.27	3.44	.001
Fearless Dominance	-0.22	0.03	-0.48	-6.85	.000
Coldheartedness	-0.42	0.07	-0.35	-6.07	.000

Note. PPI-R = Psychopathic Personality Inventory – Revised.

Total scores on the PPI-R accounted for 6% of the variance observed in GCS scores. After the inclusion of the PPI-R factor scores in the second step of the hierarchical regression, the model accounted for 23% of the variance in GCS scores. Therefore, the ability of psychopathic traits, as measured by the PPI-R, to predict compliance, as measured by the GCS, was significantly improved by adding PPI-R

factor scores to the second regression model. This increase in variance accounted for was significant at $p < .001$. No multivariate outliers were identified and the necessary regression assumptions were met for all variables except Self-Centred Impulsivity factor scores of the PPI-R which were therefore excluded from the model.

Comparison of results with Ray and Jones (2012). In order to properly compare results between studies, scores on the GCS were re-coded dichotomously (0 = *false*, 1 = *true*) as in the study by Ray and Jones (2012). Similarly, sex and ethnicity were also coded dichotomously (0 = *male*, 1 = *female*; 0 = *white*, 1 = *non-white*).

The two samples had similar compositions. Both studies sampled undergraduate university students with a mean age of 20.1 years in the present study and 22.9 years in the study by Ray and Jones (2012). Both samples were largely female: present study ($n = 262$; 80%), Ray and Jones (2012; $n = 80$; 61% female). The samples were also predominantly Caucasian in both the present study ($n = 236$; 72%), and the study by Ray and Jones (2012; $n = 86$; 65%). The main difference was the sample size. For the present study, the sample included almost three times as many participants as the study conducted by Ray and Jones (2012).

Significant differences in mean scores between samples were found for PPI-R content scales: Machiavellian Egocentricity, Blame Externalization, Carefree Nonplanfulness, Social Influence, and Stress Immunity. Significant differences in mean scores were also found for Self-Centred Impulsivity and Fearless Dominance. However, the difference in PPI-R total scores was not statistically significant. Table 9 displays the

means and standard deviations on the GCS and the PPI-R for the present study as well as the Ray and Jones (2012) study.

Table 9

Means (M) and standard deviations (SD) on GCS and PPI-R from present study and Ray and Jones (2012)

	Present study <i>N</i> = 329		Ray & Jones (2012) <i>N</i> = 131		Difference
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>
GCS	10.27	3.95	9.65	3.58	1.56
PPI-R					
Fearless Dominance	105.09	18.87	115.33	16.59	5.43***
Social Influence	44.09	9.25	49.20	8.52	5.47***
Fearlessness	31.55	8.69	32.48	9.51	1.01
Stress Immunity	29.45	7.35	33.34	6.41	5.31***
Self-Centred Impulsivity	139.26	25.08	131.03	23.04	3.25**
Machiavellian Egocentricity	42.19	9.72	39.38	8.78	2.87**
Rebellious Nonconformity	32.18	7.97	31.88	7.46	0.37
Blame Externalization	29.81	7.76	28.17	6.50	2.14*
Carefree Nonplanfulness	35.08	7.13	31.37	7.52	4.96***
Coldheartedness	31.57	7.22	31.16	6.90	0.56
Total	275.93	37.84	277.98	35.13	0.54

Note. GCS = Gudjonsson Compliance Scale. PPI-R = Psychopathic Personality Inventory – Revised.

* $p < .05$ (2-tailed), ** $p < .01$ (2-tailed), *** $p < .001$ (2-tailed).

Table 10 displays the zero-order correlations between total scores on the GCS and content, factor and total scores on the PPI-R for both the present study and Ray and Jones (2012) as well as *z* scores for the difference between the two samples. The correlation between scores on one content scale of the PPI-R (Carefree Nonplanfulness) and GCS total scores demonstrated a significant difference between the two samples. All

other correlations between GCS scores and PPI-R content scale, factor, and total scores did not differ significantly between the two samples studied.

Table 10

Zero-order correlations between GCS and PPI-R content scale, factor, and total scores for present study and Ray and Jones (2012)

	GCS		Difference
	Present study <i>N</i> = 329	Ray and Jones (2012) <i>N</i> = 131	<i>z</i>
PPI-R			
Fearless Dominance	-.38***	-.33**	-0.55
Social Influence	-.27***	-.27*	0.00
Fearlessness	-.15**	-.15	0.00
Stress Immunity	-.45***	-.30**	-1.68
Self-Centred Impulsivity	.01	.14	-1.26
Machiavellian Egocentricity	.08	.09	-0.10
Rebellious Nonconformity	-.10	-.09	-0.10
Blame Externalization	.06	.21*	-1.47
Carefree Nonplanfulness	-.02	.22*	-2.34*
Coldheartedness	-.33***	-.30**	-0.32
Total	-.24***	-.11	-1.29

Note. GCS = Gudjonsson Compliance Scale. PPI-R = Psychopathic Personality Inventory – Revised.

* $p < .05$ (2-tailed), ** $p < .01$ (2-tailed), *** $p < .001$ (2-tailed).

Table 11 displays the unstandardized regression coefficients (b), intercept, and standardized regression coefficients (β) of the regression of age, sex, ethnicity, PPI-R total, factor, and content scale scores on GCS total scores for both studies. The proportion of variance in GCS total scores accounted for by PPI-R total, factor, and content scale scores was consistent across the two studies.

Table 11

OLS regression for GCS by PPI-R total, factor, and content scale scores, age, sex, and ethnicity for present study and Ray and Jones (2012)

Present study N = 329						Ray and Jones (2012) N = 131				
Model	GCS			F	Adj. R ²	GCS			F	Adj. R ²
	b	SE _b	β			b	SE _b	β		
1. Age	-0.14**	0.05	-0.16	5.30	.06	-0.02	0.09	-0.02	0.79	.00
Sex	-0.05	0.57	-0.01			0.37	0.72	0.05		
Ethnicity	-0.24	0.13	-0.11			-0.78	0.67	-0.10		
PPI-R total	-0.02***	0.01	-0.21			-0.01	0.01	-0.13		
2. Age	-0.08	0.05	-0.10	12.44	.19	-0.03	0.08	-0.04	7.25	.23
Sex	-0.85	0.55	-0.09			1.14	0.65	0.16		
Ethnicity	-0.15	0.12	-0.07			-0.47	0.60	-0.06		
SCI	0.03***	0.01	0.19			0.05**	0.01	0.31		
FD	-0.07***	0.01	-0.35			-0.08**	0.02	-0.35		
C	-0.14***	0.03	-0.25			-0.19**	0.05	-0.35		
3. Age	-0.05	0.05	-0.06	9.10	.24	-0.05	0.08	-0.13	5.14	.26
Sex	-0.62	0.54	-0.06			0.96	0.73	0.12		
Ethnicity	-0.15	0.12	-0.07			-0.31	0.61	-0.04		
ME	0.12***	0.03	0.30			0.10*	0.05	0.23		
RN	-0.04	0.04	-0.09			-0.09	0.05	-0.18		
BE	-0.03	0.03	-0.05			0.03	0.06	0.05		
CN	0.01	0.04	0.02			0.13**	0.05	0.26		

SOI	-0.09***	0.03	-0.21	-0.04	0.04	-0.09
STI	-0.11**	0.04	-0.21	-0.10	0.05	-0.18
F	0.001	0.03	0.003	-0.05	0.04	-0.12
C	-0.16***	0.04	-0.29	-0.23***	0.05	-0.43

Note. PPI-R = Psychopathic Personality Inventory-Revised – Total. SCI = Self-Centered Impulsivity. ME = Machiavellian Egocentricity. RN = Rebellious Nonconformity. BE = Blame Externalization. CN = Carefree Nonplanfulness. FD = Fearless Dominance. SOI = Social Influence. STI = Stress Immunity. F = Fearlessness. C = Coldheartedness. GCS = Gudjonsson Compliance Scale.

* $p < .05$ (2-tailed), ** $p < .01$ (2-tailed), *** $p < .001$ (2-tailed).

Compliance and False Confessions

To determine whether a significant relationship existed between compliance, as measured by the GCS, and self-reported likelihood of falsely confessing, as measured by the P-CHIP, the Pearson product-moment correlation coefficient was calculated. A moderate positive correlation was found between total scores on the GCS and total scores on the P-CHIP ($r = .38, p < .001$) suggesting that individuals who scored higher on compliance, as measured by the GCS, reported a greater likelihood of falsely confessing and/or perceptions of stress than individuals who scored lower on the GCS. Small positive correlations were found between scores on compliance and scores on self-reported likelihood of falsely confessing ($r = .25, p < .001$) and perceptions of stress during interrogation ($r = .30, p < .001$).

GCS total scores, age, and sex were simultaneously regressed on P-CHIP total scores to determine which predictors were significant. Participant sex and total scores on the GCS accounted for 21% of the variance observed in P-CHIP scores. In this analysis, age was not a significant predictor of P-CHIP total scores. No multivariate outliers were identified. Upon review, it was found that the age variable had violated the assumption of normality and was therefore removed from the subsequent model. The necessary regression assumptions were met for all other variables.

Once age was removed, the model still accounted for 20% of the variance in GCS scores. More specifically, GCS total scores accounted for 14% of the variance in P-CHIP total scores when sex was held constant. Table 12 displays the unstandardized regression

coefficients (b), intercept, and standardized regression coefficients (β) of the regression of age, sex, and GCS total scores on P-CHIP total scores.

Table 12

OLS Regression for P-CHIP total scores by GCS total scores, age, and sex

Model	b	SE_b	β	t	Sig.
(Constant)	65.17	15.34		4.25	.000
Age	-0.06	0.41	-0.01	-0.14	.891
Sex	21.14	4.70	0.24	4.50	.000
GCS total	1.63	0.23	0.39	7.23	.000

Note. P-CHIP = Perceptions of Coercion during Holding and Interrogation Process. GCS = Gudjonsson Compliance Scale.

Psychopathy and False Confessions

To test whether there was a significant relationship between psychopathic traits, as measured by the SRP-SF, and self-reported likelihood of falsely confessing and perceptions of stress, as measured by the P-CHIP, Pearson product-moment correlation coefficients were calculated. No significant correlation was found between total scores on the SRP-SF and false confession scores on the P-CHIP ($r = -.03, p = .608$). A moderate negative correlation was found between total scores on the SRP-SF and perceived stress scores on the P-CHIP ($r = -.29, p < .001$) suggesting that individuals who scored higher on psychopathic traits, as measured by the SRP-SF, reported less perceived stress than individuals who scored lower on the SRP-SF. When confession scores and stress scores were combined to produce P-CHIP total scores, there was a small negative correlation overall between total scores on the SRP-SF and total scores on the P-CHIP ($r = -.22, p < .001$).

SRP-SF total scores, age, and sex were simultaneously regressed on P-CHIP total scores to determine which predictors were significant. SRP-SF total scores and sex were found to be statistically significant predictors of P-CHIP total scores. Table 13 displays the unstandardized regression coefficients (b), intercept, and standardized regression coefficients (β) of the regression of age, sex, and SRP-SF total scores on P-CHIP total scores.

Table 13

OLS regression for P-CHIP total scores by SRP-SF total scores, age, and sex

Model	b	SE_b	β	t	Sig.
(Constant)	182.47	13.05		13.984	.000
Age	-0.68	0.44	-0.09	-1.313	.121
Sex	16.76	5.30	0.19	4.079	.002
SRP-SF total	-0.39	0.13	-0.18	-1.513	.002

Note. P-CHIP = Perceptions of Coercion during Holding and Interrogation Process. SRP-SF = Self-Report Psychopathy scale – Short Form.

Along with age and sex, total scores on the SRP-SF accounted for 9% of the variance observed in P-CHIP scores suggesting that there are other sources of variation in P-CHIP total scores that could not be accounted for by the chosen variables. In fact, sex alone accounted for 6% of the variance once SRP-SF scores were held constant demonstrating that SRP-SF scores alone account for very little variance in P-CHIP scores. No multivariate outliers were identified; however, the necessary regression assumptions were not all met for all variables. Age and SRP-SF total scores were not normally distributed but rather were positively skewed.

Similarly, to test whether there was a significant relationship between psychopathic traits, as measured by the PPI-R and self-reported likelihood of falsely

confessing and perceptions of stress, as measured by the P-CHIP, Pearson product-moment correlation coefficients were calculated. No significant correlation was found between total scores on the PPI-R and false confession scores on the P-CHIP ($r = .02, p = .789$). However, a moderate negative correlation was found between total scores on the PPI-R and perceived stress scores on the P-CHIP ($r = -.37, p < .001$) suggesting that individuals who scored higher on psychopathic traits, as measured by the PPI-R, reported lower perceived stress levels during the interrogation scenarios. When confession scores and stress scores were combined to produce P-CHIP total scores, a small negative correlation was found between total scores on the PPI-R and total scores on the P-CHIP ($r = -.25, p < .001$).

PPI-R total scores, age, and sex were simultaneously regressed on P-CHIP total scores to determine which predictors were significant. It was found that both sex and PPI-R total scores were statistically significant predictors of P-CHIP total scores. However, age was not a significant predictor. Table 14 displays the unstandardized regression coefficients (b), intercept, and standardized regression coefficients (β) of the regression of age, sex, and PPI-R total scores on P-CHIP total scores.

Table 14

OLS regression for P-CHIP total scores by PPI-R total scores, age, and sex

Model	b	SE_b	β	t	Sig.
(Constant)	217.58	19.11		11.385	.000
Age	-0.66	0.43	-0.09	-1.534	.126
Sex	17.85	5.11	0.20	3.496	.001
PPI-R total	-0.20	0.05	-0.22	-3.764	.000

Note. P-CHIP = Perceptions of Coercion during Holding and Interrogation Process. PPI-R = Psychopathic Personality Inventory - Revised.

Along with age and sex, total scores on the PPI-R accounted for 11% of the variance observed in P-CHIP scores suggesting that there is still a large portion of the variance in P-CHIP total scores that could not be accounted for by age, sex and PPI-R total scores. Therefore, other sources of variance must exist. Once age was removed from the analysis, sex and PPI-R total scores still accounted for 11% of the variance in P-CHIP total scores (of which only 4% was accounted for by PPI-R total scores). No multivariate outliers were identified and the necessary regression assumptions were met for all variables except age which violated the assumption of normality.

Anxiety

To test the relationship between compliance, as measured by the GCS, and anxiety, as measured by the WAS, the Pearson product-moment correlation coefficient was calculated. A moderate positive correlation was found between total scores on the GCS and total scores on the WAS ($r = .32, p < .001$) suggesting that individuals who scored higher on compliance, as measured by the GCS, reported higher levels of anxiety compared to individuals who scored lower on the GCS.

When the relationship between psychopathic traits and anxiety was analysed, total scores on the WAS showed a moderate positive correlation with total scores on the SRP-SF ($r = .33, p < .001$) suggesting that those individuals who scored higher on psychopathic traits, as measured by the SRP-SF, reported slightly higher levels of anxiety than individuals who scored lower on psychopathic traits. However, this relationship was not seen with scores on the PPI-R. WAS scores were not significantly correlated with total PPI-R scores ($r = .09, p = .120$).

Small positive correlations were also found between total scores on the WAS, P-CHIP confession scores ($r = .14, p = .013$) and P-CHIP stress scores ($r = .12, p = .027$) suggesting that individuals who reported higher levels of anxiety also reported a slightly greater likelihood of falsely confessing and slightly higher levels of perceived stress. Overall, WAS total scores demonstrated a small positive correlation with total scores on the P-CHIP ($r = .18, p < .01$).

Exploratory Analyses

Experience with police interrogation. Response frequencies for each of the four police experience questions are presented in Table 15.

Table 15

Response frequencies and percentages of students' experiences with police interrogation

	Never	Once	Twice	Three to five times	Six or more times
1. Been interrogated by police because of suspicion of criminal involvement. ^a	269 (81.8%)	41 (12.5%)	8 (2.4%)	4 (1.2%)	2 (0.6%)
2. Admitted to an offence that you committed when interrogated by the police. ^b	290 (88.1%)	28 (8.5%)	3 (0.9%)	1 (0.3%)	0 (0%)
3. Admitted to an offence that you did not commit when interrogated by the police. ^c	321 (97.6%)	1 (0.3%)	0 (0%)	1 (0.3%)	0 (0%)
4. Denied an offence that you committed when interrogated by the police. ^d	299 (90.9%)	16 (4.9%)	4 (1.2%)	3 (0.9%)	1 (0.3%)

^aMissing = 5 (1.5%). ^bMissing = 7 (2.1%). ^cMissing = 6 (1.8%). ^dMissing = 6 (1.8%).

Of the total sample of 329 participants, 55 (17%) of the participants (17 men, 38 women) reported having been interrogated by police at least once. Of those individuals

who had been interrogated by police in the past, 2 (4%) reported having made a false confession, including 1 man and 1 woman.

Discussion

The present study was intended to address a topic not currently covered in the false confessions literature. By investigating the relationship between psychopathic traits, compliance, and self-reported likelihood of falsely confessing to police, a new area of focus regarding the causes of police-induced false confessions was studied. The administration of several self-report measures designed to assess psychopathic traits, compliance, anxiety, and self-reported likelihood of falsely confessing in non-criminal populations allowed for quantitative analyses of the relationship between these important constructs.

Summary of Findings

A small but significant negative correlation was found between psychopathic traits, as measured by the SRP-SF, and compliance, as measured by the GCS; however, regression analyses indicated that SRP-SF total and factor scores were not good predictors of GCS scores accounting for very little of the variance in GCS scores. Similar results were found with total scores on the PPI-R. Total PPI-R scores were significantly negatively correlated with GCS scores, although the magnitude of the relationship was small. However, unlike SRP-SF factor scores, PPI-R factor scores were good predictors of GCS scores accounting for a substantial portion of the variance.

Results from the Ray and Jones (2012) study were replicated in the present study. Similar correlations were found between PPI-R scores and GCS scores on all but one

content scale. Regression analyses of GCS scores using PPI-R total, factor and content scale scores produced results comparable to those in Ray and Jones (2012).

As expected, compliance scores were significantly positively correlated with self-reported likelihood of falsely confessing to police, as measured by the P-CHIP; and as a result, GCS score was a significant predictor of P-CHIP total scores. Scores on both measures of psychopathic traits were uncorrelated with P-CHIP confession scores; however, significant negative correlations were found between SRP-SF and PPI-R total scores and P-CHIP total and stress scores. Surprisingly, anxiety was only moderately positively correlated with compliance and weakly correlated with P-CHIP confession, stress, and total scores. On the other hand, the moderate positive correlation was found with SRP-SF total scores was unexpected. However, this was not the case with PPI-R total scores which demonstrated no significant correlation with anxiety.

A low base rate of experience with police interrogation was found in the present sample as well as a low rate of false confessions to police.

Psychopathy and Compliance

Findings from the present study did not support the hypothesis that total scores on psychopathy are uncorrelated with scores on compliance. In fact, both measures of psychopathic traits demonstrated significant negative correlations with GCS scores. Furthermore, the expectation that some psychopathy factor scores would be positively correlated with GCS total scores while others would be negatively correlated with GCS scores was also not supported. No factor scores on either measure were positively correlated with compliance.

The hypothesis that scores on the Interpersonal and Affective factors of the SRP-SF would be negatively related to GCS total scores was somewhat supported. Scores on the Affective factor demonstrated a small but significant negative correlation with GCS scores. A negative association was expected between compliance and the affective traits of psychopathy because lack of guilt and inability to feel empathy towards others is characteristic of psychopathy (Hare, 1991; 2003). This directly opposes the eagerness to please others and vulnerability to exploitation seen with compliance (Gudjonsson, 1989). In fact, one would expect a psychopath to be exploiting others, not being exploited.

Similar results were expected between compliance with Interpersonal factor scores on the SRP-SF; however, the resulting correlation was not statistically significant. This finding is surprising considering the interpersonal nature of both components of compliance: eagerness to please others and avoidance of conflict (Gudjonsson, Sigurdsson, Bragason et al., 2004). One would expect a strong negative correlation between the Interpersonal factor of psychopathy and compliance. Prototypical psychopaths are manipulative and absorbed in their own self-interest (DeLisi, 2009); therefore, a psychopath would only consider complying with another's request if it proved to benefit him or her. However, this relationship may not have been visible in the present sample due to a low prevalence of psychopathic traits.

Contrary to what was expected, scores on the Lifestyle and Antisocial factors of the SRP-SF were also negatively correlated to GCS total scores. This is surprising considering that impulsivity and risk taking are common lifestyle characteristics associated with psychopathy. For that reason, one could expect a psychopath to comply

with another's demands without considering the future consequences simply to escape an unpleasant situation. Similar reasoning can be applied to the negative relationship between Antisocial factor scores and compliance. Related to impulsivity, psychopathy is marked by poor behavioural controls (Hare, 1991; 2003). If presented with an opportunity to benefit from obeying the demands of another person, someone high on psychopathic traits may not be able to resist the temptation. Overall, the negative correlation between SRP-SF total scores and GCS scores does make sense considering the consistency of negative correlations with the three SRP-SF factors.

Scores on the PPI-R factor Self-Centered Impulsivity were expected to be positively related to GCS total scores; however, the resulting correlation was not statistically significant. On the other hand, as anticipated both Fearless-Dominance and Coldheartedness scores were significantly negatively correlated with GCS total scores. Again, the negative correlation of total PPI-R scores with GCS scores makes sense considering the negative correlations observed with two of the PPI-R factor scores.

Only one published study (Ray & Jones, 2012) examining the relationship between psychopathy and compliance exists at the present time. Therefore, it was important that the present study not only investigate the potential correlation between constructs but also investigate whether the result of the previous study could be replicated.

In their investigation into compliance and psychopathic traits, Ray and Jones (2012) expected to see differential relationships (some negative, some positive) between the different facets of psychopathy and scores on compliance resulting in an overall non-

significant correlation between total scores. This is, in fact, exactly what they found. At the factor level, both Fearless Dominance and Coldheartedness were significantly negatively correlated with compliance while Self-Centred Impulsivity was positively correlated with compliance although not significantly. As they expected, total scores on psychopathy were uncorrelated with compliance which, the authors explained, was the result of a 'wash-out' effect produced by the opposing relationships between factor scores and compliance. Despite similar factor-level correlations between studies, the present study found a negative overall correlation between psychopathy and compliance.

As the first study to investigate this relationship at the factor level, the authors were able to provide support for their hypothesis that each aspect of psychopathy has a unique relationship with compliance. For example, Ray and Jones (2012) concluded that Fearless Dominance was negatively correlated with compliance because this factor represents low anxiety and high interpersonal dominance. This conclusion was supported in the present study evidenced by the significant negative correlation observed between Fearless Dominance scores and scores on the Welsh Anxiety Scale.

To the opposite effect, the absence of a significant correlation between Self-Centred Impulsivity and compliance in the present study may be explained by the significant positive correlation found between SCI and anxiety. Therefore, the relationship between compliance and Self-Centred Impulsivity may have been obscured by the presence of anxiety. Once anxiety scores were controlled for, a significant (although small) negative correlation was found between compliance and Self-Centred

Impulsivity. The effect of anxiety on other variables is important to consider particularly in the context of police interrogation - a time when anxiety is expected to be high.

Ray and Jones (2012) explained the negative correlation they found between Coldheartedness and compliance by referencing the shallow affect and callous, unemotional traits supposedly captured by the Coldheartedness factor (Lilienfeld & Widows, 2005). This hypothesis was also supported by the results of the present study.

Compliance and False Confessions

Decades of research have found that individuals who are more compliant are at an increased risk of falsely confessing to police (Gudjonsson, 1992; 2001; Steingrimsdottir et al., 2007). Previous studies have demonstrated a positive relationship between compliance and false confessions identifying compliance as a personal risk factor for falsely confessing to police (Sigurdsson & Gudjonsson, 1996a). The findings of the present study provide additional support for the relationship between compliance and police-induced false confessions. Not surprisingly, compliance scores were positively correlated with self-reported likelihood of falsely confessing to police. In fact, in addition to sex, scores on the GCS accounted for over 20% of the variance in P-CHIP total scores which represent both self-reported likelihood of falsely confessing and perceptions of stress during interrogation. As a significant predictor of self-reported likelihood of falsely confessing, compliance can be firmly stated to be an important risk factor for falsely confessing to police during interrogation.

Psychopathy and False Confessions

In the present study total scores on both self-report psychopathy scales were negatively correlated with total P-CHIP scores. However, upon closer examination it appears that there may have been an interaction between perceived stress and self-reported likelihood of falsely confessing. When examined individually, scores on the two response sets of the P-CHIP, (1) self-reported likelihood of falsely confessing, and (2) perceptions of stress, were differentially correlated with scores on psychopathic traits. Both measures of psychopathic traits were significantly negatively correlated with perceptions of stress during interrogation; however, neither measure of psychopathic traits was significantly correlated with scores on self-reported likelihood of falsely confessing. The magnitude of the negative correlation between total scores (on both the SRP-SF and PPI-R) and stress was larger than the magnitude of the negative correlation between psychopathic traits and total P-CHIP scores. Because total P-CHIP scores are calculated by summing the scores on the perceived stress and self-reported likelihood of falsely confessing scales, when the two scales are combined a smaller negative correlation between total scores on psychopathic traits and the P-CHIP is found. The possibility of an interaction between perceptions of stress and self-reported likelihood of falsely confessing should be investigated further.

The inspiration for investigating psychopathy and false confessions arose from previous research on antisocial traits and false confessions (Sigurdsson & Gudjonsson, 1996a; 2001) which determined antisocial traits to be one of the best predictors (along with compliance) of false confessions. This relationship did not extend to psychopathic

traits in the present study. However, it could be argued that the lack of association between psychopathic traits and P-CHIP false confession scores may be the result of a third variable influence, namely the individual's motivation for falsely confessing, which may differ between those individuals with antisocial traits and those with psychopathic traits.

In his research on motivations for taking the blame, Gudjonsson, Sigurdsson, and Einarsson (2007) suggest that different people have different reasons for accepting responsibility for something they did not do. Therefore, it is possible that individuals who score high on psychopathic traits could have a different motivation for falsely confessing than individuals high on antisocial traits. Gudjonsson, Sigurdsson, and Einarsson (2007) found that the majority of participants reported taking the blame to protect a friend who was guilty. Other popular motives were pressure, excitement, disregard for consequences, avoiding the situation, and covering up another (more serious) antisocial act. In the same study, psychoticism (an earlier term describing what are now considered psychopathic traits), was found to be the best predictor of taking the blame for the excitement of it or because the individual disregarded the consequences of falsely confessing. This is consistent with the impulsivity and high risk-taking seen in psychopathy. Conversely, Gudjonsson, Sigurdsson, and Einarsson (2007) reported that compliance, as measured by the GCS, significantly predicted taking the blame due to pressure or to avoid the situation.

In the present study, the motivation for falsely confessing was not investigated. If it had been, the results may have pointed towards motivation for falsely confessing as a

third variable distorting the relationship between psychopathic traits and self-reported likelihood of falsely confessing. Therefore, while psychopathy does not appear to be a significant predictor of self-reported likelihood of falsely confessing in the present study, this relationship requires further investigation into possible differences in motivation for falsely confessing.

Evidence for psychopathy as a distinct construct. Although the modern conceptualization of psychopathy has been around for decades, some debate still exists over the distinction between psychopathy and antisociality. It has been suggested that much of the confusion between these two constructs resulted from of a lack of clear separation between psychopathy and antisocial personality disorder (APD) as defined by the current edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000) which uses the two terms interchangeably despite obvious differences in diagnostic criteria between the two (Ogloff, 2006; Patrick, 2007). Additionally, the overlap of a number of behavioural indicators (many of which relate to criminal behaviour) further muddies the waters surrounding the separation of these two constructs (Ogloff, 2006).

Specifically, the criteria of Hare's PCL-R identify problems in both personality and behaviour while the broader DSM-IV-TR criteria for APD focuses mostly on deviant behaviours and less on personality deficits (Ogloff, 2006). As a result, the broader diagnostic criteria associated with APD classifies individuals as antisocial at a much higher rate than the PCL-R does with psychopathy (Ogloff, 2006). Despite such differences, the concepts of psychopathy and antisociality are regularly confused with

one another. More clearly identifiable distinctions between the two constructs are required to lessen this confusion. The results of the present study may provide one such distinction.

Past research has demonstrated a clear relationship between antisociality and false confessions finding that prisoners who had made a false confession to police were significantly more antisocial in their personalities than non-false confessors (Sigurdsson & Gudjonsson, 1996b). Moreover, antisocial personality traits (along with number of previous imprisonments) were the two best predictors of false confessions in prisoners and college students (Gudjonsson & Sigurdsson, 1994; Gudjonsson, Sigurdsson, Bragason, et al., 2004). However, in the present study psychopathic traits were not correlated with self-reported likelihood of falsely confessing. This finding provides additional support for psychopathy and antisociality as two distinct constructs

Psychopathy and Anxiety

The positive correlation between scores on the SRP-SF and the WAS found in the present study may seem surprising considering the traditional conceptualization of psychopathy and anxiety as mutually exclusive (Cleckley, 1941). However, some researchers have cited experimental findings of positive associations (or an absence of significant negative associations) between psychopathy and anxiety as proof that Cleckley's original description of the prototypical psychopath was wrong (Dahl, 1998).

Of those who insist that psychopathy does not correlate with anxiety, two explanations have been put forth. The first explanation deals with the definition of anxiety and its confusion with fearfulness (Lilienfeld, 1994). Supporters of this theory

differentiate between the two by suggesting that what Cleckley referred to as low anxiousness would be better described as fearlessness meaning that the low anxious trait traditionally thought of as part of psychopathy may actually be an absence of fear normally associated with anticipating negative consequences of one's actions. Therefore, it would be possible for a psychopathic person to experience anxiety while acting impulsively and without fear of the consequences of his or her actions (Frick et al., 1999; Lilienfeld, 1994). The findings of the present study would support this explanation.

Other researchers believe that two forms of psychopathy exist: (1) primary psychopaths who score high on measures of psychopathy and low on measures of anxiety consistent with traditional view of psychopathy; and (2) secondary psychopaths who also score high on measures of psychopathy but high on measures of anxiety as well (Blackburn, 1998; Patrick, 2007). Early on, Lykken (1957) investigated the relationship between psychopathy and anxiety finding that primary psychopaths reported low fear, not low anxiety. However, methodological problems surrounding the comparability of the experimental and comparison groups (psychopathic offenders versus high-school students), makes it difficult for other researchers to replicate his findings. Yet Schmitt and Newman (1999) found a significant positive correlation between PCL-R total scores and scores on the WAS in their sample of African-American inmates. When examined further, it turned out the correlation was only significant for Factor 2 which is reported to measure behavioural and antisocial features (Hare, 1991; 2003). Schmitt and Newman (1999) suggest that the association between psychopathy and anxiety may be inflated by

anxiety scales that also measure negative affect whether intentionally or not. This same criticism has been directed at the WAS which could also explain the current findings.

The psychopathy - anxiety relationship has also been investigated in children and adolescents. In a recent study of male adolescents, psychopathy, measured using the youth version of the Psychopathy Checklist, the PCL: YV (Forth, Kosson, & Hare, 2003) was found to be positively correlated with anxiety scores measured with the Welsh Anxiety Scale (Kosson, Cyterski, Steuerwald, Neumann, & Walker-Matthews, 2002). Yet in a 2007 study of adolescent male offenders, Dolan and Rennie reported a significant negative correlation between scores on the State Trait Anxiety Inventory for Children (STAIC; Spielberger, 1973) and scores on the Affective factor of the PCL:YV (Forth et al., 2003). However, no other psychopathy factor score or total score was significantly correlated with anxiety (Dolan & Rennie, 2007).

On the whole, the existing research in this area is inconclusive. Further investigation is recommended for both children/adolescents and adults. Additionally, an argument could be made for considering young adults as another entity separate from children/adolescents and adults. The present sample may provide insight into a unique segment of the population. Although the majority of the sample reported no previous involvement with the criminal justice system and also scored very low on measures of psychopathic traits, this particular age group – the majority of undergraduate students were in their late teens or early twenties – may be developmentally more similar to adolescents than adults with respect to the relationship between psychopathic traits and anxiety.

Experience with Police Interrogation and False Confessions

While the rate of past false confessions of the total sample in the present study is much lower than rates previously reported by prison inmates: 12% (Gudjonsson & Sigurdsson, 1994; Sigurdsson & Gudjonsson, 1996a; 1996b) and 24% (Gudjonsson et al., 2010), it is comparable to the rates found in other studies of young adults in higher education: 1% (Gudjonsson, Sigurdsson, & Einarsson, 2004), 1.6% (Gudjonsson et al., 2006), 4% (Gudjonsson, Sigurdsson, Bragason et al., 2004), and 7% (Gudjonsson et al., 2007). It has been suggested that this difference in rates of past false confessions between students and prison inmates may be due to the latter group's more extensive experience with the criminal justice system. Past research has proposed a positive relationship between criminal justice experience (often defined as number of previous convictions) and reports of past false confessions (Sigurdsson & Gudjonsson, 1996a).

In the current sample of 329 university students, approximately 17% reported having been interrogated by police at some point in their lives because of suspected involvement in criminal activity ($n = 55$). This proportion is lower than the 25% reported by Gudjonsson, Sigurdsson, Bragason et al. (2004) in their study of 1,080 college students but higher than the 12% reported by Gudjonsson et al. (2009) in their large-scale study of over 24,000 high school students. The difference in rates could be due to a lower prevalence of delinquency in this particular sample of university students.

Steingrimsdottir et al. (2007) concluded that self-reported delinquency was the best predictor of false confessions to parents and teachers; therefore, if the prevalence of delinquent behaviour is low it would be expected that the prevalence of past false

confessions would also be low. Similarly, fewer experiences with police reported by the present sample could also be the result of different police practices between Canada and Iceland. It would be expected then that the rate of false confessions in the present study would be lower than those found with offenders simply due to a lower rate of contact with police allowing for less opportunities to falsely confess. Yet the rate of false confessions reported by the 55 participants who had been questioned by police was 4% which is comparable to previous findings from similar surveys of college-aged students (7% in Gudjonsson et al., 2006).

In the present study a higher proportion of male participants than female participants reported having been interrogated by police at least once in their lives (26% and 15%, respectively). Additionally, it appears that a higher proportion of both male and female participants in the present study have been interrogated by police compared to Gudjonsson et al. (2009) in which 16% of boys and 7% of girls reported having been interrogated by police. However, of the participants who reported having been interrogated, only one man and one woman reported having made a false confession (6% of men interrogated, 3% of women interrogated).

Strengths and Limitations

The present study has a number of unique strengths. First of all, this is the first study to investigate the relationship between psychopathic traits and false confessions. By building on previous research regarding antisocial traits and false confessions as well as psychopathic traits and compliance, the present study integrated these ideas in order to forge a new path of research. More specifically, by using two different self-report

measures of psychopathy, the present study was able to not only replicate previous findings but also provide additional support for these findings by demonstrating similar results using a separate measure.

Furthermore, the large sample size obtained provides added power to the analyses. As the probability of rejecting the null hypothesis when the alternative hypothesis is true, power can be defined more simply as the probability of detecting an effect (Dattalo, 2010). A large sample size allows for greater confidence in both the quality and accuracy of the results. More specifically, an increase in sample size is associated with decreased error in sampling. Therefore, the larger the sample surveyed, the more likely it is that the results represent the effect that would be found in the population of interest. Compared to studies of past false confessions in high school and college/university students, the sample size of the present study may seem small; however, the present sample is much larger than previous research in the areas of psychopathy, compliance and self-reported likelihood of falsely confessing.

An additional strength of the present study is the use of a new scale: the P-CHIP. This measure has yet to be published and therefore has not been widely used. Therefore, the present study was also able to contribute to the empirical validation of this new instrument and hopefully encourage its inclusion in other studies. On the other hand, the novelty of this scale can also be a limitation. There is not much previous research validating the scale as an accurate and appropriate measure of likelihood of falsely confessing. Therefore, further investigation into the reliability and validity of the P-CHIP as a measure of likelihood of falsely confessing to police is recommended.

The present study has two main limitations pertaining to its ecological validity: (1) the representativeness of the sample, and (2) the generalizability of the results from hypothetical to real-life situations. First of all, the sample in the present study was a relatively homogeneous selection of young adult, non-criminal, female university students. This specific set of characteristics includes only a small segment of the population. The results of the present study, at best, only represent this same small segment and not the larger population. Therefore, discretion is recommended when generalizing the present results to other groups of individuals.

Additionally, due to the use of hypothetical scenarios to measure likelihood of falsely confessing, caution should be taken when drawing conclusions about real life interrogation situations from the present findings. The design of the present study did not address the possibility of a so-called 'hypothetical bias' in the participants' responses to hypothetical situations. In a survey of attitudes and beliefs about false confessions, Henkel, Coffman, and Dailey (2008) found that most participants believed that false confessions do occur. Moreover, participants acknowledged that individuals have certain vulnerabilities that would make them more likely to falsely confess. However, the participants still reported that they would not be pressured into confessing by police and therefore are not at risk of falsely confessing. As a result, the present findings regarding self-reported likelihood of falsely confessing may underestimate the rate of actual false confessions that occur in real interrogation situations due to the use of hypothetical scenarios as a proxy measure for behaviour in real life.

On a related note, self-report measures can be vulnerable to socially desirable responding. As discussed in Ajzen, Brown, and Carvajal (2004), individuals tend to overestimate the likelihood that they would engage in behaviours that are socially desirable. In the present study, resisting police pressure to falsely confess can be seen as socially desirable behaviour; therefore, overestimating the likelihood of resisting police pressure is equivalent to underestimating the likelihood of succumbing to police pressure and falsely confessing.

A note regarding the use of online surveys. Although the prevalence of internet-based research studies continues to increase, questions are often raised regarding the reliability and validity of this method of data collection. Critics have suggested that web-based versions are less reliable than their more traditional paper-and-pencil counterparts. However, a number of recent review articles have reported that the reliability and validity of the two formats are comparable (Denissen, Neumann, & van Zalk, 2010). Despite this encouraging finding, a number of other limitations remain.

In the present study the issues of recruitment and sample representativeness are not unique to the web-based format. The same concerns regarding the composition of the sample (i.e., all university students) and the ability to generalize the study's results to a larger population that exist with traditional surveys also exist with web-based studies.

The main concern regarding the use of the internet to collect data revolves around participant drop-out leading to a greater loss of data. Reips (2002) reported an average drop-out rate of 34% (ranging from 1% to 87%) for online surveys. The anonymity provided by the internet allows participants to quit the study before completing it without

any consequences (Denissen et al., 2010). The large number of participants excluded from the present study due to missing data suggests this is a valid concern when using this method of data collection. Denissen et al. (2010) propose using a web-based design that requires participants to answer one question before moving onto the next. While this may encourage participants to respond to all questions, it does not guarantee that the responses are truthful. Moreover, this approach does not address the problem of participants quitting the study prematurely. One possible solution would be to assign participation points on a sliding scale proportional to the amount of the study that was completed.

Implications and Future Directions

The results of the present study are notable for psychologists, police investigators, legal representatives and public policy advisors who are either in direct contact with suspects or who have influence over what is considered acceptable police interviewing practices. The best way to reduce the occurrence of false confessions is to identify risk factors associated with known false confessions and to use that information to establish interviewing strategies with maximum diagnosticity (the ability to accurately distinguish between true and false confessions). For example, in the United Kingdom police investigators have adopted an alternative (non-confrontational) interview model referred to as PEACE, after its five steps: (1) preparation and planning, (2) engage and explain, (3) account, (4) closure, and (5) evaluate (Kassin, Appleby, & Perillo, 2010). These five steps encapsulate the method's focus on collecting information instead of on eliciting a confession like in the Reid model. Preliminary experimental studies using the non-

coercive PEACE approach have demonstrated promising results. Rigoni and Meissner (2008) used the same cheating paradigm as Russano et al. (2005) to compare confrontational and (non-confrontational) investigative interviewing approaches. Their findings suggest that the investigative approach is better able to distinguish between true and false confessions. In fact, the rate of false confessions dropped from 40% to 17% when the non-confrontational approach was used, while the rate of true confessions actually increased from 67% to 77% (Rigoni & Meissner, 2008).

Considering the positive preliminary results found in England as well as the existing research on rates of false confessions associated with current (confrontational) approaches to police interrogation, it is expected that researchers in North America will begin to investigate possible alternatives to the Reid model of interrogation that would reduce the rate of false confessions made to police. If the results of the PEACE studies can be replicated in North America, this would provide additional evidence that a practical alternative to the current approach does exist and can be more effective in eliciting true, not false, confessions. Moreover, empirical support for an alternative approach is necessary to enact changes in law and policy regarding the admissibility of confession evidence when police coercion of any kind (physical, environmental, or psychological) is suspected.

The results of the present study also provide valuable information on the complex relationship between psychopathic traits and compliance. There are several potential research studies that can arise from the findings and design of the current study. First of all, a replication of the results is needed to provide added support for the conclusions

drawn here. It is recommended that future research broaden the scope of the investigation to include a wider variety of participants that would more accurately represent the general population. For example, sampling adults from the community would provide a more accurate picture of who is affected by police interrogation techniques and how certain personality traits can put people at risk for falsely confessing.

It would also be beneficial to survey convicted offenders to maximize the likelihood of finding participants who have been interrogated by police in the past and therefore have a greater appreciation of the pressure that can be exerted by police in the interrogation room. Comparing the self-reported likelihood of falsely confessing of the general public with criminal offenders who have been interrogated by police may help to validate the use of a self-report instrument to measure likelihood of falsely confessing. Alternatively, the use of an experimental design, like the 'cheating' paradigm employed by Russano et al. (2005), to examine the rates of self-reported likelihood of falsely confessing compared with rates of actual false confessions obtained in the laboratory using matched samples could also provide evidence for or against the validity of self-report instruments for measuring likelihood of falsely confessing.

As previously mentioned in the discussion of the relationship between psychopathic traits and false confessions, future research should investigate the possible differences in motivations for falsely confessing in both criminal and non-criminal populations. Although personality traits (and some personality disorders), along with compliance, are good predictors for taking the blame for another person's actions, the most common motivation (to cover for someone) has shown poor associations with

personality measures (Gudjonsson et al., 2007). This finding suggests that there are a variety of different motives for taking blame for an act committed by someone else and that not all motives are related to the suspects' personality.

Conclusion

The findings of the present study support a number of relationships already established in the false confessions literature through the use of a novel self-report measure: Perceptions of Coercion during Holding and Interrogation (P-CHIP). As expected, positive correlations were found between compliance and total P-CHIP scores, compliance and self-reported likelihood of falsely confessing and between compliance and perceptions of stress during interrogation. Surprisingly, age was not a significant predictor of likelihood of falsely confessing.

The present study replicated the results of the one published study of psychopathy and compliance which demonstrated a complex relationship between compliance and the different content/factor scores that make up the self-report measures of psychopathy. With respect to psychopathic traits and false confessions, negative correlations were found between psychopathy scores and perceptions of stress during interrogation. This finding was not unexpected; however, the positive correlation found between anxiety and total scores on the SRP-SF was unexpected and should be investigated further.

Overall, the findings presented here corroborated previous reports of compliance as an important risk factor in false confessions to police. Public policy regarding the treatment of suspects during police interrogation should take into account the known personal and situational risk factors related to police-induced false confessions. It is only

after these risk factors have been identified and acknowledged that a method of investigation diagnostic of guilt can be developed and implemented.

References

- Ajzen, I., Brown, T. C., & Carvajal, F. (2004). Explaining the discrepancy between intentions and actions: The case of hypothetical bias in contingent valuation. *Personality and Social Psychology Bulletin*, 30, 1108-1121.
doi:10.1177/0146167204264079
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: American Psychiatric Press.
- Andrade, J. T. (2008). The inclusion of antisocial behavior in the construct of psychopathy: A review of the research. *Aggression and Violent Behavior*, 13, 328-335. doi:10.1016/j.avb.2008.05.001
- Arnold, S., Messenheimer Kelley, S., Burkard, C., NeMoyer, A., & Goldstein, N. E. S. (2012, March). *Psychometric properties and factor structure of the P-CHIP with juvenile justice and community youth samples*. Poster presented at the meeting of the American Psychology-Law Society, San Juan, Puerto Rico.
- Bedau, A., & Radelet, M. (1987). Miscarriages of justice in potentially capital cases. *Stanford Law Review*, 40, 21-179.
- Blackburn, R. (1998). Psychopathy and personality disorder: Implications of interpersonal theory. In D. J. Cooke, A. E. Forth, & R. D. Hare (Eds.), *Psychopathy: Theory, research, and implications for society* (pp. 269-302). Dordrecht, Netherlands: Kluwer Academic Publishers.

- Blair, J. P. (2007). The roles of interrogation, perception, and individual differences in producing compliant false confessions. *Psychology, Crime & Law*, 13, 173-186.
doi:10.1080/10683160600632801
- Benning, S. D., Patrick, C. J., Hicks, B. M., Blonigen, D. M., & Krueger, R. F. (2003). Factor structure of the Psychopathic Personality Inventory: Validity and implications for clinical assessment. *Psychological Assessment*, 15, 340-350.
- Carré, J. M., Hyde, L. W., Neumann, C. S., Viding, E., & Hariri, A. R. (2012). The neural signatures of distinct psychopathic traits. *Social Neuroscience*. Advance online publication. doi: 10.1080/17470919.2012.703623
- Clare, I. C. H., & Gudjonsson, G. H. (1995). The vulnerability of suspects with intellectual disabilities during police interviews: A review and experimental study of decision-making. *Mental Handicap Research*, 8, 110-128.
- Cleckley, H. (1941). *The mask of sanity*. St. Louis, MO: Mosby.
- Coid, J., Yang, M., Ullrich, S., Roberts, A., & Hare, R. D. (2009). Prevalence and correlates of psychopathic traits in the household population of Great Britain. *International Journal of Law and Psychiatry*, 32, 65-73.
doi:10.1016/j.ijlp.2009.01.002
- Conti, R. P. (1999). The psychology of false confessions. *The Journal of Credibility Assessment and Witness Psychology*, 2, 14-36. Retrieved from <http://truth.charleshontsphd.com/journal.php>

- Dahl, A. A. (1998). Psychopathy and psychiatric comorbidity. In T. Millon, E. Simonsen, M. Birket-Smith, & R. D. Davis (Eds.), *Psychopathy: Antisocial, criminal, and violent behaviors* (pp. 292-303). New York, NY: The Guildford Press.
- Dattalo, P. (2010). Ethical dilemmas in sampling. *Journal of Social Work Values and Ethics*, 7. Retrieved from <http://www.socialworker.com/jswve/content/view/140/70/>
- Davis, D., Leo, R. A., & Follette, W. C. (2010). Selling confession: Setting the stage with the "sympathetic detective with a time-limited offer". *Journal of Contemporary Criminal Justice*, 26, 441-457. doi:10.1177/1043986210377229
- Davison, S., & Gossop, M. (1996). The problem of interviewing drug addicts in custody: A study of interrogative suggestibility and compliance. *Psychology, Crime, & Law*, 2, 185-195.
- DeLisi, M. (2009). Psychopathy is the unified theory of crime. *Youth Violence and Juvenile Justice*, 7, 256-273. doi:10.1177/1541204009333834
- Denissen, J. J. A., Neumann, L., & van Zalk, M. (2010). How the internet is changing the implementation of traditional research methods, people's daily lives, and the way in which developmental scientists conduct research. *International Journal of Behavioral Development*, 34, 564-575. doi:10.1177/0165025410383746
- Deslauriers-Varin, N., Beauregard, E., & Wong, J. (2011). Changing their mind about confessing to police: The role of contextual factors in crime confession. *Police Quarterly*, 1, 5-24. doi:10.1177/1098611110392721

- Deslauriers-Varin, N., Lussier, P., & St-Yves, M. (2011). Confessing their crime: Factors influencing the offender's decision to confess to the police. *Justice Quarterly*, 28, 113-145. doi:10.1080/07418820903218966
- Dixon, D. (2010). Questioning suspects: A comparative perspective. *Journal of Contemporary Criminal Justice*, 26, 426-440. doi:10.1177/1043986210377107
- Dolan, M. C., & Rennie, C. E. (2007). Is juvenile psychopathy associated with low anxiety and fear in conduct-disordered male offenders? *Journal of Anxiety Disorders*, 21, 1028-1038. doi:10.1016/j.janxdis.2006.11.008
- Drizin, S. A. & Leo, R. A. (2004). The problem of false confessions in the post-DNA world. *North Carolina Law Review*, 82, 891-1008.
- Eysenck, H. J., & Eysenck, S. B. G. (1975). *The Eysenck Personality Questionnaire*. London: Hodder & Stoughton.
- Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). London, UK: SAGE Publications Ltd.
- Forrest, K. D., Wadkins, T. A., & Larson, B. A. (2006). Suspect personality, police interrogations, and false confessions: Maybe it is not just the situation. *Personality and Individual Differences*, 40, 621-628. doi:10.1016/j.paid.2005.09.002
- Forrest, K. D., Wadkins, T. A., & Miller, R. L. (2002). The role of pre-existing stress on false confessions: An empirical study. *The Journal of Credibility Assessment and Witness Psychology*, 3, 23-45.

- Forth, A. E., Kosson, D. S., & Hare, R. D. (2003). *The Psychopathy Checklist: Youth Version (PCL: YV)*. Toronto, ON: Multi-Health Systems.
- Frantzen, D. (2010). Interrogation strategies, evidence, and the need for Miranda: A study of police ideologies. *Police Practice and Research, 11*, 227–239.
doi:10.1080/15614260902830005
- Frick, P. J., Lilienfeld, S. O., Ellis, M., Loney, B., & Silverthorn, P. (1999). The association between anxiety and psychopathy dimensions in children. *Journal of Abnormal Child Psychology, 27*, 383–392.
- Garrett, B. L. (2008). Judging innocence. *Columbia Law Review, 108*, 55–142.
- Goldstein, N. E., Condie, L., Kalbeitzer, R., Osman, D., & Geier, J. L. (2003). Juvenile offenders' Miranda rights comprehension and self-reported likelihood of offering false confessions. *Assessment, 10*, 359–369. doi:10.1177/1073191103259535
- Goldstein, N. E. S., Zelle, H., & Grisso, T. (2011). *The Miranda Rights Comprehension Instruments—II*. Sarasota, FL: Professional Resource Press.
- Gough, H. G. (1960). Theory and measurement of socialization. *Journal of Consulting Psychology, 24*, 23–30.
- Gough, H. G. (1987). *The California Psychological Inventory administrator's guide*. Palo Alto, CA: Consulting Psychologists Press.
- Graham, J. R. (1987). *The MMPI: A practical guide*. (2nd ed.). London, UK: Oxford University Press.
- Gudjonsson, G. H. (1989). Compliance in an interrogation situation: A new scale. *Personality and Individual Differences, 10*, 535–540.

- Gudjonsson, G. H. (1990). One hundred alleged false confession cases: Some normative data. *British Journal of Clinical Psychology*, 29, 249-250.
- Gudjonsson, G. H. (1991). The effects of intelligence and memory on group differences in suggestibility and compliance. *Personality and Individual Differences*, 12, 503 -505.
- Gudjonsson, G. H. (1992). *The psychology of interrogations, confessions, and testimony*. Chichester, UK: John Wiley & Sons.
- Gudjonsson, G. H. (1997). *The Gudjonsson Suggestibility Scales manual*. Hove, UK: Psychology Press.
- Gudjonsson, G. H. (2001). False confession. *The Psychologist*, 14, 588-591.
- Gudjonsson, G. H. (2003). *The psychology of interrogations and confessions: A handbook*. New York, NY: Wiley.
- Gudjonsson, G. H. (2006). The psychological vulnerabilities of witnesses and the risk of false accusations and false confessions. In A. Heaton-Armstrong, E. Shepherd, G. Gudjonsson, & D. Wolchover (Eds.), *Witness testimony. Psychological, investigative and evidential perspectives* (pp. 61–75). Oxford, UK: Oxford University Press.
- Gudjonsson, G. H., & Great Britain Royal Commission on Criminal Justice. (1993). *Persons at risk during interviews in police custody: The identification of vulnerabilities*. London, UK: Her Majesty's Stationary Office.
- Gudjonsson, G. H., Hannesdottir, K., Petursson, H., & Bjornsson, G. (2002). The effects of alcohol withdrawal on mental state, interrogative suggestibility and

- compliance: An experimental study. *The Journal of Forensic Psychiatry*, 13, 53-67. doi:10.1080/09585180210122682
- Gudjonsson, G. H., Hannesdottir, K., Petursson, H., & Tyrfingsson, T. (2000). The effects of alcohol withdrawal on memory, confabulation and suggestibility. *Nordic Journal of Psychiatry*, 54, 213–220.
- Gudjonsson, G. H., & MacKeith, J. A. C. (1988). Retracted confessions: Legal, psychological and psychiatric aspects. *Medicine, Science, and the Law*, 2, 187-194.
- Gudjonsson, G. H., & MacKeith, J. A. C. (1990). A proven case of false confession: Psychological aspects of the coerced-compliant type. *Medicine, Science, and the Law*, 30, 329–335.
- Gudjonsson, G. H., & Main, N. (2008). How are personality disorders related to compliance? *The Journal of Forensic Psychiatry & Psychology*, 19, 180–190. doi:10.1080/14789940701770898
- Gudjonsson, G. H., & Sigurdsson, J. F. (1994). How frequently do false confessions occur? An empirical study among inmates. *Psychology, Crime & Law*, 1, 21-26.
- Gudjonsson, G. H., & Sigurdsson, J. F. (1999). The Gudjonsson Confession Questionnaire-Revised (GCQ-R): Factor structure and its relationship with personality. *Personality and Individual Differences*, 27, 953-968. Retrieved from <http://www.journals.elsevier.com/personality-and-individual-differences/>

- Gudjonsson, G. H., & Sigurdsson, J. F. (2004). The relationship of suggestibility and compliance with self-deception and other-deception. *Psychology, Crime & Law*, 10, 447-453. doi:10.1080/10683160310001634278
- Gudjonsson, G. H., Sigurdsson, J. F., Asgeirsdottir, B. B., & Sigfusdottir, I. D. (2006). Custodial interrogation, false confession and individual differences: A national study among Icelandic youth. *Personality and Individual Differences*, 41, 49-59.
- Gudjonsson, G. H., Sigurdsson, J. F., Asgeirsdottir, B. B., & Sigfusdottir, I. D. (2007). Custodial interrogation: What are the background factors associated with claims of false confession to police? *The Journal of Forensic Psychiatry & Psychology*, 18, 266-275. doi:10.1080/1478994071284312
- Gudjonsson, G. H., Sigurdsson, J. F., Bragason, O. O., Einarsson, E., & Valdimarsdottir, E. B. (2004). Confessions and denials and the relationship with personality. *Legal and Criminological Psychology*, 9, 121-133.
- Gudjonsson, G. H., Sigurdsson, J. F., & Einarsson, E. (2004). The role of personality in relation to confessions and denials. *Psychology, Crime & Law*, 10, 125-135.
- Gudjonsson, G. H., Sigurdsson, J. F., & Einarsson, E. (2007). Taking blame for antisocial acts and its relationship with personality. *Personality and Individual Differences*, 43, 3-13. doi:10.1016/j.paid.2006.11.002
- Gudjonsson, G. H., Sigurdsson, J. F., Einarsson, E., Bragason, O. O., & Newton, A. K. (2010). Inattention, hyperactivity/impulsivity and antisocial personality disorder: Which is the best predictor of false confessions? *Personality and Individual Differences*, 48, 720-724. doi:10.1016/j.paid.2010.01.012

- Gudjonsson, G. H., Sigurdsson, J. F., Einarsson, E., & Einarsson, J. H. (2008). Personal versus impersonal compliance and their relationship with personality. *The Journal of Forensic Psychiatry & Psychology*, 19, 502-516.
doi:10.1080/14789940801962114
- Gudjonsson, G. H., Sigurdsson, J. F., & Sigfusdottir, I. D. (2009). Interrogation and false confessions among adolescents in seven European countries: What background and psychological variables best discriminate between false confessors and non-false confessors? *Psychology, Crime & Law*, 15, 711-728.
doi:10.1080/10683160802516257
- Hale, L. R., Goldstein, D. S., Abramaowitz, C. S., Calamari, J. E., & Kosson, D. S. (2004). Psychopathy is related to negative affectivity but not to anxiety sensitivity. *Behaviour Research and Therapy*, 42, 697-710.
doi:10.1016/S0005-7967(03)00192-X
- Hare, R. D. (1985). Comparison of the procedures for the assessment of psychopathy. *Journal of Clinical and Consulting Psychology*, 53, 111-119.
- Hare, R. D. (1991). *The Hare Psychopathy Checklist-Revised*. Toronto, ON: Multi-Health Systems.
- Hare, R. D. (2003). *The Psychopathy Checklist-Revised* (2nd ed.). Toronto, ON: Multi-Health Systems.
- Hare, R. D., & Neumann, C. S. (2008). Psychopathy as a clinical and empirical construct. *Annual Review of Clinical Psychology*, 4, 217-246.
doi:10.1146/annurev.clinpsy.3.022806.091452

- Hartwig, M., Granhag, P. A., & Vrij, A. (2005). Police interrogation from a social psychology perspective. *Policing & Society, 15*, 379-399.
doi:10.1080/10439460500309956
- Hathaway, S. R., & McKinley, J. C. (1940). A multiphasic personality schedule (Minnesota): I. Construction of the schedule. *Journal of Psychology, 10*, 249-254.
- Henkel, L. A., Coffman, K. A. J., & Dailey, E. M. (2008). A survey about people's attitudes and beliefs about false confessions. *Behavioral Sciences and the Law, 26*, 555-584. doi:10.1002/bsl.826
- Horselenberg, R., Merckelbach, H., & Josephs, S. (2003). Individual differences and false confessions: A conceptual replication of Kassin and Kiechel (1996). *Psychology, Crime & Law, 9*, 1-8. doi:10.1080/1068316021000057631
- Horselenberg, R., Merckelbach, H., Smeets, T., Franssens, D., Ygram Peters, G., & Zeles, G. (2006). False confessions in the lab: Do plausibility and consequences matter? *Psychology, Crime & Law, 12*, 61-75.
doi:10.1080/1068310042000303076
- Inbau, F. E., Reid, J. E., & Buckley, J. P. (1986). *Criminal interrogation and confessions* (3rd ed.). Baltimore, MD: Williams & Wilkins.
- Inbau, F. E., Reid, J. E., Buckley, J. P., & Jayne, B. C. (2004). *Criminal interrogation and confessions* (4th ed.). Boston, MA: Jones and Bartlett.
- Innocence Project. (2012). Understand the causes: False confessions. Retrieved from <http://www.innocenceproject.org/understand/False-Confessions.php>

- Kassin, S. M. (1997). The psychology of confession evidence. *American Psychologist*, 52, 221–233. doi:10.1037/0003-066X.52.3.221
- Kassin, S. M. (1998). More on the psychology of false confessions. *American Psychologist*, 53, 320–321. doi:10.1037/h0092166
- Kassin, S. M., Appleby, S. C., & Perillo, J. T. (2010). Interviewing suspects: Practice, science, and future directions. *Legal and Criminological Psychology*, 15, 39-55. doi:10.1348/135532509X449361
- Kassin, S. M. & Gudjonsson, G. H. (2004). The psychology of confessions: A review of the literature and issues. *Psychological Science in the Public Interest*, 5, 33-67.
Retrieved from
<http://www.psychologicalscience.org/index.php/publications/journals/pspi>
- Kassin, S. M., & Kiechel, K. L. (1996). The social psychology of false confessions: Compliance, internalization, and confabulation. *Psychological Science*, 7, 125-128.
- Kassin, S. M., & McNall, K. (1991). Police interrogations and confessions: Communicating promises and threats by pragmatic implication. *Law and Human Behavior*, 15, 233-251.
- Kassin, S. M., & Wrightsman, L. (1985). Confession evidence. In S.M. Kassin & L. Wrightsman (Eds.), *The psychology of evidence and trial procedure*. (pp. 67-94). Beverly Hills, CA: Sage Publications.

- Klaver, J. R., Lee, Z., & Rose, V. G. (2008). Effects of personality, interrogation techniques and plausibility in an experimental false confession paradigm. *Legal and Criminological Psychology, 13*, 71-88. doi:10.1348/135532507X193051
- King, L., & Snook, B. (2009). Peering inside a Canadian interrogation room: An examination of the Reid model of interrogation, influence tactics, and coercive strategies. *Criminal Justice and Behavior, 36*, 674-694.
doi:10.1177/0093854809335142
- Kosson, D., Cyterski, T., Steuerwald, B., Neumann, C., & Walker-Matthews, S. (2002). The reliability and validity of the Psychopathy Checklist: Youth Version (PCL: YV) in non-incarcerated adolescent males. *Psychological Assessment, 14*, 97-109.
- Leo, R. A. (1996). Inside the interrogation room. *Journal of Criminal Law and Criminology, 86*, 266-303.
- Leo, R. A. (1998). Miranda and the problem of false confessions. In R. A. Leo & G. C. Thomas III (Eds.), *The Miranda debate: Law, justice, and policing* (pp. 271-282). Boston, MA: Northeastern University Press.
- Leo, R. A. (2001). False confessions: Causes, consequences, and solutions. In S. D. Westervelt & J. A. Humphrey (Eds.), *Wrongly convicted: Perspectives on failed justice* (pp. 36-54). New Brunswick, NJ: Rutgers University Press.
- Leo, R. A. (2009). False confessions: Causes, consequences, and implications. *Journal of the American Academy of Psychiatry and Law, 37*, 332-343. Retrieved from <http://www.jaapl.org/content/37/3/332.full>

- Leo, R. A., & Ofshe, R. (1998). The consequences of false confessions: Deprivations of liberty and miscarriages of justice in the age of psychological interrogation. *Journal of Criminal Law and Criminology*, 88, 429-496.
- Levenson, M. R., Kiehl, K. A., & Fitzpatrick, C. M. (1995). Assessing psychopathic attributes in a noninstitutionalized population. *Journal of Personality and Social Psychology*, 68, 151-158.
- Lilienfeld, S. O. (1994). Conceptual problems in the assessment of psychopathy. *Clinical Psychology Review*, 14, 17-38.
- Lilienfeld, S. O., & Andrews, B. P. (1996). Development and preliminary validation of a self-report measure of psychopathic personality traits in noncriminal populations. *Journal of Personality Assessment*, 66, 488-524.
- Lilienfeld, S. O., & Fowler, K. A. (2006). The self-report assessment of psychopathy: Problems, pitfalls, and promises. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 107-132). New York, NY: Guilford Press.
- Lilienfeld, S. O., & Widows, M. R. (2005). *PPI-R: Psychopathic Personality Inventory-Revised, professional manual*. Lutz, FL: Psychological Assessment Resources, Inc.
- Lykken, D. T. (1957). A study of anxiety in the sociopathic personality. *Journal of Abnormal and Social Psychology*, 9, 6-10.
- Lynam, D. R., & Miller, J. D. (2012). Fearless dominance and psychopathy: Response to Lilienfeld et al. *Personality Disorders: Theory, Research, and Treatment*, 3, 341-353. doi:10.1037/a0028296

- McCann, J. T. (1998). A conceptual framework for identifying various types of confessions. *Behavioral Sciences and the Law*, 16, 441–453.
- Miller, J. D., & Lynam, D. R. (2012). An examination of the Psychopathic Personality Inventory's nomological network: A meta-analytic review. *Personality Disorders: Theory, Research, and Treatment*, 3, 305-326. doi:10.1037/a0024567
- Moston, S., Stephenson, G. M., & Williamson, T. M. (1992). The effects of case characteristics on suspect behaviour during police questioning. *British Journal of Criminology*, 32, 23-40.
- Neumann, C. S., & Hare, R. D. (2008). Psychopathic traits in a large community sample: Links to violence, alcohol use, and intelligence. *Journal of Consulting and Clinical Psychology*, 76, 893–899. doi:10.1037/0022-006X.76.5.893
- Neumann, C. S., Malterer, M. B., & Newman, J. P. (2008). Factor structure of the Psychopathic Personality Inventory (PPI): Findings from a large incarcerated sample. *Psychological Assessment*, 20, 169-172.
- Ofshe, R., & Leo, R. (1997). The social psychology of police interrogation: the theory and classification of true and false confessions. *Studies in Law, Politics and Society*, 16, 189-251.
- Ogloff, J. R. P. (2006). Psychopathy/antisocial personality disorder conundrum. *Australian and New Zealand Journal of Psychiatry*, 40, 519-528.
- Patrick, C. J. (Ed.). (2007). *Handbook of psychopathy*. New York, NY: The Guildford Press.

Paulhus, D., Hemphill, J., & Hare, R. D. (in press). *The SRP-III*. Toronto, ON: Multi-Health Systems.

Paulhus, D. L., Neumann, C. S., & Hare, R. D. (in press). *Manual for the Self-Report Psychopathy Scale* (4th ed.). Toronto, ON: Multi-Health Systems.

Pearse, J., Gudjonsson, G. H., Clare, I. C. H., & Rutter, S. (1998). Police interviewing and psychological vulnerabilities: Predicting the likelihood of a confession. *Journal of Community & Applied Social Psychology*, 8, 1-21.

doi:10.1002/(SICI)1099-1298(199801/02)8:1<1::AID-CASP435>3.0.CO;2-D

Perillo, J. T., & Kassin, S. M. (2011). Inside interrogation: The lie, the bluff, and false confessions. *Law and Human Behavior*, 35, 327-337. doi:10.1007/s10979-010-9244-2

Ray, J. V., & Jones, S. (2012). Examining the relationship between self-reported compliance and psychopathic personality traits. *Personality and Individual Differences*, 52, 190-194. doi:10.1016/j.paid.2011.10.011

Redlich, A. D. (2004). Mental illness, police interrogations, and the potential for false confession. *Psychiatric Services*, 55, 19-21.

Redlich, A. D. (2010). False confessions, false guilty pleas: Similarities and differences. In G. D. Lassiter & C. A. Meissner (Eds.), *Police interrogations and false confessions: Current research, practice and policy* (pp. 49-66). Washington, DC: American Psychological Association.

- Redlich, A. D., & Goodman, G. S. (2003). Taking responsibility for an act not committed: The influence of age and suggestibility. *Law and Human Behavior*, 27, 141-156.
- Redlich, A. D., Summers, A., & Hoover, S. (2010). Self-reported false confessions and false guilty pleas among offenders with mental illness. *Law and Human Behavior*, 34, 79-90. doi:10.1007/s10979-009-9194-8
- Reips, U. D. (2002). Internet-based psychological experimenting: Five dos and five don'ts. *Social Science Computer Review*, 20, 241-249.
- Richardson, G. (1991). *A study of interrogative suggestibility in an adolescent forensic population* (unpublished master's thesis) University of Newcastle, England.
- Rigoni, M. E., & Meissner, C. A. (2008, March). *Is it time for a revolution in the interrogation room? Empirically validating inquisitorial methods*. Paper presented at the meeting of the American Psychology-Law Society, Jacksonville, Florida.
- Russano, M. B., Meissner, C. A., Narchet, F. M., & Kassin, S. M. (2005). Investigating true and false confessions within a novel experimental paradigm. *Psychological Science*, 16, 481-486. doi:10.1111/j.0956-7976.2005.01560.x
- Schmitt, W. A., & Newman, J. P. (1999). Are all psychopathic individuals low-anxious? *Journal of Abnormal Psychology*, 108, 353-358.
- Seibert, L. A., Miller, J. D., Few, L. R., Zeichner, A. Z., & Lynam, D. R. (2011). An examination of the structure of self-report psychopathy measures and their

- relations with general traits and externalizing behaviors. *Personality Disorders: Theory, Research, and Treatment*, 2, 193-208. doi:10.1037/a0019232
- Sigurdsson, J. F., & Gudjonsson, G. H. (1994). Alcohol and drug intoxication during police interrogation and the reasons why suspects confess to the police. *Addiction*, 89, 985-997.
- Sigurdsson, J. F., & Gudjonsson, G. H. (1996a). The psychological characteristics of false confessors: A study among Icelandic prison inmates and juvenile offenders. *Personality and Individual Differences*, 20, 321-329. Retrieved from <http://informahealthcare.com/loi/psc>
- Sigurdsson, J. F., & Gudjonsson, G. H. (1996b). Illicit drug use among "false confessors": A study among Icelandic prison inmates. *Nordic Journal of Psychiatry*, 50, 325-328. Retrieved from <http://www.journals.elsevier.com/personality-and-individual-differences/>
- Sigurdsson, J. F., & Gudjonsson, G. H. (1997). The criminal history of 'false confessors' and other prison inmates. *The Journal of Forensic Psychiatry*, 8, 447-455.
- Sigurdsson, J. F., & Gudjonsson, G. H. (2001). False confessions: The relative importance of psychological, criminological and substance abuse variables. *Psychology, Crime & Law*, 7, 275-289.
- Sigurdsson, J. F., Gudjonsson, G. H., Einarsson, E., & Gudjonsson, G. (2006). Differences in personality and mental state between suspects and witnesses immediately after being interviewed by the police. *Psychology, Crime & Law*, 12, 619-628. doi:10.1080/10683160500337808

- Snook, B., Eastwood, J., Stinson, M., Tedeschini, J., & House, J. C. (2010). Reforming investigative interviewing in Canada. *Canadian Journal of Criminology and Criminal Justice*, 52, 215-229. doi:10.3138/cjccj.52.2.215
- Spielberger, C. D. (1973). *Manual for the State-Trait Anxiety Inventory for Children*. Palo Alto, CA: Consulting Psychologists Press.
- Spielberger, C. D., & Sydeman, S. J. (1994). State-trait anxiety inventory and state-trait anger expression inventory. In M. E. Maruish (Ed.), *The use of psychological testing for treatment planning and outcome assessment* (pp. 292–321). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Steingrimsdottir, G., Hreinsdottir, H., Gudjonsson, G. H., Sigurdsson, J. F., & Nielsen, T. (2007). False confessions and the relationship with offending behaviour and personality among Danish adolescents. *Legal and Criminological Psychology*, 12, 287-296. doi:10.1348/135532506X153380
- Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Boston, MA: Allyn and Bacon.
- Uzieble, K., Verschuere, B., Van den Bussche, E., & Crombez, G. (2010). The validity of the Psychopathic Personality Inventory-Revised in a community sample. *Assessment*, 17, 334-346. doi:10.1177/1073191109356544
- Weibe, R. (2004). Psychopathy and sexual coercion: A Darwinian analysis. *Counseling and Clinical Psychology Journal*, 1, 23-41.

- Welsh, G. S. (1956). Factor dimensions A and R. In G. S. Welsh & W.G. Dahlstrom (Eds.), *Basic readings on the MMPI in psychology and medicine* (pp. 264-281). Minneapolis, MN: University of Minnesota Press.
- Williams, K. M., Nathanson, C., & Paulhus, D. L. (2003, August). *Structure and validity of the Self-Report Psychopathy Scale-III in normal populations*. Poster presented at the meeting of the American Psychological Association, Toronto, Ontario.
- Williams, K. M., Paulhus, D. L., & Hare, R. D. (2007). Capturing the four-factor structure of psychopathy in college students via self-report. *Journal of Personality Assessment*, 88, 205-219. doi:10.1080/00223890701268074
- Zelle, H. (2008). *Factor structure of the Miranda Rights Comprehension Instruments—II* (Master's thesis). Retrieved from http://idea.library.drexel.edu/bitstream/1860/2927/1/Zelle_Heather.pdf

Appendix A

Informed Consent

This informed consent form is designed to explain to you the study's purpose, the required tasks and additional information to allow you to decide whether or not you wish to participate in the study. Please take the time to read this information carefully.

Project Title: Psychopathic traits, compliance and likelihood of falsely confessing

Principal Investigator: Kendra McGuffin
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Purpose: In conducting this study, we hope to gain a better understanding of the relationship between psychopathic traits, compliance, and the likelihood that an individual will falsely confess.

Task requirements: You will be asked to read a short vignette about a police investigation and answer a series of questions about the vignette. You will then be asked to complete 6 self-report questionnaires. These questionnaires measure psychopathic traits (such as impulsivity, manipulation, lack of remorse, irresponsibility), compliance to authority, and anxiety. You will also be asked about whether you have ever taken the blame for any criminal offences you did not commit.

Time required: The study will take approximately 75 minutes to complete and can be completed online at suveymonkey.com.

Remuneration: You will receive 0.75% credit towards your PSYC 1001, 1002, 2001, or 2002 grade for your participation.

Right to withdraw: You have the right to withdraw from this study at any point, without penalty. If you choose to withdraw before the end of the survey, you simply need to click on the 'withdraw' button located on each page and it will take you to the debriefing form. You will still receive your 0.5% toward your psychology course.

Potential risk and discomfort: The subject matter of the police interrogation scenarios involve descriptions of situations which could be upsetting to some individuals. Some of

the questions regarding past antisocial behaviour or personality traits may cause some mild discomfort or emotional distress. Please be reminded that your participation is entirely voluntary, that you may choose not to answer any question, and that you may withdraw from the study at any time without penalty.

Anonymity/confidentiality: All responses provided will be strictly confidential. This data will only be used for research publications, conference presentations and/or teaching material. All answers will be coded in such a way that participants cannot be identified. IP addresses will not be collected during this study. Student numbers will be collected only to assign credit points for participation. Additionally, the informed consent forms will be kept separate from completed questionnaires. However, because the study will be hosted on a website (www.surveymonkey.com) with servers located outside of Canada (in the United States), complete anonymity and confidentiality cannot be guaranteed. By consenting to participate in this study, you acknowledge receipt of this information.

This study has received clearance by the Carleton University Psychology Research Ethics Board (Research Ethics Approval #12-123).

If you have any concerns, ethical or otherwise, regarding this study, please contact:

Psychology Departmental Chair: Dr. Anne Bowker
(613) 520-2600 ext. 8218
anne_bowker@carleton.ca

Psychology Research Ethics Chair: Dr. Avi Parush
(613) 520-2600 ext. 6026
avi_parush@carleton.ca

Consent. I have read the above form and hereby consent to continue participating in this study. The data in this study will be used for research publications and/or teaching purposes. I am aware that the data collected in this study will be kept strictly confidential and anonymous. By clicking on the box I consent to participate in this study.

☐ By checking this box I indicate that I have read the above informed consent and that I am fully aware of any possible risks or consequences of participating in this study.

Appendix B

Demographic Questionnaire

Please provide the following information:

Note: You may skip any questions you do not wish to answer.

Age: _____

Sex: _____ Male _____ Female

What is your racial/ethnic background?

- _____ Aboriginal Canadian/Native Canadian/First Nations
- _____ Asian
- _____ Black/African-Canadian
- _____ East Indian
- _____ Hispanic/Latino
- _____ Middle Eastern
- _____ White/Caucasian
- _____ Other

Appendix C

Self-Report Psychopathy Scale: Short Form

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

Note: You may skip any questions you do not wish to answer.

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

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 D

Experience with Police Interrogation

How often (if ever) have you been involved in the following situations in your lifetime?

Note: You may skip any questions you do not wish to answer.

1	2	3	4	5
Never	Once	Twice	Three to five times	Six or more times

1. Been interrogated by police because of suspicion of criminal involvement.
2. Admitted to an offence that you committed when interrogated by the police.
3. Admitted to an offence that you did not commit when interrogated by the police.
4. Denied an offence that you committed when interrogated by the police.

Appendix E

Written Debriefing Form

What are we trying to learn in this research?

This study investigated what factors are related to falsely confessing. Compliance is defined as the tendency for some people to want to please others and avoid confrontation. It is thought that this trait can make individuals more likely to confess to police during an interrogation even if they did not commit the offence. This study is attempting to discover what other factors, including other personality traits may be related to compliance and false confessions.

In this study we measured compliance, psychopathic traits, and anxiety. You completed a self-report scale called the Perceptions of Coercion during Holding and Interrogative Process (P-CHIP) to measure how likely you think you would be to falsely confess during a police interrogation. We also asked you if you have ever been interrogated by police in the past and have confessed to any criminal offences during an interrogation.

Why is this important to psychologists or the general public?

It is important that, when interrogating suspects, police are aware that some individuals might be more susceptible to confessing even if they did not commit the crime. Research on wrongful convictions suggests that approximately 25% of individuals exonerated by DNA evidence had falsely confessed to the crime. Additional research is needed to understand what personality traits are related to false confessions.

What are our hypothesis and predictions?

We predict that individuals with more psychopathic traits will score lower on compliance. We also predict that compliance and anxiety will be positively associated with each other while psychopathic traits will be negatively associated with both.

How can I learn more?

If you are interested in learning more about psychopathic traits, please refer to the following sources:

- Visit Dr. Robert Hare's website at www.hare.org
- Hare, R. D. (1993). *Without conscience: The disturbing world of the psychopaths among us*. New York, NY: Pocket Books.

To learn more about false confessions and wrongful convictions, please refer to the following sources:

- Visit Project Innocence which represents wrongfully convicted persons in the United States at www.innocenceproject.org
- Visit the Association in Defense of the Wrongly Convicted in Canada at www.aidwyc.org

What if I have questions later?

If you wish to discuss this research further feel free to contact Dr. Adelle Forth (Faculty Advisor) by phone: 613-520-2600, ext. 1267; or by email: adelle_forth@carleton.ca.

If you have any ethical concerns about this study please contact, Dr. Avi Parush (Chair, Carleton University Psychology Research Ethics Board) by phone: 613-520-2600, ext. 6026; or by email: avi_parush@carleton.ca.

Should you have any other concerns please contact, Dr. Anne Bowker (Chair, Department of Psychology) by phone: 613-520-2600, ext. 8218; or by email: psychchair@carleton.ca.

This study has received clearance by the Carleton University Psychology Research Ethics Board (#: 12-123). Please refer to this number when contacting the Chair of the Department or the Chair of the Research Ethics Board concerning this study.

What can I do if I experience discomfort or distress after participating in this study?

If you find that after participating in this study you feel any sort of emotional, mental or physical stress or anxiety, please contact Carleton University Health and Counseling Services at 613-520-6674. If you live in the Ottawa area you can also contact the Distress Center of Ottawa and Region at 613-238-3311. If you are not located in the Ottawa area the telephone number for your local Crisis Line can be found at the front of most phone books.

Thank you for taking the time to participate in this study.

Your participation is greatly appreciated.

Appendix F

Request for Participant's Information

This information will be provided at three locations during the course of the survey.

1. After the informed consent (Appendix A), is just before starting the surveys. If the participant does not agree to participate, he or she will be taken directly to the information on how to receive credit.
2. After choosing to discontinue participation in the study. After each section of the survey, the participant will have the opportunity to exit the survey. If the participant chooses to leave the study, he or she will be presented with the necessary credit information at that time.
3. After the debriefing form (Appendix I). If the participant does agree to participate and completes all questionnaires, the necessary bonus credit information will be provided at the end of the study.

In order to receive credit for participation, please send an e-mail to the following address:

kendra_mcguffin@carleton.ca

Please use your Carleton Connect email to send the message.

In subject heading please indicate "PSYCHOPATHIC TRAITS STUDY".

In the e-mail please include your FULL NAME, STUDENT NUMBER, COURSE CODE, and SECTION. Note that this information will not be linked with your responses. This information will only be used to make sure you receive credit for your participation.

As soon as your credit has been assigned in the SONA system your email will be deleted.