

Lay theories and attitudes about psychopathy

by

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Abstract

It is known that having a psychopathic partner is physically and emotionally detrimental, and that psychopaths receive harsher sentences than those who do not have the psychopathic label. And yet, jurors, or laypeople more broadly, do not have a thorough understanding of psychopathy. Thus the goals of this research were twofold: 1) to examine laypeople's understanding and attitudes about psychopathy, and 2) to test if an educational experimental manipulation can improve laypeople's conception of this disorder. Study 1 revealed that in a sample of 286, lay participants continue to have a poor understanding and inaccurate attitudes about psychopathy in similar areas as previous research suggests. In Study 2, a sample of 259 lay participants was randomly assigned to watch a control video describing myths associated with dog training or a video describing myths associated with psychopathy. Compared to a control video, watching a short educational video about psychopathy helped reduce lay participants' confusion of psychopathic with non-psychopathic traits, and ameliorate lay participants' misguided attitudes about psychopathy. This has promising implications for mental health research more generally in the context of reducing stigma and its associated negative consequences.

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Table of Contents

Abstract.....	ii
Acknowledgements.....	iii
Table of Contents.....	iv
List of Tables.....	vii
List of Figures.....	viii
List of Appendices.....	ix
Introduction.....	1
Lay Theories of Mental Illness.....	3
Psychopathy.....	7
Assessment and Criminality.....	7
Etiology.....	9
Moral Judgment.....	11
Immutability.....	13
Intelligence.....	14
Lay Theories of Psychopathy.....	15
Attitude Change.....	24
Study 1 - Purpose.....	26
Study 1 - Method.....	28

Participants.....	28
Measures	29
Attention Checks.....	29
Demographics	29
Comprehensive Assessment of Psychopathic Personality (CAPP)	29
Knowledge and Attitudes about Psychopathy	30
Procedure	32
Analysis.....	33
Study 1 - Results	33
Prototypicality Ratings.....	33
Knowledge and Attitudes about Psychopathy	38
Gender.....	43
Study 1 - Discussion	50
Prototypicality Ratings.....	50
Knowledge and Attitudes about Psychopathy	54
Gender	61
Study 2 - Purpose	65
Study 2 - Pilot Study Purpose	66

Study 2 - Pilot Study Method.....	67
Participants.....	67
Procedure	68
Study 2 - Pilot Study Results	69
Study 2 - Pilot Study Discussion	70
Study 2 - Method	70
Participants.....	70
Procedure	71
Study 2 - Results.....	72
Prototypicality Ratings.....	72
Knowledge and Attitudes about Psychopathy	85
Study 2 - Discussion	95
Prototypicality Ratings.....	95
Knowledge and Attitudes about Psychopathy	99
General Discussion	105
Limitations	109
Future Research	111
References.....	114
Appendices.....	134

List of Tables

Table 1. <i>CAPP items and their corresponding domains</i>	17
Table 2. <i>Statements for measuring attitudes about psychopathy</i>	31
Table 3. <i>Descriptive statistics and comparisons of CAPP, foil, and psychosis trait ratings by current participants versus experts (Kreis et al., 2012)</i>	34
Table 4. <i>Participants' sources of information for psychopathy</i>	40
Table 5. <i>Participants' estimated prevalence rates of psychopathy</i>	40
Table 6. <i>Participants' attitudes about psychopathy compared to another lay sample's attitudes using independent samples t-tests</i>	41
Table 7. <i>Descriptive statistics and comparisons of CAPP, foil, and psychosis trait ratings by women versus men</i>	44
Table 8. <i>Participants' attitudes about psychopathy split by gender and compared using independent samples t-tests</i>	48
Table 9. <i>Descriptive statistics for participants' answers to the post-video questions</i>	69
Table 10. <i>Descriptive statistics for participants' prototypicality ratings pre and post-video split by condition</i>	72
Table 11. <i>Participants' estimated prevalence of psychopathy pre and post-video split by condition</i>	85
Table 12. <i>Participants' attitudes about psychopathy pre and post-video split by condition</i>	87

List of Figures

Figure 1. Participants' Comprehensive Assessment of Psychopathic Personality (CAPP), foil, and psychosis trait ratings compared to expert ratings (Kreis et al., 2012)....	37
Figure 2. <i>Categories of participants' responses to the question, "Who is the first person who comes to mind to you as a typical psychopath?"</i>	38
Figure 3. <i>Women's and men's Comprehensive Assessment of Psychopathic Personality (CAPP), foil, and psychosis trait ratings</i>	46
Figure 4. <i>Participants' Comprehensive Assessment of Psychopathic Personality (CAPP), foil, and psychosis trait ratings in the psychopathy myths video condition</i>	77
Figure 5. <i>Participants' Comprehensive Assessment of Psychopathic Personality (CAPP), foil, and psychosis trait ratings in the dog training myths video condition</i>	78
Figure 6. <i>Plot of significant time by condition interaction for the Foils domain</i>	83
Figure 7. <i>Plot of significant time by condition interaction for the Psychosis symptoms domain</i>	84

List of Appendices

Appendix A. Study 1 Certificate of Ethics Approval	134
Appendix B. Study 1 Informed Consent Form	136
Appendix C. Study 1 Written Debriefing Form.....	138
Appendix D. Study 2 Certificate of Ethics Approval	140
Appendix E. Study 2 Informed Consent Form	142
Appendix F. Study 2 Written Debriefing Form	144
Appendix G. Psychopathy Myths Video Script.....	146
Appendix H. Dog Training Myths Video Script.....	148

Lay theories and attitudes about psychopathy

There is a plethora of research on definitions of psychopathy, its core features, theories to explain etiology and the behaviour of psychopathic individuals (Hare, McPherson, & Forth, 1988; Moffitt, 1993; Patrick, 2018; Salekin & Lynam, 2011; Skilling, Harris, Rice, & Quinsey, 2002). However relatively few studies have examined laypeople's understanding of this disorder (Smith, Edens, Clark, & Rulseh, 2014). A disproportionate number of psychopaths enter the criminal justice system due to their penchant for antisocial and illegal behaviour, and this raises questions about the consequences of the psychopathy label regarding decision-making outcomes in legal settings (Boccaccini, Murrie, Clark, & Cornell, 2008; Cox, Clark, Edens, Smith, & Magyar, 2013; Cox, DeMatteo, & Foster, 2010; Edens, Desforges, Fernandez, & Palac, 2004; Murrie, Boccaccini, McCoy, & Cornell, 2007).

Mental health professionals frequently use psychopathy in their assessments when assessing risk of violence (Hurducas, Singh, de Ruitner, & Petriola, 2014; Singh, Bjørkly, & Fazel, 2016; Viljoen, McLachlan, & Vincent, 2010). Psychopathy is often used in a variety of court cases (e.g., parole determinations, sexually violent predator civil commitments) and particularly in violent cases where a dangerous offender label is in question (Blais & Forth, 2014; Edens, Cox, Smith, DeMatteo, & Sörman, 2015). Research that has examined the potential biasing effects of the psychopathy label has shown that defendants who are labelled as psychopaths receive harsher sentences than those who have not been given this label (Boccaccini et al., 2008; Cox et al., 2010, 2013; Cox, Edens, Rulseh, & Clark, 2016; Edens et al., 2004). Although the effects of the psychopathy label are well known in legal contexts, laypeople's understanding of

psychopathy is far less understood (Hoff, Rypdal, Mykletun, & Cooke, 2012; Smith et al., 2014). As a result, it is important to understand precisely what potential jurors, and more broadly, the general public consider when they are told that someone has a psychopathic personality.

Understanding laypeople's conception of psychopathy is not only important in the legal context. In terms of relationships, psychopathy is associated with a host of negative outcomes. In partners, psychopathy predicts negative affect, low initial and sustained marital satisfaction, and divorce (Weiss, Lavner, & Miller, 2018). Additionally, regarding psychosocial functioning, women who are partners of individuals with psychopathic traits exhibit elevated rates of paranoid thoughts, hostility, depressive symptoms, and somatic complaints compared to those with nonpsychopathic partners (Uzieblo, Soetens, & Bijttebier, 2011). In terms of clinical and violent consequences, having a psychopathic partner is also associated with being the victim of physical abuse, increased symptoms of post-traumatic stress, and other emotional and psychological harm (Brieman & Kosson, 2018; Brown & Leedom, 2008; Kirkman, 2005; Ritchie, Deck, & Forth, 2017). Thus, it would clearly be beneficial to avoid being involved with a psychopathic partner. But to avoid this, one first needs to be able to recognize and understand what psychopathy, its traits, and its correlates are. Therefore, it is important to examine laypeople's understanding of the disorder, and if laypeople have a misguided or confused conception of psychopathy, it would be crucial to see if educating individuals about psychopathy could improve their understanding of this deleterious personality profile so they can avoid the associated detrimental consequences.

In terms of the literature regarding other mental disorders, laypeople consistently display misconceptions and misunderstandings (e.g., Furnham & Anthony, 2010; Martin, Pescosolido, & Tuch, 2000). There are only a few recent studies to examine laypeople's understanding of psychopathy, with one revealing that laypeople confuse psychopathy with psychosis and endorse foil traits for psychopathy (traits that are generally inversely related to traits that researchers typically associate with psychopathy; Smith et al., 2014). Together, these findings suggest that if laypeople's erroneous perceptions and attitudes are replicated that there would be a need for education. Laypeople having a clear understanding of what exactly psychopathy means is vital so that the diagnostic label does not inappropriately alter the public's opinion in legal settings (e.g., when making a conviction or acquittal decision on a jury). This grasp of the meaning of psychopathy is also important in the context of the survivors of psychopathic relationships literature, as many of these victims feel that the public does not understand what psychopathy is (Ritchie et al., 2017). This research has two objectives: 1) to further our understanding of laypeople's attitudes, perceptions, and beliefs about psychopathy and 2) to examine if educating the public can change laypeople's fallacious understandings of psychopathy.

Lay Theories of Mental Illness

Lay theories are defined as beliefs and attitudes held by the public about any given subject (Furnham, 1988). Moreover, they are often very different from the corresponding formal "scientific" findings for an array of subjects (Furnham, 1988). Lay theories are commonly implicit rather than explicit with non-specified assumptions, while scientific theories are more formal in nature and are internally consistent (Furnham, 1988). Data from the World Health Organization state that mental illness is commonly

occurring and seriously impairing worldwide (Kessler et al., 2009). However, laypeople regularly support misconceptions about an array of mental disorders (Dahlberg, Waern, & Runeson, 2008; Furnham & Anthony, 2010; Jorm, 2000; Link, Phelan, Bresnahan, Stueve, & Pescosolido, 1999). These misconceptions produce a considerable amount of problematic stigma and a reluctance to seek treatment by those with mental disorders (Jorm et al., 1997).

One of the most replicated findings with laypeople's understanding of mental disorders is that of recognition. When presented with vignettes of mental disorders such as depression and psychosis and asked to diagnose the individuals described, laypeople are often unable to identify the disorders correctly (Furnham & Anthony, 2010; Jorm, Nakane, Christensen, Yoshioka, Griffiths, & Wata, 2005). These findings have been shown cross-culturally; for example in Japan and Sweden, 50% or more individuals were unable to identify a common disorder such as depression (Dahlberg et al., 2008; Jorm et al., 2005). These issues with recognition of common mental disorders can have an immense impact on suppressing at-risk and disordered individuals from both receiving support and seeking help (Wright, Jorm, Harris, & McGorry, 2007). Although mental illness recognition remains a grave problem to societies worldwide, other issues surrounding laypeople's perceptions and understandings of individuals with mental illness lie with attitudes.

In terms of misalignment between lay attitudes about mental illness and the scientific research, attitudes have been examined regarding the public's opinion on appropriate treatment. The general public tends to recommend seeking support and advice from friends and family more than recommending medical and professional help

(Jorm et al., 2005). While there are benefits to receiving social support from close relationships, it is potentially dangerous if there is a preference for this method as a replacement for professional and medical services (Jorm, 2012). In addition, often one's friends and family are ill equipped in mental health first aid (i.e., helping people in crises of mental health; see Kitchener & Jorm, 2002), thus this form of help-seeking behaviour should not replace receiving services from medical and professional individuals who have received appropriate clinical training and education. Researchers have also found that those who support ineffective treatments for mental disorders also hold problematic lay theories about mental illness etiology (Furnham & Anthony, 2010). Targeting these maladaptive theories may also effectively alter laypeople's support of inadequate treatments for mental health. The lack of endorsement for seeking professional help may relate to the stigma that comes with a "mental disorder" label, therefore it is crucial to consider what these problematic lay theories of mental illness are and how they relate to the development of stigma (Jorm, 2012; Martin, Pescosolido, & Tuch, 2000; Pedersen & Paves, 2014).

Noted sociologist Erving Goffman (1963) defines stigma as an attribute, behaviour, or reputation that is deeply socially discrediting. Goffman states that stigma reduces someone "from a whole and usual person to a tainted, discounted one" (p. 3, 1963). Stigma associated with mental illness and laypeople's negative attitudes toward individuals with mental disorders are unfortunately well-documented findings in the literature (e.g., Link et al., 1999; Martin et al., 2000). A meta-analysis examined 16 North American and European studies that looked at how attitudes towards mental illness have changed since 1990 (Schomerus et al., 2012). Results revealed that although recognition

of mental disorders has improved, several attitudes that laypeople hold about those with mental illnesses have either remained stable or have become more damaging over time, particularly towards those with schizophrenia (Schomerus et al., 2012). For both schizophrenia and depression, although there were nonsignificant trends towards reduced blame, notions of dangerousness did not change over time (Schomerus et al., 2012). The authors concluded that particularly social rejection of those with mental disorders has remained alarmingly stable since 1990.

A number of studies reveal that the general public views mentally disordered individuals as socially unwanted, violent, and dangerous (Link et al., 1999; Martin et al., 2000; Parcesepe & Cabassa, 2013; Perry, Pescosolido, Martin, McLeod, & Jensen, 2007; Schomerus et al., 2012; Walker, Coleman, Lee, Squire, & Friesen, 2008). A physical consequence of the stigma is that laypeople generally want to keep social and interactional distance from mentally ill individuals. Martin and colleagues (2010) asked participants to indicate how willing they would be to engage in a variety of scenarios, such as spend an evening socializing, work on a job, and make friends, with individuals with mental disorders. They found that those with mental illnesses are moderately to highly undesirable in these scenarios compared to people with “normal troubles”. A heightened desire for social distance is especially found when lay theories of etiology are associated with “bad character” (Link et al., 1999). Thus, disorders associated with antisocial and impulsive behaviour, such as psychopathy, may be especially stigmatized by laypeople. As mentioned, laypeople generally have very poor recognition skills regarding a variety of mental illnesses. Furnham, Daoud, and Swami (2009) presented vignettes of three different disorders to participants, and identification of psychopathy

was the least correctly identified vignette of the three disorders. These findings suggest that an investigation into laypeople's understandings of psychopathy should be undertaken.

Psychopathy

Before delving into the literature regarding lay theories about psychopathy, I will first define psychopathy, discuss how it is assessed, and provide a brief background on a variety of subfields of psychopathy-related research.

Assessment and criminality. Psychopathy is a personality disorder characterized by a constellation of maladaptive interpersonal traits (e.g., manipulative, grandiose, arrogant, dominant), emotional traits (e.g., callousness, lack of empathy, lack of remorse), behavioural traits (e.g., risky behaviour, stimulation-seeking, impulsivity), and a tendency to engage in antisocial behaviour (Cleckley, 1950/2015; Hare, 1999). The most widely used scale to measure psychopathy is the Hare Psychopathy Checklist-Revised (PCL-R; Hare 2003). It consists of 20 items rated on a 3-point scale (0, 1, 2) which are subsumed by two factors. Factor 1 items are related to interpersonal and affective characteristics (e.g., shallow affect, callousness, selfishness) and Factor 2 items are related to impulsivity and antisocial behaviours (e.g., sensation seeking, criminal versatility; Hare, 2003). As a consequence of the characteristics and behavioural manifestations of this personality disorder, psychopaths have a penchant for engaging in more criminal behaviour than non-psychopathic offenders and a disproportionate number of psychopathic individuals come in contact with the criminal justice system (Hare et al., 1988; Hawes, Boccaccini, & Murrie, 2013; Olver & Wong, 2015; Walters, 2003a, 2003b; Yang, Wong, & Coid, 2010).

Although the approximate prevalence of psychopathy in the community is 1% (Neumann & Hare, 2008), the prevalence of psychopathy in correctional settings is closer to 10% (7%-25%; Coid et al., 2009; Kiehl, 2006). Psychopathic offenders have higher recidivism rates over their lifetime compared to their non-psychopathic counterparts (Hare et al., 1988; Olver & Wong, 2015; Parent, Guay, & Knight, 2011; Wong, 1984). Furthermore, higher scores on the PCL-R are associated with more aggressive behaviour and violence (Camp, Skeem, Barchard, Lilienfeld, & Poythress, 2013; Olver & Wong, 2015; Walters, 2003b). This violence is typically understood to be instrumental in nature, which means the motivation for violence is goal-directed and planned (Blais, Solodukhin, & Forth, 2014; Camp et al., 2013; Hare, 1999; Woodsworth & Porter, 2002). However not all psychopaths use instrumental violence; two subcategories exist within the psychopathy construct. Primary psychopathy is associated with instrumental violence and is related to having low harm avoidance, low anxiety, and typically characterized by features as described by Hervey Cleckley (1950; Hicks, Markon, Patrick, Krueger, & Newman, 2004; Newman, MacCoon, Vaughn, & Sadeh, 2005). Secondary psychopathy however is characterized by high anxiety and a proclivity toward impulsive reactions and risk-taking behaviours, which lead to the use of reactive violence (Blais et al., 2015; Hicks et al., 2004; Lyons, 2015). Violence and antisocial behaviour are often understood to be characteristic of psychopathy, however it is not agreed upon whether antisociality should be considered a core feature of psychopathy or simply a behavioural manifestation caused by other central features of psychopathy such as impulsivity, callousness, and lack of remorse (Hare & Neumann, 2010; Skeem & Cooke, 2010).

Even with all of the research on psychopathy, the core features of psychopathy are still undecided upon (Lilienfeld, Patrick, Benning, Berg, Sellbom, & Edens, 2012; Lynam & Miller, 2012; Skeem & Cooke, 2010). The Comprehensive Assessment of Psychopathic Personality (CAPP; Cooke, Hart, Logan, & Michie, 2012) was developed with the intention of addressing perceived limitations of existing psychopathy measures (i.e., a focus on antisociality and social deviance). One of the goals the authors described in developing the CAPP was, working from existing tools, to create a measure in simple and descriptive language that provides an all-inclusive assessment of psychopathy, targeting a broader range of features compared to existing measures and with less emphasis on antisocial behaviour (Cooke et al., 2012). A number of prototypicality analyses have been performed to validate the CAPP and measure its content validity (Hoff, Rypdal, Hart, Cooke, & Mykletun, 2015; Hoff et al., 2012; Kreis & Cooke, 2011; Kreis, Cooke, Michie, Hoff, & Logan, 2012; Sörman et al., 2014).

Etiology. Etiological research has focused on both environmental and biological foundations of psychopathy. Biological causes tend to concentrate on atypical size, makeup, or activity in certain brain regions as well as the association between these abnormal regions with differential genetic makeup (Blair, 2006; Blair, Peschardt, Budhani, Mitchell, & Pine, 2006; Boccardi et al., 2011; Kiehl et al., 2001; Viding, Blair, Moffitt, & Plomin, 2005). Environmental origins include socioeconomic status, upbringing, maltreatment, and other early life factors that studies show contribute to later psychopathy and criminal behaviour (Farrington, Ullrich, & Salekin, 2010; Haapasalo & Pokela, 1999; Marshall & Cooke, 1999; Piquero, Farrington, Fontaine, Vincent, Coid, & Ullrich, 2012). Moffitt (1993) examined the course of antisocial personalities across

development, including psychopathic individuals. One of the pathways she identified was the life-course-persistent pathway. Life-course-persistent antisocial offenders are marked by an early onset of troubling behaviours and a deviant criminal record that is lifelong, varied, and develops over time (Moffitt, 1993). Psychopathic offenders' criminal careers appear to fit well with the life-course-persistent model (Hare et al., 1988; Harpur & Hare, 1994; Moffitt, 1993; Skilling et al., 2002). This life-course-persistent model supports biological origins perspective of psychopathy.

Studies examining twins have proved useful in parsing out a genetic element to the etiology of psychopathy. A study found that between pairs of monozygotic twins rating highly on callous-unemotional traits and the population mean scores, two thirds of the difference could be accounted for by genetics (Viding et al., 2005). It is understood that callous-unemotional traits are not adequate for a psychopathy diagnosis, however these findings have been corroborated by another twin study (Blonigen, Carlson, Krueger, & Patrick, 2003). A significant genetic basis was found for psychopathy scores of monozygotic versus dizygotic twins (Blonigen et al., 2003). Specifically, monozygotic and dizygotic twins completed a self-report measure of psychopathy, the Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996). Intraclass correlations for total and subscale scores of the PPI were all statistically significant for monozygotic twins, however none of the intraclass correlations were significant for the dizygotic twins (Blonigen et al., 2003). Other studies have further explored the link between the development and maintenance of psychopathy and physiological functioning. One possible root of the disorder is irregularities in the development and function of limbic system and amygdala of psychopathic individuals (Blair, 2006; Boccardi et al., 2011;

Kiehl et al., 2001). Blair (2006) argues that development of psychopathic traits originates from the associated abnormalities in the amygdala and its role in the development of moral reasoning leading to a failure to foster a conditioned response to negative behaviours (e.g., harmful actions). Biology appears to play a lead role in the development of the psychopathic personality, however it is also postulated that genetic aberrations create a predisposition for the personality disorder that interacts with environmental factors in the formation of psychopathy.

While the association between psychopathy and genetic influences is well understood, less is known about the role of the environment in the development of psychopathy. Less specifically about psychopathy, low socioeconomic status, abusive detached parenting styles, and parental income are related to criminal and antisocial behaviour in youth (Haapasalo & Pokela, 1999). Piquero and colleagues (2012) looked at the relation between childhood environmental risk factors (e.g., poor supervision, harsh discipline, low family income) and adult psychopathic traits. After criminal trajectory was controlled for, a higher number of environmental risk factors were significantly correlated with more psychopathic traits in adulthood. These childhood risk factors have been found to predict higher adult psychopathy measure scores in other studies as well (Farrington et al., 2010; Marshall & Cooke, 1999), which suggests that childhood environmental factors have an influence on the manifestation of the psychopathic personality in adulthood. To this end, it appears that both environmental and physiological factors are important in the development of psychopathy and criminality.

Moral judgment. Some researchers argue that psychopaths are not part of the moral community, as they cannot grasp the difference between acts that are morally right

and morally wrong (Blair, 1995, 1997; Blair, Jones, Clark, & Smith, 1995). They can understand what is considered legally wrong and understand conventions and rules, but there may be a deficit that leads to the incapacity to internalize moral norms during critical developmental periods (Fine & Kennett, 2004). However, recent research has begun to allude to the idea that lack of moral understanding may not be a part of psychopathy after all. For example, Aharoni, Sinnott-Armstrong, and Kiehl (2014) found no association between performance on the Moral-Conventional Transgressions Task (Turiel, 1979) and psychopathy. This task has participants differentiate between acts deemed wrong simply by conventional standards (e.g., breaking a school rule such as talking in class) and those that are deemed morally wrong (e.g., physically harming someone). Thus, perhaps psychopaths do in fact comprehend the difference between moral wrongs and rights, but maybe they merely choose not to attend to moral standards.

Another study found that psychopathic inmates judged the permissibility of acts described in moral scenarios in the same manner as both non-psychopathic inmates and healthy controls (Cima, Tonnaer, & Hauser, 2010). These results were true for impersonal scenarios (i.e., not requiring physical contact) and personal scenarios (i.e., requiring physical contact) although personal acts were seen as less moral overall, and for whether or not the moral acts were self-serving or other-serving. These results propose that psychopaths and non-psychopaths may not differ when making moral judgments across situations.

A recent meta-analytic examination was conducted regarding psychopathy's relations with moral judgment (Marshall, Watts, & Lilienfeld, 2016). Results of the first meta-analysis provided only at best modest support for psychopathic individuals failing

to understand moral principles. The authors' second meta-analysis was on the relationship between moral reasoning and psychopathy using moral foundations measures, and it revealed preliminary evidence that psychopathic individuals may have a differential set of "moral taste buds" than less psychopathic people. The authors suggest that their findings provide evidence against the idea that psychopathic individuals possess a distinct and overarching moral deficit (Marshall et al., 2016), a belief often held by laypeople (Furnham et al., 2009). Instead, they suggest that psychopathic individuals may display subtle differences in moral decision-making and reasoning inclinations (Marshall et al., 2016).

Immutability. It has long been understood that psychopathy is immutable. However more recent studies paint a different picture regarding treatment of psychopathy. Salekin, Worley, and Grimes (2010) reviewed studies on psychopathy treatment with adults and with youth. Results from their review suggest that treatment for adult psychopaths has low to moderate success, with only three of eight studies showing benefits from treatment (Salekin et al., 2010). The treatment of youth appears to be more encouraging, with six of eight studies displaying treatment gains (Salekin et al., 2010). Indeed, Wong and Olver (2015) discuss how significant recent developments have been made in assessing psychopathy and recidivism risks, as well as in rehabilitation to decrease reoffending. The impulsivity and antisocial behaviour (PCL-R factor 2), and not the interpersonal and affective core personality characteristics of psychopathy (PCL-R factor 1), predict recidivism and violent behaviour (Wong & Olver, 2015). Therefore, Wong and Olver (2015) suggest using interventions to reduce risk of violence by directing such intervention at ameliorating the dysfunctional lifestyle and antisociality

and simply managing the interpersonal and affective traits of psychopaths, which they say often appear as treatment-interfering behaviours. Another review of the treatment of psychopathy in forensic settings supports the finding that some well-designed recent studies suggest that psychopathy may be treatable after all (Polaschek & Daly, 2013). These treatment programs reduce recidivism by targeting and reducing dynamic risk factors in high risk and highly psychopathic offenders (Polaschek & Daly, 2013). However, the authors of this review remind readers that, “the questions of whether psychopathy itself responds to treatment, and if so, what forms such treatment might take have not yet been addressed.” (Polaschek & Daly, 2013, p. 592). The target of treatment programs continues to be reducing recidivism and violent behaviour rather than curing someone of their psychopathic traits.

Intelligence. Laypeople tend to associate psychopathy with high intelligence (Furnham et al., 2009; Smith et al., 2014). DeLisi, Vaughn, Beaver, and Write (2004) call this association the “Hannibal Lecter myth”, arguing that the popular film character’s psychopathic traits and superior intelligence have conflated the relationship between the two constructs for the public. Whether this relationship holds true, however, is not totally clear from the literature. A meta-analysis found a very small positive but not significant relationship between general mental ability and psychopathy (O’Boyle, Forsyth, Banks, & Story, 2013). In contrast, other studies suggest this relationship could possibly be more nuanced, and that types of intelligence are differentially related to features of psychopathy (e.g., Salekin, Neumann, Leistico, & Zalot, 2004; Vitacco, Neumann, & Wodushek, 2008). Another more recent study has found weak relations between intelligence and psychopathy (Watts et al., 2016). The relationship between intelligence

and psychopathy is one example of where laypeople exhibit an erroneous understanding, and so it would be beneficial to better examine what laypeople's attitudes and theories are about psychopathy more generally.

Lay Theories of Psychopathy

Studies of lay theories of psychopathy have commonly used prototypicality analysis to unravel laypeople's understanding of psychopathy. A prototype captures the core conceptualization of a construct based on its definition or perceived fundamental nature (Rosch & Lloyd, 1978). Prototypicality studies attempt to access participants' core definition of a construct. In psychopathy research prototypicality analyses were originally used to better identify which features are perceived as essential to those with antisocial personality disorder (APD) and which features distinguish APD from psychopathy (Rogers, Dion, & Lynett, 1992; Rogers, Duncan, Lynett, & Sewell, 1994). Forensic psychiatrists completed prototypicality analyses in order to evaluate the validity of APD (Rogers et al., 1994). The psychiatrists identified which features of APD were successfully captured by diagnostic criteria found in the PCL-R and in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychological Association, 1994; Rogers et al., 1994). They found that PCL-R items contributed significantly to participants' conceptualization of APD (Rogers et al., 1994). These findings advocate for the role of prototypicality analysis in helping to refine forensic definitions of psychopathy and APD.

Prototypicality analysis has been used with the CAPP for validation purposes to assist in measuring the scale's content validity. Kreis and colleagues (2012) used a prototypicality analysis to determine which domains of the CAPP best captured the

construct of psychopathy. Participants were mental health professionals who had experience working with psychopaths. They were asked to rate their imagined prototype of a psychopath on each of the 33 traits of the CAPP (Table 1 outlines the traits of the CAPP and each trait's corresponding domain). All domains were highly prototypical of a psychopath except for the Cognitive domain (with the "lacks concentration" item being rated particularly low). Particularly the Dominance, Self, and Attachment domains had the highest ratings of being prototypical of a psychopath.

Prototypicality analyses have been used in cross-cultural investigations into the content validity of the CAPP in various languages. Hoff and colleagues (2012) performed a cross-cultural investigation into the content validity of the Norwegian language version of the CAPP. Participants were split into three Norwegian samples: forensic mental health professionals, corrections professionals, and a community sample. The first two samples had experience working with psychopaths whereas the third sample of laypeople did not. Participants were first asked to rate each of the 33 traits of the CAPP as well as the nine foil items (traits that are generally inversely related to traits that are usually associated with psychopathy) based on their prototype of psychopathy. They were then asked to also rate a non-psychopathic person in the same manner. Psychopaths were rated significantly lower on the foil items than the non-psychopathic individuals, and the lowest rated items on the CAPP (e.g., "lacks concentration" again, "lacks planfulness") received low ratings for both the psychopaths and the non-psychopaths. Although the goal of this study was to confirm the content validity of the CAPP in Norway, this study also began to shed light on laypeople's definition of psychopath as being similar to the definition from a professional.

Table 1

CAPP items and their corresponding domains

Domains	Items
Attachment	Unempathic Detached Uncaring Uncommitted
Behavioural	Aggressive Restless Disruptive Reckless Unreliable Lacks Perseverance
Cognitive	Suspicious Inflexible Intolerant Lacks Concentration Lacks Planfulness
Dominance	Manipulative Domineering Deceitful Antagonistic Insincere Garrulous
Emotional	Lacks Remorse Lacks Emotional Stability Lacks Emotional Depth Lacks Anxiety Lacks Pleasure
Self	Self-Centered Self-Justifying Sense of Entitlement Sense of Invulnerability Sense of Uniqueness Self-Aggrandizing Unstable Self-Concept

As the authors' objective was to assess the content validity of Norwegian language version of CAPP and provide a cross-cultural perspective, they did not analyze sample differences.

A similar study also used three samples, where mental health experts, health professionals, and community residents completed prototypicality analyses to evaluate the content validity of the CAPP, but this time for the Spanish version (Flórez et al., 2015). Again, sample differences were not analyzed as this was not the purpose of the study, however the authors reported that most of the CAPP items were rated as highly prototypical of psychopathy across samples (Flórez et al., 2015). Consistent with findings from the study by Hoff and colleagues (2012), the Dominance, Self, and Attachment domains were rated as more prototypical of a psychopath than the Cognitive and Behavioral domains. Beyond these three-sample content validity studies, Hoff and colleagues (2012) went on to assess the cross-language consistency across the Norwegian translated version of the CAPP with the original version. Mental health workers either completed prototypicality ratings using the English or Norwegian version of the CAPP. Their findings revealed a high degree of agreement across the samples on both traits prototypical to psychopathy and on traits that were not.

Prototypicality analyses with the CAPP have also been used to assess gender differences in psychopathy. Mental health professionals have rated the gender prototypicality of the 33 CAPP items, that is, rating each item as being more prototypical of men or of women using a 7-point Likert-type scale (1 = *more prototypical of men*, 4 = *equally prototypical of men and women*, 7 = *more prototypical of women*; Kreis &

Cooke, 2011; Viljoen, Cook, Lim, Layden, Bousfield, & Hart, 2015). One study found that 29 of the CAPP items were rated more prototypical of men with psychopathy than women, while only “lacks emotional stability” and “unstable self-concept” were rated more prototypical of women with psychopathy than men (Viljoen et al., 2015). Another study showed that 25 of the CAPP items were rated more prototypical of men with psychopathic personalities than women (Kreis & Cooke, 2011). And again, “lacks emotional stability” and “unstable self-concept” (and also “manipulative” in this study) were rated more prototypical of women with psychopathic personalities than men. Kreis and Cooke (2011) concluded that, “the findings support the content validity of the CAPP across gender and suggest that – at symptom and domain levels – psychopathic men and women have key similarities, but also that important gender differences exist” (p. 634). Aside from prototypicality studies using the CAPP, there have also been other studies that have focused on examining laypeople’s attitudes about psychopathy.

Helfgott (2013) conducted a telephone interview asking American community members’ their perceptions of psychopaths. Participants were asked what they thought of when they first when they heard the word “psychopath”. The majority of participants responded with answers suggesting mental illness (about 59%), followed by answers related to criminal behavior (about 35%; Helfgott, 2013). Furnham and colleagues (2009) sought to tap into laypeople’s attitudes and perceptions about psychopathy to unravel which negative attitudes and misconceptions may be affecting decisions of the jury. Participants were a United Kingdom community sample. They were asked to identify the mental disorder from reading three different vignettes (for depression, schizophrenia, and psychopathy) as well as rating the extent to which they agreed with several statements

about the etiology, behaviours, and treatability of psychopathy. Identification of depression and schizophrenia was quite good, with participants correctly identifying depression 97.2% of the time and correctly identifying schizophrenia 61% of the time. In contrast, only 39.1% of participants were able to correctly identify psychopathy from reading the vignette. The authors performed a factor analysis using the attitudinal responses and found that their community sample had a simplistic view of psychopathy, emphasizing high criminality, social skills, and intelligence. Environmental explanations (e.g., stress, trauma) were found to be highly preferred etiological explanations for psychopathy over biological explanations (e.g., brain abnormalities, genetics). Participants also endorsed responses concordant with the idea that psychopathic individuals have a moral deficit. And although participants did believe that psychopathy was treatable, they did not endorse psychosocial or biological forms of treatment as being superior over the other. Findings from this study begin to build a picture of laypeople's imperfect recognition and understanding of psychopathy in conjunction with results from the existing prototypicality analysis studies. However, to date very few published studies have both collected prototypicality ratings using the CAPP and administered attitudinal questions about psychopathy to the same sample (Smith et al., 2014; Sörman, Edens, Smith, Clark, Kristiansson, & Svensson, 2016; Sörman et al., 2014).

The goal of Smith and colleagues' (2014) research was to gain a more comprehensive understanding of lay theories of psychopathy (i.e., not just laypeople's definition alone, or recognition alone, or attitudes alone). The same prototypicality analysis with the 33 traits of the CAPP and the nine foil items was undertaken with a sample of Texan jurors. The Dominance and Self domains of the CAPP were rated as

highly prototypical of psychopathy. The CAPP domain with the lowest mean score of prototypicality ratings was the Cognitive domain. Results of this prototypicality analysis using laypeople's ratings were compared to the expert ratings collected by Kreis and colleagues (2012). This comparison uncovered that laypeople's CAPP trait ratings were similar to mental health experts' ratings on a domain-level, where the trait item mean ratings were slightly lower from the sample of laypeople. In contrast, while the mental health professionals did not endorse the foil items as being prototypical of a psychopath, the sample of laypeople did – with “strange” and “perfectionistic” rated as being moderately prototypical of a psychopath. Smith and colleagues (2014) also added three items that describe psychosis (“delusional beliefs”, “peculiar behaviour”, and “disturbed thinking”) to test if participants would confuse their definitions of psychopathy with their definitions of psychosis. Indeed, participants rated each of the three items for psychosis as being highly prototypical of their imagined psychopath.

The authors also administered a series of attitudinal questions derived from the ones administered by Furnham and colleagues (2009). Participants were asked to name someone who comes to mind when they think of a typical psychopath. The most common responses were fictional and known serial killers. This finding corroborates the existing idea that media may be the leading place where laypeople derive their information about psychopathy (Edens, Clark, Smith, Cox, & Kelley, 2013). Participants did not significantly support any form of etiology of psychopathy; the authors suggest that laypeople do not have a thorough understanding of the origins of this disorder. This finding contradicts Furnham and colleagues' (2009) finding where participants endorsed environmental factors as etiological explanations for psychopathy. Participants also

generally had neutral views on the immutability of psychopathy, however they were slightly pessimistic about criminal psychopaths being able to be rehabilitated.

Participants tended to endorse beliefs that psychopaths were both highly intelligent and highly criminal. This finding is not surprising given film and television's cold, cunning, and violent portrayal of psychopathy (Edens et al., 2013; Furnham et al., 2009; Leistedt & Linkowski, 2014). Indeed, when Leistedt and Linkowski (2014) examined 400 films for psychopathic characters to understand how realistically movies capture psychopathy, they found that many of the psychopathic characters displayed features more characteristic of psychosis than psychopathy. The psychopathic characters were also often depicted as highly intelligent and evil, such that they fit the role of "supervillain". Leistedt and Linkowski's (2014) findings suggest that sensationalized media presents unrealistic versions of this personality disorder, which may be impacting lay theories regarding psychopathy. However, Smith and colleagues (2014) actually found that participants had a relatively low endorsement rate for psychopath being another word for "evil" and psychopathy being caused by a lack of morals. This is in contrast to Furnham and colleagues' (2009) finding that after reading a vignette describing a psychopath murdering their travel companion to steal their money, participants endorsed psychopaths having an overall deficit in morality. Smith and colleagues (2014) explain this differential finding by postulating that endorsing psychopaths to be "evil" and having moral impairments in the abstract, without being prompted by a description of a psychopath committing a heinous act, may occur less. Regardless, this inconsistency suggests that laypeople's attitudes about the relationship between psychopathy and morality should be further explored.

An identical study protocol to the one administered by Smith and colleagues (2014) was also administered to Swedish forensic mental health professionals (Sörman et al., 2014). The Attachment, Dominance, Emotional, and Self domains of the CAPP were rated as highly prototypical of a psychopath, and again the Cognitive domain had the lowest mean score of prototypicality ratings. Although these data from Smith and colleagues (2014) and Sörman and colleagues (2014) have not be compared statistically, it is interesting to note this pattern of the Dominance, Self, and Attachment domains being rated as highly prototypical of psychopathy and the Cognitive domain consistently having the lowest prototypicality ratings (Flórez et al., 2015; Kreis et al., 2012; Smith et al., 2014; Sörman et al., 2014). The Swedish forensic mental health professionals did not rate the foil and psychotic items as being prototypical of a psychopath (Sörman et al., 2014). Regarding these mental health professionals' attitudes towards psychopathy, they viewed psychopaths as more prone to crime than the typical criminal (as did jurors from Texas; Smith et al., 2014), however they disagreed that psychopaths are murderers or "evil" people. They failed to support or reject the ideas that psychopathy is caused by a lack of morals or values and that psychopaths are highly intelligent. Regarding treatment, participants endorsed the position that psychopathy is immutable and that there is no treatment that can cure a psychopath.

Lastly, Sörman and colleagues (2016) used the samples of Smith and colleagues (2014) and Sörman and colleagues (2014) again, but this time their focus was on variables' relatedness to boldness and neither on reporting general CAPP prototypical ratings nor general attitudinal ratings about psychopathy. The only new data that was collected and reported regarding general attitudes towards psychopathy in this article was

from a sample of 41 American probation officers who only answered about a third of the attitudinal questions that were administered by Smith and colleagues (2014) and by Sörman and colleagues (2014). These American probation officers endorsed psychopaths to be more intelligent, successful, and have better social skills than the average person. They also thought of psychopaths as violent criminals who could never change. However they rejected equating psychopathy to being “evil” and treating psychopaths more harshly than the average criminal. This mix of attitudes about psychopathy from different samples gives reason for additional investigation into what people think about this personality disorder.

Although Smith and colleagues (2014) reported on lay theories and attitudes about psychopathy from a sample of jurors from Texas, it would be useful to know how a more general sample would respond to these questions. If the general sample continues to have these mislead understandings about psychopathy, it would also be beneficial to know if problematic attitudes could be shifted and confusion about definitions could be alleviated.

Attitude Change

According to the Causal Attitude Network (CAN) model, attitudes can be understood as networks of interacting beliefs, behaviours, and feelings (Dalege, Borsboom, van Harreveld, van den Berg, Conner, & van der Maass, 2016). Put together, attitudes can be conceptualized as networks consisting of evaluative reactions and interactions between these reactions (Dalege et al., 2016). Evaluative reactions include behaviours, feelings, and beliefs toward the relevant object of the attitude (Dalege et al., 2016). Dalege and colleagues (2016) explain that “interactions between these reactions

arise through direct causal influences (e.g., the belief that snakes are dangerous causes fear of snakes) and mechanisms that support evaluative consistency between related contents of evaluative reactions (e.g., people tend to align their belief that snakes are useful with their belief that snakes help maintain ecological balance)” (p. 2).

A key factor to consider in attitude change is the use of experts. Experts are more likely to change people’s attitudes than nonexperts (Bohner, Ruder, & Erb, 2002; DeBono & Harnish, 1988; Pallak, Murrioni, & Koch, 1983; Petty, Cacioppo, & Goldman, 1981). Much research on attitude change has focused on the influential impact of “source variables” which refer to aspects of the source (or person) presenting the persuasive argument. A dominant source variable is expertise (Eagly & Chaiken, 1993; Cialdini & Goldstein, 2004; Rhine & Severance, 1970). This is likely because people generally believe the opinion of an expert to have a reputable basis, have much relevant knowledge, and be relatively valid (Bohner, Ruder, & Erb, 2002; French & Raven, 1960). A source’s credibility is linked to expertise (Priester & Petty, 2003). A study has found biological bases to support the influence of experts (Klucharev, Smidts, & Fernández, 2008). The authors showed how the use of experts was linked with attitude effects in a brain area related to learning, reward processing, and trustful behaviour, and how experts increased memory effects in brain areas involved with memory formation. These findings regarding learning and reward processing changes allude to the idea of behaviour change beyond attitude change.

It has been a long-standing finding that attitudes are correlated with and lead to an individual’s behaviour (e.g., Fazio & Zanna, 1978; Fishbein & Ajzen, 1975). Several meta-analyses have confirmed this finding across a variety of studies that examine the

attitude-behaviour link (Glasman & Albarracín, 2006; Kim & Hunter 1993a, 1993b; Kraus, 1995). In the sex offender literature, a meta-analysis revealed that attitudes supportive of sexual offending predict recidivism (Helmus, Hanson, Babchishin, & Mann, 2012). In legal contexts, studies have shown that death penalty attitudes are linked with conviction verdicts (Thompson, Cowan, Ellsworth, & Harrington, 1984), attitudes towards rape affect decisions in rape trials (Feild, 1978), and attitudes related to capital punishment predict capital sentencing (McKelvie, 2006). A meta-analysis examining the relationship between individual characteristics and guilt judgments found that attitudes such as “juror trust in the legal system” were associated with guilt judgments (Devine & Caughlin, 2014). This is important in the context of lay attitudes about psychopathy given that laypeople’s erroneous attitudes about psychopathy could affect their conviction decisions for individuals with the psychopath label when in legal and jury settings. Therefore, it is crucial to develop a thorough understanding of lay theories and attitudes about psychopathy, and to investigate if erroneous attitudes about the personality disorder can be altered.

Study 1 - Purpose

One limitation of the study by Smith and colleagues (2014) was that despite the strength of their sampling technique, their sample of Texan jurors was not likely a representative sample. The present study aimed to replicate this study using a more generalized sample of Americans and Canadians. Results from a more generalized sample can then be compared to the results found from the jurors from Texas (Smith et al., 2014) and from mental health experts’ CAPP ratings (Kreis et al., 2012). A number of research questions aim to be answered.

What aspects of psychopathy are subsumed by laypeople's definition of their prototypical psychopath and how do these compare to mental health experts? The CAPP domains of Dominance, Self, and Attachment have all been rated as highly prototypical of a psychopath by mental health experts and laypeople, and the Cognitive domain has consistently had the lowest prototypicality ratings (Flórez et al., 2015; Hoff et al., 2012; Kreis et al., 2012; Smith et al., 2014; Sörman et al., 2014). In addition, laypeople have also been found to rate psychotic items as being highly prototypical of a psychopath (Smith et al., 2014). Thus, I hypothesized that participants would rate the Dominance, Self, and Attachment domains of the CAPP, as well as the three items for psychosis, as being highly prototypical of a psychopath. I hypothesized that the Cognitive domain would not be rated as highly prototypical of a psychopath. I also hypothesized that participants' CAPP ratings would be similar to past experts' ratings (e.g., Kreis et al., 2012), but that overall mean scores would be lower.

Where do laypeople derive their information about psychopathy? Previous research reveals that fictional and real serial killers and mass murderers are consistently the dominant prototype of a psychopath for laypeople (Edens et al., 2013; Smith et al., 2014). There has been a recent increase in psychopaths being represented in popular culture and the media (Leistedt & Linkowski, 2014). I hypothesized that laypeople would derive most their information about psychopathy from movies and television.

What are laypeople's attitudes concerning the etiology, treatment, and behavioural manifestations of psychopathy? Participants were expected to have attitudes similar to those found by Furnham and colleagues (2009) and by Smith and colleagues (2014). In other words, I hypothesized that participants would liken

psychopaths to devious criminals and would endorse psychopaths as being highly intelligent. Based on findings by Smith and colleagues (2014) regarding moral judgement, I hypothesized that participants would reject the ideas of psychopathy being a synonym for “evil” and that psychopathy is caused by a lack of morals or values, but that participants would endorse that psychopaths are responsible for their actions and that they can understand the difference between right and wrong. I hypothesized that responses for biological and environmental origins and treatments of psychopathy would be varied, as previous endorsements of these items by laypeople are not in agreement (Furnham et al., 2009; Smith et al., 2014).

Study 1 - Method

Participants

A sample of 319 participants consented to complete an online Qualtrics survey. Of the 319 participants that consented, 9 participants did not continue the survey after consenting, 18 participants withdrew after only completing demographic information, and 6 participants were removed from analyses for failing attention check questions, which left 286 participants for analysis. Half of the participants were men ($n = 143$) and one participant identified their gender as other. The age range of participants was 19 to 79 with an average age of 39 ($SD = 11.79$). The sample was mostly Caucasian ($n = 225$, 78.7%), followed by Asian ($n = 17$, 5.9%) and Black ($n = 17$, 5.9%), and Hispanic/Latino ($n = 12$, 4.2%). Most participants either completed an undergraduate degree ($n = 112$, 39.2%) or had some undergraduate education ($n = 99$, 34.6%), while others only completed high school ($n = 38$, 13.3%), or had some graduate education or completed a graduate degree ($n = 33$, 11.5%).

Participants were recruited from the crowdsourcing platform Amazon Mechanical Turk (refer to as MTurk). On this platform, “workers” sign up to complete “Human Intelligence Tests” (refer to as HITs) for monetary credit. Completing our Qualtrics survey is an example of a HIT. MTurk assigned our online survey job to potential participants. These participants opened our link to be taken to our Qualtrics online survey. Participants were compensated \$1.00 for participating in our research. MTurk handles the compensation process. MTurk “workers” (i.e., our participants) receive small monetary credits for each “HIT” they complete (i.e. our Qualtrics survey). I set up a payment plan with MTurk and MTurk credits the participants with the amount we designated for our “HIT” (\$1.00). Workers have their own payment plans set-up with MTurk and typically are paid weekly for all the “HITs” they have completed. Participants were still paid even if they withdrew from the study. The inclusion criteria were: must be aged 18 years or older, and be from the United States of America or Canada.

Measures

Attention Checks. Two attention check items were included in the study. Participants were asked to select a specific number (e.g., for this question, select 6), and the items were embedded in the attitudinal questions.

Demographics. Participants were asked for their gender, age, ethnicity, and level of education. For both ethnicity and gender, participants were asked to select from a forced choice with the option to select “Other”, and there was room to specify.

Comprehensive Assessment of Psychopathic Personality (CAPP). The CAPP is used to assess psychopathic traits and was developed using a lexical approach (Cooke et al., 2012). The CAPP consists of 33 trait items subsumed by six domains: Dominance,

Self, Attachment, Behavioural, Emotional, and Cognitive. The CAPP's content validity has been assessed over several studies (Hoff et al., 2012; Kreis et al., 2012; Sörman et al., 2014). The meaning of each trait item of the CAPP is expanded on by the inclusion of three associated adjectives beside each trait item (e.g., Self-aggrandizing [self-important, conceited, condescending]).

The protocol by Kreis (2008) was followed in ordering the CAPP items for use in prototypicality analysis. Nine foil items (e.g., Strange, Perfectionist, Conscientious) were included that are unrelated to psychopathy as outlined by Kreis (2008). Three items were also added at random positions within the measure as a subscale for psychosis to measure participants' confusion between psychosis and psychopathy as performed by Smith and colleagues (2014). The three items were: Delusional Beliefs (unusual, strange, and idiosyncratic), Peculiar Behaviour (odd, unusual, and bizarre), and Disturbed Thinking (confused, disoriented, and vague). Participants were asked to rate their imagined prototype of a psychopath on each of the traits on a 7-point Likert scale (*1 = Not typical; 7 = Very typical*).

Knowledge and Attitudes about Psychopathy. Smith and colleagues (2014) developed a series of questions based on previous community surveys relating to psychopathy. We administered these questions to further our understanding of laypeople's attitudes about psychopathy. The first set of questions asked general knowledge ("Who is the first person who comes to mind to you as a typical psychopath?" "What sources of information have influenced what you think a psychopath is?" "Have you ever been the victim of a harmful act or acts by someone you consider a psychopath?" "How common are psychopaths in the community?" "How common do

you think psychopaths are in prisons?”). Then participants were also asked a series of 28 attitudinal questions that assessed a broad range of understandings about psychopathy. These questions are listed in Table 2 and are categorized based on previous research that used these categories (Smith et al., 2014). Items were rated on a 7-point Likert scale (*1 = Strongly Disagree; 7 = Strongly Agree*).

Table 2

Statements for measuring attitudes about psychopathy

Attitudinal items
<p>Association between psychopathy and criminal behaviour</p> <ul style="list-style-type: none"> Psychopaths are more likely to commit crimes than the average criminal is. Psychopaths are more likely to be violent than the average criminal is. Most psychopaths are murderers. Psychopaths are violent predators who prey on other people. There are many psychopaths who do not commit crimes.
<p>Legal and moral assessments of psychopathy</p> <ul style="list-style-type: none"> “Psychopath” is another word for describing a person who is basically evil. Psychopathic criminals should be treated more harshly by the criminal justice system than criminals who are not psychopaths. Psychopathy is caused by a lack of morals or values. If someone is a psychopath, we should be able to lock him or her up to protect society, even if he or she has not committed a crime. Psychopaths are responsible for their actions. Psychopaths can understand the difference between right and wrong. Some psychopaths can avoid getting into trouble with the criminal justice system. Psychopaths who commit crimes should be declared insane and hospitalized. Most psychopaths are in jails or prisons.
<p>Etiology</p> <ul style="list-style-type: none"> Psychopathy is caused by physical or mental abuse during childhood or adolescence. Psychopathy is caused by poor or inadequate parenting. Psychopathy is caused by brain damage (head injuries, tumors, etc.). Psychopathy is caused by genes or hereditary factors.
<p>Amenability to treatment</p> <ul style="list-style-type: none"> Psychopaths can never change; they will always be psychopathic. There is no treatment that can cure a psychopath. Criminal psychopaths can be rehabilitated.

Quasi-adaptive features

Psychopaths have better social skills than the average person.

Psychopaths are more likely to be successful in life than the average person is.

Being a psychopath can be helpful or advantageous in some jobs (such as, stock broker, attorney, politician).

It is easy to tell if someone is a psychopath.

Psychopathic criminals are less likely to get caught than the average criminal is.

Psychopaths are more intelligent than the average criminal is.

Psychopaths do not have stable, long-term relationships.

Procedure

Upon beginning the Qualtrics survey, participants were presented with an informed consent form (Appendix A) with the option to agree or disagree. Upon providing consent, participants were initially presented with demographics questions.

Participants were then asked to imagine their prototype of a psychopath, real or fictitious. They were asked to consider this prototype and rate how well each of the 33 trait items of the CAPP, the nine foil items, and the three psychosis trait items applied to their prototype.

After completing the CAPP, participants were next asked to name an individual whom they considered a prototypical psychopath (this was an open-ended question). They were then asked to identify what their sources of information about psychopathy were, as well as their knowledge of prevalence in community and corrections settings. Lastly, participants were presented with the 28 attitudinal items presented in random order to eliminate any order effects.

Participants were presented with a debriefing form (Appendix B) at the end of the survey which restated the purpose of the study and provided resources if participants had any questions or concerns. Participants had the option to withdraw from the study at any

time and would be immediately redirected to the debriefing form and still received compensation.

Analysis

Descriptive statistics are reported for mean CAPP item and domain scores. Convention was followed (Hoff et al., 2012; Kreis et al., 2012; Smith et al., 2014; Sörman et al., 2014) by considering item and domain scores rated between four and five as “moderately” prototypical and scores at five and above as “highly” prototypical. Independent samples *t*-tests were used to compare participants’ scores to international mental health experts’ scores (Kreis et al., 2012) on each CAPP item and domain to examine if laypeople’s definition of prototypical psychopathy differs from mental health professionals’ evaluations. Descriptive statistics are also reported for the sources of information that participants indicate they receive their information about psychopathy from. To evaluate laypeople’s attitudes about psychopathy and pinpoint which items were significantly rejected or endorsed about psychopathy, single sample *t*-tests comparing participants’ ratings of the attitudinal items to the midpoint of the scale were used. To assess whether attitudes about psychopathy may generalize across layperson populations, independent samples *t*-tests were used to compare participants’ scores with laypeople’s attitudinal scores collected by Smith and colleagues (2014).

Study 1 - Results

Prototypicality Ratings

Table 3 reports the descriptive statistics for the CAPP, psychosis, and foil domain and item scores.

Table 3

Descriptive statistics and comparisons of CAPP, foil, and psychosis trait ratings by current participants versus experts (Kreis et al., 2012)

Domain/items	Current Study		Kreis et al., 2012		<i>t</i>	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Attachment	5.42	1.10	5.85	0.41	4.35**	0.46
Unempathic	6.01	1.42	6.49	0.85	3.60**	0.38
Detached	5.69	1.36	5.64	1.32	0.35	-0.04
Uncaring	5.45	1.53	5.93	0.98	3.30**	0.35
Uncommitted	4.54	1.67	5.37	1.35	5.00**	0.53
Behavioural	4.54	1.18	5.49	0.38	9.03**	0.95
Reckless	4.74	1.76	5.75	1.07	6.09**	0.64
Aggressive	5.40	1.52	5.64	1.10	1.63	0.10
Disruptive	4.87	1.65	5.58	1.04	4.54**	0.48
Restless	4.50	1.55	5.16	1.42	4.15**	0.44
Unreliable	4.45	1.69	5.99	1.19	9.44**	0.99
Lacks perseverance	3.29	1.72	4.83	1.39	9.01**	0.95
Cognitive	4.36	1.04	4.73	0.51	3.88**	0.41
Inflexible	5.27	1.44	4.60	1.49	4.37**	-0.46
Suspicious	5.17	1.48	4.83	1.39	2.22*	-0.23
Intolerant	5.05	1.52	5.40	1.18	2.34*	0.25
Lacks concentration	3.31	1.71	3.84	1.48	3.07**	0.32
Lacks planfulness	3.02	1.78	5.00	1.46	11.16**	1.18
Dominance	5.70	0.99	5.73	0.69	0.31	0.03
Manipulative	6.25	1.16	6.44	0.74	1.73	0.18
Deceitful	6.02	1.26	6.27	0.73	2.12*	0.22
Domineering	5.90	1.28	5.72	1.13	1.38	-0.15
Insincere	5.67	1.40	6.26	0.83	4.49**	0.47
Antagonistic	5.48	1.57	5.19	1.35	1.83	-0.19
Garrulous	4.89	1.57	4.50	1.51	2.39*	-0.25
Emotional	5.08	0.88	5.20	1.27	1.12	0.12
Lacks remorse	6.26	1.20	6.56	0.72	2.66*	0.28
Lacks emotional depth	5.64	1.59	6.40	0.82	5.18**	0.55
Lacks emotional stability	5.19	1.60	4.74	1.72	2.60*	-0.28
Lacks anxiety	4.63	1.68	5.11	1.55	2.78*	0.29
Lacks pleasure	3.70	1.85	3.22	1.59	2.57*	-0.27
Self	5.56	0.97	5.69	0.76	1.36	0.14

Self-centered	6.15	1.17	6.48	0.69	3.01**	0.32
Sense of invulnerability	5.57	1.48	5.61	1.08	0.28	0.03
Sense of entitlement	5.75	1.33	6.03	1.29	2.02*	0.21
Sense of uniqueness	5.65	1.46	5.58	1.18	0.48	-0.05
Self-aggrandizing	5.81	1.29	6.14	0.84	2.69*	0.28
Self-justifying	5.68	1.56	6.03	1.03	2.35*	0.25
Unstable self-concept	4.34	1.81	3.96	1.69	2.04*	-0.21
Foil items	3.26	0.78				
Strange	5.24	1.36	3.03	1.47	15.04**	-1.58
Perfectionist	4.52	1.56	2.63	1.50	11.64**	-1.23
Conscientious	3.42	1.81	1.96	1.52	8.05**	-0.85
Restrained	3.44	1.84	2.46	1.48	5.27**	-0.57
Shy	2.97	1.61	1.66	1.13	8.44**	-0.89
Cautious	2.68	1.45	2.12	1.31	3.78**	-0.40
Self-conscious	2.49	1.56	3.14	2.01	3.60**	0.38
Dependent	2.65	1.68	2.41	1.41	1.43	-0.15
Considerate	1.90	1.29	1.67	1.25	1.71	-0.18
Psychotic Symptoms	5.26	1.37				
Delusional beliefs	5.50	1.57				
Peculiar behaviour	5.21	1.53				
Disturbed thinking	5.06	1.91				

Note. Psychosis symptom trait ratings were not collected in Kreis et al., 2012 and the domain score for the foil items was not reported. Sample sizes for independent samples *t*-tests ranged from 414-418.

* $p < .05$. ** $p < .005$.

Almost all CAPP items were found to be at least moderately prototypical (87.9%) and over half of the items were rated as highly prototypical (63.6%). The Lacks remorse, Manipulative, Self-centered, and Deceitful items were rated as most prototypical of a psychopath. Despite the overall high ratings some items were not seen as prototypical of psychopathy, including the Lacks planfulness, Lacks perseverance, Lacks concentration, and Lacks pleasure items. Most of the foil items were not rated as prototypical of psychopathy (except the Strange item was highly prototypical and the Perfectionistic item was moderately prototypical), while all the psychosis symptom items were rated as highly prototypical of psychopathy.

At the domain level the Dominance domain was seen as the most prototypical of psychopathy, followed by Self and Attachment domains. Participants rated the Cognitive and Behavioural domains as least prototypical of a psychopath. All domains were rated as significantly more prototypical than the foil items domain (all comparisons were performed using paired sample *t*-tests, with *t*-values at or above $t=14.66$, $p < .001$).

For comparison purposes, Figure 1 presents scores from the current study alongside mental health expert ratings taken from a study by Kreis and colleagues (2012). Data for Figure 1 can also be found in Table 3, which also reports the results from independent samples *t*-tests that compare laypeople's CAPP rating means to expert CAPP rating means (Kreis et al., 2012) as well as the effect sizes that have been adjusted for differing sample sizes. The overall pattern of ratings remains fairly consistent, with the exception that experts rated several foil items as considerably less prototypical than laypeople. Additionally, laypeople's scores tended to be lower across all items than expert ratings. Although most item ratings between samples were significantly different likely due to the large sample sizes, experts endorsed CAPP ratings particularly higher than laypeople for three items: Lacks planfulness, $d = 1.18$, Unreliable, $d = 0.99$, and Lacks perseverance, $d = 0.95$. Differences between laypeople's and experts' ratings of foil items varied considerably, with effect sizes ranging from very large (e.g., Strange, $d = -1.58$) to small (Dependent, $d = -0.15$). In terms of domain scores, laypeople rated all CAPP domains as less prototypical than experts.

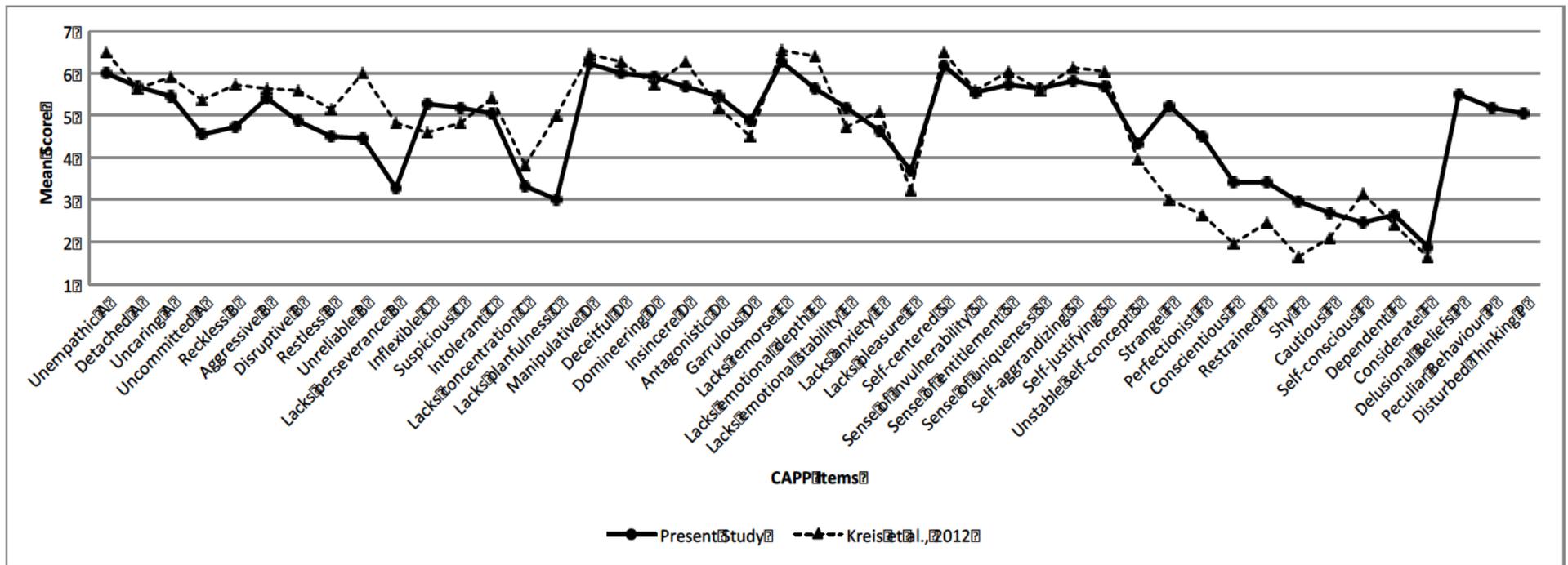


Figure 1. Participants' Comprehensive Assessment of Psychopathic Personality (CAPP), foil, and psychosis trait ratings compared to expert ratings (Kreis et al., 2012). Psychosis symptom trait ratings were not collected in Kreis et al., 2012. A = Attachment; B = Behavioural; C = Cognitive; D = Dominant; E = Emotional; S = Shy; F = Foil; P = Psychosis Symptoms.

Knowledge and Attitudes about Psychopathy

Participants were asked to provide an open response to the question, “Who is the first person who comes to mind to you as a typical psychopath?” Figure 2 summarizes the most common categories of responses. Most participants identified either a known serial killer or a fictional character from television or movies. There were a wide variety of responses provided for known serial killers but the most common were Ted Bundy (13.3%) and Jeffrey Dahmer (9.1%). There was a broad array of fictional character responses, but generally participants described serial killers from popular shows and movies. Frequently identified characters included Hannibal Lecter (8.7%), Patrick Bateman (from the movie *American Psycho*; 4.9%), and Dexter Morgan (title character from the show “Dexter”; 4.2%).

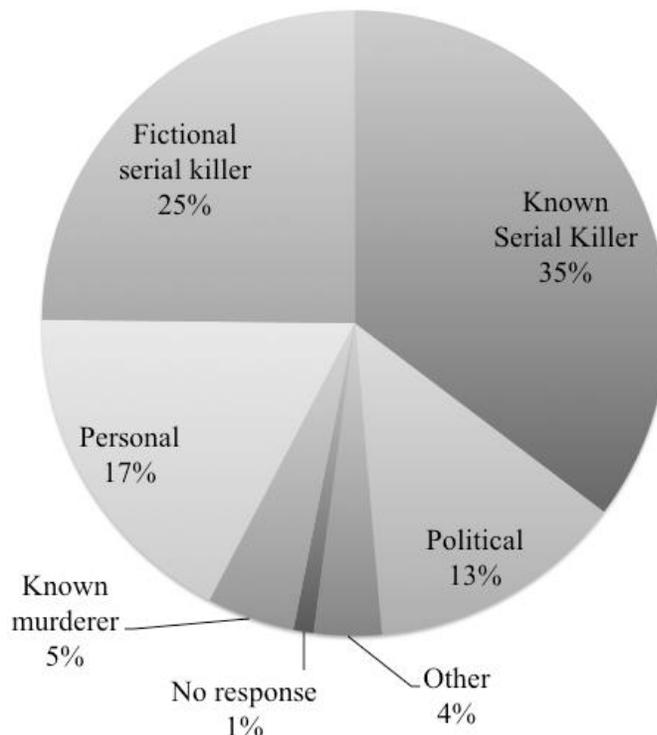


Figure 2. Categories of participants’ responses to the question, “Who is the first person who comes to mind to you as a typical psychopath?”

About 17% of participants identified someone they knew personally as the first person that comes to mind when they think of a psychopath. In addition, 15.7% of participants indicated that they believed they had been previously victimized by someone they considered a psychopath.

Table 4 provides participants' responses for their sources of information about psychopathy. Most participants endorsed media sources. The most common sources were film and television, news and documentaries, and the Internet. Books and magazines were endorsed less than intuition or gut feelings about psychopathy. Fewer than 10% of participants indicated that they had learnt about psychopathy from education or training, with less than 5% of participants endorsing an undergraduate psychology course as a source of information about psychopathy. Table 5 summarizes participants' perceived prevalence rates of psychopathy in the community and in prison. The majority of participants were not able to correctly assess the prevalence of psychopathy in the community. Almost the same amount of participants that correctly identified the prevalence of psychopathy in prison (one in ten) incorrectly endorsed one in a hundred as the prevalence rate, and the remaining 37.1% of participants also endorsed the prevalence of psychopathy in prison incorrectly.

Table 4

Participants' sources of information for psychopathy

Sources of information for psychopathy	Percent of endorsement		
	All	Women	Men
Movies/TV	85.3	82.3	88.1
News/Documentaries	72.7	67.4	77.6
The Internet	60.5	54.6	66.4
Intuition/Gut feeling	43.0	48.9	37.1
Books/Magazines	40.2	44.0	37.1
Personal Experience	25.2	27.7	23.1
Education/Training	9.8	7.8	11.9
Undergraduate psychology courses	4.5	3.5	5.6
Other	2.4	4.3	0.7
Religious background	0.3	0	0.7

Note. Participants were instructed to select all categories that apply.

Table 5

Participants' estimated prevalence rates of psychopathy

Estimated prevalence rates	Percent of endorsement		
	All	Women	Men
How common do you think psychopaths are in the community?			
One in five	0.7	0.7	0.7
One in ten	11.3	9.2	13.3
One in a hundred	34.6	34.8	32.9
One in a thousand	29.7	33.3	25.9
One in ten thousand	23.7	19.9	27.3
How common do you think psychopaths are in prisons?			
One in five	16.6	14.2	18.9
One in ten	32.5	34.8	28.7
One in a hundred	30.4	29.1	31.5
One in a thousand	17.3	17.0	17.5
One in ten thousand	3.2	2.8	3.5

Table 6 reports participants' responses to the 28 attitudinal questions and the results of independent samples *t*-tests used to compare responses to the same questions answered by another sample of laypeople (Smith et al., 2014).

Table 6

Participants' attitudes about psychopathy compared to another lay sample's attitudes using independent samples t-tests

Attitudinal items	Current Study		Smith et al., 2014		<i>t</i>	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Association between psychopathy and criminal behaviour						
Psychopaths are more likely to commit crimes than the average criminal is.	4.69	1.59	4.78	1.82	0.67	0.05
Psychopaths are more likely to be violent than the average criminal is.	4.75	1.56	4.52	1.82	1.72	-0.13
Most psychopaths are murderers.	2.80	1.67	3.34	1.56	4.33**	0.34
Psychopaths are violent predators who prey on other people.	4.55	1.67	4.30	1.66	1.93	-0.15
There are many psychopaths who do not commit crimes.	5.15	1.53	4.69	1.60	3.77**	-0.29
Legal and moral assessments of psychopathy						
“Psychopath” is another word for describing a person who is basically evil.	3.79	2.02	3.66	1.84	0.87	-0.07
Psychopathic criminals should be treated more harshly by the criminal justice system than criminals who are not psychopaths.	3.18	1.87	3.23	1.71	0.36	0.03
Psychopathy is caused by a lack of morals or values.	3.91	1.89	3.76	1.81	1.05	-0.08
If someone is a psychopath, we should be able to lock him or her up to protect society, even if he or she has not committed a crime.	2.49	1.72	2.63	1.60	1.09	0.09
Psychopaths are responsible for their actions.	5.88	1.25	4.92	2.03	7.05**	-0.55
Psychopaths can understand the difference between right and wrong.	4.68	1.75	4.43	1.77	1.83	-0.14
Some psychopaths can avoid getting into trouble with the criminal justice system.	5.63	1.24	5.00	1.63	5.47**	-0.43

Psychopaths who commit crimes should be declared insane and hospitalized.	3.89	1.72	3.59	1.80	2.18*	-0.17
Most psychopaths are in jails or prisons.	2.55	1.34	2.85	1.53	2.65*	0.21
Etiology						
Psychopathy is caused by physical or mental abuse during childhood or adolescence.	3.81	1.54	4.11	1.56	2.49*	0.19
Psychopathy is caused by poor or inadequate parenting.	3.04	1.62	3.56	1.64	4.10**	0.32
Psychopathy is caused by brain damage (head injuries, tumors, etc.).	3.15	1.44	3.62	1.41	4.25**	0.33
Psychopathy is caused by genes or hereditary factors.	4.34	1.53	4.08	1.38	2.32**	-0.18
Amenability to treatment						
Psychopaths can never change; they will always be psychopathic.	4.67	1.71	4.09	1.66	4.44**	-0.35
There is no treatment that can cure a psychopath.	4.60	1.72	4.06	1.88	3.83**	-0.30
Criminal psychopaths can be rehabilitated.	3.16	1.54	3.52	1.55	3.00**	0.23
Quasi-adaptive features						
Psychopaths have better social skills than the average person.	3.59	1.65	3.58	1.57	0.08	-0.01
Psychopaths are more likely to be successful in life than the average person is.	3.76	1.72	3.45	1.46	2.54*	-0.20
Being a psychopath can be helpful or advantageous in some jobs (such as, stock broker, attorney, politician).	4.38	2.03	3.56	1.77	5.61**	-0.44
It is easy to tell if someone is a psychopath.	2.46	1.32	2.72	1.68	2.17*	0.17
Psychopathic criminals are less likely to get caught than the average criminal is.	4.29	1.61	4.11	1.39	1.56	-0.12
Psychopaths are more intelligent than the average criminal is.	4.68	1.57	4.34	1.67	1.90	-0.09
Psychopaths do not have stable, long-term relationships.	4.54	1.69	4.24	1.71	2.27*	-0.18

Note. Item ratings range from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). Boldface indicates mean rating significantly differs from the midpoint of the scale at $p < .05$. Sample sizes for independent samples t -tests ranged from 683-685.

* $p < .05$. ** $p < .005$.

Although the first person that comes to mind when these participants think of a typical psychopath is often a known or fictional serial killer or murderer, participants rejected the statement that most psychopaths are murderers, while their endorsement of equating “psychopathy” to “evil” did not differ from the midpoint of the scale. They tended to believe psychopaths should not be treated more harshly by the criminal justice system and are able to avoid contact with the criminal justice system. In fact, the most highly endorsed attitude was “Psychopaths are responsible for their actions,” followed by “Some psychopaths can avoid getting into trouble with the criminal justice system.” Independent samples *t*-tests were used to compare participants’ responses to Texan jurors’ responses to the same questions (Smith et al., 2014). Only one item achieved a medium effect size: while both samples significantly endorsed “Psychopaths are responsible for their actions”, the current participants endorsed this item significantly more than the jurors in 2014, $t(683) = 7.05, p < .005$, Cohen’s $d = -0.55$. This finding is consistent with Power’s research (2017), as he also found that a sample of laypeople deemed psychopaths to be responsible for their actions.

Gender

Independent samples *t*-tests were used to compare how men versus women responded to survey questions. Regarding the CAPP, foil, and psychosis symptom prototypicality ratings, men’s and women’s responses differed significantly for seven items and twice at the domain level. Table 7 reports the independent samples *t*-test results comparing women’s and men’s CAPP, foil, and psychosis symptom trait ratings, and Figure 3 displays the means graphically. Women rated Sense of invulnerability, Sense of entitlement, and Lacks remorse as significantly more prototypical of psychopathy than

men. While men rated foil items consisting of Shy, Self-conscious, Cautious, and Considerate as significantly more prototypical of psychopathy than women.

Table 7

Descriptive statistics and comparisons of CAPP, foil, and psychosis trait ratings by women versus men

Domain/items	Women		Men		<i>t</i>	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Attachment	5.53	1.09	5.32	1.11	1.57	-0.05
Unempathic	6.13	1.29	5.90	1.53	1.39	-0.16
Detached	5.71	1.44	5.67	1.29	0.27	-0.03
Uncaring	5.55	1.50	5.35	1.58	1.09	-0.13
Uncommitted	4.71	1.60	4.37	1.72	1.72	-0.21
Behavioural	4.60	1.27	4.48	1.08	0.81	-0.10
Reckless	4.74	1.85	4.75	1.67	0.04	0.01
Aggressive	5.38	1.57	5.41	1.47	0.20	0.02
Disruptive	4.98	1.72	4.74	1.59	1.21	-0.15
Restless	4.52	1.58	4.49	1.52	0.19	-0.02
Unreliable	4.50	1.73	4.39	1.65	0.51	-0.07
Lacks perseverance	3.46	1.87	3.11	1.52	1.74	-0.21
Cognitive	4.40	1.10	4.33	0.98	0.57	-0.07
Inflexible	5.33	1.48	5.22	1.41	0.68	-0.08
Suspicious	5.11	1.61	5.26	1.34	0.87	0.10
Intolerant	5.15	1.56	4.96	1.45	1.06	-0.54
Lacks concentration	3.47	1.70	3.14	1.73	1.61	-0.19
Lacks planfulness	2.96	1.73	3.06	1.81	0.50	0.06
Dominance	5.77	1.06	5.64	0.91	1.06	-0.13
Manipulative	6.34	1.11	6.17	1.17	1.29	-0.15
Deceitful	6.16	1.22	5.90	1.28	1.73	-0.21
Domineering	5.94	1.40	5.88	1.13	0.37	-0.05
Insincere	5.77	1.44	5.58	1.36	1.12	-0.14
Antagonistic	5.40	1.73	5.56	1.41	0.85	0.10
Garrulous	5.02	1.66	4.77	1.48	1.35	-0.16
Emotional	5.14	0.91	5.02	0.86	1.13	-0.14
Lacks remorse	6.41	1.12	6.13	1.24	2.06*	-0.24
Lacks emotional depth	5.77	1.52	5.50	1.65	1.39	-0.17

Lacks emotional stability	5.20	1.61	5.17	1.60	0.16	-0.02
Lacks anxiety	4.75	1.71	4.49	1.64	1.30	-0.16
Lacks pleasure	3.60	1.91	3.82	1.81	1.01	0.12
Self	5.69	1.00	5.45	0.94	2.07*	-0.25
Self-centered	6.24	1.16	6.05	1.17	1.39	-0.16
Sense of invulnerability	5.89	1.38	5.27	1.52	3.65**	-0.43
Sense of entitlement	5.99	1.25	5.52	1.36	2.99**	-0.35
Sense of uniqueness	5.78	1.49	5.53	1.44	1.45	-0.17
Self-aggrandizing	5.87	1.34	5.76	1.25	0.69	-0.09
Self-justifying	5.83	1.52	5.54	1.60	1.56	-0.19
Unstable self-concept	4.23	1.85	4.48	1.76	1.13	0.14
Foil items	3.13	0.76	3.39	0.78	2.90**	0.34
Strange	5.23	1.42	5.23	1.31	0.01	0.00
Perfectionist	4.43	1.61	4.62	1.52	1.03	0.12
Conscientious	3.29	1.76	3.56	1.84	1.27	0.15
Restrained	3.53	1.90	3.37	1.79	0.76	-0.09
Shy	2.65	1.48	3.29	1.68	3.38**	0.40
Cautious	2.46	1.37	2.89	1.50	2.56*	0.30
Self-conscious	2.20	1.44	2.78	1.62	3.19**	0.38
Dependent	2.60	1.72	2.73	1.65	0.66	0.08
Considerate	1.73	1.20	2.07	1.36	2.23*	0.27
Psychotic Symptoms	5.32	1.37	5.19	1.38	0.79	-0.10
Delusional beliefs	5.61	1.56	5.39	1.58	1.18	-0.14
Peculiar behaviour	5.24	1.59	5.17	1.47	0.37	-0.05
Disturbed thinking	5.11	1.95	5.01	1.89	0.41	-0.05

Note. Sample sizes for independent samples *t*-tests ranged from 280-284.

* $p < .05$. ** $p < .005$.

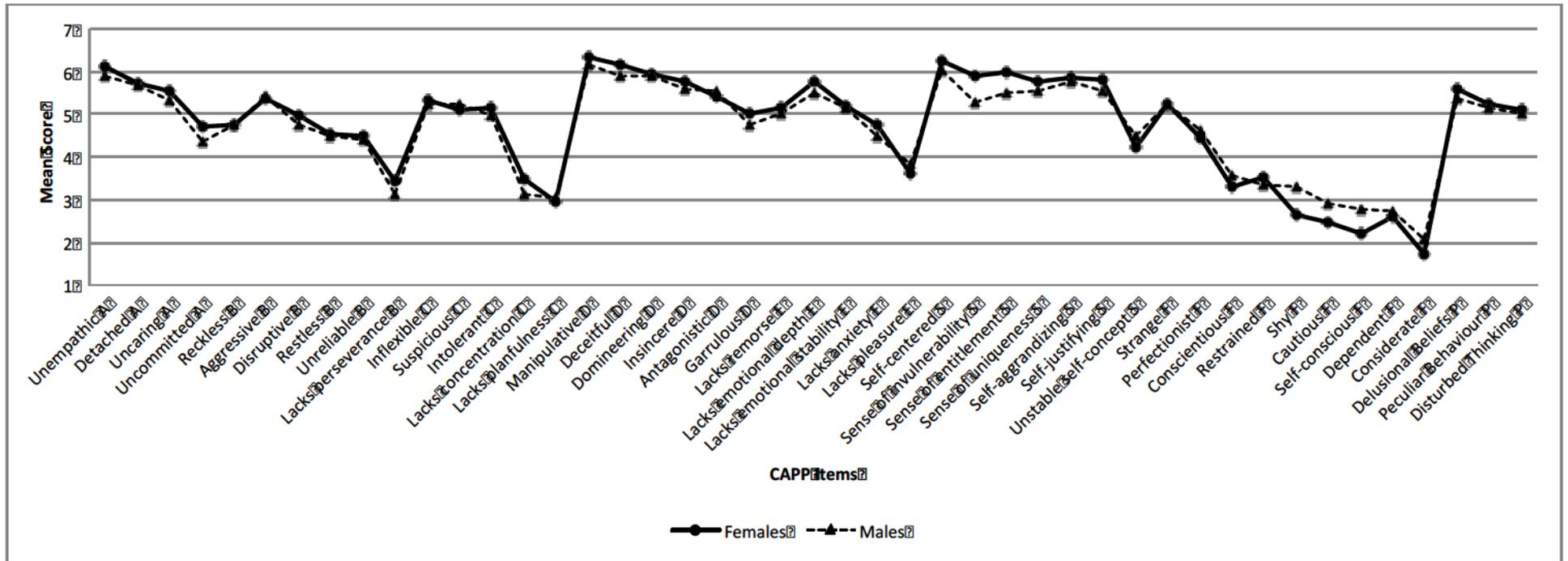


Figure 3. Women’s and men’s Comprehensive Assessment of Psychopathic Personality (CAPP), foil, and psychosis trait ratings. A = Attachment; B = Behavioural; C = Cognitive; D = Dominant; E = Emotional; S = Shy; F = Foil; P = Psychosis Symptoms.

At the domain level, women rated items in the Self domain as being significantly more prototypical of psychopathy than men, and men rated the foil items as being significantly more prototypical of psychopathy than women.

Table 5 reports the different genders' sources of information for psychopathy, and Table 6 reports each gender's estimation of prevalence rates of psychopathy in the community and in prison. Women (20.9%) indicated that they have been the victims of someone they consider to be a psychopath significantly more than men (11.3%) did, $t(279) = 2.2, p < .05$. Responses for six attitudinal statements differed significantly between genders. Table 8 reports women's and men's responses to the 28 attitudinal questions and the results of independent samples *t*-tests used to compare these responses. Women endorsed "psychopaths are more likely to commit crimes than the average criminal", "psychopaths can never change; they will always be psychopathic", "there is no treatment that can cure a psychopathy", "psychopath' is another word for describing a person who is basically evil", and "psychopaths are more intelligent than the average criminal is" significantly more than men did. Unsurprisingly, women also endorsed "criminal psychopaths can be rehabilitated", significantly less than men did.

Table 8

Participants' attitudes about psychopathy split by gender and compared using independent samples t-tests

Attitudinal items	Women		Men		<i>t</i>	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Association between psychopathy and criminal behaviour						
Psychopaths are more likely to commit crimes than the average criminal is.	4.96	1.49	4.43	1.61	2.85*	-0.34
Psychopaths are more likely to be violent than the average criminal is.	4.82	1.57	4.68	1.55	0.76	-0.09
Most psychopaths are murderers.	2.93	1.67	2.68	1.67	1.22	-0.15
Psychopaths are violent predators who prey on other people.	4.74	1.55	4.39	1.76	1.80	-0.21
There are many psychopaths who do not commit crimes.	5.01	1.67	5.28	1.39	1.51	0.18
Legal and moral assessments of psychopathy						
“Psychopath” is another word for describing a person who is basically evil.	4.05	2.03	3.54	1.96	2.16*	-0.26
Psychopathic criminals should be treated more harshly by the criminal justice system than criminals who are not psychopaths.	3.39	1.88	3.00	1.84	1.74	-0.21
Psychopathy is caused by a lack of morals or values.	3.94	1.89	3.89	1.89	0.21	-0.03
If someone is a psychopath, we should be able to lock him or her up to protect society, even if he or she has not committed a crime.	2.65	1.81	2.35	1.64	1.48	-0.17
Psychopaths are responsible for their actions.	6.01	1.13	5.75	1.36	1.69	-0.21
Psychopaths can understand the difference between right and wrong.	4.87	1.69	4.51	1.79	1.73	-0.21
Some psychopaths can avoid getting into trouble with the criminal justice system.	5.56	1.27	5.69	1.22	0.86	0.10
Psychopaths who commit crimes should be declared insane and hospitalized.	3.92	1.65	3.83	1.79	0.43	-0.05

Most psychopaths are in jails or prisons.	2.69	1.38	2.43	1.29	1.58	-0.20
Etiology						
Psychopathy is caused by physical or mental abuse during childhood or adolescence.	3.79	1.56	3.85	1.52	0.34	0.04
Psychopathy is caused by poor or inadequate parenting.	2.89	1.58	3.18	1.66	1.51	0.18
Psychopathy is caused by brain damage (head injuries, tumors, etc.).	3.06	1.34	3.24	1.53	1.05	0.13
Psychopathy is caused by genes or hereditary factors.	4.33	1.51	4.37	1.55	0.21	0.03
Amenability to treatment						
Psychopaths can never change; they will always be psychopathic.	4.93	1.64	4.44	1.74	2.38*	-0.29
There is no treatment that can cure a psychopath.	4.87	1.70	4.38	1.69	2.39*	-0.29
Criminal psychopaths can be rehabilitated.	2.87	1.46	3.41	1.56	2.98**	0.36
Quasi-adaptive features						
Psychopaths have better social skills than the average person.	3.73	1.67	3.46	1.64	1.38	-0.16
Psychopaths are more likely to be successful in life than the average person is.	3.87	1.69	3.64	1.73	1.11	-0.14
Being a psychopath can be helpful or advantageous in some jobs (such as, stock broker, attorney, politician).	4.41	1.95	4.35	2.12	0.26	-0.03
It is easy to tell if someone is a psychopath.	2.44	1.21	2.46	1.39	0.17	0.02
Psychopathic criminals are less likely to get caught than the average criminal is.	4.47	1.64	4.10	1.56	1.96	-0.23
Psychopaths are more intelligent than the average criminal is.	4.87	1.46	4.50	1.64	1.98*	-0.24
Psychopaths do not have stable, long-term relationships.	4.54	1.75	4.56	1.64	0.08	0.01

Note. Item ratings range from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). Boldface indicates mean rating significantly differs from the midpoint of the scale at $p < .05$. Sample sizes for independent samples t -tests ranged from 278-284.

* $p < .05$. ** $p < .005$.

Study 1 - Discussion

Study 1 aimed to evaluate laypeople's understanding of psychopathy by having participants rate the prototypicality of a list of psychopathic, foil, and psychotic symptom traits. Prototypicality ratings were also compared to international mental health experts' ratings of the same psychopathic and foil traits. In addition, Study 1 assessed laypeople's attitudes about psychopathy and compared attitudinal ratings to another lay sample's attitudinal ratings. Lastly, the role of gender was examined to see if results differed between women and men. Overall, participants seemed to have somewhat of an understanding of psychopathy and its traits, but this understanding is confounded by several misconceptions which vary in severity, from relatively minor (e.g., psychopaths are perfectionistic and are unusually intelligent), to fundamental misunderstandings of the nature of the disorder (e.g., confusing psychopathy with psychosis).

Prototypicality Ratings

One of the initial goals of this research was to identify what traits are subsumed by laypeople's definition of their prototypical psychopath. By having participants rate the prototypicality of the list of psychopathic traits from the CAPP, insight was provided into which characteristics of psychopathy are understood by the general American and Canadian public to be central to the disorder. As hypothesized, the Dominance, Self, and Attachment domains of the CAPP, as well as the three psychotic items, were rated as being highly prototypical of a psychopath, and the Cognitive domain was not rated as highly prototypical of a psychopath. The Cognitive domain had the lowest mean trait rating score (aside from the Foil items).

Traits that were endorsed paint a profile of a callous, uncaring individual who lacks remorse and empathy and is manipulative and self-centered. The features most strongly endorsed by participants cluster under PCL-R Factor 1 characteristics of psychopathy (interpersonal and affective traits). This finding aligns with Item Response Theory research that demonstrates that PCL-R Factor 1 scores are most discriminating of the psychopathy construct both in adults and in youth (Cooke & Michie, 1997; Tsang et al., 2015). This suggests that laypeople's understanding at least partially matches up to experts' clinical definitions for assessing the disorder. These results suggest that there is an accurate lay understanding of psychopathy. However, some psychopathic traits were rejected and several nonpsychopathic traits were endorsed as being prototypical of a psychopath. Traits rejected consist of characteristics that are not necessarily understood to be central to a profile of a devious criminal mastermind, but may add to a comprehensive description of psychopathy (e.g., Lacks perseverance). Nonpsychopathic traits that were endorsed for describing a prototypical psychopath include symptoms of psychosis, strangeness, and perfectionism. Thus, the full results of participants' prototypicality ratings indicate that laypeople may not have a wholly accurate and comprehensive understanding of what it means to be a psychopath, and one wonders what may be causing this misguided understanding of psychopathy. The key to this query may be explained by examining where laypeople are getting their information about psychopathy.

As hypothesized, 85.3% of participants selected movies and television as a source of information about psychopathy. Therefore, it would be important to consider how psychopathy is portrayed in fictional media given this study's results that suggest that the

majority of laypeople derive their information about psychopathy from movies and television. Psychopaths are most often depicted as deranged killers or criminal masterminds in popular films (Leistedt & Linkowski, 2014). Many caricatures of psychopathy in fictional media are neither accurate nor full portrayals of the disorder (Leistedt & Linkowski, 2014). When considering that laypeople derive their information about psychopathy from movies and television and that fictional media depicts a skewed caricature of a psychopath (i.e., a psychopath that could be described by traits from the Dominance, Self, and Attachment domains of the CAPP but less so from the Cognitive CAPP domain) it is unsurprising that laypeople equate a psychopath to a manipulative, disturbed (which is a psychosis symptom), and deceitful individual. This also explains participants' highest trait ratings for the Dominance, Self, and Attachment CAPP domains and the Psychosis symptom items, and the Cognitive domain having the lowest mean CAPP domain rating score.

Regarding our lay sample's CAPP trait rating scores compared to a sample of international mental health experts, my hypotheses were confirmed such that as can be seen in Figure 1, participants' CAPP ratings were quite similar to experts' ratings (Kreis et al., 2012), but current participants' mean scores were mostly lower than experts'. Interestingly, CAPP ratings between the current lay sample and the expert sample generally retain similarity across items rated as being highly prototypical of psychopathy as well as items rated as not prototypical of psychopathy. It is possible that for the items consistently rated as being not prototypical of psychopathy, they may not be capturing important or core aspects of the disorder. For example, "Lacks concentration" and "Lacks pleasure" scores remain low across both lay and expert samples (Hoff et al., 2012; Kreis

et al., 2012) and thus previous researchers (e.g., Smith et al., 2014) have suggested that removing these items from the CAPP may be beneficial for increasing content validity.

While there were many similarities in trait ratings between the current lay sample and the expert sample (Kreis et al., 2012), it is also important to examine where there were significant differences in trait ratings. Independent samples *t*-tests comparing lay and expert samples' trait ratings yielded very large effect sizes (Cohen's $|d| > 1$) for three items: Strange (Cohen's $d = -1.58$), Perfectionist (Cohen's $d = -1.23$), and Lacks planfulness (Cohen's $d = 1.18$). First, Strange and Perfectionist were endorsed by the current lay sample significantly higher than the expert sample. This is understandable when considered in the context that laypeople tend to derive their information about psychopathy from movies in television, which often portray psychopaths as deranged and cunning masterminds. Strangeness and perfectionism fit in with these fictional caricatures of psychopathy. Although the Strange item was a Foil item, it could also fall under the Psychosis Symptoms category. Peculiar behaviour and Strange are arguably synonymous, thus it is unsurprising that their mean trait ratings were almost identical (Peculiar behaviour: $M = 5.21$, Strange: $M = 5.24$).

Second, Lacks planfulness was endorsed by the current lay sample significantly less than the expert sample. Lacks planfulness ($M = 3.02$) also yielded the lowest mean trait rating score out of all CAPP items in the current study. Thus, it could be argued that Lacks planfulness also should not be included in the CAPP. Although international mental health experts in 2012 endorsed Lacks planfulness as being highly prototypical of psychopathy (just barely; $M = 5.00$; Kreis et al., 2012), articles published since then have results that are inconsistent with this finding (Blais et al., 2014; Lyons, 2015).

Psychopathic offenders commit both reactive (in response to being provoked) and instrumental (goal-oriented, planned) violence (Blais et al., 2014; Lyons, 2015). Thus while some psychopaths lack planfulness, others are indeed planners.

Knowledge and Attitudes about Psychopathy

Identifying laypeople's definitional understanding of psychopathy and its traits was not the only goal of Study 1. Another goal was to uncover lay knowledge and attitudes about psychopathy.

Participants were asked: who comes to mind when you think of a typical psychopath? Consistent with previous studies (Edens et al., 2013; Smith et al., 2014), participants answered the question by most often naming known or fictional serial killers. Smith and colleagues account for this same finding by explaining that "participants' responses may have been heavily influenced by the availability heuristic because of exposure to mass media portrayals of psychopathy" (2014, p. 9). And since we know that psychopaths are portrayed as deranged killers in movies (Leistedt & Linkowski, 2014) and that laypeople often derive their information about psychopathy from movies and television, it is reasonable that the first person that comes to a layperson's mind when thinking of a typical psychopath is a serial killer. Fictional serial killer Patrick Bateman from *American Psycho* was named almost 5% of the time when participants were asked to name their typical psychopath. Patrick Bateman is an example of a named character that provides further support for the finding of psychosis symptoms being rated as highly prototypical. First, confusion could arise from the name of the movie as it could either be elongated to *American Psychopath* or *American Psychotic*. But more importantly, although throughout the movie Patrick Bateman appears to be a callous and unempathic

deranged killer whom continually exhibits instrumental, calculated violence, at the end of the movie, it is discovered that the whole time Bateman was simply having delusions, hallucinations (both are psychosis symptoms), and fantasies about these killings and that the killings never occurred. *American Psycho* was a popular movie that incorporated a mixture of serial killing, PCL-R Factor 1 psychopathic traits, and psychosis symptoms all into its main character. Thus, it is no surprise that laypeople are confusing psychopathy with psychosis.

Furthermore, other fictional characters such as Hannibal Lecter (named by 8.7% of participants as a typical psychopath) and Dexter Morgan (named by 4.2% of participants as a typical psychopath) are all examples of the exaggerated caricature of a psychopath found in fictional media that is actually an erroneous example of the disorder. These characters all are highly intelligent masterminds who cunningly avoid contact with the criminal justice system while committing continued instrumental acts of violence. As hypothesized, this is consistent with the current lay sample's erroneous endorsement of psychopaths being more intelligent than the average criminal, and also being less likely to get caught than the average criminal. These results support the finding that laypeople are deriving their information about psychopathy from movies and television. The biggest difference in responses between the current lay sample and Smith and colleagues' lay sample (2014) for who comes to mind when asked to think of a psychopath is the political figures category. Only 4% of participants named political figures in the study by Smith and colleagues (2014) whereas 13% of participants named political figures in the current study. This is possible due to the rise in associations between psychopathy and politicians. For example, researchers have mapped Donald Trump's personality profile

onto that of a psychopath (Ashcroft, 2016; Visser, Book, & Volk, 2016). In fact, 8% of participants named Donald Trump as their prototypical psychopath.

When participants were asked how common they think psychopaths are in the community, the highest percentage of people (34.6%) made the correct choice of one in a hundred. However, 53.4% of participants think the prevalence rate is lower, while 3.7% think the prevalence is higher. When participants were asked how common they think psychopaths are in the prison, again the highest percentage of people (32.5%) made the correct choice of one in a ten. Conversely, 50.9% of participants think the prevalence rate is lower, while 16.6% think the prevalence is higher. Smith and colleagues (2014) only asked for the community prevalence rate. Again, the highest percentage of participants (31.4%) made the correct choice of one in a hundred. This left 52.2% who thought the prevalence rate is lower and 13.4% who thought the prevalence rate is higher. These results cause one to wonder if education about community and prison prevalence rates could influence participants' answers to these questions.

Participants tended to identify known and fictional serial killers and murderers as the first person that comes to mind when they think of a psychopath. Thus it is fitting that participants significantly endorsed "psychopaths are more likely to commit crimes than the average criminal is", "psychopaths are more likely to be violent than the average criminal is", and "psychopaths are violent predators who prey on other people". However, participants actually rejected the idea that most psychopaths are murderers and endorsed that "there are many psychopaths who do not commit crimes". Moreover, I hypothesized that participants would reject that idea that "psychopath" is synonymous for "evil". While participants did not significantly reject this statement in comparison to the

midpoint of the scale, the mean score was only 3.79 and it did not significantly differ from the Texan jurors' mean score, which was significantly less than the midpoint of the scale (Smith et al., 2014). These findings allude to the idea that although laypeople may be accessing an availability heuristic of a deranged mastermind killer from movies and television as their prototypical psychopath, they may also recognize that not all psychopaths are these evil murderers.

Regarding moral assessments of psychopathy, I hypothesized that participants would reject that psychopathy is caused by a lack of morals or values. While participants did not significantly reject that "psychopathy is caused by a lack of morals or values" in comparison to the midpoint of the scale, the mean score is still below the midpoint of the scale and it did not significantly differ from the Texan jurors' mean score, which was significantly less than the midpoint of the scale (Smith et al., 2014). I also hypothesized that participants would endorse that psychopaths can understand the difference between right and wrong. Indeed, participants significantly endorsed "psychopaths can understand the difference between right and wrong" compared to the midpoint of the scale. The jurors from Texas also significantly endorsed this same statement (Smith et al., 2014). These findings support the burgeoning evidence that suggests that psychopaths are capable of moral reasoning, but are just more willing to engage in immoral actions (Aharoni et al., 2014; Cima et al., 2010; Marshall et al., 2016; Ritchie & Forth, 2016). I additionally hypothesized that participants would endorse the statement, "psychopaths are responsible for their actions". As hypothesized, participants did significantly endorse this statement in comparison to the midpoint of the scale, so much so that its mean score was the highest of all attitudinal statements ($M = 5.88$). It is also important to note that

although there were a number of significant differences between the current lay sample's attitudinal ratings and the sample of Texan jurors' ratings, most effect sizes were small or very small. Only the independent samples *t*-test comparing the two samples' ratings for "psychopaths are responsible for their actions" yielded a medium effect size (Cohen's $d = -0.55$). Although the Texan jurors also significantly endorsed this statement, the current lay sample endorsed this statement more strongly.

Although several attitudinal item scores differ significantly between the two samples, almost all items yielded mean scores from the two samples that were on the same side of the midpoint of the scale. Despite Smith and colleagues' (2014) concern about the generalizability of their findings, the results from this study indicates that there is indeed a certain degree of overlap and across lay samples' attitudes about psychopathy. Across these two lay samples, trends in attitudinal ratings indicate that there is more consistency than discrepancy for lay attitudes about psychopathy. However, two items yielded mean scores on either side of the midpoint of the scale between the two lay samples: "being a psychopathy can be helpful or advantageous in some jobs (such as, stock broker, attorney, politician)" and "psychopathy is caused by physical or mental abuse during childhood or adolescence". For "being a psychopathy can be helpful or advantageous in some jobs (such as, stock broker, attorney, politician)", the current lay sample significantly endorsed the statement while the Texan jurors rejected the statement.

These differential findings are understandable because first, 13% of the current sample named politicians as a prototypical psychopath, while only 4% of the Texan jurors named politicians as a prototypical psychopath. Second, there has been considerable coverage in the media on the corporate psychopath (Babiak, Neumann, &

Hare, 2010). Lastly, in this case it is argued that the current lay sample may have it right as a growing body of research (with articles published around when Smith et al., 2014 was published) indicates that psychopathic traits are commonly be found among those in corporate leadership positions in the workplace (Babiak et al., 2010; Mathieu, Babiak, Jones, Neumann, & Hare, 2012; Mathieu, Neumann, Babiak, & Hare, 2014; Mathieu, Neumann, Hare, & Babiak, 2014). While a causal mechanism of psychopathy leading to corporate leadership positions is not currently being argued, this line of literature continues to elucidate a connection between psychopathy and these workplace leadership positions in the corporate world (Mathieu et al., 2012; Mathieu et al., 2014a; Mathieu et al., 2014b). As for “psychopathy is caused by physical or mental abuse during childhood or adolescence”, the current lay sample rejected the statement significantly more than the Texan jurors, who did not significantly reject or endorse this statement. This finding provides an introduction to the inconsistent potpourri of findings regarding lay attitudes towards the etiology and treatment of psychopathy.

As hypothesized based on previous research (Furnham et al., 2009; Smith et al., 2014), responses for biological and environmental origins and treatments of psychopathy were varied. All four etiological statements and all three treatment statements yielded significantly different mean scores between the current lay sample’s ratings and the sample of Texan jurors’ ratings (Smith et al., 2014; $p < .005$ for all except for one independent samples t -test; $0.18 < \text{Cohen's } |d| < 0.35$). The current sample significantly rejected childhood abuse, poor parenting, and brain damage explanations, while they significantly endorsed genetic explanations of psychopathy. Not only did mean scores between the current lay sample’s ratings and the sample of Texan jurors’ ratings

significantly differ for all 4 etiological statements, but the pattern of findings between the two samples was also inconsistent. Smith and colleagues' lay sample did significantly reject poor parenting and brain damage explanations (though their mean scores significantly differed from the current lay sample's mean scores), but did not significantly endorse or reject childhood abuse or genetic explanations of psychopathy (2014).

As for treatments, the current lay sample significantly endorsed that psychopaths can never change and that there is no treatment that can cure a psychopath, and they significantly rejected that criminal psychopaths can be rehabilitated. However again the pattern of responses between lay samples was varied. The jurors from Texas also significantly rejected that criminal psychopaths can be rehabilitated (although their mean score for this item significantly differed from the current lay sample's mean score), however the Texan jurors failed to significantly endorse or reject that psychopaths can never change and that there is no treatment that can cure a psychopath. The literature reveals that likely there are genetic or "nature" etiological explanations of psychopathy (Blair, 2006; Blair, Peschardt, Budhani, Mitchell, & Pine, 2006; Boccardi et al., 2011; Kiehl et al., 2001; Viding, Blair, Moffitt, & Plomin, 2005), environmental or "nurture" etiological explanations of psychopathy (Farrington, Ullrich, & Salekin, 2010; Haapasalo & Pokela, 1999; Marshall & Cooke, 1999; Piquero, Farrington, Fontaine, Vincent, Coid, & Ullrich, 2012), and select effective treatments of psychopathy (Polaschek & Daly, 2013; Salekin et al., 2010; Wong & Olver, 2015). This inconsistent and scattered array of findings regarding lay attitudes about etiology and treatment of psychopathy begs one to

question if education could align lay attitudinal endorsements with the empirical findings about origins of psychopathy and its amenability to treatment.

Gender

The role of gender was examined a posteriori to investigate if women's and men's survey responses differed. Arguably the most interesting and important finding is that women (20.9%) indicated that they have been the victims of someone they consider to be a psychopath significantly more than men (11.3%) did. This finding provides context and supports an explanation for all other significant difference findings between genders, as there is a new but growing body of literature that suggests that women who have been the victims of someone they consider to be a psychopath likely have a good understanding of the disorder's characteristics (Brieman & Kosson, 2018; Ritchie et al., 2017) and may even better identify psychopathic traits in their male partner-offender than the man himself (Brieman & Kosson, 2018). Specifically, female victims' ratings (using a modified self-report psychopathy scale to be used on one's partner) of their male partner-offender's psychopathic traits significantly correlate with the man's PCL-R score and correlate better with the man's PCL-R score than the man's score on a self-report psychopathy scale (Brieman & Kosson, 2018). Perhaps women generally have a better or more thorough understanding of psychopathy than men, which our findings support. This context helps explain the rest of the significant difference findings between genders.

Regarding the CAPP, foil, and psychosis symptom prototypicality ratings, men's and women's responses differed significantly for seven items and twice at the domain level. Women rated sense of invulnerability, sense of entitlement, and lacks remorse as significantly more prototypical of psychopathy than men. While men rated foil items

consisting of shy, self-conscious, cautious, and considerate as significantly more prototypical of psychopathy than women. At the domain level, women rated items in the Self domain as being significantly more prototypical of psychopathy than men, and men rated the foil items as being significantly more prototypical of psychopathy than women. All of these findings support the idea that women may have a better understanding of psychopathy than men. Women successfully rating almost half of the foil items significantly lower than men suggests that women may have a deeper and more thorough understanding of what psychopathy is and what psychopathy is not.

When examining sources of information for psychopathy split by gender, it is arguably most interesting to note that women (27.7%) selected personal experience more often than men (23.1%). This further supports the idea that women's experience with psychopaths (potentially as a victim) could possibly be influencing their better understanding of the disorder than men. This notion is further supported by feminist scholars who argue that the role of a woman's personal experience as evidence is vital and important (Foss & Foss, 1994). Women (48.9%) also selected intuition and gut feeling more often than men (37.1%). Foss and Foss (1994) would argue that women's intuitions and gut feelings should still be taken seriously. Last, women additionally selected media sources (movies and television: 82.3%, and news and documentaries: 67.4%) less often as sources of information about psychopathy than men (movies and television: 88.1%, and news and documentaries: 77.6%). Thus, women are less often getting their information about psychopathy from the exaggerated and sensationalized caricatures of psychopaths in the media. Women also more often correctly identified the one in a hundred prevalence rate of psychopathy in the community (34.8%) and the one

in ten prevalence rate of psychopathy in prison (34.8%) than men (community: 32.9%, prison: 28.7%). Therefore, women may have a better understanding of both the characteristics and the prevalence of psychopathy.

Last, responses for six attitudinal statements differed significantly between genders. Women endorsed “psychopaths are more likely to commit crimes than the average criminal”, “psychopaths can never change; they will always be psychopathic”, “there is no treatment that can cure a psychopathy”, “‘psychopath’ is another word for describing a person who is basically evil”, and “psychopaths are more intelligent than the average criminal is” significantly more than men did. Unsurprisingly, women also endorsed “criminal psychopaths can be rehabilitated”, significantly less than men did. This paints a picture that women consider psychopaths to be untreatable, evil, and intelligent criminals more so than men do. This pattern of findings is understandable when considering the current findings that suggest that women have more personal experience with psychopaths and are more often victims of individuals they consider to be psychopaths, in combination with previous research that suggests that being a female victim of psychopathy is associated with elevated post-traumatic stress symptoms (Brieman & Kosson, 2018). Taking all of these findings into account makes it unsurprising that women have more negative and extreme attitudes about psychopathy than men.

Results of the current study allude to the idea that women may have more accurate knowledge about psychopathy, its associated traits, and its prevalence rates. These findings also support intriguing relationships between being a woman, being a victim of psychopathy, and having a greater understanding what psychopathy is. However,

investigating these relationships was not one of the primary goals of this work. Future research should further tease apart the associations and potential causal mechanisms between the role of being a woman and the role of being a victim regarding one's understanding or grasp of what psychopathy is and what psychopathy is not.

From the outset, a goal of this research was to examine whether lay conceptions and attitudes about psychopathy are still as muddled as previous research suggests. Indeed, trends in the attitudinal questions were comparable to a previous study of lay attitudes about psychopathy (Smith et al., 2014). Pronounced gaps between lay attitudes about psychopathy and what the literature reveals about psychopathy continue to exist in topics such as the intelligence, etiology, and treatment of psychopathy. The majority of lay participants are also still identifying incorrect prevalence rates of psychopathy. Additionally, Study 1 uncovers that laypeople are significantly confusing psychopathy with psychosis and are also rating a number of psychopathic traits as not describing a prototypical psychopath. These findings are problematic when considering that when laypeople are called to the jury, they are sometimes asked to make decisions about psychopaths; a disorder that they do not well understand. These findings are also troubling as one cannot avoid the detrimental and violent consequences of being in a relationship with a psychopathic individual if one does not have a grasp of what psychopathy is and is not. Thus, one wonders if simple, straightforward education about the disorder and its myths could change these erroneous attitudes and misconceptions about psychopathy.

Study 2 - Purpose

The present study seeks to test whether an experimental manipulation can have an educational effect on laypeople, changing their perceptions and attitudes about psychopathy to align with the scientific literature. Several meta-analyses have found a link between attitudes and behaviours (e.g., Glasman & Albarracín, 2006; Helmus et al., 2012; Kim & Hunter 1993a, b; Kraus, 1995). Studies in legal contexts and settings have found various relationships between attitudes about such things as rape, capital punishment, and the death penalty, and how these attitudes are associated with decisions regarding conviction verdicts and sentencing (Feild, 1978; McKelvie, 2006; Thompson et al., 1984). A meta-analysis also found that attitudes such as “juror trust in the legal system” were associated with guilty judgments (Devine & Caughlin, 2014). As we know from a sample of jurors in Texas (Smith et al., 2014) and from a community sample in the United Kingdom (Furnham et al., 2009), laypeople’s attitudes about psychopathy are often not aligned with the literature.

Study 1 reveals that a more recent sample of Americans and Canadians continue to have inaccurate understandings and attitudes about the disorder. This could have detrimental implications for 1) individuals with the psychopathy label, as jurors’ (and more broadly, laypeople’s) erroneous attitudes about psychopathy could impact their verdict decisions, and for 2) individuals seeking out a romantic partner, as laypeople’s misunderstandings about the disorder could lead them to end up in a relationship with a psychopathic individual and consequentially be a victim of physical, verbal, and emotional abuse. An examination into whether incorrect conceptions and attitudes about the psychopathic personality can be changed should be undertaken.

Study 2 aims to administer the protocol from Study 1, but then expose participants to either an educational video that covers myths about psychopathy or a control video that covers myths about dog training, and then reassess participants' CAPP trait ratings and attitudes about psychopathy. The goal of study 2 was to answer the following research question.

Can education have an impact on laypeople's beliefs and attitudes about psychopathy? I hypothesized that compared to controls, participants in the experimental condition would align their attitudes with the literature significantly more after viewing a video, with content derived from the literature, that defines psychopathy and dispels its myths. I also hypothesized that participants exposed to an educational video tackling myths about psychopathy will endorse lower foil and psychosis trait ratings. No specific hypotheses were made about changes on CAPP trait ratings since Study 1 participants had a relatively accurate perception of most psychopathic traits. I hypothesized that participants' endorsements of the prevalence of psychopathy will improve if they are exposed to the psychopathy myths video.

Study 2 – Pilot Study Purpose

Before administering the experimental manipulation with the two video conditions in the full study, I wanted to verify that the videos were clear, straightforward, and target desired change. Therefore I ran a pilot study to examine the effectiveness of the manipulation.

Study 2 – Pilot Study Method

Participants

A sample of 40 participants consented to complete an online Qualtrics survey. Of the 40 participants that consented, 1 participant withdrew after only completing demographic information, and 2 participants were removed from analyses for failing attention check questions. Participants were asked to watch both videos and together, the video durations added to about 8 minutes. Thus 2 more participants were removed who took under 3 minutes to complete the survey. This left 35 participants for analyses whom all took well over 8 minutes to complete the survey. Just over half of the participants were men (54.3%, $n = 19$). The age range of participants was 25 to 59 with an average age of 38 ($SD = 9.81$). The sample was mostly Caucasian ($n = 27, 77.1\%$), followed by Black ($n = 5, 14.3\%$), Asian ($n = 2, 5.7\%$), and one Native American (2.9%). Most participants had completed an undergraduate degree ($n = 18, 51.4\%$), while others had only completed a high school degree ($n = 8, 22.9\%$) or only had some undergraduate education ($n = 7, 20\%$). One participant had some graduate education or completed a graduate degree (2.9%) and one participant had only attempted a high school degree (2.9%).

Participants were recruited from the crowdsourcing platform MTurk. Participants were compensated \$1.00 for participating in our research. Participants were still paid even if they withdrew from the study. The inclusion criteria were: must be aged 18 years or older, and be from the United States of America. Canada was excluded from inclusion criteria from the pilot study and also from Study 2 as I decided that 1) I did not ask participants which country they were in in Study 1 and MTurk does not provide location

information, so I thought it best to focus in on one country moving forward, and 2) the lay study that Study 1 was most compared to consisted of an American lay sample (Smith et al., 2014) so it was best to move forward examining change in only American lay attitudes and understandings about psychopathy.

Procedure

The measures and procedures were identical to Study 1. See Appendix C for this study's informed consent form and Appendix D for the debriefing form. However then after completing the Study 1 protocol, participants watched a 3:26 minute video about myths about dog training and then a 3:49 minute video that defines psychopathy and discusses its myths (regarding violence, morality, etiology, treatment, and intelligence). Both videos have Dr. Adelle Forth describing myths associated with psychopathy or myths associated with dog training. Dr. Adelle Forth has extensive experience researching and providing workshops on the assessment of psychopathy. She is also the senior dog instructor for a dog training club and has been providing dog training classes for over 25 years. Then participants were asked to rate the extent to which they agreed with the following statements: "The focus of the second video was to define psychopathy and bust its myths", "The focus of the first video was to learn about dog training and bust its myths", "The content of each video was completely different", "If I had only watched the "Psychopathy Myths" video (and not the "Dog Training Myths" video) and then filled out the survey questions about psychopathy again, my answers to the survey questions about psychopathy would change", and "If I had only watched the "Dog Training Myths" video (and not the "Psychopathy Myths" video) and then filled out the survey questions about psychopathy again, my answers to the survey questions about psychopathy would

change”. Then participants were asked to think only about the psychopathy myths video and rate the extent to which they agreed with the following statements: “The video was clear and easy to understand”, “I learnt new information about psychopathy that I did not already know”, “The volume of the video was at an appropriate level”, “The definition of psychopathy was straightforward”, and “The dispelling of myths about psychopathy made sense and was informative”. Statement agreement was rated on a 7-point Likert scale (*1 = Strongly Disagree; 7 = Strongly Agree*).

Study 2 – Pilot Study Results

Descriptive statistics for answers to the post-video questions can be found in Table 9.

Table 9

Descriptive statistics for participants’ answers to the post-video questions

Post-video questions	<i>M</i>	<i>SD</i>
All videos		
The focus of the second video was to define psychopathy and bust its myths.	6.74	0.78
The focus of the first video was to learn about dog training and bust its myths.	6.60	1.12
The content of each video was completely different.	5.49	1.89
If I had only watched the “Psychopathy Myths” video (and not the “Dog Training Myths” video) and then filled out the survey questions about psychopathy again, my answers to the survey questions about psychopathy would change.	4.63	1.91
If I had only watched the “Dog Training Myths” video (and not the “Psychopathy Myths” video) and then filled out the survey questions about psychopathy again, my answers to the survey questions about psychopathy would change.	1.97	1.40
Psychopathy myths video		
The video was clear and easy to understand.	6.51	1.15
I learnt new information about psychopathy that I did not already know.	6.03	1.42
The volume of the video was at an appropriate level.	5.74	5.74

The definition of psychopathy was straightforward.	6.06	1.45
The dispelling of myths about psychopathy made sense and was informative.	6.20	1.32

Note. Boldface indicates mean rating significantly differs from the midpoint of the scale at $p < .05$.

Study 2 – Pilot Study Discussion

All the responses to post-video questions yielded mean scores that significantly differed from the midpoint of the scale in the desired direction except for one item. The mean score for, “If I had only watched the “Psychopathy Myths” video (and not the “Dog Training Myths” video) and then filled out the survey questions about psychopathy again, my answers to the survey questions about psychopathy would change” came just short of significantly differing from the midpoint of the scale, $t(34) = 1.95, p = .06$. Recognizing that this item almost reached significance and considering that items such as, “I learnt new information about psychopathy that I did not already know” and “The dispelling of myths about psychopathy made sense and was informative” were heavily endorsed, I moved forward with using these videos in Study 2.

Study 2 – Method

Participants

A sample of 296 participants consented to complete an online Qualtrics survey. Of the 296 participants that consented, 12 participants did not continue the survey after consenting and 25 participants were removed from analyses for failing attention check questions, which left 259 participants for analysis. 46.7% of the participants were men ($n = 121$). The age range of participants was 18 to 72 with an average age of 40 ($SD = 12.43$). The sample was mostly Caucasian ($n = 195, 75.3\%$), followed by Asian ($n = 22, 8.5\%$), Black ($n = 21, 8.1\%$), and Hispanic/Latino ($n = 10, 3.9\%$). Many participants had

completed an undergraduate degree ($n = 103$, 39.8%). Others had some undergraduate education ($n = 62$, 23.9%), had some graduate education or completed a graduate degree ($n = 51$, 19.7%), or had only completed high school ($n = 42$, 16.2%).

Participants were recruited from the crowdsourcing platform MTurk. Participants were compensated \$1.00 for participating in our research. Participants were still paid even if they withdrew from the study. The inclusion criteria were: must be aged 18 years or older, and be from the United States of America.

Procedure

The measures and procedures were identical to Study 1. See Appendix E for this study's informed consent form and Appendix F for the debriefing form. However, after completing the Study 1 protocol, participants were randomly assigned to either watch the 3:26 minute video about myths about dog training (the experimental condition; see Appendix G for video script) or the 3:49 minute video that defines psychopathy and discusses its myths (the control condition; see Appendix H for video script). After cleaning the data, this left 130 participants who viewed the psychopathy myths video and 129 participants who viewed the dog training myths video. Then participants were asked to answer the same questions from before watching the video (i.e., the Study 1 questions) again. The only question that was left out in Study 2 was the question asking participants what sources of information they used to obtain information about psychopathy, as answers to this question could not be influenced by which of the two videos participants watch. Also, although responses to "who is the first person who comes to mind to you as a typical psychopath?" were collected, the data was not analyzed as from the outset, the goals of this study were to examine the effects of the experimental manipulation on the

attitudinal questions; the CAPP, foil, and psychosis symptom trait ratings; and the endorsements of the prevalence of psychopathy.

Study 2 – Results

Prototypicality Ratings

Table 10 reports the descriptive statistics for participants' prototypicality ratings pre and post-video split by condition. Figure 4 displays this data visually for the psychopathy myths condition and Figure 5 for the dog training myths condition.

Table 10

Descriptive statistics for participants' prototypicality ratings pre and post-video split by condition

Domain/items	Psychopathy		Dog Training	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Attachment				
Pre-video	5.61	1.18	5.33	1.37
Post-video	5.54	1.13	5.25	1.30
Unempathic				
Pre-video	6.05	1.50	5.88	1.68
Post-video	6.13	1.22	5.80	1.60
Detached				
Pre-video	5.77	1.29	5.61	1.55
Post-video	5.71	1.48	5.37	1.50
Uncaring				
Pre-video	5.74	1.51	5.40	1.68
Post-video	5.63	1.57	5.35	1.57
Uncommitted				
Pre-video	4.88	1.73	4.43	1.79
Post-video	4.70	1.62	4.49	1.74
Behavioural				
Pre-video	4.74	1.32	4.48	1.38
Post-video	4.81	1.06	4.39	1.29
Reckless				
Pre-video	4.92	1.84	4.71	1.94
Post-video	5.72	1.44	4.63	1.70
Aggressive				
Pre-video	5.40	1.58	5.20	1.69

Post-video	5.15	1.42	5.16	1.62
Disruptive				
Pre-video	5.05	1.80	4.73	1.89
Post-video	4.93	1.63	4.71	1.75
Restless				
Pre-video	4.65	1.75	4.31	1.70
Post-video	4.23	1.63	3.97	1.68
Unreliable				
Pre-video	4.78	1.79	4.49	1.89
Post-video	4.86	1.64	4.29	1.84
Lacks perseverance				
Pre-video	3.65	1.87	3.44	1.85
Post-video	3.96	1.74	3.55	1.79
Cognitive				
Pre-video	4.50	1.13	4.37	1.28
Post-video	4.40	1.09	4.41	1.22
Inflexible				
Pre-video	5.38	1.41	5.29	1.61
Post-video	5.05	1.42	5.33	1.49
Suspicious				
Pre-video	5.25	1.59	5.13	1.66
Post-video	4.82	1.65	5.12	1.62
Intolerant				
Pre-video	5.18	1.65	4.78	1.89
Post-video	4.99	1.47	4.98	1.75
Lacks concentration				
Pre-video	3.48	1.78	3.41	1.85
Post-video	3.72	1.63	3.44	1.67
Lacks planfulness				
Pre-video	3.21	1.90	3.23	1.83
Post-video	3.47	1.73	3.16	1.79
Dominance				
Pre-video	5.64	1.14	5.47	1.36
Post-video	5.62	1.05	5.46	1.26
Manipulative				
Pre-video	6.15	1.42	5.98	1.58
Post-video	6.24	1.23	6.02	1.45
Deceitful				
Pre-video	6.05	1.37	5.67	1.73
Post-video	5.88	1.45	5.57	1.63
Domineering				
Pre-video	5.74	1.44	5.71	1.59
Post-video	5.82	1.51	5.63	1.52
Insincere				

Pre-video	5.61	1.65	5.48	1.66
Post-video	5.58	1.52	5.49	1.58
Antagonistic				
Pre-video	5.43	1.51	5.36	1.68
Post-video	5.28	1.51	5.27	1.69
Garrulous				
Pre-video	4.86	1.64	4.58	1.74
Post-video	4.91	1.58	4.77	1.67
Emotional				
Pre-video	5.05	1.08	4.97	1.13
Post-video	4.98	1.01	4.88	1.01
Lacks remorse				
Pre-video	6.15	1.42	6.09	1.50
Post-video	6.14	1.33	5.97	1.44
Lacks emotional depth				
Pre-video	5.44	1.64	5.72	1.63
Post-video	5.52	1.62	5.33	1.58
Lacks emotional stability				
Pre-video	5.22	1.76	4.88	1.94
Post-video	4.95	1.68	4.81	1.77
Lacks anxiety				
Pre-video	4.51	1.80	4.43	1.84
Post-video	4.69	1.94	4.43	1.77
Lacks pleasure				
Pre-video	3.93	1.84	3.74	1.88
Post-video	3.59	1.76	3.86	1.82
Self				
Pre-video	5.56	1.16	5.37	1.26
Post-video	5.45	1.14	5.36	1.30
Self-centered				
Pre-video	6.01	1.36	5.81	1.64
Post-video	5.84	1.33	5.84	1.49
Sense of invulnerability				
Pre-video	5.51	1.63	5.42	1.70
Post-video	5.59	1.41	5.45	1.55
Sense of entitlement				
Pre-video	5.72	1.51	5.58	1.70
Post-video	5.47	1.56	5.49	1.76
Sense of uniqueness				
Pre-video	5.75	1.62	5.19	1.85
Post-video	5.44	1.53	5.38	1.62
Self-aggrandizing				
Pre-video	5.52	1.62	5.46	1.75
Post-video	5.68	1.47	5.57	1.59

Self-justifying				
Pre-video	5.75	1.61	5.74	1.68
Post-video	5.52	1.49	5.52	1.78
Unstable self-concept				
Pre-video	4.79	1.85	4.42	1.93
Post-video	4.59	1.70	4.29	1.77
Foil items				
Pre-video	3.33	0.92	3.36	0.91
Post-video	3.25	1.06	3.46	0.93
Strange				
Pre-video	5.24	1.69	4.89	1.72
Post-video	4.67	1.70	4.98	1.67
Perfectionist				
Pre-video	4.42	1.70	4.57	1.60
Post-video	4.16	1.66	4.65	1.61
Conscientious				
Pre-video	3.24	1.81	3.64	2.00
Post-video	3.56	1.80	3.57	1.80
Restrained				
Pre-video	3.22	1.91	3.28	1.89
Post-video	3.02	1.74	3.52	1.85
Shy				
Pre-video	3.09	1.74	3.02	1.78
Post-video	3.02	1.70	3.12	1.73
Cautious				
Pre-video	2.88	1.81	2.95	1.79
Post-video	3.04	1.76	3.06	1.70
Self-conscious				
Pre-video	2.77	1.75	2.72	1.66
Post-video	2.65	1.62	2.88	1.70
Dependent				
Pre-video	2.96	1.89	2.98	1.85
Post-video	2.81	1.72	2.91	1.71
Considerate				
Pre-video	2.08	1.54	2.18	1.67
Post-video	2.31	1.57	2.46	1.64
Psychotic Symptoms				
Pre-video	5.33	1.44	4.93	1.64
Post-video	4.84	1.41	4.91	1.55
Delusional beliefs				
Pre-video	5.51	1.67	5.21	1.92
Post-video	5.12	1.55	5.06	1.72
Peculiar behaviour				
Pre-video	5.37	1.63	4.84	1.67

Post-video	4.69	1.68	4.93	1.67
Disturbed thinking				
Pre-video	5.11	1.91	4.76	2.03
Post-video	4.72	1.76	4.77	1.85

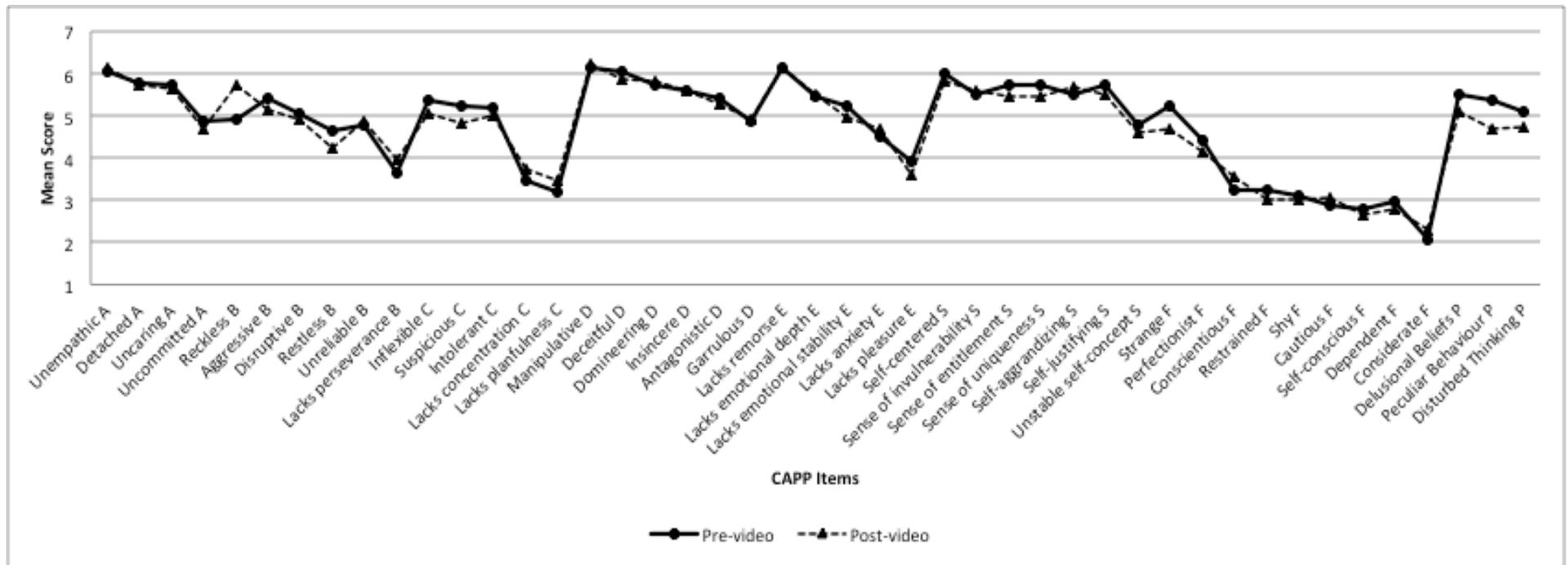


Figure 4. Participants' Comprehensive Assessment of Psychopathic Personality (CAPP), foil, and psychosis trait ratings in the psychopathy myths video condition. A = Attachment; B = Behavioural; C = Cognitive; D = Dominant; E = Emotional; S = Shy; F = Foil; P = Psychosis Symptoms.

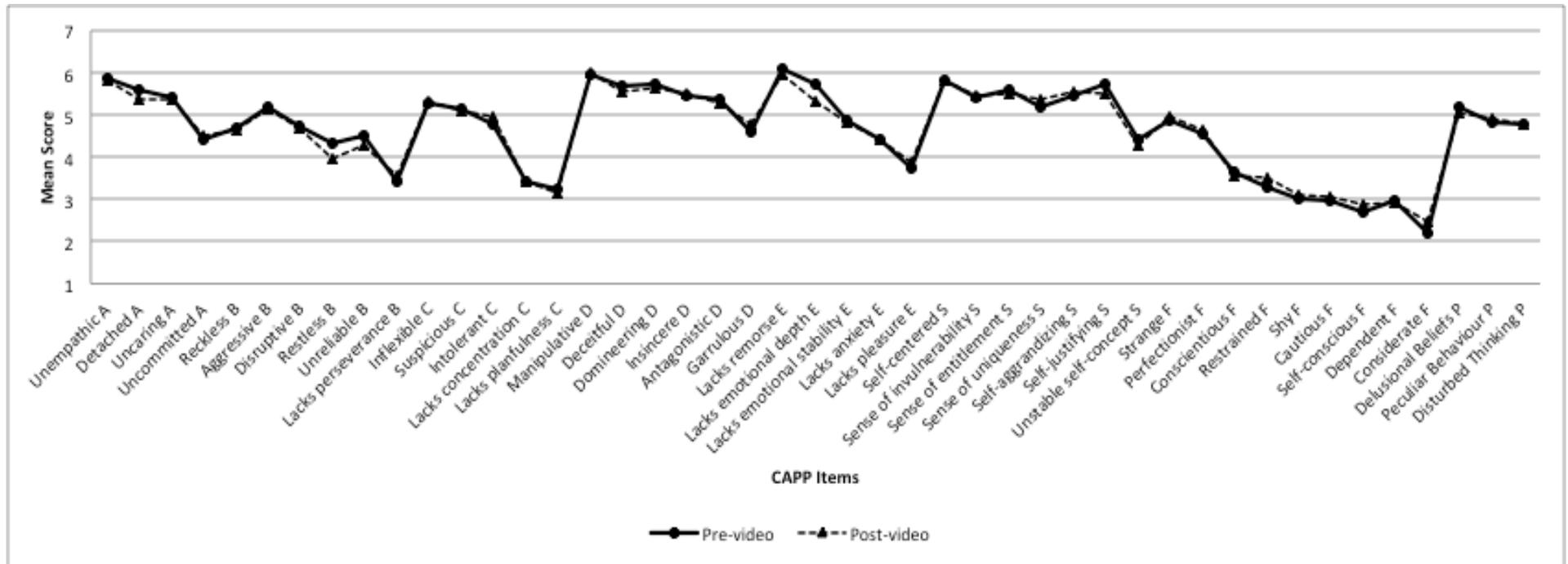


Figure 5. Participants' Comprehensive Assessment of Psychopathic Personality (CAPP), foil, and psychosis trait ratings in the dog training myths video condition. A = Attachment; B = Behavioural; C = Cognitive; D = Dominant; E = Emotional; S = Shy; F = Foil; P = Psychosis Symptoms.

No statistical assumptions were violated. To examine the effects of condition on attitudes towards psychopathy, mixed ANOVAs with time (pre-video scores versus post-video scores) and condition (psychopathy myths video versus dog training myths video) as independent variables were conducted to determine whether CAPP, foil, and psychosis symptom trait ratings changed after watching either the psychopathy myths or dog training myths videos. Item-level analyses were examined first.

No significant findings were found for items in the Attachment domain. Next, items in the Behavioural domain were considered. For “Reckless”, there was a significant main effect of time, $F(1, 256) = 12.02, p < .05, \eta_p^2 = .05$, and there was a significant time by condition interaction, $F(1, 256) = 17.71, p < .05, \eta_p^2 = .07$. Descriptive statistics reveal that while the mean score from the dog training myths video condition went down slightly after watching the video, the mean score from the psychopathy myths video condition went up after watching the video. For “Restless”, there was a significant main effect of time, $F(1, 256) = 15.22, p < .05, \eta_p^2 = .06$. Descriptive statistics reveal that over time, the mean scores from both conditions went down.

Items in the Cognitive domain were examined next. For “Inflexible”, there was a significant time by condition interaction, $F(1, 256) = 4.43, p < .05, \eta_p^2 = .02$. Descriptive statistics reveal that while the mean score from the psychopathy myths video condition went down after watching the video, the mean score from the dog training myths video condition went up slightly after watching the video. For “Suspicious”, there was a significant main effect of time, $F(1, 256) = 6.14, p < .05, \eta_p^2 = .02$, and there was a significant time by condition interaction, $F(1, 256) = 5.31, p < .05, \eta_p^2 = .02$. Descriptive statistics reveal that over time, the mean scores from both conditions went down, but only

slightly in the dog training myths video condition. For “Intolerant”, there was a significant time by condition interaction, $F(1, 257) = 4.49, p < .05, \eta_p^2 = .02$. Descriptive statistics reveal that while the mean score from the psychopathy myths video condition went down after watching the video, the mean score from the dog training myths video condition went up after watching the video. No significant findings were found for items in the Dominance domain.

Next, items from the Emotional domain were considered. For “Lacks emotional depth”, there was a significant time by condition interaction, $F(1, 257) = 5.04, p < .05, \eta_p^2 = .02$. Descriptive statistics reveal that while the mean score from the psychopathy myths video condition went up after watching the video, the mean score from the dog training myths video condition went down after watching the video. For “Lacks pleasure”, there was a significant time by condition interaction, $F(1, 257) = 4.23, p < .05$ (significance was barely reached; $p = .041$), $\eta_p^2 = .02$. Descriptive statistics reveal that while the mean score from the psychopathy myths video condition went down after watching the video, the mean score from the dog training myths video condition went up after watching the video. Items in the Self domain were analyzed next. For “Sense of entitlement”, there was a significant main effect of time, $F(1, 256) = 4.01, p < .05$ (significance was barely reached; $p = .046$), $\eta_p^2 = .02$. Descriptive statistics reveal that over time, the mean scores from both conditions went down. For “Sense of uniqueness”, there was a significant time by condition interaction, $F(1, 256) = 4.07, p < .05$ (significance was barely reached; $p = .045$), $\eta_p^2 = .02$. Descriptive statistics reveal that while the mean score from the psychopathy myths video condition went down after watching the video, the mean score from the dog training myths video condition went up

after watching the video. For “Self-justifying”, there was a significant main effect of time, $F(1, 257) = 5.52, p < .05, \eta_p^2 = .02$. Descriptive statistics reveal that over time, the mean scores from both conditions went down.

Foil items were examined next. For “Strange”, there was a significant main effect of time, $F(1, 256) = 6.57, p < .05, \eta_p^2 = .03$, and there was a significant time by condition interaction, $F(1, 256) = 13.52, p < .05, \eta_p^2 = .05$. Descriptive statistics reveal that while the mean score from the psychopathy myths video condition went down after watching the video, the mean score from the dog training myths video condition went up after watching the video. For “Restrained”, there was a significant time by condition interaction, $F(1, 255) = 4.24, p < .05, \eta_p^2 = .02$. Descriptive statistics reveal that while the mean score from the psychopathy myths video condition went down after watching the video, the mean score from the dog training myths video condition went up after watching the video. For “Considerate”, there was a significant main effect of time, $F(1, 257) = 5.52, p < .05, \eta_p^2 = .02$. Descriptive statistics reveal that over time, the mean scores from both conditions went up.

Lastly, items for symptoms of psychosis were analyzed. For “Delusional beliefs”, there was a significant main effect of time, $F(1, 256) = 7.51, p < .05, \eta_p^2 = .03$. Descriptive statistics reveal that over time, the mean scores from both conditions went down. For “Peculiar behaviour”, there was a significant main effect of time, $F(1, 255) = 10.54, p < .05, \eta_p^2 = .04$, and there was a significant time by condition interaction, $F(1, 255) = 15.31, p < .05, \eta_p^2 = .06$. Descriptive statistics reveal that while the mean score from the psychopathy myths video condition went down after watching the video, the

mean score from the dog training myths video condition went up slightly after watching the video. There were no other significant findings for “Disturbed thinking”.

Next, analysis moved to the domain-level. At the CAPP-domain level, there were no significant findings. For the Foil domain, there was a significant time by condition interaction, $F(1, 255) = 4.46, p < .05, \eta_p^2 = .02$ (see Figure 6). Descriptive statistics reveal that while the mean score from the psychopathy myths video condition went down after watching the video, the mean score from the dog training myths video condition went up after watching the video. For the Psychosis Symptoms at the domain level, there was a significant main effect of time, $F(1, 257) = 10.68, p < .05, \eta_p^2 = .04$, and there was a significant time by condition interaction, $F(1, 256) = 9.30, p < .05, \eta_p^2 = .04$ (see Figure 7). Descriptive statistics reveal that over time, the mean scores from both conditions went down, but only slightly in the dog training myths video condition.

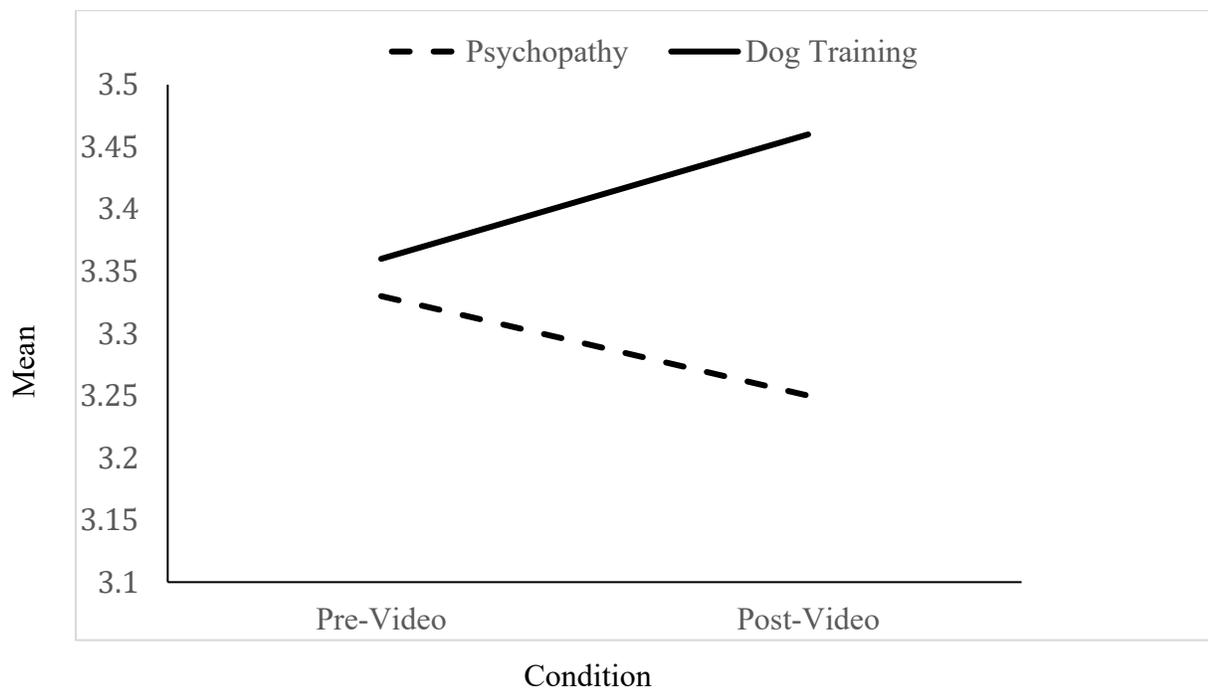


Figure 6. Plot of significant time by condition interaction for the Foils domain.

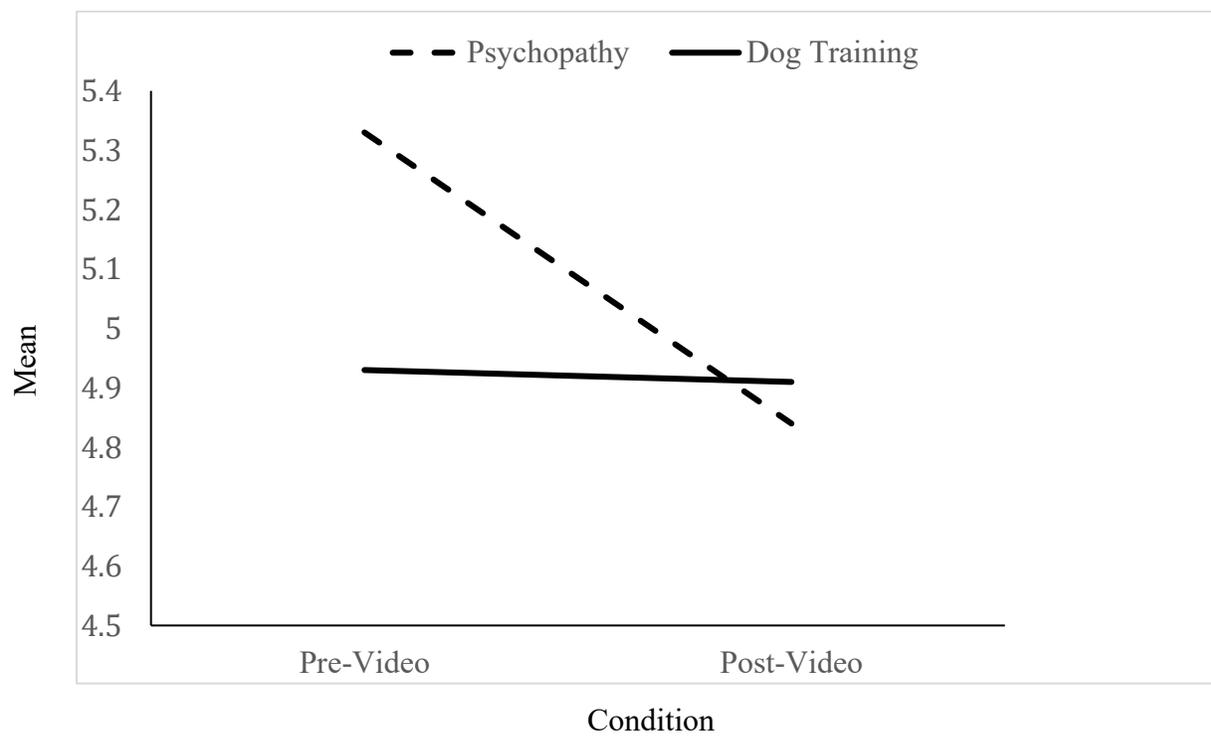


Figure 7. Plot of significant time by condition interaction for the Psychosis symptoms domain.

Knowledge and Attitudes about Psychopathy

Table 11 reports participants' perceived prevalence rates of psychopathy in the community and in prison pre and post-watching the video, split by condition.

Table 11

Participants' estimated prevalence of psychopathy pre and post-video split by condition

Estimated prevalence rates	Condition	
	Psychopathy	Dog Training
How common do you think psychopaths are in the community?		
One in five		
Pre-video	3.1%	4.7%
Post-video	5.4%	5.4%
One in ten		
Pre-video	10.8%	15.5%
Post-video	9.2%	18.6%
One in a hundred		
Pre-video	37.7%	39.5%
Post-video	36.9%	36.4%
One in a thousand		
Pre-video	30.8%	23.3%
Post-video	26.2%	22.5%
One in ten thousand		
Pre-video	17.7%	17.1%
Post-video	22.3%	16.3%
How common do you think psychopaths are in prisons?		
One in five		
Pre-video	22.3%	21.7%
Post-video	17.7%	20.9%
One in ten		
Pre-video	31.5%	36.4%
Post-video	46.9%	33.3%
One in a hundred		
Pre-video	33.1%	23.3%
Post-video	22.3%	29.5%
One in a thousand		
Pre-video	11.5%	15.5%
Post-video	10.0%	13.2%
One in ten thousand		
Pre-video	1.5%	2.3%
Post-video	3.1%	2.3%

Table 12 reports participants' responses to the 28 attitudinal questions pre and post-video split by condition. To examine the effects of condition on attitudes towards psychopathy, mixed ANOVAs with time and condition as independent variables were conducted to determine if attitudes about psychopathy changed after watching either the psychopathy myths or dog training myths videos.

Table 12

Participants' attitudes about psychopathy pre and post-video split by condition

Attitudinal items	Psychopathy		Dog Training	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Association between psychopathy and criminal behaviour				
Psychopaths are more likely to commit crimes than the average criminal is.				
Pre-video	4.85	1.60	4.80	1.59
Post-video	4.35	1.60	4.33	1.49
Psychopaths are more likely to be violent than the average criminal is.				
Pre-video	4.96	1.60	4.93	1.61
Post-video	4.49	1.75	4.53	1.57
Most psychopaths are murderers.				
Pre-video	2.93	1.79	3.04	1.87
Post-video	2.30	1.49	2.99	1.68
Psychopaths are violent predators who prey on other people.				
Pre-video	4.71	1.55	4.54	1.56
Post-video	3.89	1.59	4.23	1.59
There are many psychopaths who do not commit crimes.				
Pre-video	4.87	1.57	5.09	1.46
Post-video	5.54	1.36	5.20	1.50
Legal and moral assessments of psychopathy				
“Psychopath” is another word for describing a person who is basically evil.				
Pre-video	3.92	1.97	3.98	2.03
Post-video	3.03	1.89	3.77	2.04
Psychopathic criminals should be treated more harshly by the criminal justice system than criminals who are not psychopaths.				
Pre-video	3.29	1.93	3.47	1.88
Post-video	3.05	1.73	3.23	1.98
Psychopathy is caused by a lack of morals or values.				

Pre-video	4.04	1.90	3.91	2.02
Post-video	3.95	1.83	3.75	1.89
If someone is a psychopath, we should be able to lock him or her up to protect society, even if he or she has not committed a crime.				
Pre-video	2.82	1.74	2.71	1.90
Post-video	2.50	1.78	2.52	1.85
Psychopaths are responsible for their actions.				
Pre-video	5.67	1.52	5.70	1.53
Post-video	5.76	1.59	5.56	1.64
Psychopaths can understand the difference between right and wrong.				
Pre-video	4.41	1.83	4.47	1.84
Post-video	5.89	1.53	4.63	1.86
Some psychopaths can avoid getting into trouble with the criminal justice system.				
Pre-video	5.53	1.21	5.40	1.48
Post-video	5.39	1.58	5.27	1.46
Psychopaths who commit crimes should be declared insane and hospitalized.				
Pre-video	4.08	1.85	3.79	1.75
Post-video	3.39	1.84	3.54	1.76
Most psychopaths are in jails or prisons.				
Pre-video	2.72	1.46	2.74	1.52
Post-video	3.40	1.78	2.88	1.57
Etiology				
Psychopathy is caused by physical or mental abuse during childhood or adolescence.				
Pre-video	3.78	1.48	3.50	1.55
Post-video	5.00	1.49	3.42	1.69
Psychopathy is caused by poor or inadequate parenting.				
Pre-video	3.15	1.68	2.84	1.64
Post-video	4.53	1.69	3.05	1.69
Psychopathy is caused by brain damage (head injuries, tumors, etc.).				
Pre-video	3.04	1.53	3.13	1.54
Post-video	3.13	1.68	3.03	1.54

Psychopathy is caused by genes or hereditary factors.				
Pre-video	4.27	1.57	4.15	1.56
Post-video	4.52	1.60	3.99	1.63
Amenability to treatment				
Psychopaths can never change; they will always be psychopathic.				
Pre-video	4.81	1.76	4.80	1.61
Post-video	3.21	1.70	4.86	1.62
There is no treatment that can cure a psychopath.				
Pre-video	4.62	1.73	4.88	1.73
Post-video	2.95	1.84	4.75	1.70
Criminal psychopaths can be rehabilitated.				
Pre-video	3.01	1.63	3.21	1.66
Post-video	4.69	1.54	3.38	1.73
Quasi-adaptive features				
Psychopaths have better social skills than the average person.				
Pre-video	3.35	1.61	3.40	1.73
Post-video	3.39	1.48	3.72	1.67
Psychopaths are more likely to be successful in life than the average person is.				
Pre-video	3.33	1.67	3.65	1.78
Post-video	3.45	1.59	3.80	1.64
“Being a psychopath can be helpful or advantageous in some jobs (such as, stock broker, attorney, politician).”				
Pre-video	4.11	2.00	4.40	2.14
Post-video	4.30	1.88	4.41	2.03
It is easy to tell if someone is a psychopath.				
Pre-video	2.71	1.53	2.77	1.53
Post-video	2.54	1.50	2.76	1.65
Psychopathic criminals are less likely to get caught than the average criminal is.				
Pre-video	4.33	1.67	4.33	1.62
Post-video	3.52	1.57	4.29	1.50
Psychopaths are more intelligent than the average criminal is.				

Pre-video	4.57	1.64	4.53	1.64
Post-video	3.12	1.66	4.52	1.62
Psychopaths do not have stable, long-term relationships.				
Pre-video	4.55	1.71	4.19	1.82
Post-video	4.02	1.82	4.14	1.78

Note. Item ratings range from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). Boldface indicates mean rating significantly differs from the midpoint of the scale at $p < .05$.

The “Association between psychopathy and criminal behaviour” section was examined first. For “psychopaths are more likely to commit crimes than the average criminal is”, $F(1, 252) = 20.41, p < .05, \eta_p^2 = .08$, and for “psychopaths are more likely to be violent than the average criminal is”, $F(1, 253) = 15.08, p < .05, \eta_p^2 = .06$, there were significant main effects of time, such that over time, the mean scores from both conditions went down for both items. For “most psychopaths are murderers”, there was a significant main effect of time, $F(1, 254) = 17.14, p < .05, \eta_p^2 = .06$, and a significant time by condition interaction, $F(1, 254) = 11.59, p < .05, \eta_p^2 = .04$. Descriptive statistics reveal that over time, the mean scores from both conditions went down, but only slightly in the dog training myths video condition.

For “psychopaths are violent predators who prey on other people” and “there are many psychopaths who do not commit crimes”, there were significant main effects of time, $F(1, 253) = 39.20, p < .05, \eta_p^2 = .13$ and $F(1, 253) = 15.18, p < .05, \eta_p^2 = .06$ respectively, and significant time by condition interactions, $F(1, 253) = 8.90, p < .05, \eta_p^2 = .03$ and $F(1, 253) = 8.76, p < .05, \eta_p^2 = .03$. For “psychopaths are violent predators who prey on other people”, descriptive statistics reveal that over time, the mean scores from both conditions went down, however the mean score for the psychopathy myths video condition dropped considerably more than the mean score for the dog training myths video condition. For “there are many psychopaths who do not commit crimes”, descriptive statistics reveal the opposite pattern, such that over time, the mean scores from both conditions went up, however the mean score for the psychopathy myths video condition went up considerably more than the mean score for the dog training myths video condition.

The “Moral judgements and legal perspectives” section was considered next. For “most psychopaths are in jails or prisons”, there was a significant main effect of time, $F(1, 254) = 17.47, p < .05, \eta_p^2 = .06$, and a significant time by condition interaction, $F(1, 254) = 7.99, p < .05, \eta_p^2 = .03$. Descriptive statistics reveal that over time, the mean scores from both conditions went up, however the mean score for the psychopathy myths video condition went up considerably more than the mean score for the dog training myths video condition. For “‘psychopath’ is another word for describing a person who is basically evil” and for “psychopaths who commit crimes should be declared insane and hospitalized”, there were also significant main effects of time, $F(1, 254) = 42.24, p < .05, \eta_p^2 = .14$ and $F(1, 254) = 25.35, p < .05, \eta_p^2 = .09$ respectively, and significant time by condition interactions, $F(1, 254) = 18.24, p < .05, \eta_p^2 = .07$ and $F(1, 254) = 5.94, p < .05, \eta_p^2 = .02$ respectively. However the pattern of findings was reversed for both items: descriptive statistics reveal that over time, the mean scores from both conditions went down, however the mean score for the psychopathy myths video condition went down considerably more than the mean score for the dog training myths video condition.

For “psychopathic criminals should be treated more harshly by the criminal justice system than criminals who are not psychopaths”, $F(1, 254) = 11.14, p < .05, \eta_p^2 = .04$, and for “if someone is a psychopath, we should be able to lock him or her up to protect society, even if he or she has not committed a crime”, $F(1, 254) = 11.39, p < .05, \eta_p^2 = .04$, there were significant main effects of time, such that over time, the mean scores from both conditions went down for both items. For “psychopaths can understand the difference between right and wrong”, there was a significant main effect of time, $F(1, 254) = 62.98, p < .05, \eta_p^2 = .20$, and a significant time by condition interaction, $F(1, 254)$

= 40.89, $p < .05$, $\eta_p^2 = .14$. Descriptive statistics reveal that over time, the mean scores from both conditions went up, but only slightly in the dog training myths video condition. For “psychopathy is caused by a lack of morals or values”, “psychopaths are responsible for their actions”, and “some psychopaths can avoid getting into trouble with the criminal justice system”, there were no significant findings.

Next, the “Etiology” section was analyzed. For “psychopathy is caused by physical or mental abuse during childhood or adolescence”, there was a significant main effect of time, $F(1, 253) = 39.89$, $p < .05$, $\eta_p^2 = .12$, and a significant time by condition interaction, $F(1, 253) = 50.55$, $p < .05$, $\eta_p^2 = .15$. Descriptive statistics reveal that over time, while the mean score from the psychopathy myths video condition went up, the mean score from the dog training myths video went slightly down. For “psychopathy is caused by poor or inadequate parenting”, there was a significant main effect of time, $F(1, 254) = 58.50$, $p < .05$, $\eta_p^2 = .19$, and a significant time by condition interaction, $F(1, 254) = 30.79$, $p < .05$, $\eta_p^2 = .11$. Descriptive statistics reveal that over time, the mean scores from both conditions went up, but only slightly in the dog training myths video condition. For “psychopathy is caused by brain damage (head injuries, tumors, etc.)” and “psychopathy is caused by genes or hereditary factors”, there were no significant findings.

The “Immutability” section was evaluated next. For “psychopaths can never change; they will always be psychopathic”, there was a significant main effect of time, $F(1, 253) = 50.18$, $p < .05$, $\eta_p^2 = .17$, and a significant time by condition interaction, $F(1, 253) = 59.59$, $p < .05$, $\eta_p^2 = .19$. Descriptive statistics reveal that over time, while the mean score from the psychopathy myths video condition went down, the mean score

from the dog training myths video went slightly up. For “there is no treatment that can cure a psychopath”, there was a significant main effect of time, $F(1, 254) = 69.14, p < .05, \eta_p^2 = .21$, and a significant time by condition interaction, $F(1, 254) = 52.42, p < .05, \eta_p^2 = .17$. Descriptive statistics reveal that over time, the mean scores from both conditions went down, but only slightly in the dog training myths video condition. For “criminal psychopaths can be rehabilitated”, there was also a significant main effect of time, $F(1, 254) = 70.09, p < .05, \eta_p^2 = .22$, and a significant time by condition interaction, $F(1, 254) = 49.20, p < .05, \eta_p^2 = .16$. However descriptive statistics reveal the opposite findings, such that the mean scores from both conditions went up, but only slightly in the dog training myths video condition.

Lastly, “Quasi-adaptive features” section was analyzed. For “psychopaths have better social skills than the average person”, there was a significant main effect of time, $F(1, 253) = 4.178, p < .05$ (significance barely reached; $p = .042$), $\eta_p^2 = .02$, such that over time, the mean scores from both conditions went up, however the mean score for the dog training myths video condition went up considerably more than the mean score for the psychopathy myths video condition. For “psychopathic criminals are less likely to get caught than the average criminal is”, “psychopaths are more intelligent than the average criminal is” and “psychopaths do not have stable, long-term relationships”, there were significant main effects of time; $F(1, 254) = 17.64, p < .05, \eta_p^2 = .07$, $F(1, 254) = 41.89, p < .05, \eta_p^2 = .14$, and $F(1, 254) = 8.39, p < .05, \eta_p^2 = .03$ respectively; and significant time by condition interactions; $F(1, 254) = 13.37, p < .05, \eta_p^2 = .05$, $F(1, 254) = 40.11, p < .05, \eta_p^2 = .14$, and $F(1, 254) = 7.00, p < .05, \eta_p^2 = .03$ respectively. For all three items, descriptive statistics reveal that over time, the mean scores from both conditions went

down, but only slightly in the dog training myths video condition. There were no significant findings for “psychopaths are more likely to be successful in life than the average person is”, “being a psychopath can be helpful or advantageous in some jobs (such as, stock broker, attorney, politician)”, and “it is easy to tell if someone is a psychopath”.

Study 2 – Discussion

Study 1 suggested that laypeople continue to confuse psychopathy with foil traits and traits for symptoms of psychosis. Study 1 also indicated that laypeople hold a number of erroneous attitudes about psychopathy. Thus the goal of Study 2 was to examine if watching an educational video about psychopathy could improve lay understanding and ameliorate inaccurate lay attitudes about psychopathy. Indeed, compared to watching a control video about dog training myths, participants who watched a short video that defined psychopathy and dispelled its myths yielded less confusion about psychopathic traits with non-psychopathic traits, a better knowledge of the prevalence of psychopathy, and a number of improved attitudes about psychopathy that better align with the literature.

Prototypicality Ratings

Participants were asked to endorse CAPP, foil, and psychosis symptoms traits for their imagined prototypical psychopath as performed in Study 1. Participants were then randomly exposed to either a short control video addressing myths about dog training, or a short experimental video that defined psychopathy and dispelled its myths. Then participants again provided their trait ratings as performed before exposure to the video, and results were compared using mixed ANOVAs with time (pre versus post-video) and

condition (experimental psychopathy myths video versus control dog training myths video) as independent variables.

From the outset, it is important to acknowledge that when examining all of the Study 2 results from the mixed ANOVAs, there are a number of significant main effects of time that are difficult to explain. Effect sizes vary for the significant main effects of time ($.02 < \eta_p^2 < .22$). There are also some significant main effects of time when an interaction with condition is not also significant, and some significant main effects of time when an interaction with condition is also significant. One possible explanation is that regardless of video content, watching a short educational video that has Dr. Adelle Forth calmly educating about a topic could have a soothing effect. This soothing or calming effect may have caused participants to become more forgiving of psychopathy or see psychopathy in a more positive light, regardless of video content. For example, regardless of condition, after watching the assigned video, participants deemed psychopaths as less reckless, less entitled, less self-justifying, more considerate, and less delusional.

In terms of the attitudinal items, regardless of condition, after watching the assigned video, participants endorsed psychopaths as evil, violent criminals, murderers, and violent predators all to a lesser extent; participants were less likely to endorse that psychopaths be treated more harshly by the criminal justice system and be locked up; and participants were more likely to endorse that criminal psychopaths can be rehabilitated. However it is impossible to know for sure if this suggested “calming” effect is what is causing these significant main effects of time; these significant main effects of time remain difficult to interpret. As will be discussed further, future research should explore

the impacts of other types of experimental videos, and other types of experimental manipulations in general, on understanding and attitudes about psychopathy. This would likely help explain these unexpected findings. However, as the goal of this study was to examine the effects of an experimental versus control condition on participants' endorsements, that will be the focus of the remainder of the discussion of Study 2.

As hypothesized, when exposed to an experimental educational video defining psychopathy and busting its myths (compared to a exposure to a control video targeting myths about dog training), participants' CAPP item ratings either did not significantly differ or fluctuated to some degree in both directions. Effect sizes for significant time by condition interactions were small to medium ($.02 < \eta_p^2 < .07$) for CAPP item ratings, however most effects sizes were small. The only item that yielded a medium effect size for this interaction was "Reckless". Compared to exposure to a video about dog training myths, when exposed to a video defining psychopathy and addressing its myths, participants deemed psychopaths to be more reckless. This is not surprising considering that in the psychopathy myths video, it is directly addressed that psychopaths tend to engage in stimulation seeking and are typically impulsive and irresponsible individuals. In the survey, the word "risk-taking" is one of the three words used to help describe "Reckless", thus this finding is understandable. Unsurprisingly at the CAPP-domain level, there were no significant findings. This supports the idea that the experimental manipulation would not necessarily change laypeople's CAPP endorsements, as Study 1 showed that many of these endorsements are already high and close to experts' mean endorsements.

Also as hypothesized, participants exposed to an educational video defining psychopathy and tackling its myths endorsed significantly lower foil trait ratings as being typical of a psychopath after the video was administered (compared to participants exposed to a control video about dog training myths). As compared to the control condition, in the experimental condition, participants' endorsements went down significantly for two foil items: "Restrained" and "Strange". Given that "Restrained" is an antonym for "reckless" and "impulsive", this finding is understandable in the context of the "Reckless" finding as explained above. The significant time by condition interaction for "Strange" yielded the only medium effect size for foil items. This may be due to the item "Strange" could also fall under the category of a psychosis symptom. As will be discussed next, compared to means from those in the control condition, means for the psychosis symptom domain went significantly down for participants in the experimental condition. Thus, it is unsurprising that compared to those in the control condition, participants in the experimental condition endorsed "Strange" as being significantly less prototypical of psychopathy after viewing the video defining psychopathy.

As hypothesized, at the domain-level, as compared to participants in the control condition, participants in the experimental condition endorsed foil items as being typical of a psychopath significantly less. It is considerably interesting to point out that in the video that has Dr. Adelle Forth defining psychopathy and dispelling its myths, not once did Dr. Adelle Forth provide an example of a non-psychopathic or foil trait. The only instances where Dr. Adelle Forth discussed what psychopathy is not were in the context of myths about psychopathy. As explained, these myths targeted attitudes (targeting

violence, moral judgment, etiology, treatment, and intelligence of psychopathy) and did not target psychopathic traits or the definition of psychopathy. Thus, this suggests that purely by showing laypeople a short, direct, and simple video that defines psychopathy and identifies its traits, laypeople are able to discern which traits are not descriptive and subsequently not endorse these non-psychopathic traits as being typical of a psychopath. This alludes to the idea that even a short educational video about psychopathy may help deepen a layperson's understanding of this arguably complex disorder.

Lastly, as hypothesized, compared to controls, participants in the experimental condition endorsed significantly lower psychosis symptom trait ratings in the context of psychopathy prototypicality after watching a video about psychopathy's definition and myths. Specifically at the item-level, the only significant time by condition was for "Peculiar behaviour", with a medium effect size. Compared to controls, participants in the experimental condition significantly lowered their endorsements of "Peculiar behaviour" being typical of a psychopath after watching the video. This finding was also held at the Psychosis Symptom domain-level. As discussed regarding foil items, not once did Dr. Adelle Forth identify a psychosis symptom nor did she explain the difference between psychosis symptoms and psychopathic traits. Thus these findings suggest that purely from identifying psychopathic traits to laypeople, they are better able to distinguish psychopathy from other easily confused disorders like psychosis.

Knowledge and Attitudes about Psychopathy

A second goal of Study 2 was to examine lay knowledge and attitudes about psychopathy. In both the experimental and control conditions, participants were asked for their perceived prevalence rates of psychopathy in the community and in prison. In the

control condition, after watching a video about dog training, participants' endorsements of prevalence rates of psychopathy in the community did not change much. In the experimental video, Dr. Adelle Forth identifies the prevalence of psychopathy to be 1% or less than 1%. In the experimental condition, after watching the video, participants' community prevalence endorsements for psychopathy did not change much either, except for in two categories. For one in a thousand, endorsements went down by 4.6% after watching the experimental condition video, and endorsements went up by 4.6% for one in ten thousand. This is understandable given that in the video, the prevalence rate of psychopathy in the community was specified as 1% or less than 1%. Therefore it is not surprising that in the process of converting the meaning of a percentage rate into one of our prevalence categories, participants opted for arguably the easiest choice that fits in with "less than 1%" as this choice is the smallest prevalence rate possible to select.

These findings suggest that when laypeople are informed of an accurate prevalence rate range of psychopathy in the community, they can correctly identify the prevalence rate of psychopathy in the community. For the prevalence of psychopathy in prison, in the experimental condition video, Dr. Adelle Forth identifies the prevalence to be 10%. In the experimental condition, the biggest change in endorsement occurred in the correct "one in ten" option, where participants' endorsements went up by 15.4% after viewing the video. This was the biggest change in endorsements out of the 5 categories. All other categories yielded endorsements that went down post-video, except for "one in ten thousand" which went up slightly. However in the control condition, participants' endorsements did not change much after watching the video. The biggest change in category endorsement was that endorsements went down by 6.2% in the incorrect "one in

a hundred” category after watching the video. These results allude to the idea that compared to controls, laypeople can demonstrate that they can effectively learn prevalence rates of psychopathy when informed of these rates in a simple educational format.

Lastly, participants provided their endorsements of attitudinal statements about psychopathy before and after viewing one of the two videos that they were assigned to. Effect sizes for significant time by condition interactions were small to medium for items relating to criminality and violence potential ($.03 < \eta_p^2 < .04$). The item that yielded the highest effect size ($\eta_p^2 = .04$) was “most psychopaths are murderers”. Although mean scores from both conditions lowered post-video, the mean score from the psychopathy myths video condition lowered significantly more than the mean score from the dog training myths video which only lowered slightly. This finding is comprehensible as in the experimental video, Dr. Adelle Forth specifically says that not all psychopaths are violent. This suggests that laypeople will not make extreme generalizations about psychopaths such as equating them to murderers when laypeople are simply informed that this sensationalized association is untrue. Dr. Adelle Forth also specifies in the video that compared to non-psychopathic criminals, psychopaths are more violent and more likely to commit crimes. After hearing this information in the video, participants endorsed both of the corresponding items less, however they did not do so significantly less than controls.

For attitudinal items related to moral judgments and legal perspectives, effect sizes for significant time by condition interactions varied greatly from small to large ($.03 < \eta_p^2 < .14$). The items that yielded the two highest effect sizes were: “‘psychopath’ is

another word for describing a person who is basically evil” ($\eta_p^2 = .07$) and “psychopaths can understand the difference between right and wrong” ($\eta_p^2 = .14$). For “‘psychopath’ is another word for describing a person who is basically evil”, while mean scores from both conditions went down post-video, the mean score from the psychopathy myths video condition went down significantly more than the mean score from the dog training myths video. This result adds to the argument laypeople will make less dramatic generalizations about psychopathy (e.g., equating psychopathy to being evil) right after they simply learn more about its definitions and its widespread myths, as with the “most psychopaths are murderers” finding as identified above. For “psychopaths can understand the difference between right and wrong”, while mean scores from both conditions went up post-video, the mean score from the psychopathy myths video condition went up significantly more than the mean score from the dog training myths video, and this interaction yielded a large effect size ($\eta_p^2 = .14$). This finding is coherent as one of the five myths that was addressed in the experimental video was specifically that, “psychopaths do not know the difference between right and wrong.” In the video, Dr. Adelle Forth specifically states that this is false and that psychopaths do know the difference between right wrong, but simply do not care and may not be inclined to make moral reasoning choices in the same way as everyone else. As this item is directly represented as one of the myths targeted in the experimental video, it is unsurprising that the interaction effect size is large.

For attitudinal items related to etiology, only two items yielded significant time by condition interactions, but their effect sizes were large ($.11 < \eta_p^2 < .15$). These items were: “psychopathy is caused by physical or mental abuse during childhood or adolescence” and “psychopathy is caused by poor or inadequate parenting”. Compared to

controls, both of these items' mean scores went up significantly after watching the experiment video about psychopathy myths. The myth in the video that Dr. Adelle Forth targets is "psychopaths are born, not made". Dr. Adelle Forth goes on to say that in fact, psychopathy could be caused from a combination of someone's childhood abuse and other factors like emotional bonds with parents and discipline practices. Thus it is unsurprising that the attitudinal items corresponding to these remarks yielded large effect sizes for their significant time by condition interactions. Although that in the video Dr. Adelle Forth also says that psychopathy has a strong genetic contribution and that it could be caused in part by someone's genes, perhaps the fact that she dispels the myth: "psychopaths are born, not made" is why the attitudinal statement about genetics yielded no significant effects. Dispelling a myth specifically worded like this may have confused participants. It is unsurprising that no significant effects were found for the item about psychopathy being cause by brain injury, as this was not discussed in the experimental video.

Significant time by condition interactions yielded large effect sizes for items associated with immutability ($.16 < \eta_p^2 < .19$). Results for these three items: "psychopaths can never change; they will always be psychopathic", "there is no treatment that can cure a psychopath", and "criminal psychopaths can be rehabilitated" all alluded to same idea. Specifically, compared to controls, for the first two items, means scores from the experimental condition went up significantly post-video while for the third item, mean scores went down significantly post-video. In the experimental video, Dr. Adelle Forth debunks the myth that criminal psychopaths cannot be rehabilitated, hence the large effect sizes for the significant interactions for these items. These findings are very

promising and advocate that when the general public are informed that a complex and destructive disorder (such as psychopathy) can be rehabilitated, the public may alter their misinformed, stigmatized attitudes to align with this notion. The implications of these findings will be discussed further.

Lastly, three attitudinal items yielded significant time by condition interactions, with medium to large effect sizes ($.05 < \eta_p^2 < .14$). Arguably the most critical item to point out is the item with the large effect size from its associated significant interaction: “psychopaths are more intelligent than the average criminal is” ($\eta_p^2 = .14$). Compared to controls, after viewing a video that dispels the myth that psychopaths are all intelligent, participants in the experimental condition significantly lowered their endorsements of this statement. This is critical as this item was an attitudinal item that was found to be inaccurately highly endorsed in Study 1 as well as in research from previous years (Smith et al., 2014). Thus this finding provides support for the idea that when laypeople have erroneous attitudes about a disorder (such as psychopathy), when they are given information in a simple, direct way that goes directly against their attitude, they may still shift their attitude to align with what is supported in the literature.

To summarize, after watching a video of an expert defining psychopathy and busting its myths, participants likened a psychopath to a murderer and to being evil significantly less. Regarding morality, participants endorsed that psychopaths know the difference between right and wrong significantly more post-video. Participants also endorsed environmental explanations of psychopathy and psychopathy’s amenability to treatment significantly more post-video. Also after watching the experimental video, participants endorsed psychopathy’s association with being highly intelligent

significantly less. All of these significant differences were in comparison to those who watched a video about dog training myths instead.

I gathered information about laypeople's understandings and attitudes about psychopathy, then administered an educational video about the disorder, and then re-collected laypeople's endorsements of knowledge and attitudes about psychopathy again and compared their endorsements to a group of controls. Results alluded to many different and promising findings. Implications of these findings, limitations of the studies, and suggested future directions of research will be expanded upon in the next section.

General Discussion

Laypeople's conceptions and attitudes about psychopathy have been previously investigated (e.g., Furnham et al., 2009; Smith et al., 2014). Power (2017) went on further to examine the effects of an experimental manipulation using newspaper articles on laypeople's attitudes about psychopathy specifically regarding criminal responsibility. However, to my knowledge, there has yet to be a study that examines the effects of an experimental manipulation on changes in laypeople's understanding and general attitudes about the disorder. Therefore, in Study 1 I investigated if laypeople's misunderstandings and erroneous attitudes continued to exist in a more recent general sample. As hypothesized, lay participants likened a psychopath to a violent, intelligent, criminal, and manipulative mastermind as found in previous studies (Furnham et al., 2009; Smith et al., 2014). Where lay people derive their information about psychopathy is naturally what is likely driving their conception of the disorder in this manner. As hypothesized, laypeople derive most of their information about psychopathy from movies and television. Fictional and real serial killers are consistently the dominant prototype of a psychopath for

laypeople, as also found previously (Edens et al., 2013; Smith et al., 2014). These findings are not surprising when considering research that indicates that popular media portrayals of psychopaths are characterized by highly intelligent, devious, disturbing, and violent killers who also often display symptoms of psychosis (Leistedt & Linkowski, 2014). Thus, it is also unsurprising that findings from Study 1 suggest that laypeople confuse psychopathy with psychosis. These findings have a number of problematic implications.

First, it is known that defendants who are labelled as a psychopath receive harsher sentences than those who have not been given this label (Boccaccini et al., 2008; Cox et al., 2010, 2013, 2016; Edens et al., 2004). Considering that in America, laypeople get called to the jury and are asked to make sentencing decisions about psychopaths, it is an issue that laypeople have these extreme and sensationalized preconceptions of what a psychopath is, and that they confuse psychopathy with other disorders like psychosis. Psychosis is associated with being out of touch with reality while psychopathy is not; the two disorders are immensely different. Thus, it is crucial that laypeople have an accurate understanding of psychopathy so that they are not making unfair sentencing decisions.

Second, having a psychopathic partner is associated with being the victim of physical and sexual abuse, increased post-traumatic stress symptoms, and other emotional and psychological harm (Brieman & Kosson, 2018; Brown & Leedom, 2008; Kirkman, 2005; Ritchie et al., 2017). If laypeople do not have a clear understanding of the disorder and confuse psychopathic traits with non-psychopathic traits this puts them at risk of these extremely detrimental consequences. It is essential that the general public is

educated about psychopathy so that associating with psychopathic individuals can be avoided.

Lastly, laypeople confusing psychopathy with psychosis is detrimental for those that suffer from psychosis. Individuals that suffer from psychosis are often part of a larger group of individuals suffering from mental disorders who are more often the victims of violence rather than the perpetrators (DeLisi, Vaughn, Beaver, & Wright, 2010). Conversely, psychopaths are commonly the perpetrators of various forms of violence (Blais et al., 2014). Therefore, it is imperative that laypeople gain an understanding of the differences between psychosis and psychopathy so that those who are suffering from mental disorders and are in need of mental health services are not further stigmatized via confusion with a harm-causing disorder such as psychopathy. I also sought to explore if using a short educational video could change laypeople's erroneous attitudes and negative, media-influenced conceptions about psychopathy.

Study 2 again collected information about laypeople's understandings and attitudes about psychopathy, then administered a short educational video about psychopathy, and then re-collected data on laypeople's knowledge and attitudes about psychopathy again and compared findings to a sample of laypeople who watched a control video instead. As hypothesized, just from watching a video with an expert in psychopathy defining the disorder and dispelling its common myths, laypeople confused psychopathy significantly less with psychosis symptoms and other non-psychopathic traits, and their erroneous attitudes (ranging from intelligence to treatment to etiology) significantly improved and became more aligned with the literature, as compared to controls. This has encouraging implications for mental health education in general,

particularly when considering that the experimental video used only defined psychopathy with psychopathic traits. In other words, in the video, Dr. Adelle Forth did not discuss the usual confusion that people have between psychopathy and psychosis nor did she once mention a psychosis symptom or a non-psychopathic trait at all. This has implications for mental health counsellors and stakeholders who are invested in reducing mental health stigma. For psychopathy, simply educating the public about the disorder and its traits is associated with a reduction in confusion between psychopathy and other non-psychopathic traits, such as traits for psychosis.

Future research should examine if this pattern of findings holds for other mental disorders like psychosis; if educating about other mental disorders like psychosis reduces confusion between psychosis and all the many other mental disorders. Another encouraging implication from the results of Study 2 is regarding treatment of psychopathy. Essentially, when laypeople were educated and informed that rehabilitation of psychopathy is possible, their negative attitudes about the immutability of psychopathy changed and they recognized that psychopaths can be treated and rejected that psychopaths cannot change. These findings are important given that laypeople view mentally disordered individuals as socially unwanted, violent, and dangerous (Link et al., 1999; Martin et al., 2000; Parcesepe & Cabassa, 2013; Perry et al., 2007; Schomerus et al., 2012; Walker et al., 2008). A physical consequence of this stigma is that the general public typically wants to keep social and physical distance from individuals with mental disorders (Martin et al., 2000). If this pattern of findings can be replicated for other disorders, then the stigma, social distance, and rejection of those with mental disorders (Martin et al., 2000) could effectively be reduced. This would naturally have drastic

positive implications for the treatment and healing of those suffering from mental disorders, as they may then become more accepted by the general public.

Limitations

Although this research has many promising findings and implications, it does not come without its limitations as well. First, it could be argued that the videos used in the experiment could be improved. Specifically, a model of attitude persuasion exists entitled the Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1986). The ELM suggests two major routes to the persuasion of attitudes: the central route and the peripheral route. Through the central route, more cognitive resources are used to carefully decipher, deliberate, and evaluate the message or information being presented (Petty & Cacioppo, 1986). This can be understood in the context of the previously discussed Causal Attitude Network model (CAN), as under this model, attitudes are conceptualized as networks consisting of evaluative reactions and interactions between these reactions (Dalege et al., 2016). Conversely, via the peripheral route of the ELM, persuasion occurs through the individual's connection with positive or negative cues in the message or argument (Petty & Cacioppo, 1986). This route involves less cognitive resources, and the cues are related to aspects of the message such as the attractiveness or production quality of the message (Miller, 2002). Also under this route, the cues are not related to the quality of the argument (Petty & Cacioppo, 1986). It is argued that individuals must be motivated, alert, and able to process the messages of an argument for the central route of persuasion to take place (Petty & Cacioppo, 1986). Otherwise, the peripheral route of persuasion takes over (Petty & Cacioppo, 1986).

In the context of the videos used in this study, it could be argued that as alertness and motivation were not measured and that asking someone to complete a survey is tiring, so potentially the peripheral route would dominate. Therefore it would be argued that aspects of our videos such as attractiveness and production value should be improved to yield a robust change in attitudes. By no means were the messages in our videos flashy and the videos were not of high production value. However, an important aspect of our results is that significant findings were yielded with the use of videos with simple, straightforward messaging and low production value. Thus, it appears that the central route of persuasion may have dominated. The central route of persuasion is also associated with lasting attitude changes and related to changes in behaviour (Miller, 2002). Thus, current findings likely have important implications for mental health education stakeholders. Flashy messaging and high production arguments could cost more resources than a simple, straightforward argument. Therefore, it is beneficial to know that, at least in the case of psychopathy, that simple messaging in a video format can change laypeople's misconceptions and erroneous attitudes.

Second, it should be noted that there were no attention check questions directly after participants viewed the videos. Therefore, participants could theoretically have skipped watching the video altogether and went on to answer the survey questions. However, the Head of the Qualtrics Methodology Lab, David Vannette, recently recommended against using attention checks (2017). Vannette suggests that attention check questions may be perceived to be a trap, and that this may lower trust in the participant, which would then affect the participant's willingness to meaningfully engage in answering the survey questions (2017). To add, although there were no post-video

attention check questions, participants were told that it was important to watch the entire video before they viewed any videos used in the current research. Data collected from MTurk participants is also generally recognized as being of high quality (Buhrmester, Kwang, & Gosling, 2011). Regardless, several significant findings were still yielded from these studies even though no post-video attention checks.

Third, another limitation of this research could be that online MTurk samples may not necessarily be representative of the general population. However Buhrmester and colleagues (2011) purport that MTurk participants are at least slightly more diverse than usual online samples and are significantly more diverse than the usual college-age samples. Additionally, our online MTurk sample produced data that was comparable to lay data collected in person by Smith and colleagues (2014). Thus, although findings from a single sample should always be interpreted with caution when generalizing, our sample appears to be reasonably comparable to other lay samples where data was collected using different methods.

Fourth, the presentation order of the CAPP trait rating questions always came before the attitudinal questions across both studies. Thus it is possible that providing CAPP trait ratings could have a priming effect on participants' answers to the attitudinal questions. Future research should examine if presentation order of questions yields significant effects. Lastly, given the high number of *t*-tests and ANOVAs I performed, it should be noted that this creates risk for a high type I error rate.

Future Research

To my knowledge, this research included the first study to examine the effects of an experimental manipulation on laypeople's understanding of and general attitudes

about psychopathy. As there is paucity of published studies in this specific line of research, there are many suggestions for future studies. First, Study 1 yielded interesting findings regarding the relationship between have a thorough understanding of psychopathy, being a woman, and being a victim of psychopathy. Specifically, women were more likely to indicate that they had been victimized by someone they considered to be a psychopath, and women also demonstrated a better understanding of psychopathy on a number of items. Thus, the relationships between each of these variables should be investigated further. Future research should also examine the accuracy of perceptions of those who have indicated that they have been victimized versus perceptions of known victims of psychopaths. Being the victim of a psychopathic individual is associated with trauma (Brieman & Kosson, 2018). And trauma has been associated with memory impairment, however the relationship between trauma and memory is complex and often depends on context (e.g., Klein, Caspi, & Gil, 2003; Shannon, Douse, McCusker, Feeney, Barrett, & Mulholland, 2009). Thus, much more research should be done to tease out the potential causal mechanisms driving these relationships.

Second, this research demonstrates that right after being exposed to an experimental manipulation targeting misconceptions and erroneous attitudes about psychopathy, participants endorse more accurate attitudes aligned with the literature and confused psychopathic with non-psychopathic traits significantly less. However what is not known is how long this change will last. It is not known if over time, laypeople's understanding and attitude about psychopathy would revert back to being misguided and inaccurate. Although in the context of the Elaboration Likelihood Model of persuasion (ELM; Petty & Cacioppo, 1986) it was postulated that the central route of persuasion was

initiated and thus changed attitudes would endure over time, this was only speculation. Future research should examine how long these ameliorated conceptions of the disorder last over time.

To conclude, the current research first confirmed that laypeople's misunderstandings and inaccurate attitudes about psychopathy have been held over time. The current research then went on to demonstrate that an experimental manipulation utilizing a simple educational video about the definition of psychopathy and its myths resulted in laypeople's attitudes about psychopathy better aligning with the literature and less confusion between psychopathic and non-psychopathic traits. As a final recommendation, future research should go on to examine both the effects of this type of simple messaging on other mental disorders, and the differential effects of various types of educational experimental manipulations on the conceptualizations of various mental disorders. This research would likely aid mental health education stakeholders in improving lay understanding and knowledge of numerous mental disorders, thus likely reducing stigma, and improving the well-being of those with mental disorders.

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Appendix A:
Study 1 Informed Consent Form

The purpose of this informed consent is to ensure that you now understand the true purpose of the study and the true nature of your involvement. This informed consent provides sufficient information for you such that you have the opportunity to determine whether you wish to continue participating in the study. This study has been approved by the Carleton University Research Ethics Board.

Present study: Perceptions, beliefs and attitudes about psychopathy

Research personnel: The principal researcher for this study is Nicholas Ostapchuk (nicholasostapchuk@cmail.carleton.ca). The faculty supervisor for this study is Dr. Adelle Forth (telephone: 613-520-2600 ext. 1267. adelle.forth@carleton.ca)

Concerns: Should you have any ethical concerns about this research, please contact Dr. Andy Adler (Chair, Carleton University Research Ethics Board – B, andy.adler@carleton.ca, 613-520-2600, ext. 4850). For additional concerns, please contact the Carleton University Research Ethics Board at ethics@carleton.ca, 613-520-2600 ext. 4085.

Purpose: This study aims to identify what beliefs, attitudes and perceptions the average individual holds about psychopathic personalities. We are also interested in the origins of these ideas in order to better understand what thoughts and misconceptions jurors may have when a defendant is labeled a psychopath by expert testimony.

Task requirements: You will be asked to complete a number of online questionnaires regarding your background (i.e. demographics), you will be asked to think of an individual who is your idea of the typical psychopath and answer questions regarding how well a series of traits describes this individual. You will also be asked about the origins of those beliefs and your attitudes about psychopathic personalities in general.

Remuneration: You will receive a \$1.00 for your participation in this study.

Time Required: To complete all questionnaires on-line should take approximately 25 minutes. To read and accept the informed consent and then the debriefing afterwards should take an additional 5 minutes for a total of 30 minutes.

Right to Withdraw: I understand that I have the right to withdraw from this study at any point, without penalty, however withdrawal is not possible after submitting the survey as no identifying information will be associated with the data. If I choose to withdraw before the end of the survey, I simply need to click on the ‘withdraw’ button and it will take me to the debriefing form. I will still receive my \$1.00 credit.

Potential Risk and Discomfort: I understand that I may feel some stress, anxiety or discomfort when thinking of psychopathic individuals. I understand that if I may choose not to answer any questions that cause stress, anxiety or discomfort without penalty. I understand that if at any time this distress becomes too great, I may withdraw from the study without penalty.

Anonymity/Confidentiality: I understand that the information will be used for research purposes, including further publications, conference presentations or teaching material. All data will be collected anonymously and stored on secure servers in the US. Due to the location of the servers, the United States Patriot Act permits U.S. law enforcement officials to seek a court order to access the anonymous data for the purpose of anti-terrorism investigations without our knowledge. I understand that IP addresses will not be collected during this study.

This study has received clearance by the Carleton University Research Ethics Board-B (Clearance #105770).

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.

By checking this box I indicate that I do not consent to the study and wish to exit the survey.

Appendix B:
Study 1 Written Debriefing Form

What are we trying to learn in this research?

This study is primarily exploratory and is intended to build on previous findings looking at the perceptions and beliefs held by people in the community about psychopathic personalities. Using a measure called the Comprehensive Assessment of Psychopathic Personality, we are comparing the responses participants give on each of the dimensions of psychopathy identified by the CAPP (Attachment, Behaviour, Cognitions, Emotional, Dominance and Self) to expert responses on the same test. The study aims to identify what perceptions about psychopathy overlap with those of mental health professionals and what aspects of the disorder are poorly understood by people in the community.

Additionally, research has suggested that many people struggle to distinguish psychopaths and psychotic disorders such as schizophrenia. Therefore, this study aims to identify whether these findings are consistent across other populations. Finally, we are looking to see what relationships exist between the sources of information participants have been used to develop their beliefs and attitudes about psychopaths and their level of agreement with mental health professionals.

Why is this important to psychologists or the general public?

This is important because in the criminal justice system, the application of the label of “psychopath” to defendants has been shown to lead to harsher and more severe punishments being recommended by jurors. However, it is unclear whether jurors have a clear understanding of what this label means. Identifying what aspects of psychopathy are most poorly understood will allow psychologists to provide testimony that may help overcome these misperceptions.

What are our hypothesis and predictions?

This study is largely exploratory. We are hoping participants will have beliefs about psychopathy that are similar to those supported by the mental health research. However, we expect that psychopathic features from the Dominance (e.g., manipulative, domineering), and Self (e.g., self-centered, sense of entitlement) domains will be most prototypical and psychopathic features from the Cognitive (e.g., lacks planfulness, lacks concentration) and Behavioural (e.g., reckless, unreliable) domains to be seen as least prototypical. In addition, we are expecting participants to rate typical psychopaths as high on traits which are common to psychosis but not to psychopathy. We expect that most participants will give the name of a serial killer when asked to “who is the first person who comes to mind to you as a typical psychopath?” We are also expecting participants to get most of their information about psychopathy from television, movies, and the Internet, as well as real world “famous” psychopathic personalities

Where can I learn more?

For more information on the perceptions, beliefs and attitudes of regular people, you can read the following studies:

- Furnham, A., Daoud, Y., & Swami, V. (2009). "How to spot a psychopath". *Social Psychiatry and Psychiatric Epidemiology*, 44(6), 464-472. doi:10.1007/s00127-008-0459-1
- Smith, S. T., Edens, J. F., Clark, J., & Rulseh, A. (2014). "So, what is a psychopath?" venireperson perceptions, beliefs, and attitudes about psychopathic personality. *Law and Human Behavior*, 38(5), 490-500. doi:http://dx.doi.org/10.1037/lhb0000091

What if I have questions later?

If you wish to discuss this research any further feel free to contact Nicholas Ostapchuk (Principal Investigator, email: nicholasostapchuk@cmail.carleton.ca), Dr. Adelle Forth (Faculty sponsor, 613-520-2600, ext. 1267; email: adelle.forth@carleton.ca). If you should have any ethical concerns about this study please contact, Dr. Andy Adler (Chair, Carleton University Research Ethics Board – B, 613-520-2600, ext. 4850; email: andy.adler@carleton.ca). Should you have any other concerns please contact Carleton University Research Ethics Board – B at ethics@carleton.ca, 613-520-2600 ext. 4085.

This study has received clearance by the Carleton University Research Ethics Board-B (Clearance #105770). Please use this number if you need to contact the Chair of Ethics Committee concerning this study.

Is there anything that I can do if I found this study to be emotionally draining?

If you find that after participating in this study you feel any sort of emotional, mental, or physical stress or anxiety, please contact your local distress center. If you live in the Ottawa area, you can contact the Distress Center at 613-238-3311. If you are not located in the Ottawa area, the phone number for your local Crisis Line can be found at the front of most phone books or online via www.google.ca.

Thank you for taking the time to take part in this study.

Your participation has been greatly appreciated.

Appendix C:
Pilot Study Informed Consent Form

The purpose of this informed consent is to ensure that you now understand the true purpose of the study and the true nature of your involvement. This informed consent provides sufficient information for you such that you have the opportunity to determine whether you wish to continue participating in the study. This study has been approved by the Carleton University Research Ethics Board.

Present study: Lay theories and attitudes about psychopathy: Pilot study

Research personnel: The principal researcher for this study is Nicholas Ostapchuk (nicholasostapchuk@cmail.carleton.ca). The faculty supervisor for this study is Dr. Adelle Forth (telephone: 613-520-2600 ext. 1267. adelle.forth@carleton.ca)

Concerns: Should you have any ethical concerns about this research, please contact Dr. Andy Adler (Chair, Carleton University Research Ethics Board – B, andy.adler@carleton.ca, 613-520-2600, ext. 4850). For additional concerns, please contact the Carleton University Research Ethics Board at ethics@carleton.ca, 613-520-2600 ext. 4085.

Purpose: This study aims to identify what beliefs, attitudes and perceptions the average individual holds about psychopathic personalities. We are also interested in the origins of these ideas in order to better understand what thoughts and misconceptions jurors may have when a defendant is labeled a psychopath by expert testimony. Lastly we are interested in if some of these attitudes can be changed.

Task requirements: You will be asked to complete a number of online questionnaires regarding your background (i.e. demographics), you will be asked to think of an individual who is your idea of the typical psychopath and answer questions regarding how well a series of traits describes this individual. You will also be asked about the origins of those beliefs and your attitudes about psychopathic personalities in general. You will then view two short videos. You will then be asked some questions about the videos and how each of the videos may impact the answers to the questions you completed before watching the videos.

Remuneration: You will receive \$1.00 for your participation in this study.

Time Required: To complete all questionnaires on-line should take approximately 25 minutes. To read and accept the informed consent and then the debriefing afterwards should take an additional 5 minutes for a total of 30 minutes.

Right to Withdraw: I understand that I have the right to withdraw from this study at any point, without penalty, however withdrawal is not possible after submitting the survey as no identifying information will be associated with the data. If I choose to

withdraw before the end of the survey, I simply need to click on the 'withdraw' button and it will take me to the debriefing form. I will still receive my \$1.00 credit.

Potential Risk and Discomfort: I understand that I may feel some stress, anxiety or discomfort when thinking of psychopathic individuals. I understand that if I may choose not to answer any questions that cause stress, anxiety or discomfort without penalty. I understand that if at any time this distress becomes too great, I may withdraw from the study without penalty.

Anonymity/Confidentiality: I understand that the information will be used for research purposes, including further publications, conference presentations or teaching material. Your data will be stored and protected by Qualtrics on Toronto-based servers but may be disclosed via a court order or data breach. I understand that IP addresses will not be collected during this study. Aggregate data will not be shared in online repositories such as open science framework.

This study has received clearance by the Carleton University Research Ethics Board-B (CUREB-B Clearance #109031).

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 agree to participate in this study

By checking this box I indicate that I do not consent to the study and wish to exit the survey.

Appendix D:
Pilot Study Written Debriefing Form

What are we trying to learn in this research?

This pilot study is part of a larger study that is primarily exploratory and is intended to build on previous findings looking at the perceptions and beliefs held by people in the community about psychopathic personalities. Using a measure called the Comprehensive Assessment of Psychopathic Personality, we are comparing the responses participants give on each of the dimensions of psychopathy identified by the CAPP (Attachment, Behaviour, Cognitions, Emotional, Dominance and Self) to expert responses on the same test. The study aims to identify what perceptions about psychopathy overlap with those of mental health professionals and what aspects of the disorder are poorly understood by people in the community.

Additionally, research has suggested that many people struggle to distinguish psychopaths and psychotic disorders such as schizophrenia. Therefore, this study aims to identify whether these findings are consistent across other populations. Finally, we are looking to see what relationships exist between the sources of information participants have been used to develop their beliefs and attitudes about psychopaths and their level of agreement with mental health professionals.

We are also exploring whether watching a video that defines psychopathy and busts its myths can change people's understanding and attitudes about psychopathy. But we have to compare this psychopathy-video to a control-video. Half of our participants in the larger study will be randomly assigned to viewing the psychopathy-video and half to the control-video about dog-training. We will then be asking those participants to re-do the pre-video psychopathy surveys to see if watching the psychopathy-video causes people to change their survey ratings more so than the dog-training video. This is where this pilot study comes in! We are asking participants (you) in this pilot study important questions about the effectiveness of our psychopathy video before we use it in our larger study.

Why is this important to psychologists or the general public?

This is important because in the criminal justice system, the application of the label of "psychopath" to defendants has been shown to lead to harsher and more severe punishments being recommended by jurors. However, it is unclear whether jurors have a clear understanding of what this label means. Identifying what aspects of psychopathy are most poorly understood will allow psychologists to provide testimony that may help overcome these misperceptions. Furthermore it is useful to explore if a simple and short educational video about psychopathy can change people's mislead theories and attitudes about psychopathy.

What are our hypothesis and predictions?

The larger study is largely exploratory. We are hoping participants will have beliefs about psychopathy that are similar to those supported by the mental health research. However, we expect that psychopathic features from the Dominance (e.g., manipulative, domineering), and Self (e.g., self-centered, sense of entitlement) domains will be most prototypical and psychopathic features from the Cognitive (e.g., lacks planfulness, lacks concentration) and Behavioural (e.g., reckless, unreliable) domains to be seen as least prototypical. In addition, we are expecting participants to rate typical psychopaths as high on traits which are common to psychosis but not to psychopathy. We expect that most participants will give the name of a serial killer when asked to “who is the first person who comes to mind to you as a typical psychopath?” We are also expecting participants to get most of their information about psychopathy from television, movies, and the Internet, as well as real world “famous” psychopathic personalities. We also expect participants who view the psychopathy-video to change their post-video survey ratings more so than participants who view the dog-training video.

Where can I learn more?

For more information about psychopathy you can go to the following websites:

<http://www.psychopathsociety.org/en/>
<http://aftermath-surviving-psychopathy.org/>
<http://www.hare.org/>

What if I have questions later?

If you wish to discuss this research any further feel free to contact Nicholas Ostapchuk (Principal Investigator, email: nicholasostapchuk@cmail.carleton.ca), Dr. Adelle Forth (Faculty sponsor, 613-520-2600, ext. 1267; email: adelle.forth@carleton.ca). If you should have any ethical concerns about this study please contact, Dr. Andy Adler (Chair, Carleton University Research Ethics Board – B, 613-520-2600, ext. 4850; email: andy.adler@carleton.ca). Should you have any other concerns please contact Carleton University Research Ethics Board – B at ethics@carleton.ca, 613-520-2600 ext. 4085.

This study has received clearance by the Carleton University Research Ethics Board-B (CUREB-B Clearance #109031). Please use this number if you need to contact the Chair of Ethics Committee concerning this study.

Is there anything that I can do if I found this study to be emotionally draining?

If you find that after participating in this study you feel any sort of emotional, mental, or physical stress or anxiety, please contact your local distress center. The phone number for your local Crisis Line can be found at the front of most phone books or online via www.google.com.

Thank you for taking the time to take part in this study.

Your participation has been greatly appreciated.

Appendix E:
Study 2 Informed Consent Form

The purpose of this informed consent is to ensure that you now understand the true purpose of the study and the true nature of your involvement. This informed consent provides sufficient information for you such that you have the opportunity to determine whether you wish to continue participating in the study. This study has been approved by the Carleton University Research Ethics Board.

Present study: Lay theories and attitudes about psychopathy

Research personnel: The principal researcher for this study is Nicholas Ostapchuk (nicholasostapchuk@cmail.carleton.ca). The faculty supervisor for this study is Dr. Adelle Forth (telephone: 613-520-2600 ext. 1267. adelle.forth@carleton.ca)

Concerns: Should you have any ethical concerns about this research, please contact Dr. Andy Adler (Chair, Carleton University Research Ethics Board – B, andy.adler@carleton.ca, 613-520-2600, ext. 4850). For additional concerns, please contact the Carleton University Research Ethics Board at ethics@carleton.ca, 613-520-2600 ext. 4085.

Purpose: This study aims to identify what beliefs, attitudes and perceptions the average individual holds about psychopathic personalities. We are also interested in the origins of these ideas in order to better understand what thoughts and misconceptions jurors may have when a defendant is labeled a psychopath by expert testimony. Lastly we are interested in if some of these attitudes can be changed.

Task requirements: You will be asked to complete a number of online questionnaires regarding your background (i.e. demographics), you will be asked to think of an individual who is your idea of the typical psychopath and answer questions regarding how well a series of traits describes this individual. You will also be asked about the origins of those beliefs and your attitudes about psychopathic personalities in general. You will then view a short video and then be asked questions about your understanding and attitudes regarding psychopathy again.

Remuneration: You will receive \$1.00 for your participation in this study.

Time Required: To complete all questionnaires on-line should take approximately 25 minutes. To read and accept the informed consent and then the debriefing afterwards should take an additional 5 minutes for a total of 30 minutes.

Right to Withdraw: I understand that I have the right to withdraw from this study at any point, without penalty, however withdrawal is not possible after submitting the survey as no identifying information will be associated with the data. If I choose to

withdraw before the end of the survey, I simply need to click on the 'withdraw' button and it will take me to the debriefing form. I will still receive my \$1.00 credit.

Potential Risk and Discomfort: I understand that I may feel some stress, anxiety or discomfort when thinking of psychopathic individuals. I understand that if I may choose not to answer any questions that cause stress, anxiety or discomfort without penalty. I understand that if at any time this distress becomes too great, I may withdraw from the study without penalty.

Anonymity/Confidentiality: I understand that the information will be used for research purposes, including further publications, conference presentations or teaching material. Your data will be stored and protected by Qualtrics on Toronto-based servers but may be disclosed via a court order or data breach. I understand that IP addresses will not be collected during this study. Aggregate data will not be shared in online repositories such as open science framework.

This study has received clearance by the Carleton University Research Ethics Board-B (CUREB-B Clearance #109031)

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 agree to participate in this study

By checking this box I indicate that I do not consent to the study and wish to exit the survey.

Appendix F
Study 2 Written Debriefing Form

What are we trying to learn in this research?

This study is primarily exploratory and is intended to build on previous findings looking at the perceptions and beliefs held by people in the community about psychopathic personalities. Using a measure called the Comprehensive Assessment of Psychopathic Personality, we are comparing the responses participants give on each of the dimensions of psychopathy identified by the CAPP (Attachment, Behaviour, Cognitions, Emotional, Dominance and Self) to expert responses on the same test. The study aims to identify what perceptions about psychopathy overlap with those of mental health professionals and what aspects of the disorder are poorly understood by people in the community.

Additionally, research has suggested that many people struggle to distinguish psychopaths and psychotic disorders such as schizophrenia. Therefore, this study aims to identify whether these findings are consistent across other populations. Finally, we are looking to see what relationships exist between the sources of information participants have been used to develop their beliefs and attitudes about psychopaths and their level of agreement with mental health professionals.

We are also exploring whether watching a video that defines psychopathy and busts its myths can change people's understanding and attitudes about psychopathy. We are comparing post-video responses from those who watch the "psychopathy-myths" video to those who watch a "dog-training-myths" video that has nothing to do with learning about psychopathy.

Why is this important to psychologists or the general public?

This is important because in the criminal justice system, the application of the label of "psychopath" to defendants has been shown to lead to harsher and more severe punishments being recommended by jurors. However, it is unclear whether jurors have a clear understanding of what this label means. Identifying what aspects of psychopathy are most poorly understood will allow psychologists to provide testimony that may help overcome these misperceptions. Furthermore it is useful to explore if a simple and short educational video about psychopathy can change people's mislead theories and attitudes about psychopathy.

What are our hypothesis and predictions?

This study is largely exploratory. We are hoping participants will have beliefs about psychopathy that are similar to those supported by the mental health research. However, we expect that psychopathic features from the Dominance (e.g., manipulative, domineering), and Self (e.g., self-centered, sense of entitlement) domains will be most prototypical and psychopathic features from the Cognitive (e.g., lacks planfulness, lacks concentration) and Behavioural (e.g., reckless, unreliable) domains to be seen as least

prototypical. In addition, we are expecting participants to rate typical psychopaths as high on traits which are common to psychosis but not to psychopathy. We expect that most participants will give the name of a serial killer when asked to “who is the first person who comes to mind to you as a typical psychopath?” We are also expecting participants to get most of their information about psychopathy from television, movies, and the Internet, as well as real world “famous” psychopathic personalities. We also expect participants who view the psychopathy-video to change their post-video survey ratings more so than participants who view the dog-training video.

Where can I learn more?

For more information about psychopathy you can go to the following websites:

<http://www.psychopathysociety.org/en/>
<http://aftermath-surviving-psychopathy.org/>
<http://www.hare.org/>

What if I have questions later?

If you wish to discuss this research any further feel free to contact Nicholas Ostapchuk (Principal Investigator, email: nicholasostapchuk@cmail.carleton.ca), Dr. Adelle Forth (Faculty sponsor, 613-520-2600, ext. 1267; email: adelle.forth@carleton.ca). If you should have any ethical concerns about this study please contact, Dr. Andy Adler (Chair, Carleton University Research Ethics Board – B, 613-520-2600, ext. 4850; email: andy.adler@carleton.ca). Should you have any other concerns please contact Carleton University Research Ethics Board – B at ethics@carleton.ca, 613-520-2600 ext. 4085.

This study has received clearance by the Carleton University Research Ethics Board-B (CUREB-B Clearance #109031). Please use this number if you need to contact the Chair of Ethics Committee concerning this study.

Is there anything that I can do if I found this study to be emotionally draining?

If you find that after participating in this study you feel any sort of emotional, mental, or physical stress or anxiety, please contact your local distress center. The phone number for your local Crisis Line can be found at the front of most phone books or online via www.google.com.

Thank you for taking the time to take part in this study.

Your participation has been greatly appreciated.

Appendix G

Psychopathy Myths Video Script

Hello, my name is Dr. Adelle Forth. I am an Associate Professor in the Department of Psychology at Carleton University in Ottawa, Canada, the Director of the Psychopathy Research Laboratory, and an expert in psychopathy. Today I am going to be explaining what psychopathy is and will be busting its myths.

First of all, what is psychopathy? Well, it is conceived to be a personality disorder defined by a constellation of traits. So there are interpersonal traits: manipulative, grandiose, arrogant, dominant, those types of traits. There are emotional traits, where psychopathic individuals show callousness, lack of empathy, lack of remorse, and lack of a conscience. They also tend to have shallow emotions and be very cold, unfeeling individuals. They have behavioural traits: they tend to be risk-takers, engage in stimulation-seeking, they tend to be quite irresponsible individuals, very impulsive individuals, and this disorder, or precursors of this disorder, tend to emerge relatively early in life, and they tend to manifest in engaging in antisocial acts. So even if the average person says, "Oh I have one of these characteristics or traits!" That doesn't make you a psychopath. It's the grouping or clustering of all these traits, and it has to be to quite an extreme where you would be labeled or categorized as a psychopath. Now, as for the prevalence, most psychopathy researchers do their research in prisons as that's where you find most psychopaths. So about 10% of the incarcerated population would have many, many psychopathic traits. So that's why we go to prisons to conduct much of our research. Now in the community on the other hand, studies show that the prevalence of psychopathy is about 0.5%.

As mentioned, today on top of defining psychopathy we will dispel some of its myths. The first myth is: All psychopaths are violent. The fact is: Although compared to non-psychopathic criminals psychopaths are more violent and more likely to commit crimes, there are also many psychopaths who are never violent and who will only use charm and manipulation to get what they desire.

The second myth is: Psychopaths do not know the difference between right and wrong, and they lack morals and values. In fact the reality is that research has found that psychopaths do know the difference between what is right and wrong. But simply do not care and may not be inclined to make moral reasoning choices in the same way that you and I do.

The next myth has to do with the cause or origin of psychopathy, which is called the etiology. The myth is: Psychopaths are born, not made. The fact is: although there is a strong genetic contribution, the environment you grow up in and the experiences you have can influence how psychopathic traits are manifested. Research actually shows that psychopathy could be caused from a combination of someone's genes, childhood abuse, and other factors like emotional bonds with parents and discipline practices.

The next myth is: Criminal psychopaths cannot be rehabilitated. The fact is that although psychopaths are challenging to treat and some treatments are not successful there are

some successful treatments. Interventions appear to work the best for younger individuals and when given more intensive treatments.

And the final myth is: Psychopaths are all intelligent. However the fact is that there is not a strong association between psychopathic traits and intelligence. You have smarter psychopaths and less smart psychopaths.

Appendix H

Dog Training Myths Video Script

Hello my name is Adelle Forth. I am currently the vice president of the Bytown Dog Obedience Club and have been a dog obedience instructor for over 20 years. I teach a range of dog classes including puppy and more advanced obedience classes. I also compete in dog obedience and scent detection events with my dogs. Today I am going to talk about some of the top myths relating to dog training.

MYTH: You can't teach an old dog new tricks

FACT: Although some humans might find it harder to learn new things as they age older dogs are certainly able to. Where this saying came from, no one knows. But there are many shelter dogs out there that disprove this theory every day. In fact, sometimes the older dogs are easier to train because they are more able to focus and are less distracted. I have had dogs of all ages in my training classes and they all can be taught things. Certainly, training your young dog is important but you should never stop teaching your dog. Teaching dogs new things as they get older is a great way to bond with your best friend.

MYTH: Dogs can't start training until they are six months old

FACT: There's a misconception about dog training that suggests we can't begin teaching our new pup basic commands such as "sit," "stay" or "come" until they are six months old. This idea is false. While a puppy needs to have all of their vaccinations before they can go to a group obedience class, you can easily work on basic commands in the privacy of your own home from the day you get your pup.

MYTH: He'll Grow out of It

FACT: Does your puppy nip your ankles, jump up on you or your friends, or chew your shoes? Will he stop doing this as he gets older. No, he won't. Imagine you have a cute 15 pound Rottweiler puppy that jumps up on people when they pet him. Do you really want your 80-pound adult Rottweiler dog doing this! If you let your dog do something you don't want as a pup he will be likely to do the same behaviour as an adult. The shelters are full of dogs that were given to shelters because of behavior issues. So, don't let your puppy do something that you don't want it to do when it is older. For example, teach your pup to sit when it is greeting people. A dog that is sitting is not jumping up on people.

MYTH: Playing Tug Will Make My Dog Aggressive

FACT: People used to say that you shouldn't play tug with your dog because it would encourage biting and they can become aggressive. Wrong. However, if played correctly with the right set of rules (including not ever coming in contact with human skin and a reliable drop), there is nothing wrong with a good game of tug! It is a good way to exercise the dog and most dogs love to play tug.

MYTH: My Dog Is Not the Smartest Breed

FACT: There has been a lot of research lately on dog intelligence and not one of them has proven that a dog's particular breed determines a level of intelligence. Therefore, all dogs are intelligent and they can all learn. It's just a matter of figuring out how to develop a relationship and the right environment for your dog to be successful.