FACIAL AFFECT RECOGNITION IN PSYCHOPATHIC

OFFENDERS

by

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ABSTRACT

The present research examined whether psychopathy was associated with impaired facial affect recognition. Participants were selected from a medium-security prison. Emotion recognition was assessed with the pictures of Facial Affect (PFA; Ekman & Friesen, 1976) and the Facial Discrimination Task (FDT; Erwin et al., 1992). Psychopathy scores were obtained by reviewing Psychopathy Checklist-Revised scores contained in inmates' files (PCL-R; Hare, 1991, 2003). Participants also completed the Hare Self-Report Psychopathy Scale (SRP-II; Hare, 1985, 1991). Results failed to support the hypothesis that psychopathy is associated with deficits in facial affect recognition. Scores on the PFA revealed that both psychopathic and non-psychopathic inmates had difficulty identifying expressions of sadness and fear. This finding parallels those reported for non-clinical samples of students (Kirouac & Dore, 1983, 1985) as well as clinical groups such as patients with schizophrenia (Okada et al., 2003).

DEDICATION

This thesis is dedicated to my parents, my husband Ryan, and my sister Angela.

ACKNOWLEDGEMENTS

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INTRODUCTION

Theories of Psychopathy

The concept of psychopathy has existed for over a century (Hare, 1996). Indeed, psychopathy was the first personality disorder to be recognized by clinicians (Millon, Simonsen, Birket-Smith, & Davis, 1998). Philippe Pinel (1745-1848), a French psychiatrist, observed that some of his patients behaved in an impulsive, irrational, and self-damaging manner, despite the fact that their intellect and reasoning abilities were fully intact. In 1801, he introduced the phrase *"manie sans delire"* ("insanity without delirium") to refer to cases in which patients behaved crazily without confusion of the mind (1962). In 1835, an English physician and Ethnologist J. C. Pritchard (1786-1848) coined the term *"moral insanity"*. Pritchard held that there was a fundamental difference between insanity due to defects in reasoning and insanity due to defects in "natural affections." Pritchard argued that in the latter case,

> The intellectual functions appear to have sustained little or no injury, while the disorder is manifested principally or alone in the state of the feelings, temper or habits. In cases of this nature the moral or active principles of the mind are strangely perverted or depraved; the power of self-government is lost or greatly impaired and the Individual is found to be incapable, not of talking or reasoning upon any subject proposed to him, but of conducting himself with decency and propriety in the business of life. (p.85)

In 1941, Hervey Cleckley provided psychologists with one of the first comprehensive descriptions of the psychopathic personality in his book *The Mask of Sanity*. Cleckley sought to understand the psychopath by drawing on a collection of case histories from his own practice. His work was to have a profound and lasting influence on researchers and clinicians' understanding of psychopathy, and the way in which they

would come to think about this construct. Cleckley proposed that the essence of psychopathy was best captured in the individual's pathological emotional and thought processes. For instance, one of the definitive features of the psychopathic personality is a poverty of emotion. In his clinical practice, Cleckley observed that psychopaths could easily manipulate and exploit others without a trace of guilt, shame, or anxiety. While psychopaths may appear quite charming, their interpersonal relations are wholly insincere and superficial. In fact, Cleckley believed that the psychopath was completely incapable of feeling love or compassion for another human being. In addition to these core personality traits, Cleckley noted that the psychopath manifests a characteristic pattern of behaviours. Psychopaths' intellectual functioning is generally in the average to above average range; however, in spite of their intelligence, they impulsively and repeatedly engage in a wide range of antisocial pursuits. The psychopath often partakes for example, in adultery, theft, fraud, and pathological lying, exhibiting poor social judgement, an inability to learn from past experiences, and an apparent obliviousness to punishment. They can also, at times, be aggressive and violent.

Psychoanalytic theorists have also offered their insights into the development of psychopathy. Psychoanalytic theories posit that psychopathy involves a deficit in attachment (Meloy, 1988). As a result of premature separation from the primary caregiver, the psychopathic individual does not bond to others or form secure attachments in infancy. It is argued that early bonding and identification with others, particularly one's parents, are necessary for the later development of empathy. Another component of psychopathy is callousness. In its extreme form, callousness manifests itself in sadism. Psychoanalysts suggest that psychopaths experience indifference towards others and attempt to dominate and control them rather than relating on an affectionate or emotional level. In summary, Meloy argues that the psychopathic process

is characterized by the "coexistence of benign attachment and aggressively pursued, sadistically toned attempts to bond" (p. 59).

The scientific validity of psychoanalytic theories of psychopathy is questionable, as they tend to rely solely on clinical impressions and interpretations of the Rorschach. For example, Gacono and Meloy (1992) collected Rorschach data on adult male inmates. Inmates were assessed to determine whether they met DSM-III-R criteria for APD and/or psychopathy as measured by the PCL-R. The results suggested that inmates who met criteria for both APD and psychopathy (P-APD) could be distinguished from those who met criteria for APD only (N-APD) on the basis of their Rorschach responses. In particular P-APD inmates' responses indicated an absence of anxiety and attachment as well as the presence of pathological narcissism and borderline personality organization.

In sharp contrast to psychoanalytic theory, Hare and his colleagues have provided a theory of psychopathy that has been subjected to rigorous and controlled scientific testing. Hare merged theory and research from two disparate perspectives to formulate a new conceptualization of psychopathy. Hare's conceptualization of psychopathy incorporated criteria from the Diagnostic Manual of Mental Disorders (DSM-II) with aspects of Cleckley's personality-based theory. The DSM-II described psychopaths as unsocialized, impulsive, guiltless, selfish, and callous individuals who rationalize their behaviour and fail to learn from experience (American Psychiatric Association, 1968). Despite this general definition, the DSM-II did not provide clinicians with diagnostic criteria for the disorder. With the advent of DSM-III, a set of explicit diagnostic criteria was introduced for psychopathy, which was henceforth referred to as Antisocial Personality Disorder (APD). However, these criteria were a dramatic departure from the prevailing personality-based descriptions provided by Cleckley.

Instead, the APD criteria introduced by the DSM-III consisted primarily of behavioural indicators. This departure led Hare and other researchers to operationalize the disorder in a manner more consistent with traditional theories of psychopathy. Hare described psychopathy as "a personality disorder defined by a distinctive cluster of behaviours and inferred personality traits, most of which society views as pejorative" (1994, p. xi). Consistent with the DSM-IV classification scheme, psychopathy is argued to be indicative of a personality disorder because it is thought to have an early onset, to influence the individual's long-term functioning, and to result in social and/or occupational dysfunction.

Hare proposes that psychopathy consists of affective, interpersonal, and behavioural characteristics. Affectively, psychopaths display shallow and labile emotions; they are callous and lack the normal range of human emotions, such as empathy, remorse, or guilt. In interpersonal interactions, psychopaths present as grandiose, dominant, and manipulative. Underneath their powerful, but superficial charm, psychopaths are cold hearted, being completely incapable of forming meaningful and lasting relations with others. The behaviour of the psychopath is marked by impulsivity, sensation seeking, and a general failure to accept responsibility and to fulfil social, occupational, and financial obligations. The antisocial behaviour of the psychopath is incredibly diverse, and may range from promiscuity, pathological lying, conning, and substance abuse, to overtly criminal acts that are oftentimes violent in nature. In summary, when the characteristics in these three domains are combined, a very startling psychological profile emerges:

> Psychopaths can be described as intraspecies predators who use charm,
> manipulation, intimidation, and violence to control others and to satisfy
> their own selfish needs. Lacking in conscience and in feeling for others,
> they cold-bloodedly take away what they want and do as they please,

violating social norms and expectations without the slightest sense of guilt (Hare, 1993, p.26).

Upon reviewing the characteristics or symptoms of psychopathy, it follows that psychopaths are capable of exacting considerable costs in society. Indeed, while Hare estimates the prevalence of psychopathy at roughly one percent of the general population, psychopaths may comprise up to 25% of the prison population (1996). Thus, it is apparent that psychopaths' destruction occurs at a magnitude quite disproportionate to their numbers. Given this propensity towards violating the law, psychopathy has typically been studied within offender populations. Psychopathy has considerable negative implications for society, as it is highly predictive of violence and aggression, criminal recidivism, and resistance to treatment or rehabilitation (e.g., see Hart, Hare, & Harpur, 1992 for a review; Hart, Kropp, & Hare, 1988).

Hare's conceptualization of psychopathy lead to the creation of the Psychopathy Checklist-Revised (PCL-R; Hare 1991, 2003) and its predecessor, the PCL, which are considered to be the "gold standard" in the measurement or assessment of psychopathy (Hart et al., 1992). The PCL-R comprises 20 items, which are scored on a 3-point scale, where 0 indicates that the item does not apply to the individual; 1, that the item applies to a certain extent but not to the degree required for a score of 2; a match in some respects but with too many exceptions or doubts to warrant a score of 2; or uncertain whether or not the item applies; and 2, that the item applies to the individual; a reasonably good match in most essential respects. The PCL-R consists of a semi-structured interview and a review of available file and collateral information. Information gathered during the interview is substantiated by collateral sources, such as criminal records or accounts provided by family members; this is necessitated by the psychopath's characteristic dishonesty and deceitfulness. In the absence of an interview,

the PCL-R may also be scored on the basis of file reviews alone. This procedure may be necessary in situations where the individual refuses to be interviewed, when research is conducted using archival data, or when little useful information can be provided by the individual (e.g., due to the presence of psychotic symptoms). The PCL-R manual recommends using a cutoff score of 30 for labelling a person a psychopath (Hare, 1991). Hare cautions that while a categorical diagnosis of psychopathy may be required in some research or clinical settings, "the PCL-R provides a dimensional score that represents the extent to which a given individual is judged to match the 'prototypical psychopath'" (2003, p. 30).

The PCL-R is considered to be a highly reliable instrument. Since the publication of the 1991 manual, hundreds of studies have evaluated its psychometric properties (Hare, 2003). Interrater reliability of individual items range from 0.41 to 0.82 for a single rating, and 0.57 to 0.90 for averaged ratings among samples of male offenders ($N =$ 4891) and male forensic psychiatric patients ($N =$ 1246). Reliability of total scores is 0.86, 0.88, and 0.94 for male offenders, male forensic psychiatric patients, and female offenders, respectively. Reliability coefficients increase to 0.92, 0.93, and 0.97 when averaged over two ratings.

Hare (1991) described a stable two-factor structural model that emerges from the PCL-R items. The first factor consists of both the interpersonal and affective qualities of the psychopath, and is consistent with Cleckley's clinical descriptions of psychopathy. The second factor, by contrast, is more closely aligned with the DSM-IV criteria for Antisocial Personality Disorder, and is comprised of behavioural characteristics such as promiscuous sexual behaviour, juvenile delinquency, and criminal versatility. High interrater reliability of factor scores has been demonstrated in samples of both prison inmates and forensic patients (Hart et al., 1992). Early attempts to replicate Hare's

original two-factor model were generally successful (e.g., Cooke, 1995; Hobson & Shine, 1998; McDermott, Alterman, & Cacciola, 2000; Templeman & Wong, 1994). Such studies have led many researchers to conclude that the two-factor model is the "gold standard" solution for the PCL-R (Cooke & Michie, 2001). However, recent research has introduced evidence supporting other factor solutions. Cooke and Michie (2001) for example, found support for a three-factor model based on 13 of the original 20 PCL-R items. In their model, factor 1 is labelled Arrogant and Deceitful Interpersonal Style; factor 2 is Deficient Affective Experience; and factor 3 is Impulsive and Irresponsible Behavioural Style. A two-factor, four-facet model, using 18 items, has also been proposed (Parker, Sitarenias, & Hare, 2003). In this model, each of Hare's two factors is subdivided into two facets. Factor 1 includes the Interpersonal and Affective facets, while factor 2 is comprised of the Lifestyle and Antisocial facets.

Psychopathy and Emotion

The present research focused on one aspect of psychopathy, disturbed emotional processes. The importance of disturbed affect to the construct of psychopathy has long been acknowledged. Cleckley posited that a marked lack of emotions, including guilt, anxiety, or shame was a central feature of the psychopathic personality (1941). Hare's PCL-R similarly stresses the importance of affective characteristics (1991, 2003). The psychopath's marked lack of emotions has been demonstrated experimentally. Typically, such studies compare the physiological changes in psychopaths and non-psychopaths, such as heart rate, blood pressure, or skin conductance that may be elicited by emotion-inducing stimuli. Other indicators, such as the involuntary startle response or brain activation have also been measured. Psychopaths have shown an abnormal response to aversive emotional stimuli, for example, by responding with less

activation of the autonomic nervous system to sad and fearful facial expressions than non-psychopathic individuals (Angrilli, Mauri, & Palomba, 1996; Lang, Bradley, & Cuthbert, 1990; Phillips, 1997).

Psychopaths also display an abnormal startle reflex in response to unpleasant scenes. Rather than showing a heightened startle response, psychopaths show an inhibited startle response to aversive emotional stimuli compared to neutral stimuli. This is generally taken as evidence for a deficit in anxiety or fear (Patrick, Bradley, & 1993). When compared to inmates with Borderline Personality Disorder (BPD), psychopathic inmates were distinguished by decreased autonomic response to both positive and negative emotional slides, as measured by level of electrodermal activity (Herpertz, 2001). Consistent with the results reported by Patrick et al. (1993), psychopaths were significantly less likely to display a startle response than individuals with BPD. Inhibition of the startle response among psychopaths is also evident in situations designed to evoke the emotion of disgust, for example, when they are shown slides depicting mutilation (Levenston, 2000). Interestingly, the reduced physiological responsivity of the psychopath to emotion does not generalize to threatening or aversive non-facial stimuli designed to elicit the same emotional response, such as a pointed gun (Blair, Jones, Clark, & Smith, 1997).

In general, research has supported the notion that psychopaths exhibit a deviant physiological response to emotional stimuli. More specifically, the decreased responsivity of their autonomic nervous system and inhibition of the startle reflex suggests emotional hyporesponsivity. However, the findings are not clear cut, as some studies suggest that there is evidence of a global deficit in the ability to experience emotion (e.g., Herpetz et al., 2001), while others maintain that this deficit is more

circumscribed, and is evident only for the emotions of sadness and fear (anxiety) (Angrilli et al., 1996; Lang et al., 1990; Patrick et al., 1993).

In addition to the psychopath's deficits in emotional experience or responsiveness, researchers have more recently begun to examine the psychopath's ability to recognize and correctly label the emotions of others, as depicted in their vocal tones or facial expressions. In general, the results of these studies have yielded consistent evidence for deficits in the recognition of verbal affect. For example, psychopaths have been shown to be less adept at matching phrases on the basis of emotional tone and fail to distinguish between affective and neutral words (e.g., Williamson, Harpur, & Hare, 1990, 1991). In contrast, evidence for psychopaths' deficits in recognition of non-verbal (facial) stimuli is more equivocal (see Kosson, Suchy, Mayer, & Libby, 2002 for a review).

Male children with psychopathic tendencies, as measured by the Psychopathy Screening Device (PSD, Frick & Hare, in press), displayed selective impairments in the ability to recognize sad and fearful facial expressions, as well as sad vocal tones (Stevens, Charman, & Blair, 2001). However, there were no differences in the ability to recognize happy or angry facial expressions or vocal tones or fearful vocal tones. When presented with a series of facial expressions depicting the emotions of sadness, happiness, anger, disgust, fear, and surprise in stages of increasing intensity, children with psychopathic tendencies required more stages before they could identify expressions of sadness (Blair, Colledge, Murray, & Mitchell, 2001). These children were also more likely to incorrectly identify fearful expressions, even when the emotion was presented at full intensity. In a study of young adolescents, Blair and Coles (2000) reported that the ability to recognize sad and fearful expressions was inversely related to

both affective-interpersonal disturbance and impulsive/ conduct problems as measured by the PSD.

Adult criminal psychopaths presented with slides of the six prototypic facial expressions of emotion exhibited a deficit in classifying facial expressions of disgust (Kosson et al., 2002). No deficits, however, were observed for sadness or fear. Williamson et al. (1990) reported no deficit among psychopaths in the ability to match pictures on the basis of emotional tone. Similarly, no significant differences emerged between psychopaths and non-psychopaths in one study of the ability to classify nonverbal emotional cues (Patterson, 1990). By contrast, one recent study found that when adult male inmates observed facial expressions evolve through successive frames of increasing emotional intensity, rather than at full intensity, psychopathic individuals showed a selective impairment for the recognition of fearful affect (Blair et al., 2004). Montagne et al. (2005) administered a similar graded intensity task of facial affect recognition in a group of university students. Students scoring high on psychopathic personality characteristics, as measured by the Behavioural Activation Scale (BAS) and the Behavioural Inhibition Scale (BIS), showed impaired recognition of fearful expressions (Carver & White, 1994).

In sum, while psychopaths exhibit deficits in the ability to experience and to recognize human emotions, the nature and extent of this deficit remains unseen. That is, it is unclear whether the deficit is global, or whether it is specific, for example, to the emotions of sadness and fear, or to the modality to which it is presented (verbal vs. visual). Results of facial affect recognition studies are particularly equivocal, with a number of studies reporting that psychopaths perform equally well to nonpsychopaths on tasks of facial affect recognition. In reviewing the literature on non-verbal emotion recognition and psychopathy Kosson et al. (2002) suggested two explanations for the

inconsistent findings. First, methodological problems, including poorly discriminating measures resulting from tasks that allowed for unlimited time exposure to the stimuli or involved multiple non-verbal cues (e.g., film clips), may account for the lack of consistent results. Second, several previous studies have collapsed stimuli across different positive and negative emotions. Thus, if psychopaths exhibit a specific deficit in the recognition of sadness or fear, this difference may be obscured.

The purpose of the present study is to attempt to clarify the relationship between psychopathy and facial affect recognition in a sample of male offenders. The methodological problems associated with previous studies (as reviewed in Kosson et al., 2002) will be addressed by employing two standardized measures of facial affect recognition, the Pictures of Facial Affect (PFA; Ekman & Friesen, 1976) and the Facial Discrimination Task (FDT; Erwin et al., 1992). In addition, because research in the area of emotion recognition and psychopathy has produced conflicting results, other explanations (beyond psychopathy) that may better account for these emotional deficits will be explored. Indeed, while Kosson et al. (2002) addressed previous methodological limitations in their study, the results reported (i.e., specific deficit in classifying disgust) are inconsistent with that of the physiological literature (i.e., specific deficit in responding to sadness and fear). As such, the present study will attempt to discover whether another factor, violence, may assist in the prediction of deficits in facial affect recognition. It is reasoned that individuals who lack the ability to recognize others' emotions, and have a corresponding difficulty experiencing feelings of empathy for their victims, would be more likely to engage in violent offences. Therefore, the relationship between facial affect recognition and type of offences committed will be examined to determine whether the commission of violent crimes is associated with greater deficits in

facial affect recognition, as compared to offenders who committed non-violent crimes (e.g., fraud, drug offences, theft).

Hypotheses

1. A negative correlation between psychopathy and facial affect recognition will be observed. Specifically, both high PCL-R total scores and Factor 1 scores will be associated with decreased scores on the PFA and FDT.

2. Consistent with the physiological research, the relationship between psychopathy and emotion recognition will be most pronounced for the emotions of sadness and fear.

3. Individuals who have a history of violent offending will score lower on the measures of facial affect recognition than those who have committed non-violent offences.

METHOD

Participants

Participants were selected from the population of adult male inmates incarcerated at the Correctional Service of Canada's Matsqui Institution, located in Abbotsford, BC. Matsqui is a medium-security, federal-level facility, and inmates are serving sentences of two or more years. All inmates were considered potential volunteers, with the exception of those currently housed in segregation. In total, 65 individuals were approached for participation. Fifty-one inmates agreed to participate, while 14 declined, representing a 78.46% participation rate.

Several methods were used to recruit volunteers. First, flyers advertising the study were posted on the institution's living units. The flyer briefly outlined the study's procedures, and interested inmates were directed to leave their names with the psychology clerk. Once this pool of volunteers was exhausted, another approach was taken. Inmates were selected from the institutional population list, paged over the intercom system, and asked to report to the psychology building. Once an inmate arrived, the researcher described the study and asked for his participation. When an inmate failed to respond to the page, the researcher sought assistance from a correctional officer to locate the individual on the living unit. In cases where the inmate could not be located (or declined to participate once approached by the researcher) another individual was selected and the same process was repeated. Finally, some participants recommended fellow inmates whom they thought would be interested in the study, and the researcher also approached these individuals.

Participants ranged from ages 19 to 72 years (M = 34.98, SD = 12.27). The sample was predominantly Caucasian (N = 44 or 86.27%). The remaining participants were Aboriginal (N = 7 or 13.73%). Thirty-nine inmates (76.5%) were serving their first federal sentence, while 12 inmates (23.5%) were federal recidivists. The participants' current sentences ranged from two years to life imprisonment. The median length of sentence was four years. Five participants (9.80%) were serving life sentences. With respect to index offence, 31 inmates (60.78%) were sentenced for violent offences, while 20 inmates (39.22%) were sentenced for non-violent offences.

Intelligence test data were available for 28 participants, or 54.90% of the total sample. Intelligence was measured by the Shipley Institute of Living Scale (SILS; Zachary, 1986). The SILS is designed to assess general intellectual functioning in adults and adolescents. It is commonly administered to inmates entering Canada's federal correctional system as part of their initial psychological risk assessment. The measure is self-administered and consists of two subtests: Vocabulary and Abstraction. The SILS has shown to correlate highly with other widely used cognitive screening instruments, such as the Kaufman Brief Intelligence Test (KBIT). One study reported a correlation of 0.77 between the SILS and the KBIT for college students and 0.83 for inmates (Bowers & Baylor, 1998). No significant differences in mean IQ scores on the two measures were found for either group.

Scores on the SILS for the present sub sample indicated that 16 individuals (57.10%) were performing in the Average range of intellectual functioning. Six participants (21.4%) scored in the High Average range. Four participants (14.30%) scored in the Low Average range, and two (7.1%) fell in the Borderline range.

Instruments

Pictures of Facial Affect (PFA; Ekman & Friesen, 1976)

The Pictures of Facial Affect is the most widely used standardized emotion recognition assessment tool. The PFA consists of a set of 110 black and white photographs depicting facial expression of 6 emotions: happiness, sadness, fear, anger, disgust, and surprise. The test was constructed by training posers to contract or relax different facial muscles associated with particular facial expressions. Thus, rather than directing posers to display a given emotion, they were instructed to activate certain muscles. The final stimulus set was chosen on the basis of empirical studies demonstrating high interrater reliability.

Two procedures were used to establish reliability. In the first, U.S. college students were shown slides of each photograph for 10 seconds. An answer sheet provided a choice of the six emotions. Participants were asked to select one word that best described the emotion expressed in each slide. In the second study, participants were asked to rate every slide on each of the six emotions using a 7-point scale (e.g., a slide could be rated as showing maximum happiness and neutral on all other scales, or some degree between). All photographs were judged to show the intended emotion by at least 70% of raters. Ninety percent of the photographs were correctly rated more than 80% of the time; 58% were correctly identified by more than 90% of the raters. The administration of the PFA may vary with respect to exposure time and the number of photographs used. As the most popular standardized test of facial affect recognition, the PFA has been applied to a wide range of clinical populations, including patients with schizophrenia (Okada et al., 2003), women with Borderline Personality Disorder (Bland, Williams, Scharer, & Manning, 2004), children with social phobia (Simonian et al., 2001)

or learning disabilities (Dimitrovsky, Spector, & Levy-Shiff, 2000; Holder and Kirkpatrick, 1991), and adult male inmates (Kosson et al., 2002).

Results of research using the PFA with an inmate population found that they were most accurate at identifying expressions of happiness and surprise. Inmates were least accurate at identifying expressions of fear. In addition, psychopathic inmates showed a specific deficit for classifying facial expressions of disgust as compared to non-psychopathic inmates (Kosson, 2002).

Facial Discrimination Task (FDT; Erwin et al., 1992)

The FDT was originally developed for brain-imaging research in emotion recognition of individuals with schizophrenia or major depression. Like the PFA, the Facial Discrimination Task also consists of a series (approximately 180) of black and white photographs of facial expressions. It was developed by training actors to display happy, sad, or neutral facial expressions. The negatives were retouched to fade distracting features, such as hair, background, and clothing. Photographs were shown to 160 undergraduate students, who were asked to label the expressions as happy, sad, scared, angry, enthusiastic, sleepy, surprised, neutral, or none. Photographs were included in the final stimulus set if at least 70% of the raters of the same gender and race of the poser chose the intended emotion. In addition, the photograph could not be identified as a nontarget emotion by more than 5% of the raters. Concurrent validity studies of the FDT have yielded high correlations with PFA total correct scores in both a group of adults with psychiatric disorders and a group of preschool children (r = .79 and r = .77, respectively) (Rojahn, Singh, Singh, Baker, Lawrence, & Davis, 2002). To our knowledge, the present research is the first to administer the FDT to an inmate population.

Psychopathy Checklist-Revised (PCL-R; Hare, 1991; 2003)

Hare's Psychopathy Checklist is considered to be the gold-standard measure in the assessment of psychopathy. The PCL-R assesses the affective, interpersonal, and behavioural domains of psychopathy. The interviewer rates the individual on 20 items, which are scored on a 3-point scale. A rating of 0 indicates that the item does not apply to the individual; 1, that the item applies to a certain extent but not to the degree required for a score of 2; a match in some respects but with too many exceptions or doubts to warrant a score of 2; or uncertain whether or not the item applies; and 2, that the item applies to the individual; a reasonably good match in most essential respects. The PCL-R items are scored by reviewing file information, such as criminal records or collateral information provided by third parties. A semi-structured interview is typically administered where possible, but the measure may also be scored in the absence of an interview. Collateral information provides primary data for scoring and also allows the interviewer to determine whether the interactional style exhibited during the interview is typical of the individual. According to the manual, a cutoff score of 30 is typically used for a classification of psychopathy.

Violence Risk Appraisal Guide (VRAG; Quinsey, Harris, Rice, & Cormier, 1998)

The Violence Risk Appraisal Guide is an actuarial tool designed to assess an inmate's risk for future violence within a specific time frame following release. The VRAG was developed in a sample of 618 male offenders, many of who had a history of inpatient psychiatric treatment. The instrument contains a 12-item scale that uses the individual's psychosocial history as the basis for scoring, rather than an interview. The PCL-R score is incorporated into the VRAG calculations of risk and is the most heavily

weighted item. Other items on the VRAG in decreasing order of weight are: elementary school maladjustment, offender's age at time of index offence, DSM-III diagnosis of personality disorder, not having lived with his natural parents until age 16; failure on prior conditional release, extent and severity of past non-violent criminal behaviour, never having been married; DSM-III diagnosis of schizophrenia, severity of physical injury suffered by the victim(s) of index offence, severity of alcohol abuse history, and whether there was a female victim of the index offence. The majority of the items are positively correlated with risk for violence, with the exceptions of age, schizophrenia, female victim, and victim injury, which are inversely related. The VRAG has a high predictive accuracy for violence, with an area under the Receiver Operating Characteristic (ROC) of 0.76 when predicting violent recidivism in a seven-year follow-up period.

A large body of research supports the use of the VRAG in predicting future violence. Harris, Rice, and Cormier (2002) reviewed the literature testing the predictive accuracy of the VRAG. They cite 19 studies and conclude "In every study the VRAG either matched or surpassed all other tested prediction methods, including other actuarial systems, nonactuarial checklists, and guided clinical assessments" (p. 379). In their study, the researchers conducted a prospective replication of the predictive accuracy of the VRAG among 467 forensic patients. They report that over a five-year follow-up period, the VRAG significantly out predicted clinical judgement, with a large effect size (ROC = 0.80). Further, the VRAG also proved superior to clinical judgement with very short follow-up and for very serious violence.

The argument that actuarial measures are superior to clinical judgement in the prediction of dangerousness remains controversial, however. Litwack (2001) argues that while actuarial measures outperform clinical judgement for many clinical prediction tasks, this is not necessarily the case for the assessment of dangerousness. He points

out that there are methodological shortcomings inherent in the research comparing actuarial and clinical predictions, and that much of the findings are less than persuasive. Litwack cautions that it is premature to substitute actuarial for clinical prediction, as far more precise evidence of validity is needed.

Hare Self-Report Psychopathy Scale (SRP-II; Hare, 1985, 1991)

The Self-Report Psychopathy Scale is a 60-item individually administered paper and pencil questionnaire designed to provide a self-report analogue to the PCL-R. It has the advantage of being the only self-report measure with close theoretical ties to the PCL-R (Paulhus & Williams, 2004). Its subscales are intended to correlate with PCL-R factor 1, factor 2, and total scores. Hare (1991) reported a correlation of 0.54 between SRP-II and PCL-R total scores for a sample of 100 male prison inmates. Results from the DSM-IV field trials report that the SRP-II performed at least as well as any other self-report measure of the construct (Widiger et al., 1996). SRP-II scores are positively correlated with self-reported delinquent behaviour (Williams, McAndrew, Learn, Harms, & Paulhus, 2001). Negative correlations between SRP-II scores and measures of empathy and anxiety have also been reported (Zagon & Jackson, 1994). Evidence for discriminant validity of this measure is found in the SRP-II's ability to distinguish subclinical psychopathy from other personality types, such as the narcissistic and Machiavellian personalities (Paulhus & Williams, 2002).

Procedure

The present study was approved by both the Simon Fraser University and the Correctional Service of Canada's research ethics boards. Participants were tested individually by the primary researcher. Testing took place in a psychology office in the

institution. Before commencing testing, the researcher described the study's procedures

to the participant. The participant was then asked to read and sign an informed consent

form (see Appendix A). Participation was completely voluntary, and participants were

informed that they could choose to withdraw from the study at any point during the

testing, or, following their participation, may request that their responses be excluded

from subsequent data analysis and communication of results. Participants were assured

that such choices would not result in any negative consequences or prejudicial

treatment. Similarly, it was stressed that the research was not affiliated in any way with

the institution, and that participants would not be given preferential treatment, nor looked

upon more favourably than non-participants, by members of the institution. All responses

were confidential and anonymous: participants were informed that their names would not

be attached to their responses and that their individual responses would not be

disclosed to anyone outside of the study.

To test recognition of facial affect, both the Pictures of Facial Affect (PFA; Ekman

& Friesen, 1976) and the Facial Discrimination Task (FDT; Erwin et al. 1992) were used.

The order of presentation of these tasks was counterbalanced to avoid any systematic

practice or fatigue effects. For both tasks, stimuli were presented via a laptop computer

in the form of a Microsoft Power Point presentation. Participants were asked to attend to

each photo presented and to circle, from a list of choices on a response sheet, which

emotion best fit with the photo. Participants completed three practice items to orient

them to the tasks. They were given feedback on their responses to these items. For the

test items, each face was displayed on the computer for one second. The participants

then had two seconds to choose and record their response. Each of the tasks consisted

of a total of 36 items. On the PFA, each of the six emotions (i.e., happy, sad, anger,

surprise, fear, and disgust) was presented six times. On the FDT, three emotions (i.e., happy, sad, and neutral) were presented 12 times.

Psychopathy was measured with the PCL-R (Hare, 1991; 2003). Permission was sought from Corrections Canada, as well as from individual participants, to access inmate files for the purpose of reviewing previously administered PCL-R scores (as well as criminal history information). PCL-R ratings were conducted by correctional psychologists at the M.A. or Ph.D. level. The majority of ratings were completed at the Regional Reception and Assessment Centre as part of the initial risk assessment process. The risk assessment is completed prior to the individual's placement in their parent institution. For a minority of participants, PCL-R ratings were conducted at a later point in their incarceration (e.g., for the purpose of a National Parole Board hearing). Because not all inmates had PCL-R scores available, participants also completed the Hare Self-Report Psychopathy Scale (SRP-II; Hare, 1985; 1991). Six individuals either refused to complete the questionnaire or only partially completed it. Together, the emotion recognition tasks and the self-report measure took roughly 30 minutes for the participants to complete.

Finally, in order to evaluate whether there is a relationship between violent offending and impaired emotion recognition, the researcher examined participants' index offences and sentences as well as actuarial estimates of risk for future violence. Index offence was coded as either violent or non-violent and the length of sentence was recorded in number of days. Estimates of risk for future violence were provided by inmates' scores on the Violence Risk Appraisal Guide, which were obtained by reviewing participants' institutional psychology files (VRAG; Quinsey, et al., 1998).

RESULTS

Performance on emotion recognition tasks

Facial Discrimination Task (FDT)

All 51 participants completed both of the emotion recognition tasks. Overall, participants had little difficulty distinguishing among happy, sad, and neutral facial expressions, and a ceiling effect was observed on the FDT. Scores ranged from 31/36 correct responses to the maximum score of 36 (M = 34.3, SD = 1.3). A median split was conducted on FDT scores and a One-Way ANOVA revealed that high scorers and low scorers on the FDT did not differ in their PCL scores, $F(2, 32) = 1.31$, $p = 0.27$. As a result of the ceiling effect, no further analyses were conducted on this measure.

Pictures of Facial Affect (PFA)

Scores on the PFA ranged from 18/36 to 31/36 correct responses (M = 25.8, SD = 2.6). Scores on the PFA were significantly correlated with scores on the FDT, $r = 0.45$, $p = 0.001$. A One-Way ANOVA did not reveal any differences in PFA scores across ethnic groups (i.e., Caucasian and Aboriginal) $F(2, 50) = 0.17$, $p = 0.85$. Similarly, scores on this measure were not significantly correlated with age $r = -0.063$, $p = 0.66$ (N = 51).

A repeated-measures ANOVA revealed significant differences among scores on the six emotions, Greenhouse-Geiser $F(3.21, 125.36) = 42.91$, $p = < 0.01$. Pairwise contrasts indicated that participants were significantly less likely to correctly identify the emotions of sadness $t(50) = -4.82$, $p < 0.01$, and fear $t(50) = 4.98$, $p < 0.01$. In descending order of mean correct responses, participants were most accurate at

identifying expressions of happiness, followed by surprise, disgust, anger, sadness, and fear (see Table 1).

TABLE 1: Mean Number of Correct Responses on the Pictures of Facial Affect (PFA) by Emotion

Emotion	*M*	(%)	*SD*
Happy	5.96	99.33	0.20
Surprise	5.22	87.00	0.95
Disgust	4.67	77.83	1.24
Anger	4.55	75.80	1.10
Sad	3.45**	57.50	1.29
Fear	1.94**	32.33	1.39

Note. Participants were significantly less likely to correctly identify the emotions of sadness and fear.

N = 6 stimuli per emotion, p < .01

Psychopathy and Associated Measures

Psychopathy Checklist-Revised (PCL-R)

PCL-R scores were available on file for 33 participants. Scores ranged from 14 to 35, with a median score of 24. Adopting the cut score of 30, 10 participants met the cutoff for psychopathy. Scores on factor one of the measure ranged from one to 14, with a median score of 10. Factor two scores ranged from seven to 19, with a median score of 13.

Hare Self-Report Psychopathy Scale (SRP-II)

Forty-six participants completed the SRP-II. The mean total score for this measure was 117.30 (SD = 16.04), with a range from 89 to 153. SRP F1 scores ranged from 15 to 48 (M = 34.50, SD = 7.41). SRP F2 scores ranged from 27 to 85 (M = 52.41, SD = 12.75). On the SB subscale, scores ranged from 15 to 43 (M = 30.74, SD = 6.36). In general, the SRP total and subscale scores did not correlate significantly with PCL-R scores obtained from inmate files, with one exception (see Table 2). A significant correlation was observed between PCL-R Factor 1 scores and the SRP-II SF1 scale, which is designed to measure this factor score (r = 0.55, p = 0.01, N = 33).

TABLE 2: Concurrent Validity Coefficients

PCL-R Score

SRP-II Scale	Factor 1	Factor 2	Total Score
SF1	.547**	-.267	.294
SF2	.193	.352	.039
SB	-.137	.005	-.051
STOT	-.160	.176	.138

**Correlation is significant at .01 level

Psychopathy and emotion recognition

Correlational analyses failed to show a significant relationship between PCL-R total scores and scores of emotion recognition as measured by the PFA (r = 0.03, p = 0.86, N = 33). Neither factor one nor factor two scores yielded significant correlations

with PFA total scores (r = 0.09, p = 0.62; r = -0.01, p = 0.94, respectively). With respect to the self-report measure, SRP-II total scores and factor scores did not correlate significantly with PFA total scores (r = -0.12, p = 0.44; r = -0.16, p = 0.91; r = -0.10, p = 0.53, respectively, N = 46).

Also, contrary to emotion-specific hypotheses, PCL-R total score did not correlate with the ability to recognize facial expressions of fear (r = -0.08, p = 0.68) or sadness (r = 0.08, p = 0.67, N = 33).

Violent Offending and Emotion Recognition

In order to evaluate the relationship between violent offending and emotion recognition, the researcher examined participants' index offences and sentences as well as actuarial estimates of risk for future violence. Participants' index offences were coded as either violent or non-violent. Violent offences were included any assault (including sexual assault, murder (manslaughter to first-degree), robbery, and forcible confinement / kidnapping. Thirty-one inmates (60.78%) were sentenced for violent offences, while 20 inmates (39.22%) were sentenced for non-violent offences. Ninety percent of psychopathic inmates had committed a violent index offence, compared to 73.9% of the non-psychopaths. Results of a chi-square analysis did not reveal a significant relation between psychopathy and type of offence committed, χ^2(1, N = 33) = 1.08, p = .30. A one-way ANOVA was conducted to evaluate whether inmates who committed a violent index offence would show impaired facial affect recognition on the PFA. Results showed that inmates who committed violent or non-violent offences performed equally on the PFA, F(1) = 2.27, p = .138. Similarly, the length of index sentence was unrelated to facial affect recognition ability (r = .11, p = .14, N = 51). In addition to coding inmates' index sentences, VRAG scores were also available on file for 32 participants. Scores ranged

from a low of 0 to a high of 26, with a median score of 14. High scores on the VRAG

were not associated with impaired facial affect recognition, (r = -0.10, p = 0.59, N = 32).

DISCUSSION

Results of the present research did not support the hypothesis that psychopathic inmates show impaired recognition of facial affect. With respect to the question of a possible global deficit in emotion recognition, total scores on the Pictures of Facial Affect did not correlate significantly with PCL-R factor one, factor two, or total scores. Further, the emotion-specific hypothesis that psychopathic inmates would show impaired recognition of sad and fearful expressions was also unsupported. Finally, based on a coding of the participants' index offence as well as scores on a risk assessment measure of violence (VRAG), emotion recognition was unrelated to past violent offending, risk of future violent offending, or length of sentence. Therefore, while physiological research has shown that psychopathic individuals exhibit abnormal responses to emotional stimuli on the basis of the current study it remains unclear whether differences in the psychopath's internal experiences translate into cognitive deficits in recognizing others' emotions.

In contrast to the current research, one recent study (Blair et al., 2004) reported deficits in the recognition of fearful affect among psychopathic individuals. Adult male inmates viewed slides from the Pictures of Facial Affect series. Participants observed facial expressions evolve slowly through 20 successive frames of increasing emotional intensity. Response latency in identifying the emotions was measured; number of errors was also recorded. Psychopathic individuals in this study showed a selective impairment for the recognition of fearful affect, as evidenced by both a reduced sensitivity and greater number of errors compared to control participants. There are several possible reasons why Blair et al. (2004) reported a deficit in fear recognition for psychopathic inmates while the present study yielded no such differences. First, the current study

presented the emotional stimuli at full intensity, while Blair et al. used a graded intensity procedure. It appears that the psychopath's deficit in recognition of fearful facial expressions may be a subtle one, apparent only under conditions of considerable difficulty or ambivalence. Less sensitive measures may obscure this deficit. One may therefore question what impact, if any, such a circumscribed deficit may have on the psychopath's ability to interact with others in the environment. While we are regularly exposed to emotions of varying intensity, other social cues, such as eye contact and body language, may allow psychopaths to compensate for this modest deficit. This is consistent with Cleckley's (1941) view that psychopaths have a "mask of sanity" and appear normal under many real-life circumstances. It would be most advantageous for psychopaths to be able to read the emotions of others without having to experience accompanying guilt, remorse, or anxiety when they engage in conning or manipulative behaviours.

A second reason for the discrepant findings may lie in the differences in sample selection. For the present study, participants with the full range of PCL-R scores were used and primarily correlational analyses were conducted. In cases where categorical analyses were used, a cut score of 30 was required for psychopathy, while all individuals scoring below were labelled as non-psychopaths. Blair et al. also utilized a cut score of 30 for the psychopathic group. However, non-psychopaths were those inmates with a score of less than 20; those individuals with scores between 20 and 29 were excluded from the study. This comparison of two extreme groups increases the study's power and makes it easier to detect between group differences. However, our sample consisted of a large number of individual falling between these extreme scores. Indeed, Blair et al.'s selection criteria would have been precluded in the present study due to small sample size.

Analyses conducted on the entire sample yielded significant differences among the six emotions on the PFA. Scores on this measure revealed that as a whole, inmates were most accurate at identifying facial expressions of happiness, followed by surprise, disgust, anger, sadness, and fear. Both psychopathic and non-psychopathic inmates were significantly less accurate at identifying facial expressions of sadness and fear compared to other emotions. Intuitively, these findings fit with an inmate population. Prison subculture dictates that individuals should not appear vulnerable to others in order to avoid being ridiculed or preyed upon. It follows that the emotions of sadness and fear would be the least socially acceptable in such an environment, and it would be adaptive to hide these emotions. By masking such emotions, it is possible that over time, offenders might come to be less able to identify these same emotions in others. However, a review of the literature reveals that deficits in the recognition of sadness and fear are not unique to an inmate population, and in fact, parallel those reported for non-clinical samples. In one such study, 300 French Canadian high school, college, and university students were tested with the PFA (Kirouac & Dore, 1985). Significant and strong differences were found among emotions, accounting for over 62% of the variance in participants' scores. Consistent with the current study, students were least accurate in identifying sadness and fear on the PFA.

Similar results have also been reported among various clinical groups. A cross-cultural study of patients with schizophrenia reported impaired recognition of fear (Okada et al., 2003). Finally, a study of learning disabled and non-learning disabled children found that younger children took longer to identify expressions of fear (Holder & Kirkpatrick, 1991). In sum, while a disturbance of normal affective processes is a core feature of psychopathy, this study suggests that psychopathic inmates (and inmates in

general) do not differ from other groups in their pattern of abilities of facial affect recognition.

Despite the finding that inmates have difficulty recognizing the same emotions as do those in normative samples, the results of the present research are insufficient to conclude that inmates are equally skilled at recognizing facial expressions as members of the general population. In order to do so, it is necessary to compare mean scores on the PFA between inmates and non-inmates. Since the present research sought to compare differences between psychopathic and non-psychopathic inmates, a normative sample was not available. Comparisons between the present study and Ekman and Friesen's (1976) standardization sample were not possible due to differing procedures. While the standardization sample involved a 10 second exposure time to the stimuli, the present research replicated Kosson et al.'s (2002) research with inmates, and limited exposure to one second to increase the sensitivity of the measure. Future research seeking to evaluate whether inmates show impaired facial affect recognition relative to non-incarcerated individuals would expose both groups to a standardized procedure.

Limitations of the present study must also be considered. Because existing PCL-R scores were used, it is unclear the extent to which these profiles accurately reflect each inmate's level of psychopathy. All of our participants were not administered the PCL-R by the same individual and measures of interrater reliability of the scores were not available. In addition, for some inmates, only SRP-II scores were available. It is noteworthy that this questionnaire allows for a briefer and less comprehensive assessment of psychopathy than the PCL-R, and its validity is constrained by the honest self-report of the participants. To address this concern, we calculated the correlations between these two measures for the group of inmates who had PCL-R results on file. However, the results of our analyses demonstrated modest correlations between the

PCL-R and the SRP-II. Therefore, by limiting our analyses primarily to the PCL-R measure of psychopathy, our sample size was considerable decreased. In general, our small sample size coupled with a measure that lacked sensitivity (e.g., in comparison to Blair et al.'s graded intensity procedure) may have precluded the detection of a subtle effect of psychopathy on emotion recognition.

This study attempted to address existing gaps in the research literature on psychopathy and emotion, first by employing standardized tests of emotion recognition to address previous methodological issues, and second, by exploring alternate explanations for deficit emotional processes, namely a history of violent offending. Understanding the emotional processes of offenders in general and psychopathic offenders in particular, may ultimately assist mental health professionals and correctional staff in the treatment and management of inmates. Many of the correctional programs available to offenders in Canada focus on the emotions of the offender himself and/or his victim(s). If research indicates that certain (i.e., psychopathic or other) inmates have a fundamental deficit in emotion recognition, it is possible that these inmates may derive less benefit from such programs that do not take these difficulties into consideration.

Contrary to the hypotheses, psychopathic inmates did not exhibit deficits in facial affect recognition. Instead, both psychopathic and non-psychopathic inmates exhibited greater difficulty identifying emotions of sadness and fear. Both non-clinical and clinical groups have previously demonstrated difficulty identifying these particular emotions. This suggests that, despite living in the unique environment of a prison, inmates do not differ from the larger population in their pattern of abilities identifying others' expressions of basic emotions.

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APPENDICES

Appendix A

Consent to Participate in Emotion Recognition Study

You have been invited to participate in a research study on emotion recognition in male offenders. The research will be conducted by Kimberly Kreklewetz, a Master's level student in psychology at Simon Fraser University (SFU). The research will be supervised by Drs. Ronald Roesch and James Hemphill, who are faculty members at SFU. The research has been approved both by SFU and the Correctional Services (CSC) of Canada's Research Ethics Boards.

If you choose to participate, you will be asked to complete two brief tasks of emotion recognition, in which you will be shown a series of photographs of people's facial expressions. For each of the photos, you will be asked to decide, from a list of choices, which emotion the person is showing, for example, happiness or sadness. In addition, you will be asked to complete two paper-and-pencil personality questionnaires. In total, these tasks are expected to require less than 30 minutes of your time.

In addition to completing the emotion recognition tasks, the researcher will require access to your CSC file in order to learn more about what makes certain people better able to recognize emotions than others. Information in your file will be kept strictly confidential- it will not be shared with CSC staff, other inmates, or members of the community. Only the researcher and her supervisors will have access to this information. Information in your file and the results of the emotion recognition tasks will also remain anonymous- your name will not be attached to your responses or to your personal information and criminal record. Any information that is obtained during this study will be kept confidential to the full extent permitted by the law. Knowledge of your identity is not required. You will not be required to write your name on any other identifying information on research materials. Materials will be maintained in a secure location.

Participation in the study is completely voluntary. Should you choose to participate, you may withdraw from the study at any time without penalty. The research is not affiliated with Corrections Canada. You will not be penalized for declining to participate, nor will you be provided with compensation for your participation.

If you have any further questions, you may contact the chair of the psychology department at SFU, Dr. Daniel Weeks, at: (604) 291-3358

Yes, I agree to participate in the emotion recognition study. I understand that this means that the researcher, Kimberly Kreklewetz, will have access to information contained in my CSC file for the purposes of this study.

Signed,

_____

Date

_____