

# Self-Reported Psychopathy and Its Association With Criminal Cognition and Antisocial Behavior in a Sample of University Undergraduates

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The present study examined the construct of psychopathy (as assessed via self-report) and its relation to criminal attitudes, criminal thinking styles, and self-reported antisocial behavior in a sample of 248 Canadian university undergraduate students. Participants completed 3 forensic self-report measures (Self-Report Psychopathy: Short Form; Criminal Sentiments Scale–Modified; Criminal Thinking Profile), and a measure of self-reported antisocial behaviour. Moderate to large positive correlations were observed among the 3 forensic self-report measures. Self-reported antisocial behaviours, organized into 2 groups reflecting serious infrequent antisocial behaviours and more frequent but generally less serious rule violations, were significantly positively correlated with several indexes of psychopathy and criminal cognition. Multiple regression analyses revealed that, controlling for Criminal Thinking Profile and Criminal Sentiments Scale–Modified scales, the Self-Report Psychopathy: Short Form Antisocial scale uniquely predicted serious self-reported antisocial behaviour while its Lifestyle scale uniquely predicted more frequent and less severe antisocial behaviour. The present study supports the construct validity of self-report forensic measures in a university undergraduate sample and the relations of self-reported psychopathic traits to criminal cognition and antisocial behaviour.

**Keywords:** psychopathy, criminal thinking styles, criminal attitudes, antisocial behaviour

Psychopathy is a complex personality disorder characterised by such symptoms as glibness and superficiality, egocentricity, impulsivity, irresponsibility, and lack of remorse or guilt. Individuals with this disorder are well-known for their antisocial and often criminal behaviour (Hare, 2003), and accordingly, much of the extant psychopathy research has featured samples from forensic psychiatric or correctional settings. Within the past decade, however, there has been a proliferation in research activity featuring noncriminal psychopathic individuals in the community. The present review considers psychopathic individuals within both criminal and noncriminal contexts.

## Psychopathy and Its Criminal Justice Correlates: The “Unsuccessful” Psychopath?

Individuals scoring high on the Hare Psychopathy Checklist–Revised (PCL–R; Hare, 2003) have higher base rates in forensic or correctional settings, approximately 15% to 25% (Hare, 1996), in contrast to only about 1% in the community (Blair, Mitchell, & Blair, 2005; Coid, Yang, Ullrich, Roberts, & Hare, 2009; Hare, 1996). Psychopathic individuals in general, and those scoring high on PCL–measured psychopathy in particular, commit a larger number of crimes; engage in frequent and diverse criminal behav-

iours, including acts of violence and sexual aggression; are more likely to engage in instrumental or goal-directed acts of aggression; are more likely to breach conditional release; and pose an elevated recidivism risk for a variety of outcomes (Hare & McPherson, 1984; Hare, McPherson, & Forth, 1988; Harpur & Hare, 1994; Hart, Kropp, & Hare, 1988; Kosson, Kelly, & White, 1997; Leistico, Salekin, DeCoster, & Rogers, 2008; Williamson, Hare, & Wong, 1987).

Theory and research concerning the causes and correlates of antisocial behaviour has identified myriad social, psychological, and biological factors that have been found to be no less salient for psychopathic offenders (Patrick, 2006). This includes a relatively enduring pattern of values and beliefs that condone or even legitimize antisocial behaviour, sometimes known as criminal attitudes (Simourd, 1997; Simourd & Hoge, 2000). Research also has demonstrated positive correlations between psychopathy and various self-report measures of criminal attitudes and thinking (Gonsalves, Scalora, & Huss, 2009; Mitchell & Tafrate, 2011; Simourd & Hoge, 2000). It seems reasonable that an individual with pronounced psychopathic traits is more likely to harbor attitudes supportive of antisocial conduct and weak sentiments toward prosocial, selfless behaviour. The mechanism by which this link may be manifested in overt antisocial behaviour is less clear, however, as is whether such a link also occurs in nonoffender populations.

## Successful Psychopaths in the Corporate World, Community, and Classroom

Arguably much of the extant literature has focused on the “unsuccessful psychopath,” that is, those individuals who come in contact with the justice system when their behaviour eventually

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This article was published Online First May 4, 2015.

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catches up to them. This so-called lack of success reflects an ultimately self-defeating pattern of behaviour resulting in criminal justice sanctions and consequent inability to productively harness what some argue are adaptive features inherent to the syndrome (e.g., such as fearlessness, charm, ruthlessness, mental toughness to name a few; cf. Dutton, 2012). But certainly not all psychopathic individuals engage in criminal activity (Stevens, Deuling, & Armenakis, 2012) and with the lack of formal criminal documentation to identify these people, finding and researching psychopathic individuals in the general public can prove challenging (Babiak, 1995). One prominent line of research has identified psychopathic personalities in community and business samples, referring to these people as “successful psychopaths” given their apparent ability to avoid criminal sanctions (Babiak, Neumann, & Hare, 2010; Lykken, 1995; Stevens et al., 2012). These individuals often display a smaller degree of the antisocial traits than their institutionalized counterparts (DeMatteo, Heilbrun, & Marczyk, 2006; Mahmut, Homewood, & Stevenson, 2008) and often possess positive job attributes such as strategic thinking, creative or innovative ability, and good communication skills conducive to job success (Babiak et al., 2010).

Although psychopathy is comparatively rare in the general population, when present, the syndrome continues to pose significant social costs within corporate and other community settings. Even noncriminal psychopaths commonly engage in destructive behaviours such as cheating, lying, and truancy (Hare, 1993); academic misconduct (Nathanson, Paulhus, & Williams, 2006); unethical decision making (Stevens et al., 2012); have high levels of alcohol use or abuse (Mullins-Nelson, Salekin, & Leistico, 2006; Neumann & Hare, 2008); and participate in violence and bullying (Williams, Paulhus, & Hare, 2007; DeMatteo et al., 2006). Psychopathic individuals in corporate settings specifically also are likely to possess negative job attributes such as poor management style, poor performance appraisals, and an inability to act as a team player (Babiak et al., 2010). Given that the psychopathic men and women who gain advancement in the corporate world tend to do so despite lacking demonstrable quality in their work, it has been suggested that the very interpersonal characteristics that make one psychopathic also happen to be conducive to success in areas like business (Babiak et al., 2010; Stevens et al., 2012). These realities underscore the need for continued examination, application, and refinement of psychometrically viable tools to identify noncriminal psychopaths and the factors that differentiate criminal psychopaths from those who are seemingly successful in the general population.

### Self-Report Assessment of Psychopathy

At first blush, self-report measures are particularly practical for psychopathy research with community populations as they do not require clinical interviews or access to private documentation (Williams et al., 2007), they are easy to administer, can systematically assess response sets (e.g., random responding), and do not require observer judgment (Lilienfeld & Fowler, 2006). There are important drawbacks, however (Hart, Cox, & Hare, 1995; Lilienfeld & Fowler, 2006; Lynam, Whiteside, & Jones, 1999). First, psychopaths are notorious for their deceitfulness, and it is conceivable that impression management biases may undermine the veracity of the responses they give. Moreover, Lilienfeld and Fowler (2006)

argued that psychopaths often lack insight about their own personal and psychological problems, and in addition, exhibit a “semantic aphasia”; that is, “it may be inherently problematic to ask individuals who have never experienced an emotion (or who have experienced only weak variants of this emotion) to report on its absence” (p. 110). Historically, different self-report measures of psychopathy have yielded weak convergence, and the correlations observed between different measures are potentially inflated by method covariance (i.e., correlations between different measures of a construct will be higher when employing a common method, such as self-report; Lilienfeld & Fowler, 2006). Finally, some self-report measures, particularly broad multidimensional measures of personality and psychopathology, may not possess adequate content validity, measuring lifestyle behavioural features of psychopathy to the neglect of interpersonal and affective features (e.g., Edens, Hart, Johnson, Johnson, & Olver, 2000; Lilienfeld & Fowler, 2006).

Some of the aforementioned concerns about the self-report assessment of psychopathy have been offset through the development of specialized self-report measures as well as an increase in theoretically informed uses of proxy tools (e.g., measures of the five-factor model of personality) to assess psychopathic traits. A detailed discussion of these measures and their psychometric properties is beyond the scope of this overview, however, a tool with promise and the focus of the present study is the latest iteration of the Self-Report Psychopathy Scale and its Short Form (SRP-SF; Paulhus, Neumann, & Hare, *in press*). The SRP scales are derived from the Hare PCL measures, and thus endeavour to representatively capture the interpersonal, emotional, lifestyle, and antisocial behavioural features of the syndrome; in principle, the tool should have good construct validity for self-reported psychopathy. As evidence exists elsewhere that self-report and informant ratings of psychopathic personality traits can have high levels of agreement (Miller, Jones, & Lynam, 2011), this belies the conventional wisdom that psychopaths tend to lack insight and are poor observers of their own behaviour and suggests it is possible to obtain valid and reliable self-appraisals of this construct.

### Rationale for the Present Study and Hypotheses

There are important advantages in research and practice for a psychometrically robust self-report measure of psychopathy, especially if such a tool also can be used to assess individual differences in psychopathic traits in nonforensic populations for whom base rates of psychopathy and PCL scores tend to be extremely low. However, there is also a need for further psychometric research on the assessment of psychopathy via self-report, particularly involving promising newer measures that have emerged, such as the latest iteration of the SRP and its short form. Given this need, the present study examined self-reported psychopathic traits, measured dimensionally via the SRP-SF, in a Canadian sample of university undergraduate students and association of such traits with self-report operationalizations of criminal cognition and antisocial behaviour.

The present study thus had the following objectives: (a) to examine the psychometric properties of the SRP-SF, including its convergent (and hence construct) validity with self-report measures of criminal cognition and whether such a relation would extend to a university (and hence nonforensic) sample; (b) to

examine the pattern and individual differences in self-reported psychopathic traits within a university student sample, including gender differences, given that men tend to have more psychopathic traits than women (Hare, 2003); and (c) to examine the association of the SRP-SF factor scales with a concurrently assessed criterion measure of self-reported antisocial behaviour (an examination of concurrent validity), which was developed for the purposes of the present study (rather than obtaining an existing measure) to examine specific antisocial behaviours ranging in severity that were of interest to us and that seemed germane to the construct of self-reported psychopathy. The third objective also sought to examine whether such an association would hold up after controlling for self-report measures of criminal attitudes (Criminal Sentiments Scale-Modified; CSS-M; Simourd, 1997) or criminal thinking styles (Criminal Thinking Profile; CTP; Mitchell & Tafrate, 2011). We use the term *criminal cognition* broadly to refer to criminal attitudes or criminal thinking as assessed by the latter two measures.

We included the CSS-M as a common criminal attitudes measure that has enjoyed frequent use in Canadian corrections with demonstrated solid psychometric properties. The tool has been found to predict recidivism (Simourd & Olver, 2002) and to be positively correlated with scores on risk assessment, psychopathy, and criminal attitude measures (Simourd, 1997). In turn, the CTP was included as this measure is intended to expand on thinking patterns such as those examined by other criminal attitude/thinking measures and links criminal thinking patterns with behavioural intentions. Mitchell and Tafrate (2011) found CTP scores to be inversely correlated with healthy personality functioning as measured by the Emotional Quotient Inventory (EQ-I; Bar-On, 1997) and positively correlated with criminally relevant disorders, including psychopathy.

The following hypotheses were proposed.

*Hypothesis 1:* Self-reported psychopathic traits (SRP-SF) would be positively correlated with measures of criminal attitudes (CSS-M) and criminal thinking (CTP).

*Hypothesis 2:* Self-reported antisocial behaviour would be positively correlated with high scores on each of the forensic self-report measures in the sample as a whole and across gender.

*Hypothesis 3:* SRP-SF factor scores would incrementally predict self-reported antisocial behaviour after controlling for CSS-M and CTP scale component scores.

*Hypothesis 4:* Men would score higher on the SRP-SF, CSS-M, and CTP scales than women.

## Method

The proposed research received ethical approval from the University of Saskatchewan Psychology Research Ethics Committee (Psy-REC. No. 12-036).

## Participants

A purposive convenience sample of 248 undergraduate students (81% women,  $n = 201$ , 18% men,  $n = 44$ , and 1% not specified,  $n = 3$ ) was obtained from the University of Saskatchewan psychology

participant pool. The sample was 19.3 years of age on average ( $SD = 3.2$ , range = 17 to 40). The majority of respondents were in first year university (66%,  $n = 164$ ), followed by second year (17%,  $n = 42$ ), third (6%,  $n = 14$ ), fourth (4%,  $n = 11$ ), and fifth year (1%,  $n = 2$ ). Most of the sample (74%,  $n = 183$ ) was White, followed by South or East Asian (9%,  $n = 23$ ), West Asian (2%,  $n = 6$ ), African/Caribbean (2%,  $n = 5$ ), Aboriginal/Metis (1%,  $n = 3$ ), Latin American (<1%,  $n = 1$ ), or not reporting (11,  $n = 27$ ). Most (49%,  $n = 122$ ) reported having some form of Christian faith, followed by no reported religion (29,  $n = 72$ ), or having an Eastern religious faith (5%,  $n = 12$ ), and the remainder unknown (17%,  $n = 42$ ).

## Self-Report Measures

**SRP-SF.** The SRP-SF (Paulhus et al., in press) is a 29-item measure consisting of various statements pertaining to the characteristic personality and behavioural traits of psychopathic individuals. Ratings were based on a 5-point Likert-type scale ranging from 1 (*disagree strongly*) to 5 (*agree strongly*) were used to determine to what extent participants subscribed to these characteristics. Seven items each loaded on the Interpersonal scale (e.g., "I would get a kick out of 'scamming' someone";  $\alpha = .79$ , 95% CI [.74, .83]), Affective scale (e.g., "Most people are wimps";  $\alpha = .74$ , [.69, .79]), and Lifestyle scale (e.g., "I've done something dangerous for the thrill of it";  $\alpha = .78$ , [.73, .83]),<sup>1</sup> and eight items on the Antisocial scale (e.g., "I have threatened people into giving me money, clothes, or makeup" and "Every now and then I carry a weapon (knife or gun) for protection";  $\alpha = .60$ , [.52, .68]). Psychometric research supports the four-factor model of the SRP in international (Neumann, Schmitt, Carter, Embley, & Hare, 2012) and community samples (Mahmut, Menictas, Stevenson, & Homewood, 2011), its association with criminality in a nonoffender community sample, and internal consistency ( $\alpha = .69$  to .76 across the four SRP scales; Mahmut et al., 2011). A principal components analysis (PCA) was conducted on each of the four scales to examine their dimensionality (loading ranges for the first extracted component in parentheses) in the present sample. One component was extracted for the Lifestyle scale (.49–.81), while two components were extracted for the remaining scales, with one item loading on the second component: Interpersonal (.56–.75), Affective (.43–.75), and Antisocial (.31–.69). The aberrant item was removed from each of the three scales to yield unidimensional scales for statistical analyses.

**CSS-M.** The CSS-M (Simourd, 1997) is designed to assess the thinking patterns and attitudes related to criminal behaviour. It is composed of 41 items scored on a 3-point scale ranging from 0 (*disagree*), 1 (*neither agree or disagree*), to 2 (*agree*). The items are both positively and negatively valenced (i.e., reverse keyed) with higher scores indicating an endorsement of criminal attitudes. The CSS-M is organized into five rationally derived scales: Law, Courts, Police (LCP, usually combined as a single 25-item scale; e.g., "The law is rotten to the core";  $\alpha = .82$ , 95% CI [.78, .85]), Tolerance for Law Violations (TLV, 10 items, e.g., "Most successful people broke the law to get ahead in life";  $\alpha = .71$ , [.65,

<sup>1</sup> One item from the Lifestyle scale was omitted due to technical problems with the survey software, and thus study data are based on six items from this scale.

.77]), and Identification with Criminal Others (ICO, 6 items, e.g., "I have very little in common with people who break the law";  $\alpha = .43$ , [.31, .54]). A PCA was conducted on each of the three scales to examine their dimensionality in the present sample. The component loading ranges for the first component are noted in parentheses: LCP (.11–.64), TLV (.29–.67), and ICO (.15–.69). Of note, even when PCA was conducted on the individual L, C, and P scales, one additional component was extracted with one or two items loading. Thus, a decision was made to retain the LCP as a single unit of analysis for parsimony and given that this is the most common form in which the scale is used in criminal justice settings. However, as each scale proved multidimensional, five items were removed from the LCP scale and two items each from the TLV and ICO scales to yield unidimensional scales for statistical analyses.

**CTP.** The CTP (Mitchell & Tafrate, 2011) consists of 65 items, three of which are validity items and the remaining 62 are organized into eight factor analytically derived scales: Inability to Cope (7 items, e.g., "Life has more responsibilities than I can deal with";  $\alpha = .70$ , 95% CI [.64, .76]), Emotionally Disengaged (6 items, e.g., "If I show too much emotion people will take advantage of me";  $\alpha = .81$ , [.76, .84]), Demand for Excitement (9 items, e.g., "I'll use drugs if someone offers them to me";  $\alpha = .82$ , [.79, .86]), Poor Judgment (9 items, e.g., "I won't get caught again because I'm smarter than the police";  $\alpha = .80$ , [.76, .84]), Parasitic/Exploitative (4 items, e.g., "It doesn't make sense to work full-time if you can get on a government program";  $\alpha = .51$ , [.40, .62]), Justifying (6 items, e.g., "If you don't lock your door you deserve to get robbed";  $\alpha = .73$ , [.67, .79]),<sup>2</sup> Grandiosity (7 items, e.g., "I am destined for greatness";  $\alpha = .77$ , [.72, .82]), and Disregard for Others (14 items, e.g., "It's OK to use other people to get what you want";  $\alpha = .89$ , [.87, .91]). The eight scales can be summed to yield a CTP total score. Each item is rated on a to 4-point Likert-type scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). A PCA was conducted on each of the eight scales to examine their dimensionality (component loading ranges in parentheses). One component was extracted for Inability to Cope (.50–.68), Emotionally Disengaged (.58–.79), Demand for Excitement (.43–.83), Poor Judgment (.54–.79), Parasitic/Exploitative (.54–.68), Justifying (.62–.79), and Grandiosity (.57–.75). Two components were extracted for Disregard for Others (.43–.77); a single item loading on the second component was removed to yield a unidimensional scale for statistical analyses.

**Self-Report Antisocial Behaviour Measure.** The first author generated a list of 30 binary items (scored 1 = *yes* or 0 = *no*) that asked participants whether they had ever engaged in a series of delinquent or criminal acts ranging from mild to severe (abbreviated item descriptions are provided in Table 1). Twenty-eight of these items were retained for analysis: Item 22 "Broke into someone's business" was removed given that there was zero variance (all scores of "0") and Item 29 "Been at the scene of a crime" was removed as it appeared to be of questionable relevance. The items were subsequently organized into two antisocial behaviour aggregates, based on a principle components analysis. Scores for each aggregate were derived by summing across the behaviours in each group.

## Procedure

**Survey completion.** Samantha J. Riopka incorporated a list of demographic features and the self-report forensic measures into an online questionnaire format via the University of Saskatchewan fluid surveys tool. Mark E. Olver received permission from the instrument authors to post the questionnaires in an online format. After reading a brief description of the study, participants provided consent and accessed the study questionnaire. To begin, participants selected demographic criteria that they determined were applicable to themselves. Participants were then provided with a list of statements from each questionnaire and asked to rate how much they felt that each applied to themselves on the scales provided. More important, the software counterbalanced the order of presentation of the surveys to control for possible order effects. Once participants had completed the questionnaire and submitted their data a debriefing window appeared. The debriefing window summarised the study's true purpose: to examine the validity of the forensic self-report measures of psychopathic traits, criminal thinking styles and attitudes, and described the way in which data was to be used. The participants' de-identified data were exported to SPSS for Windows version 21 for data cleaning and analysis.

**Missing data.** The amount of missing data was very minimal. For the CTP, 83% of respondents completed all items, 14% missed 1 item, 3% missed between 2 and 7 items, and one respondent (<1%) missed 20 items. For the SRP-SF, 91% of respondents completed all items, 7% missed 1 item, and 2% missed 2 or 3 items. On the CSS-M, 87% completed all items, 9% missed 1 item, 4% missed 2 or 3 items, and one respondent (<1%) missed 7 items. Finally, for self-reported antisocial behaviours, 89% completed all items, 8% missed one item, 2% missed 2 items, and 1% missed 8 or 9 items. As the number of allowable missing items to generate a valid score has not been articulated for these measures, we used a maximum of 15% as a rough rule of thumb, that is, no more than one missing item for scales with 12 or fewer items, no more than two missing items for scales with 13 to 18 items, and no more than three items for scales of more than 19 items. Using this criterion, a small number of cases were removed owing to excessive missing data and these cases were excluded from analyses involving the variables of interest including: one case on the CTP (20 items incomplete), two cases on the Poor Judgment scale, and one case from the Emotionally Disengaged scale (missing more than 1 item each); one case on the CSS-M (7 missing items), two cases on ICO, and one case from TLV (more than 1 missing item each); and three cases from the self-report antisocial behaviours (8–9 missing items).

Stepwise regression procedures were used to estimate missing data on the SRP-SF, CTP, and CSS-M in which an item with missing data was regressed on all scale items for a given measure and the best predicting linear combination was used to compute an estimate of the missing value. This iterative process was repeated until all missing values for valid protocols had been estimated. In the case of missing items for self-reported antisocial behaviour, as this measure is essentially a raw behaviour count of various antisocial acts (ranging from minor to serious), we simply summed

<sup>2</sup> One item from the Justifying scale was omitted due to technical problems with the survey software, and thus study data are based on five items from this scale.



Table 1  
*Self-Reported Antisocial Behavior Items: Descriptive Statistics*

Antisocial behavior items	<i>M</i>	<i>SD</i>	Base rate %	No. missing
Serious antisocial behavior				
3. Been suspended or expelled	.1	.3	7.4	0
6. Done community service for committing a crime	.0	.2	2.9	2
8. Stolen a vehicle	.0	.1	0.4	0
14. Sold illegal drugs	.0	.2	3.7	1
15. Used a weapon to injure someone else	.0	.1	0.8	1
16. Physically assaulted someone	.1	.3	7.9	1
21. Broken into someone else's home	.0	.1	2.1	2
24. Faked credentials to gain employment	.0	.1	1.7	1
25. Used false references to gain employment	.0	.1	2.1	1
26. I have been arrested between the ages of 12 and 17	.0	.2	2.9	2
27. Arrested after the age of 17	.0	.1	1.7	1
28. Been charged with a criminal offense	.0	.1	1.7	1
30. Placed in a juvenile detention or custody facility	.0	.1	0.4	0
Rule violations				
1. Cheated on a test	.5	.5	52.4	3
2. Frequently skipped school	.4	.5	36.8	1
4. Sent to detention on more than one occasion	.2	.4	16.2	2
5. Purchased a paper and submitted for grades	.0	.1	0.8	0
7. Driven well over speed limit (50 km over) more than once	.4	.5	40.8	3
9. Driven without a license	.3	.5	34.3	1
10. Driven while intoxicated	.3	.5	29.3	1
11. Driven while under influence of drugs other than alcohol	.2	.4	16.0	0
12. Purchased and/or consumed alcohol under drinking age	.8	.4	80.5	2
13. Purchased illegal drugs	.2	.4	17.8	0
17. Borrowed an item (not money) not intending to return it	.2	.4	18.9	5
18. Borrowed money not intending to repay it	.2	.4	19.3	5
19. Stolen merchandise from a store or business	.2	.4	17.8	2
20. Used someone else's ID	.3	.4	27.1	3
23. Vandalized public or private property	.2	.4	16.5	0

*Note.* *N* = 243. Some items are abbreviated for space considerations.

the binary values for reported acts and excluded any omitted items (the equivalent of assigning a default score of zero). This procedure likely results in an underestimate of antisocial behaviour, because data may be missing because participants were unwilling to acknowledge such behaviour, but also unwilling to lie by denying it. The scale scores for the SRP-SF, CTP, and CSS-M were computed by averaging the items within each individual scale.

## Results

### Self-Reported Psychopathy, Criminal Attitudes, and Criminal Thinking

The means and standard deviations in Table 2 indicate that our student sample was very similar to other community samples described in the literature. First, the item means for the SRP-SF scales range from 1.3 (Antisocial) to 2.2 (Lifestyle), scores consistent with a Texas university sample (Paulhus et al., in press). A small number of individuals (5%, *n* = 11) scored roughly two standard deviations above the mean (item *M* = 2.6) on par with the mean of a sample of Wisconsin male prison inmates (Paulhus et al., in press). Finally, only three individuals (1%) in the current sample scored three or more standard deviations above the mean; although this would be above average even among prison inmates it is important to bear in mind

that this translates into an average item score of only 3.3 (i.e., somewhere between *neutral* and *agree* on most items).

Second, the CTP profile of the student sample was highly similar to two U.S. samples of offender outpatients who successfully completed treatment, one at a day reporting centre and the other at a sober house (Mitchell, Tafrate, Hogan, & Olver, 2013). In light of these differences, significance testing (*t* test and standardized mean difference) was performed comparing the student and offender samples on the criminal cognition scales. In both instances, the current university sample scored within one or two points on the CTP overall than the offender treatment completers, and within one point on each scale, although this only represented an item mean of 1.7 (i.e., somewhere between *strongly disagree* and *disagree*). By contrast, the current student sample scored significantly lower than treatment dropouts from these programs (*d* = .32 and .48, respectively). Finally, on the CSS-M, this student sample had item means ranging from 0.4 to 0.7 on the uncorrected scales, representing significantly higher scores (*p* < .001) on the LCP and TLV items, but significantly lower scores on ICO by the same margin, compared to a large Canadian federal inmate sample (item *Ms* = 0.4 to 0.5; Simourd & Olver, 2002).

As anticipated, the SRP-SF scales had significant correlations with the CSS-M scales that were generally moderate in magnitude (according to the conventions proposed by Cohen, 1992). Moreover, the SRP-SF scale scores had moderate to large correlations

Table 2  
Convergent Validity Correlation Matrix for Forensic Self-Report Measures

Measure	SRP-SF				CTP								CSS-M		
	IP	AF	LS	AS	IC	ED	DE	PJ	PE	JS	GR	DO	LCP	TLV	ICO
SRP-SF															
IP															
AF	.67***														
LS	.64***	.61***													
AS	.53***	.52***	.54***												
CTP															
IC	.27***	.37***	.33***	.34***											
ED	.25***	.36***	.22**	.25***	.46***										
DE	.37***	.33***	.34***	.43***	.44***	.26***									
PJ	.48***	.47***	.46***	.39***	.36***	.25***	.67***								
PE	.27***	.24**	.19**	.27**	.28***	.20**	.42***	.49***							
JS	.46***	.39***	.49***	.41***	.41***	.30***	.64***	.70***	.47***						
GR	.16*	.09	.20**	.09	.01	-.01	.11	.15*	.16*	.16*					
DO	.51***	.54***	.43***	.51***	.47***	.38***	.70***	.68***	.51***	.60***	.18**				
CSS-M															
LCP	.28***	.24***	.30***	.32***	.25***	.17*	.36***	.40***	.13	.34***	.05	.36***			
TLV	.40***	.28***	.38***	.40***	.29***	.18*	.45***	.43***	.20**	.48***	.02	.45***	.54***		
ICO	.30***	.29***	.32***	.42***	.15*	.08	.30***	.42***	.16*	.35***	.07	.37***	.39***	.45***	
Item mean	2.0	1.9	2.2	1.3	1.9	2.3	1.3	1.3	1.5	1.6	2.6	1.5	0.5	0.5	0.2
Item standard deviation	0.7	0.7	0.7	0.4	0.4	0.5	0.3	0.4	0.4	0.5	0.4	0.4	0.3	0.4	0.3

Note. SRP-SF = Self-Report Psychopathy–Short Form; CTP = Criminal Thinking Profile; CSS-M = Criminal Sentiments Scale–Modified; IP = Interpersonal; AF = Affective; LS = Lifestyle; AS = Antisocial; IC = Inability to Cope; ED = Emotionally Disengaged; DE = Demand for Excitement; PJ = Poor Judgment; PE = Parasitic/Exploitative; JS = Justifying; GR = Grandiosity; DO = Disregard for Others; LCP = Law, Court, Police; TLV = Tolerance Law Violation; ICO = Identification with Criminal Others.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

with CTP scale scores, indicating that self-reported psychopathic characteristics significantly covaried with modes of criminal thinking. An unexpected exception to this was the Grandiosity scale, which had weak and nonsignificant correlations with the SRP-SF scales. Finally, inspection of the convergent validity correlation matrix demonstrated particularly strong relations ( $p < .001$ ) between the CSS-M scales and the CTP's Demand for Excitement, Poor Judgment, Justification, and Disregard for Others scales.

### Self-Reported Antisocial Behaviours

Given the heterogeneity of the item content for the self-report antisocial behaviour measure, a principal components analysis on 28 of the 30 items with varimax rotation formed the basis of organizing the items into two conceptually coherent groups (see Table 1). The antisocial behaviours varied greatly in their degree of severity. The first group, “serious antisocial behaviours,” comprised behaviours that were low in frequency but high in severity, at times involving direct criminal sanctions. Most respondents (81%,  $n = 194$ ) reported engaging in none of the behaviours, 26 (11%) reported engaging in only one behaviour, 12 (5%) in two behaviours, and 8 (3%) reported engaging in three or more behaviours. The second group, “rule violations” comprised behaviours that were higher frequency overall, with some items reflecting serious or illegal behaviour (e.g., driving while intoxicated), and others appearing comparatively less severe or even developmentally normative (e.g., under age experimentation with alcohol). Very few respondents (6%,  $n = 15$ ) individuals reported engaging in none of the behaviours, 30 (13%) reported engaging in one behaviour, 40 (17%) in two behaviours, and 135 (65%) in three or

more behaviours. Within each group, items were summed to generate scores for further analysis.

### Bivariate and Incremental Associations With Self-Reported Antisocial Behaviour

As can be seen in Table 3, self-reported psychopathy was as strongly and consistently associated with self-reported antisocial behaviour as were self-reported aspects of criminal cognition. As expected, these correlations were not significantly different for men and women. To assess whether self-reported psychopathy predicted antisocial behaviours independently of criminal cognition, we entered these measures into two multiple regression analyses, one for each of the two antisocial behaviour groups. As shown in Table 4, our expectations were confirmed: The Antisocial and Lifestyle scales from the SRP-SF were important predictors of antisocial behaviours, independently of self-reported criminal cognitions.

### Gender Differences on Self-Report Measures

The final set of analyses entailed conducting a series of gender-based comparisons on the self-report measures through multivariate analysis of variance (MANOVA) on each set of scales for a given measure. Cohen's  $d$  was also computed to provide a measure of effect size in standard deviation units (see Table 5). A significant omnibus MANOVA was found (multivariate  $F$ s in parentheses) for the SRP-SF,  $F(4, 210) = 6.85$ ,  $p < .001$  and the CSS-M,  $F(3, 214) = 3.15$ ,  $p = .026$ , but not the CTP,  $F(8, 191) = 1.32$ ,  $p = .234$ . Given that the multivariate  $F$  statistic was not significant

Table 3

*Correlations Between Forensic Self-Report Measures and Self-Reported Antisocial and Rule Violating Behavior*

Measure	<i>n</i>	Serious antisocial behavior	Rule violations
Self-Report Psychopathy–Short Form			
Interpersonal	214	.25***	.31***
Affective	214	.25***	.29***
Lifestyle	214	.34***	.47***
Antisocial	214	.46***	.29***
Criminal Thinking Profile			
Inability to Cope	202	.21**	.35***
Emotionally Disengaged	202	.28***	.19**
Demand for Excitement	201	.29***	.29***
Poor Judgment	200	.23**	.23**
Parasitic/Exploitative	202	.11	.06
Justifying	202	.37***	.34***
Grandiosity	202	.08	.04
Disregard for Others	202	.32***	.20**
Criminal Sentiments Scale–Modified			
Law, Court, Police	218	.21**	.24***
Tolerance for Law Violation	217	.31***	.25***
Identification with Criminal Others	216	.15*	.12

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

for the CTP, gender differences on its individual scales were not interpreted as these may represent false positives. Accordingly, many of the gender differences on the measures were small in magnitude and not significant, although there were some noteworthy differences. The most pronounced differences were on the SRP–SF, with male respondents scoring significantly higher overall (by more than half of a standard deviation) on the Interpersonal,

Affective, and Lifestyle scales. There were no significant differences on the Antisocial scale. Men also scored significantly higher than women on the TLV scale of the CSS–M. Finally, male–female comparisons on the self-reported antisocial behaviour aggregates were examined using the nonparametric independent samples Mann–Whitney  $U$  test owing to the nonnormality of the distributions for the two components. Significant differences were found on total serious antisocial behaviours ( $p = .010$ ; men  $M = 1.0$ ,  $SD = 1.3$  and women  $M = 0.6$ ,  $SD = 1.3$ ) but not total rule violations ( $p = .959$ ; men  $M = 3.9$ ,  $SD = 2.7$  and women  $M = 4.2$ ,  $SD = 2.8$ , respectively).

## Discussion

The present study examined the interrelations of psychopathy, criminal attitudes, and thinking styles to self-reported antisocial behaviour in a Canadian sample of university undergraduates. The average item value for each self-report measure indicated that the vast majority of students tended not to demonstrate substantive criminal attitudes, psychopathic traits, or criminal modes of thinking. Despite these low levels, measures of criminal attitudes and thinking, particularly offense specific cognitions, significantly covaried with self-reported antisocial behaviour. That is, as attitudes supportive of law violations and criminal thinking increased, so did the number of antisocial behaviours endorsed by respondents.

The fact that the current sample had scores similar to those reported for offender outpatients who completed correctional treatment (Mitchell et al., 2013) and higher than those reported for Canadian federal inmates (e.g., Simourd, 1997; Simourd & Olver, 2002), suggests that self-report measures for offender populations need to be interpreted cautiously. Our results suggest that the impression-management biases thought to characterise offenders

Table 4

*Multiple Regression: Prediction of Self-Reported Antisocial Behavior by Forensic Self-Report Measures*

Group 1: Serious antisocial behavior						Group 2: Rule violations					
Prediction model		<i>B</i>	$\beta$	<i>p</i>	<i>r</i> <sub><i>sp</i></sub> <sup>2</sup>	Prediction model		<i>B</i>	$\beta$	<i>p</i>	<i>r</i> <sub><i>sp</i></sub> <sup>2</sup>
SRP–SF	Antisocial	1.16	.42	<.001	.09	SRP–SF	Lifestyle	1.41	.36	<.001	.06
CTP	Justifying	.71	.32	.002	.04	CTP	Inability to cope	1.52	.22	.006	.03
CTP	Emotionally Disengaged	.33	.18	.017	.02	CTP	Demand for excitement	1.76	.21	.033	.02
	(Constant)	–1.95					(Constant)	–1.20			
<i>R</i> = .58, <i>R</i> <sup>2</sup> = .34, <i>F</i> (15, 179) = 6.08, <i>p</i> < .001						<i>R</i> = .57, <i>R</i> <sup>2</sup> = .32, <i>F</i> (15, 179) = 5.58, <i>p</i> < .001					
Excluded predictors						Excluded predictors					
SRP–SF	Interpersonal			.181	.01	SRP–SF	Interpersonal			.905	.00
SRP–SF	Affective			.968	.00	SRP–SF	Affective			.661	.00
SRP–SF	Lifestyle			.318	.00	SRP–SF	Antisocial			.883	.00
CTP	Inability to Cope			.205	.01	CTP	Emotionally Disengaged			.603	.00
CTP	Demand for Excitement			.860	.00	CTP	Poor Judgment			.157	.01
CTP	Poor Judgment			.140	.01	CTP	Parasitic/Exploitative			.242	.01
CTP	Parasitic/Exploitative			.075	.01	CTP	Justifying			.070	.01
CTP	Grandiosity			.497	.00	CTP	Grandiosity			.681	.00
CTP	Disregard for Others			.555	.00	CTP	Disregard for Others <sup>a</sup>			.025	.02
CSS–M	Law, Court, Police			.816	.00	CSS–M	Law, Court, Police			.143	.01
CSS–M	Tolerance for Law Violation			.469	.01	CSS–M	Tolerance for Law Violation			.726	.00
CSS–M	Identification With Criminal Others			.113	.01	CSS–M	Identification With Criminal Others			.422	.00

Note.  $N = 195$ .  $r_{sp}^2$  = squared semipartial correlation; SRP–SF = Self-Report Psychopathy–Short Form; CTP = Criminal Thinking Profile; CSS–M = Criminal Sentiments Scale–Modified.

<sup>a</sup> Disregard for Others was excluded from the prediction model as it had a significant unique negative relationship to total rule violations and the reversal from its previous positive relationship to this outcome could not be theoretically justified (see Cohen, Cohen, West, & Aiken, 2003).

Table 5  
Gender Comparisons on Forensic Self-Report Measures

Measure	Women		Men		<i>F</i>	<i>d</i>	<i>p</i>
	<i>n</i>	<i>M</i> ( <i>SD</i> )	<i>n</i>	<i>M</i> ( <i>SD</i> )			
Self-Report Psychopathy–Short Form							
Interpersonal	178	2.0 (0.7)	37	2.3 (0.8)	6.57	.46	.011
Affective	178	1.8 (0.6)	37	2.4 (0.7)	25.24	.91	<.001
Lifestyle	178	2.1 (0.7)	37	2.5 (0.8)	8.66	.53	.004
Antisocial	178	1.3 (0.4)	37	1.4 (0.4)	2.18	.27	.141
Criminal Thinking Profile							
Inability to Cope	168	1.9 (0.4)	32	2.0 (0.4)	.62	.12	.430
Emotionally Disengaged	168	2.3 (0.6)	32	2.4 (0.5)	.55	.17	.458
Demand for Excitement	168	1.2 (0.3)	32	1.3 (0.4)	1.55	.24	.214
Poor Judgment	168	1.2 (0.3)	32	1.4 (0.3)	6.01	.50	.015
Parasitic/Exploitative	168	1.5 (0.4)	32	1.5 (0.4)	.01	–.01	.925
Justifying	168	1.6 (0.5)	32	1.8 (0.5)	3.89	.39	.050
Grandiosity	168	2.6 (0.4)	32	2.6 (0.5)	.26	.09	.614
Disregard for Others	168	1.5 (0.4)	32	1.7 (0.5)	5.41	.45	.021
Criminal Sentiments Scale–Modified							
Law, Court, Police	180	0.5 (0.3)	38	0.5 (0.3)	.03	–.03	.862
Tolerance for Law Violation	180	0.5 (0.3)	38	0.6 (0.5)	5.47	.42	.020
Identification With Criminal Others	180	0.2 (0.3)	38	0.2 (0.3)	2.82	.30	.094

in community and institutional settings where the results may be used clinically, may lead offenders to seriously understate the extent of their criminal attitudes. It is further possible that some study participants possess criminal attitudes and thinking styles but, to speculate, may have the personal and community resources and incentives to inhibit such behaviour.

Responses to SRP–SF items were consistent with a very low probable base rate of psychopathy in this sample, although there was considerable variability in SRP–SF scores. Consistent with findings from offender populations (Mitchell & Tafrate, 2011; Simourd & Hoge, 2000) and as anticipated, individuals who tended to score higher on self-reported psychopathic traits also were more likely to endorse higher levels of criminal attitudes and criminal thinking styles as exemplified by positive correlations between the SRP–SF and the CSS–M and CTP. None of the SRP–SF scales seemed to feature most prominently in the correlations with CSS–M and CTP scales, although examination of the correlation matrix indicated the strongest relations to be with scales reflecting an explicit endorsement of criminal behaviour (e.g., Tolerance of Law Violations) or thinking styles characteristic of poor judgment, lack of regard for others, or to make excuses for antisocial behaviour. In bivariate analyses, self-reported psychopathic traits (all four scales) demonstrated moderate to high correlations with broad sets of self-reported antisocial behaviour.

The results of regression analyses varied depending on whether the criterion involved serious antisocial behaviours (Group 1) or rule violations (Group 2). Only the SRP–SF Antisocial scale and select scales from the CTP uniquely predicted increases in serious self-reported antisocial behaviour, whereas the SRP–SF Lifestyle scale and certain CTP scales predicted what tended to be more frequent and less severe antisocial behaviour. This seems to make sense given that many of the items on the Lifestyle scale reflect irresponsibility while more problematic behavioural features (e.g., interpersonal aggression) are encapsulated by the Antisocial scale. Similar considerations would seem to apply in the case of the CTP;

for instance, the Justifying scale reflects the extent to which an individual will make excuses to condone criminal behaviour as a unique predictor of serious antisocial behaviour, while Inability to Cope and Demand for Excitement uniquely predicted rule violations. The implications of these findings are that the observed relation of the CSS–M and CTP to self-reported antisocial behaviour in univariate analyses at least partly reflected the variance shared with self-reported psychopathy. A possibility may be that self-reported psychopathic traits served as a catalyst for actually engaging in such behaviours, thus translating criminal thoughts into criminal behaviours.

The present results also have additional implications for the convergent validity of the three measures. Although the three measures covaried in theoretically meaningful ways overall, the Grandiosity scale of the CTP was only weakly correlated with the SRP–SF, including the Interpersonal scale. As grandiosity is considered to be one prominent feature of the interpersonal features of the psychopathy construct, this finding is surprising and may suggest that this scale has somewhat weaker psychometric properties than the other CTP scales, or alternatively, may not reflect the same conceptualisation of grandiosity that this scale measures (see Mitchell & Tafrate, 2011). More research is warranted to examine this scale's relation to psychopathy and other criminal constructs.

Finally, there were significant gender differences on some scales from the forensic self-report measures. Men scored significantly higher on a measure of criminal attitudes reflecting tolerance of law violating behaviour as well as several aspects of psychopathy measured by the SRP–SF; however, this gender difference was not significant for the Antisocial scale. It could be that the SRP–SF measure of antisociality does not measure typical female manifestations of psychopathy or the types of antisocial conduct participated in by women. This possibility is supported by suggestions from past research that there may be differences in the manifestations and correlates of psychopathic traits in women (Hare, 2003; Vitale, MacCoon, & Newman, 2011).



The current study has a number of limitations. One is that the generalizability of findings obtained on a sample of predominantly White, young, female, university undergraduates may be limited and not necessarily represent a general Saskatchewan community sample. Caution thus needs to be drawn when generalising to the broader public, particularly when the demographics in the sample are not proportionate to the population to which one would like to generalise (e.g., the Canadian public). Salekin, Trobst, and Krioukova (2001) noted, however, that undergraduate samples are valuable in studying successful psychopaths that have evaded incarceration and are pursuing successful careers, low base rates notwithstanding. Although few, if any, bona fide “psychopaths” (successful or otherwise) may have existed in this sample, there was sufficient variability in dimensional item responses and individual differences in the level of psychopathic traits to examine important relations to criminal cognition and self-reported antisocial behaviour. Future research may benefit from incorporating larger, more diverse samples to replicate and extend the current study’s findings.

A further potential limitation was that all study measures were self-reports and thus there were no objective measures of forensic psychological constructs or concrete behavioural criteria. Under such circumstances, it is important to bear in mind the characteristic manipulative and deceptive tendencies of psychopathic individuals and the impact this may have on the authenticity of responses to questionnaire items. Including a measure of socially desirable responding would at least permit statistical control of impression management biases. Given that participants were clearly informed that answering honestly would have no repercussions and anonymity was guaranteed, in our view, socially desirable responding likely had minimal impact on reported findings. Still, the possibility remains that the anomalous affective and linguistic processing frequently ascribed to psychopathic individuals (Cleckley, 1976; Hare, 1993, 1996) also may have impacted the interpretation and response to emotionally evocative items by respondents with more of these traits (Lilienfeld & Fowler, 2006). Finally, PCA of the forensic self-report measures indicated there to be possible multidimensionality of the item content within some of the instrument scales to varying degrees, even though in principle they are intended to assess a single construct. This may reflect some mild vagaries in item and scale characteristics that can occur across different samples, but it is also possible that the scale constructs and their interpretations may be more multifaceted than what we have been able to provide.

These limitations notwithstanding, the present research provides some support for the psychometric properties of forensic self-report measures in a nonforensic sample, and builds on the evidence regarding the nexus of psychopathic traits with criminal cognitions and behaviour.

## Résumé

La présente étude examine le construit de la psychopathie (selon des données autorapportées) et sa relation avec les attitudes criminelles, les styles de pensée du criminel et les comportements antisociaux autorapportés au moyen d’un échantillon de 248 d’étudiants inscrits à un programme de premier cycle dans des universités canadiennes. Les participants ont rempli 3 instruments d’autoévaluation (Self-Report Psychopathy – version courte;

Criminal Sentiments Scale – Modifiée; Criminal Thinking Profile) ainsi qu’un instrument d’autoévaluation des comportements antisociaux. Des corrélations positives, de modérées à grandes, ont été constatées parmi les 3 instruments médicaux-légaux d’autoévaluation. Les comportements antisociaux autorapportés, répartis en 2 groupes selon qu’ils étaient sérieux mais peu fréquents, ou fréquents mais généralement de moindre gravité, étaient fortement reliés à plusieurs indices de psychopathie et de cognition criminelle. Les analyses de régression multiple ont révélé que, en contrôlant les résultats des instruments Criminal Thinking Profile et Criminal Sentiments Scale – Modifiée, l’Antisocial Scale du Self-Report Psychopathy – version courte permettait uniquement de prévoir des comportements antisociaux sérieux autorapportés, tandis que son échelle Lifestyle (style de vie) permettait de prévoir uniquement des comportements antisociaux plus fréquents et moins graves. La présente étude appuie la validité conceptuelle des instruments d’évaluation médicaux-légaux parmi un échantillon d’étudiants du premier cycle universitaire et les relations entre les traits psychopathiques autorapportés et la cognition criminelle et le comportement antisocial.

**Mots-clés :** psychopathie, styles de pensée du criminel, attitudes criminelles, comportement antisocial.

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Received January 4, 2014

Revision received February 18, 2015

Accepted February 19, 2015 ■