

Running Head: ATTITUDES, ASSOCIATES, AND ROMANTIC RELATIONSHIPS

Attitudes, Associates, and Romantic Relationships: Validating the Measure of Criminal Attitudes  
and Associates (MCAA) in a Sample of Male and Female Adolescent Offenders

by

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## Abstract

Existing measures of criminal attitudes and criminal associates have rarely been tested with samples of female offenders nor have they considered the role of gender-informed variables such as criminal romantic relationships and relationship quality. Consequently, the study first examined the reliability and validity of the Measure of Criminal Attitudes and Associates (MCAA, originally designed for adult male offenders) on a sample of 312 adolescent offenders (102 females, 210 males). Second, the study examined whether or not the predictive validity of the associates component of the MCAA could be enhanced by directly incorporating two gender-informed variables: criminal romantic partner and relational quality (i.e., mutually empathic, authentic, and empowering relationships with criminal associates). The results indicate that the original MCAA is reliable for males ( $\alpha = .65$  to  $.91$ ) and females ( $\alpha = .62$  to  $.89$ ). The results also illustrate that the Criminal Friend Index component of the MCAA predicts reconvictions for males (AUC =  $.64$ ) but not females (AUC =  $.53$ ), however the MCAA total attitude score predicts reconvictions for both genders (males, AUC =  $.61$ ; females, AUC =  $.70$ ). However, incorporating gender-informed variables into the associates domain of the MCAA did not improve predictive accuracy. The need to develop gender-informed measures of criminal attitudes and associates from the ground-up specifically for girls and women in conflict with the law is discussed.

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Attitudes, Associates, and Romantic Relationships: Validating  
the Measure of Criminal Attitudes and Associates (MCAA) in a Sample of Male and Female  
Adolescent Offenders

### **Introduction**

In Canada, although females account for a much smaller proportion of crime than males, the amount of female involvement in the criminal justice system has been growing (Kong & AuCoin, 2008). Not only has the female violent crime rate tripled from 1979 to 1997 in Canada (Mahony, 2011), but among adolescent females, the serious violent crime rate doubled between 1986 and 2005 (Kong & AuCoin, 2008). Additionally, female youth crime rates were three times those of adult women in 2009 (Mahony, 2011). Coupled with the fact that historically scholars and administrators have neglected girls and women who come in contact with the law, these statistics emphasize the need to learn more about females in the criminal justice system, especially youth.

Although criminal attitudes and associates are strongly supported in the literature as significant predictors of crime among offenders in general (Andrews & Bonta, 2010), there is disagreement over whether these factors are equally important for women and girls. Not only have offender samples used in testing these variables consisted primarily of males (Blanchette & Brown, 2006), feminist-oriented qualitative research has highlighted structural factors, such as social class, as more important for females than individual variables (Kendall, 2002). Furthermore, other research (e.g., Benda, 2005) has illustrated that the influence of criminal partners may be more predictive for females than males. Consequently, in addition to examining the role that criminal attitudes and criminal associates play in female offending, further research

that disentangles the relative importance of criminal romantic partners versus criminal friends is warranted.

The debate over the importance of attitudes and associates among female offenders is in part generated by the assumption that tools developed and validated on male offenders are gender-neutral. According to mainstream correctional researchers (e.g., Andrews & Bonta, 2010), gender-neutral means a measure is equally predictive of recidivism for both male and female offenders. However, as will be discussed, it is possible that gender differences exist at different levels of the validation process for measures (i.e., at the item or content level), and gender-neutrality should not necessarily be determined based on prediction alone.

Blanchette and Brown (2006) argue that researchers should strive to develop and validate *gender-informed* measures that purposively take into account hypothesized gender differences. Consequently, the purpose of the present study is to examine the reliability and validity of a pre-existing gender-neutral measure of criminal attitudes and associates—the Measure of Criminal Attitudes and Associates (MCAA; Mills, Kroner, & Forth, 2002) with female adolescent offenders (as well as male adolescent offenders). Additionally, gender-informed variables will be actively incorporated, based on hypothesized female-specific risk factors—namely, strong attachments to criminally active, intimate male partners (e.g., Haynie, Giordano, Manning, & Longmore, 2005; Lonardo, Giordano, Longmore, & Manning, 2009). The version of the MCAA to be examined in the current study was expanded, in that questions were added to tap the nature of each participant’s friends (i.e., male or female, older or younger, boyfriend or girlfriend). Each participant was also asked to rate the relationship quality with each identified “associate” using a gender-informed measure of relationship quality – the Relational Health Indices for Youth (RHI-Y; Liang, Tracy, Kenny, Brogan, & Gatha, 2010). The reliability (i.e., internal

consistency) and validity (i.e., convergent, divergent, and predictive) of the original MCAA measure will be examined using a sample of 312 adolescent offenders (102 females, 210 males). A series of specific gender-informed hypotheses involving criminal romantic partners and relationship quality will also be examined.

The literature review is organized as follows: First, personal, interpersonal, and community-reinforcement (PIC-R) perspectives and Risk-Need-Responsivity (RNR) principles are briefly discussed (Andrews & Bonta, 2010), along with feminist critiques. Second, the construct and measurement of criminal attitudes and relevant empirical findings are discussed from the perspective of mainstream correctional scholars. Third, the importance of criminal associates and family variables is reviewed through the lens of mainstream correctional scholars and feminist-informed scholars. Relational cultural theory is then outlined with implications for correctional research with females. This leads into a discussion about the role of romantic relationships in criminal behaviour, and the rationale for including a gender-informed relational quality measure in the study. Lastly, the study objectives and corresponding hypotheses are presented.

### **Personal, Interpersonal, Community-Reinforcement/Risk-Needs-Responsivity**

A comprehensive approach to delinquency that takes into account multiple theories is the personal, interpersonal, and community-reinforcement perspective (PIC-R; Andrews & Bonta, 2010), which is based on general personality and cognitive social learning theory. Broadly, it considers personal, interpersonal, and community factors in the immediate situation in which behaviour occurs, taking into account the “control influences” that determine the probability of a particular behaviour occurring. Control influences are antecedent factors (i.e., they are present before the behaviour), and consequent factors (i.e., the outcome of the behaviour influences

future behaviour through reinforcement or punishment). Changes in these factors at the personal, interpersonal, or community level, influence whether or not the behaviour is performed and/or reinforced or punished. In the case of criminal behaviour, procriminal attitudes would be one example of an internal antecedent and a personal factor that influences an individual's actions in a given situation (Andrews & Bonta, 2010). For example, a favourable attitude towards violence (i.e., "It is OK to hit someone if they insult you"; MCAA; Mills et al., 2002) raises the probability of engaging in criminal behaviour, especially if prior violent actions have been rewarding or lacking in punishment. Antisocial attitudes can also be reinforced or punished by the community (e.g., an anti-bullying program at school).

Additionally, according to PIC-R, the construct of antisocial associates is an external and interpersonally mediated antecedent (i.e., the effect occurs as a function of external and interpersonal factors) that works together with attitudes to reinforce antisocial behaviour and punish prosocial attitudes and behaviour (Andrews & Bonta, 2010). For example, criminal peers reinforce the attitude that stealing is justified, which influences an individual's personally held attitude about stealing. Together, antisocial attitudes and associates are very important aspects of the PIC-R perspective on crime, and consequently, are major targets for intervention with offenders (Andrews & Bonta, 2010). Importantly, PIC-R applies equally to both genders of all ages. Thus, attitudes and associates are assumed to be equally important for both males and females, irrespective of age.

Based on this perspective of offenders and behaviour, the Risk-Needs-Responsivity (RNR) principles are the main model for assessing and treating individuals in correctional settings. The risk principle states that level of risk should be matched to treatment intensity (i.e., higher risk individuals require more intense treatment). The need principle dictates that treatment

should focus on the dynamic risk factors that are implicated in offending, also known as criminogenic needs. This is where antisocial attitudes and associates figure most prominently, as they are both criminogenic needs that are considered antecedents to criminal behaviour and can be targeted by cognitive-behavioural treatments. Finally, the responsivity principle dictates that treatment be matched to individual learning styles and abilities (Andrews & Bonta, 2010).

Before reviewing the conceptual meaning of attitudes in general and criminal attitudes more specifically, it is necessary to briefly review feminist critiques of the RNR perspective.

**Feminist critiques.** Feminist researchers have several criticisms of the RNR model, as well as reservations regarding the application of certain predictors (such as attitudes/associates) to women over and above more female-specific predictors (such as family/intimate relationships). Additionally, Kendall (2002) suggests that structural factors are part of female routes to crime, but evidence for this is found in more qualitative studies, which are excluded from research supporting the cognitive behavioural/social learning model. More importantly, research on RNR has predominantly been with male samples and the programs using the CB model were constructed for males (Kendall, 2002). Therefore, their use with females should be questioned and researched more fully.

Additionally, Pollack (2005) claims that the use of cognitive-behavioural approaches, while shown to be effective with men, may not be the most effective approach with women. Pollack argues that a cognitive-behavioural emphasis on individual's changing their own minds leaves little room for other important but more external factors that are important to females.

Furthermore, RNR critics insist that although certain variables apply to both males and females, they may affect females differently. For example, Van Voorhis (2012) argues that focusing on the strongest predictors according to RNR over and above other variables (like the

effects of abuse or parenting) may be a limitation of the RNR principles, since certain familial or relational variables might actually be more important criminogenic needs for females, and not simply secondary targets (Van Voorhis, 2012).

One such variable that may be especially relevant for young women is the effect of romantic partners on adolescent delinquency (e.g., Haynie et al., 2005; Woodward, Fergusson, & Haywood, 2002), especially in light of perspectives on the importance of connectedness for females' growth and development (Comstock et al., 2008; Miller, 1986) and past research suggesting that criminal relationships predict recidivism in women (Benda, 2005). Consequently, testing the effects of romantic relationships forms a large part of the current study.

### **Theory of Attitudes**

One of the most influential theories of the attitude-behavior link, which has been empirically tested well over 1000 times since its presentation in 1980, is the reasoned action approach presented by social psychologists Ajzen and Fishbein. They define an attitude as a disposition to act favourably or unfavourably towards a target (e.g., another person, object, or institution; Fishbein & Ajzen, 2009). The link between attitude and behaviour is established as follows: an individual's intention precedes their behavior, and intention is based on a) the attitude they hold towards their intended behaviour, b) their perception of social pressure to either act or not act, c) and their perception of how much behavioural control they have in the situation (Ajzen & Fishbein, 2005). If the rewards of acting in a certain way are high, a favourable evaluation will be made of that behaviour, which increases the probability of that behaviour reoccurring (Ajzen & Fishbein, 2005). To explain in terms of PIC-R, these evaluations are control influences in the immediate situation, and such evaluations are based on personal (attitudes), interpersonal (associates), and community factors (social pressure). Ajzen and

Fishbein (2005) pointed out that intentions and perceptions of behavioural control or social pressure can vary as a function of what they called background factors, which include informational, individual, and social factors. They suggested that one of the social background factors that could influence the attitude-behaviour link is gender. However, they did not speculate on how the process from intention to action might vary between males and females, they only noted that differences could be expected depending on the situation and the influence of other control and background factors, as well as social pressure.

### **Criminal Attitudes**

Andrews and Bonta (2010) identified three classes of attitudes that are based on correctional research and theory: techniques of neutralization, identification with criminal others, and rejection of convention. According to Sykes and Matza (1957), neutralizations occur because delinquents are under social pressure to conform to social values and principles, making it necessary to downplay the effects of a criminal act in order to lessen internal punishment (i.e. guilt) and social punishment, such as by denying the existence of a victim (i.e. “They had it coming to them”). For example, attitudes regarding the use of violence are often based on neutralizing the impact of the violence, sometimes by justifying its use in certain situations (i.e. “It’s understandable to hit someone who insults you”; MCAA, Mills et al., 2002). It has been demonstrated that techniques of neutralization are related to delinquent behaviour. Comparing highschool students’ mean number of neutralizations and incarcerated adolescents mean number of neutralizations, Shields and Whitehall (1994) found that 26 female and 27 male delinquent adolescents engaged in significantly more neutralizations than their non-delinquent counterparts.

The concept of neutralization is related to other theories, such as Bandura’s theory of moral disengagement (Bandura, Barbarnelli Caprara, & Pastorelli, 1996). This theory is

especially important to the present discussion because of Bandura's application of moral disengagement to delinquent behavior among youth (Bandura, 2002). According to Bandura's research, people engaging in delinquency re-construe the actions so as not to violate internal and social moral standards learned through socialization. Two of the more influential of these reconstructions are justifying the actions based on the worthiness of the purpose, or denigrating the victims of the actions (Bandura, 1996). According to Bandura (2002), moral disengagement is similar for both boys and girls in early childhood, but eventually males morally disengage more easily than females. Bandura, Caprara, Barbaranelli, Pastorelli, and Regalia (2001) have also found that boys have lower self-regulation ability than girls, and morally disengage for harmful behaviour (e.g., aggression, theft, truancy, etc.) more so than girls.

The second class of attitudes takes into account how people view criminal behaviour and associates (i.e., identification with criminal others), meaning they develop attitudes that are favourable to other people's criminality, and identifying with criminal others becomes part of a favourable attitude towards a criminal self (e.g., it's "cool" to have criminal friends). These connections between antisocial attitudes and peers can be explained through social learning theory. Specifically, criminality is learned through social interaction with others whose behaviour reinforces criminality (Burgess & Akers, 1966). Sutherland (1947) asserted that not only are criminal behaviours themselves learned from various social sources (in particular, criminal peers), but the attitudes conducive to such behaviour are learned as well.

The third class of attitudes is the rejection of convention, when delinquents hold certain attitudes because they go against what is conventional, prosocial, and law-abiding (e.g., being proud of "Seeing a store being robbed and not calling the police"; PIDS; Shields & Whitehall, 1991; Andrews & Bonta, 2010). For example, negative attitudes regarding authority, the police

or the criminal justice system, are attitudes that reject the conventions of the larger prosocial society, and research has demonstrated that such attitudes are associated with criminal behaviour (Simourd, 1997).

### **Criminal Attitudes: Measurement, Validation, and Gender Differences**

In Dowden and Andrews's (1999) meta-analysis of 26 studies, they specifically evaluated correctional programs using the RNR framework for female offenders. They found strong support for the RNR principles, and reduced reoffending was associated with proper application of the RNR principles within the programs. They found that targeting personal criminogenic needs variables (e.g., antisocial cognitions) strongly predicted successful treatment. Hubbard and Pratt (2002) found in their meta-analysis that antisocial attitudes was one of the main predictors of delinquency for females, with a mean effect size of .18 ( $k = 3$ ), which the authors concluded was comparable to previous work looking at attitudes as a predictor of male delinquency. In a non-predictive meta-analysis, criminal attitudes were one of the factors most highly associated with criminal behaviour, for both men and women, with an average correlation of  $r = .40$  for males and  $r = .39$  for females (Simourd & Andrews, 1994). This gender invariant correlation between attitudes and delinquency was later confirmed in a meta-analysis on adolescent offenders (Green, 2006). To date, there are five prominent and validated measures of criminal attitudes, the Level of Service Inventory-Revised (LSI-R; Andrews & Bonta, 1995), Pride in Delinquency Scale (PIDS; Shields & Whitehall, 1991), Criminal Sentiments Scale (CSS; Gendreau, Grant, Leipziger, & Collins, 1979), Psychological Inventory of Criminal Thinking Styles (PICTS; Walters, 1995), and the Measure of Criminal Attitudes and Associates (MCAA; Mills et al., 2002). However, only the LSI-R, PIDS and MCAA will be discussed in detail given that they are used in the current study.

The Level of Service Inventory-Revised (Andrews & Bonta, 1995) and its various iterations (Level of Service/Case Management Inventory, LS/CMI; Andrews, Bonta & Wormith, 2004; LSI-R: Screening Version; Level of Service/Risk-Need-Responsivity; Andrews, Bonta & Wormith, 2008; Youth Level of Service/Case Management Inventory 2.0; Hoge & Andrews, 2011), is an interview-based measure used for assessment of offender risk and criminogenic needs, and is one of the most widely used and validated risk assessment tools in adults (Andrews & Bonta, 2010; Gendreau, Little & Goggin, 1996; Gendreau, Goggin & Law, 1997). The LSI-R uses 54 items to assess risk/need across 10 subcomponents (criminal history, antisocial pattern, antisocial attitudes, antisocial associates, family/marital, education/employment, substance abuse, leisure/recreation, personal problems with criminogenic potential, history of perpetration). Research has shown that the LSI-R functions similarly for males and females, and is predictive of recidivism for females, with an average  $r = .35$  (Smith, Cullen, & Latessa, 2009). However, there were no results for the criminal attitudes subcomponent specifically in this meta-analysis.

A meta-analysis of the Youth Level of Service Inventory 2.0 (YLS; Hoge & Andrews, 2011) found that the measure was predictive of recidivism, and did so comparably for both male and female adolescents (Olver, Stockdale, & Wormith, 2009). Hoge and Andrews (2011) reported fourteen studies that found the YLS to be predictive of reoffending in youth. However, most of these studies either did not look at gender differences, concluded that the measure was predictive across gender, or did not examine the predictive nature of the specific subcomponents, except Flores, Travis and Latessa (2004) and Rowe (2002). Flores et al. (2004) found that the attitudes subcomponent was not predictive of reoffending for either male or female adolescents, however, Rowe (2002) found that the attitude subcomponent correlated with general recidivism at  $r = .28$  for males and  $.47$  for females.

To summarize, three meta-analyses on the LSI and one with the YLS have concluded that these measures either predict or are associated with criminal behaviour similarly across gender. However, these meta-analyses did not all look at the attitudes domain specifically, and only one of the meta-analyses (Smith et al., 2009) had a female-only sample.

Shields and Whitehall (1991) developed the 10-item PIDS to assess adolescent offenders' level of comfort with engaging in a particular behaviour by asking how proud or ashamed the person would feel engaging in that behaviour (i.e., beating up a child molester). In the first published data for the scale, Simourd (1997) tested how well the (PIDS) correlated with previous offense-based criteria. He found that the PIDS had low-moderate correlations with offending in an adult male offender sample (ranging from  $r = .20$  to  $r = .31$ ). Another study found moderate correlations between PIDS scores and rearrests ( $r = .32$ ) as well as reincarcerations ( $r = .31$ ) in nonviolent male adult offenders (Simourd & Van De Ven, 1999). Although these results show the utility of the scale in assessing these kinds of attitudes, little to no work has been done with the PIDS for assessing attitudes in females specifically, although its predictive validity has been recently demonstrated with adolescent male offenders (Skilling & Sorge, 2014).

The Measure of Criminal Attitudes and Associates (MCCA; Mills et al., 2002) was developed for the assessment of criminal attitudes and associates in adult offenders. Part A measures degree of association with criminal friends (by listing closest friends and indicating their level of criminality), and Part B measures criminal attitudes by asking individuals to agree or disagree with statements regarding criminal activities. Developed with adult male offenders, the MCAA's 46-item attitude scale has four subscales on Violence, Entitlement, Antisocial Intent, and Attitudes Towards Associates. The attitude scales have been found to predict both general recidivism (ranging from  $r = .16$  to  $r = .32$ ) and violent recidivism (ranging from  $r = .18$

to  $r = .30$ ) in adult male offenders (Mills, Kroner, & Hemmati, 2004). Unfortunately, the major limitation of the MCAA is that it has not been validated with youth or females.

In summary, several measures have been validated and demonstrate the connection between attitudes and criminal behaviour. Despite these positive results, one of the main limitations of these methods is that they were developed mainly with adult male samples, while female samples are used either sparingly or not at all. Additionally, the meta-analyses validating criminal attitudes as a gender-neutral predictor of recidivism have typically used the Level of Service assessment measures rather than self-report scales, and only a few of the studies involved looked at the Level of Service attitude subcomponent specifically.

### **Criminal Associates: Measurement, Validation and Gender Differences**

Similar to the attitudes subcomponent on the LSI-R, there is also an antisocial associates subcomponent where the assessor rates the importance of this factor in an individual's risk/need on four items. Across four meta-analyses, Andrews and Bonta (2010) reported the correlation between criminal behaviour and antisocial associates to range from  $r = .21$  to  $r = .37$ . However, as already stated, none of these meta-analyses focused specifically on females. Additional meta-analyses have found an association between peers and recidivism for both youth and females specifically. For example, Cottle, Lee, and Heilbun (2001) found in their meta-analysis of predictors of recidivism among youth aged 12 to 21 that one of the stronger predictors was having deviant peers, with a weighted mean effect size of  $.204$  ( $k = 7$ ), although in the sample of 15,265 youth, females only made up 16.69%. For female adolescents specifically, Hubbard and Pratt's (2002) meta-analysis found that antisocial peers was one of the strongest predictors of recidivism for girls, with a mean effect size of  $.53$  ( $k = 2$ ). Additionally, Green's (2006) meta-

analysis reported that poor social involvement combined with negative peers was predictive of recidivism more strongly for male adolescents ( $r = .28$ ) than for females ( $r = .19$ ).

Other studies confirm the association between deviant peers and delinquency in adolescents. Rowe (2002) found correlations between the YLS associates subcomponent and general recidivism to be significant for both males ( $r = .29$ ) and females ( $r = .60$ ). For female offenders specifically, Dowden and Andrews (1999) found that when antisocial associates were targeted according to RNR, there were significant reductions in recidivism for females.

Delinquent peers have also been found to predict male adolescent delinquency over time (Vitaro et al., 2000), and are significantly associated with self-reported delinquency in both male and female youth (Haynie et al., 2005). Lastly, in Benda's (2005) extensive 5-year follow-up of male and female offenders, criminal peers was a stronger predictor of recidivism for males than for females. Thus, criminal associations is indeed an important predictor of criminal recidivism for males and females alike, irrespective of age.

The MCAA's Criminal Friend Index (CFI; Part A of the MCAA) was developed because of the lack of a quantifiable, self-report measure assessing the effect of antisocial associates on criminal behaviour (Mills et al., 2002). Developed on the same sample of male offenders as the attitudes subscales in the MCAA (Mills et al., 2002), the associates subcomponent asks respondents to recall the four people whom they believe they spend the most time with. Respondents are then asked to estimate how much free time they spend with each person and to indicate how criminally active each identified associate is (see the methods section for more detail). In the development sample (Mills et al., 2002) the Criminal Friend Index significantly correlated with number of reconvictions ( $r = .36$ ) and reincarcerations ( $r = .40$ ). However, as

noted, this measure has not been validated with adolescents or females. Additionally, the influence of the *quality* of the criminal associations has not been studied with this measure.

### **Family Variables**

Poor family relationships and inconsistent parenting are known to be associated with delinquency (Andrews & Bonta, 2010). For family problems as a predictor of recidivism, Cottle et al. (2001) found a mean effect size of .227 ( $k = 5$ ) across gender. However, there have been some strong effects found for females specifically. Hubbard and Pratt (2002) found a mean effect size of .17 ( $k = 29$ ) for family relationships as a predictor of delinquency in females. In Green (2006), family factors were more strongly correlated with recidivism for females than for males. Dowden and Andrews (1999) determined that family process variables and interpersonal criminogenic needs were the strongest predictors for successful treatment in females, however this meta-analysis did not look at adolescent females specifically.

The Youth Level of Service Inventory uses six items to assess whether family circumstances (i.e., interpersonal relationships, behavioral expectations, rules, monitoring, etc.) are risk/needs for an individual. Flores et al. (2004) found the YLS family subcomponent to be significantly correlated with reoffending indices across gender, and Rowe (2002) found significant correlations between YLS family factors and general recidivism for both males ( $r = .18$ ) and females ( $r = .23$ ).

When testing risk factors to explain delinquency, Steketee, Junger, and Junger-Tas (2013) found that some of the factors that were associated with delinquency for both males and females were strong family bonding, parental supervision, and delinquent friends. However, there was a stronger association between family disruption and delinquency in females than for males. The authors concluded that females may be more vulnerable to factors in the outside environment

(such as abuse or relational dysfunction). Such external influences would be consistent with feminist theories of female pathways to crime, but more research is required.

### **Relational-Cultural Theory**

One of the greatest criticisms of research on females in the criminal justice system is that it is largely based on theories and samples that are male-dominated. An alternative theory that incorporates more female-specific perspectives is relational-cultural theory (RCT), first envisioned by psychiatrist Jean Miller (1986). In RCT the main focus is on the *growth-fostering* aspects of relationships (i.e., growth in individuals occurs through relationships). Growth-fostering aspects of relationships are mutuality and engagement (e.g., perception of mutual commitment, involvement, and unity) and empowerment and zest (e.g., having feelings of action and being inspired to action), authenticity (e.g., being genuine in the relationship and acquiring knowledge of the self and other) and the ability to deal with conflict (e.g., accepting differences, working through and expressing differences; Liang et al., 2002). Development in these relationships is highly dependent on and connected to individual identities in the realm of culture, race, and society (Comstock et al., 2008). This is especially pertinent for females, because a sense of self for them is built on making and maintaining relationships, as women desire and search for connection (Miller, 1986). The theory was initially called the self-in-relation theory, and transitioned to relational theory through meetings between Miller and other female practitioners who met to discuss and reflect on their own relationships through their work and experiences. Eventually the theory evolved into relational cultural theory to reflect the importance of culture in women's experiences and to represent females from diverse backgrounds (West, 2005).

RCT posits that individuals (especially women) strive for connections with other people, which in turn is a sign of healthy development. Experiencing disconnections in relationships (either with individuals or within society) can lead to shame, humiliation, fear, frustration, self-blame, etc. (Comstock et al., 2008). However, this theory of female growth and health has not been properly studied in the context of female criminality.

Based on RCT, Covington and Bloom (2006) argue for gender-specific treatment, since the pathways that women take to crime are different from those of men with regards to risk level, trauma, substance abuse and mental illness, parenting, and employment. Since relationship issues are more important for women than they are for men, there is a large relational context for much of female offending, such as in motivations to commit crime and engage in certain behaviours (i.e., drug use; Covington & Bloom, 2006). Evidence for the relational context of female offending can be found in research such as Benda's (2005) study, which showed that for women, sexual and physical abuse before age 18, recent abuse, living with a criminal partner, and adverse feelings were predictive of recidivism.

The principles of RCT were operationalized by Liang et al. (2002) in the development of the Relational Health Indices (RHI) measure, which was subsequently adapted for youth (RHI-Y; Liang et al., 2010). The self-report youth version measures the growth-fostering aspects of children and adolescents' relationships with friends, mentors, and community/groups. This measure has not been used in predictive or correctional studies.

### **Criminal Associates and Romantic Relationships**

Since close relationships have been theorized to be especially important for females according to RCT, it is important to examine research that demonstrates the implications of relationships in female criminality. Benda (2005) noted that the association between criminal

behaviour and having a romantic partner may be more important if the partners themselves are delinquent. Additionally, a dysfunctional romantic relationship can influence crime pathways because of its detrimental effects (Salisbury & Van Voorhis, 2009). Haynie et al. (2005) pointed out that the intense nature of adolescent romantic partnerships can create the circumstances under which there are high levels of influence on the attitudes and behaviours of an individual. This occurs through factors such as the frequency of contact and communication, heightened emotion, and feelings of attraction. In their study, Haynie et al. (2005) found that after accounting for the effect of peers, partner delinquency had a unique effect on adolescent delinquency for both males and females. More importantly, an interesting gender difference was found with this effect: when it came to more minor deviant behaviours, the influence of partner was greater for females, but not for serious delinquency.

Woodward, Fergusson, and Horwood's (2002) tested the effect of deviant partners in a longitudinal study looking at offending at the ages of 18 and 21. They found that overall at the age of 21 both males and females reported the lowest levels of offending if they had a non-deviant partner, and highest levels if they had a deviant partner. After controlling for selection factors (e.g., being raised in a dysfunctional family), the effects of type of partner (deviant/non-deviant) were still significant, with higher offending risk for people who were with deviant partners. Reanalyzing the data for a prospective study, the authors found support for their claim that deviant/non-deviant partner involvement predicts an individual's offending risk, rather than offending habits determining partner choice.

In another study looking at the effect of romantic partners on delinquency, Lonardo et al. (2009) found that apart from the rest of the individual's social network, the delinquency of a romantic partner had a significant effect on the delinquency of the participant. Adolescents who

reported *both* a deviant partner and deviant friends were more delinquent than adolescents with just deviant friends. This suggests the importance of the impact of deviant romantic partners within adolescent social networks. However, the study did not find an effect of gender on this association.

Based on this research, it is clear that romantic relationships are important for both male and female adolescents, but more research is needed to determine if this influence is greater for females. Because positive relationships may be especially important as protective factors for women (Miller, 1986; Benda, 2005; Blanchette & Brown, 2006), investigating the effects of very close and intimate relationships is important for strengthening risk measures and targeting more relevant intervention needs for females.

## **Summary**

In conclusion, attitudes, associates, and family issues require more research with female adolescents, specifically with regard to intimate relationships because of the importance of relational factors for females. Additionally, because of criticisms of measurement tools based on male samples and male-validated variables, the validity of the gender-neutral MCAA will be tested with females. The use of the MCAA and the gender-informed Relational Health Index with an adolescent sample is intended to gain insight into attitudes and relationships in order to more fully understand gender differences in adolescent offending and the implications this could have for gender-informed treatments and interventions.

## **Research Questions and Hypotheses**

*Research Question #1: Are adolescent female offenders more likely to associate with romantic criminal partners, older associates, and members of the opposite sex than their male counterparts? Using the items added to the original MCAA (e.g., age and gender of associate), a*

number of exploratory hypotheses are examined to gain insight into the makeup of the associate groups for males and females, mainly to determine if female offenders are more likely to report having criminal romantic partners, to associate with older individuals, and to have more opposite sex friends.

*Research Question #2: Are the original MCAA and RHI Friend Scale reliable and valid?*

Based on validation studies with both the MCAA (Mills et al., 2002; Mills et al., 2004) and the RHI youth version (Liang et al., 2010), it is expected that the MCAA and RHI used with the present sample will be valid and acceptably reliable for both males and females.

*Research Question #3a: Does the nature of one's criminal associations (i.e., criminal friends vs. intimate criminal partners only) at the time of assessment predict recidivism among youthful offenders, and if so, is this relationship moderated by gender?* Research suggests that a criminal partner can have a significant effect on delinquency in adolescents (e.g., Hayne et al., 2005). Also, studies suggest that intimate relationships may be more important for female crime (e.g., Benda, 2005). It is therefore expected that having a criminally-involved partner will significantly predict recidivism overall, however the effect will be stronger for females. Additionally, criminal friends are expected to be predictive of recidivism in both males and females. This would indicate that while associates are important for both males and females, the *type* of association must also be considered.

*Research Question #3b: Do higher ratings of relational health (as tested by the Relational Health Index) for criminal associations predict recidivism, and is this moderated by gender?* Because growth-fostering aspects of relationships are important for females (Miller, 1986; Liang et al., 2010), when relational health ratings are included for criminal associates (both friend and partner), it is expected that the effect will be stronger for females than for males.

*Research Question #4: Does relational quality (as tested by the RHI) mediate the relationship between criminal associations (criminal friends and criminal romantic partners) and recidivism and is this mediated relationship moderated by gender?* It is expected that while relationship quality will mediate both types of criminal associations (friends versus partner), the association will be stronger for females with an intimate criminal partner because young females value intimacy, expressivity, and close relationships more highly than males (Liang et al., 2010).

*Research Question #5: Do criminal attitudes mediate the relationship between type of criminal association (i.e., criminal partner vs. criminal friend) and recidivism, and is this mediated relationship moderated by gender?* Because criminal attitudes are learned from and reinforced by criminal associates (Andrews & Bonta, 2010), it is hypothesized that the effect of associates on recidivism occurs through individuals holding attitudes favourable to crime. This effect is expected to be equal for both males and females. The generation and reinforcement of attitudes also occurs through the influence of a romantic partner (Haynie et al., 2005), meaning the effect of a criminal partner on recidivism is also hypothesized to occur through attitudes. However, because of the importance of relationships for females, it is hypothesized that this effect will be stronger for females specifically. Additionally, since relational health is particularly important for females, it is hypothesized that the effect will be strongest for females who rate high quality relational health with their criminal associates (both friends and romantic partners).

*Research Question #6: Do attitudes and associates mediate the relationship between family problems and recidivism, and is this effect moderated by gender?* Because of the association between family problems and delinquency (Andrews & Bonta, 2010), it is hypothesized that connections with criminal associates and the development of criminal attitudes

are the result of poor family relationships, problems with supervision, attachment, and stability. Criminal associates and attitudes therefore will mediate the relationship between family problems and recidivism. Additionally, since family problems are important predictors for females specifically (Cottle et al., 2001; Hubbard & Pratt, 2002), it is expected that gender will moderate this effect, such that it will be stronger for females.

## Methods

### Participants

The sample consisted of 312 adolescent offenders ( $n_{\text{female}} = 102$ ; 32.7%) assessed between August 20, 2010 and February 1, 2012 at seven locations in Central and Eastern Ontario that service adolescent offenders. These locations included two secure custodial facilities, two open custodial facilities (one probation office, one urban mental health center, and one diversion program). Importantly, 42.6% ( $n_{\text{female}} = 46$ , 45.1%) of the secure custodial youth had been remanded to custody pending trial outcome.

Out of the 342 cases, 40 were removed because they had either not completed the self-report measures ( $n = 32$ ) or they were part of the pilot study ( $n = 4$ ). An additional 10 cases had not been released from custody when the recidivism data was extracted. While these 10 cases were included in all descriptive analyses they were excluded from the recidivism analyses. Only 40 cases were lost because of overlap between the non-completers, the pilot cases, and the cases still in custody. The resultant sample was comprised of 312 offenders, with 102 females aged 13.2 to 20.5 years ( $M = 17.13$ ,  $SD = 1.25$ ), and 210 males aged 12.87 to 21.5 years ( $M = 17.37$ ,  $SD = 1.26$ ). The mean age was not significantly different by gender ( $t(309) = 1.55$ ,  $p = .123$ ,  $d = .19$ ). Between those who completed all questionnaires and those who did not, there were no

significant differences on gender, age, race (White, Black, other), disposition, or criminal history.

The self-reported breakdown of race in the sample was as follows: White (43.5%,  $n = 136$ ), African American (23.1%,  $n = 72$ ), Aboriginal (4.8%,  $n = 15$ ) and other (24%,  $n = 75$  %). Fourteen participants did not identify with any race. A chi-square analysis of gender by race (White, Black, Other) revealed significant differences ( $\chi^2 = 20.805$ ,  $p < .001$ ,  $Phi = .26$ ). Specifically, there were more White females (63.7%,  $n = 65$ ) in comparison to White males (33.8%,  $n = 71$ ). Conversely, there were substantially more Black males (26.2%,  $n = 55$ ) in comparison to Black females (16.7%,  $n = 17$ ).

Youth had been charged and/or convicted of a variety of non-violent (e.g., theft, property, administration of justice) and violent (e.g., assault, robbery, kidnapping, and homicide) criminal offences at the time of the original assessment. While there were no gender differences in the mean number of criminal history convictions, males did evidence significantly more index offenses than females. This was particularly evident for violent index offenses (see Table 1).

Table 1

*Mean Number of Criminal History Convictions and Index Offenses by Gender*

Type of Offense	Males ( $n = 200 - 209$ ) <sup>a</sup>			Females ( $n = 100$ )			<i>t-test</i>	<i>d</i>
	Mean	( <i>SD</i> )	Range	Mean	( <i>SD</i> )	Range		
Criminal History	2.46	(4.92)	0 to 39	1.97	(4.65)	0 to 27	0.828	.10
<i>Non-violent</i> <sup>b</sup>	1.79	(4.29)	0 to 37	1.40	(3.31)	0 to 17	0.801	.10
<i>Violent</i> <sup>c</sup>	0.69	(1.21)	0 to 6	0.57	(1.69)	0 to 11	0.677	.08
Index Offense(s)	4.97	(4.79)	0 to 36	3.41	(3.62)	1 to 26	2.876**	.37
<i>Non-violent</i> <sup>b</sup>	2.86	(3.63)	0 to 25	2.35	(3.55)	0 to 26	1.156	.14

<i>Violent<sup>c</sup></i>	2.11	(2.79)	0 to 22	1.06	(1.47)	0 to 10	3.533***	.47
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*Note.* Index offenses included both charges and convictions due to a portion of the sample being remanded to custody pending trial.

<sup>a</sup>*n* = fluctuating sample size due to missing data. <sup>b</sup>Non-violent = Drugs (any), Property (any), Administration of Justice (any), Other (non-violent). <sup>c</sup>Violent = Homicide, Robbery (any), Major Assault, Minor Assault, Sexual, Threats, Kidnapping, Weapons (any), Other (Violent).

\*\**p* < .01 \*\*\**p* < .001

## Measures

### Measure of Criminal Attitudes and Associates (MCAA) and Relational Health

**Indices for Youth (RHI-Y; Liang et al., 2010).** The MCAA (Mills et al., 2002) was used to measure criminal attitudes and associates. In Part A, the associates scale (see “Friends Questionnaire” in Appendix A) asks participants to identify up to four people with whom they spend the most time. Next, for each identified ‘associate’, participants are asked to estimate how much time they spend with each identified associate (i.e., 0%-25%, 25%-50%, 50%-75%, 75%-100%). Now, four questions are asked to assess the extent to which each identified associate is criminally active. Specifically, participants are asked (in a yes or no format) if each identified associated has ever committed a crime, been to jail, tried to involve the participant in a crime, and lastly, if the identified associate has a criminal record. In order to answer the gender-informed hypotheses, three additional questions were added to the MCAA at this stage. For each identified associate, participants were also asked to estimate his/her age on a 10 point scale (ranging from ≤12 to 31+), to specify gender of the associate, and indicate whether or not the identified associate was a girlfriend/boyfriend, a friend, or an acquaintance.

Additionally, for each identified associate in the MCAA, participants also completed the 12-item Relational Health Index (RHI) Friend subscale from the youth version of the RHI (Liang et al., 2010). The Friend scale has 12 items asking respondents to indicate on a 5-point Likert scale (1-never to 5-always) how often they think or feel a certain way with their specific friend

(e.g. “This friendship makes me feel good about myself”; Appendix A). The scale is intended to assess the extent to which the respondent perceives his/her friendship as empathic, empowering, and authentic.

A composite score of the Relational Health Index was created in order to have a single variable that included the Relational Health Index for each of the four associates identified on the MCAA. First, the RHI score for each associate was averaged by dividing each total score (ranging from 12 to 60) by the number of scale items (12). For example, if for Associate #1, the participant gave a total RHI score of 43, this value was divided by 12, yielding a mean RHI of 3.58 for that participant’s Associate #1. Doing this calculation for each of the four associates yielded four mean RHI scores with a plausible range of 1 to 5. In order to combine these four scores into one variable, they were summed together to produce a composite summed score of means, with a plausible range of 5 to 20. Note that this was done for criminal associates only. A single composite score was also calculated just for those associates identified as criminal romantic partners. This means that typically only one associate out of the four was identified as a partner, therefore the mean of the RHI score for that individual’s criminal partner was taken as the individual score on the single RHI variable for criminal partners. This means the RHI for criminal partners had a plausible range of 1 to 5. There were two cases that each identified two criminal partners. For these cases, the RHI means for each of the two partners were summed and then divided by 2. The resultant values were used on the single RHI variable for criminal romantic partners for those two participants who identified two partners.

For the development of the youth RHI, Liang et al. (2010) gave highschool and middle school students a simplified version of the original RHI. The students acted as focus groups to evaluate the readability and relevance of the items. Items were added, dropped, or reworded

according to the feedback. Students were given the finalized scale along with measures of depression, stress, self-esteem, and school engagement. The reliability of the scale for youth was acceptable, with  $\alpha = .74$  for males and  $\alpha = .83$  for females (Liang et al., 2010). It also demonstrated convergent validity by its perceived social support ( $r = .53$ ), self-esteem ( $r = .19$ ), and engagement in with school ( $r = .46$ ), and divergent validity by its negative correlation with depression ( $r = -.18$ ).

***Criminal Friend Index (CFI) and Number of Criminal Peers.*** The MCAA (Mills et al., 2002) generates two measures of criminal associations: the Criminal Friend Index (CFI) and the number of criminal associates. The number of criminal associates is simply calculated by summing the number of identified associates (plausible range: 0 – 4) who the respondent identified as criminal (i.e., the respondent answered ‘yes’ to *any* of the four criminal association questions noted above). In contrast, the Criminal Friend Index (CFI) is designed to capture the depth of a respondent’s criminal associations (i.e., how much time the respondent is spending with multiple associates who may be heavily entrenched in the criminal justice system).

The CFI is calculated as follows. First, a number ranging from 1 to 4 is assigned to each ‘percentage of time value’ that the respondent circles for each identified associate. For example, if the respondent circles “0-25%” for Person #1 then a corresponding value of “1” would be recorded. Accordingly, “25 to 50%” would be recoded “2”, “50-75%” would become “3” and “70% to 100%,” “4”. Next, for *each* identified associate (up to a plausible maximum of 4) the recoded “percentage of time value” is multiplied by the number of times the respondent answers “yes” (yes = 1, no = 0) to the four questions germane to the identified associate’s criminality, thus resulting in a plausible range of 0 to 16 for *each* uniquely identified associate ( $1-4 * 0-4 = 0$

- 16). Lastly, the resultant four product terms are then summed resulting in a final CFI score that can range from 0 to 64 with higher scores indicative of more in depth criminal associations.

***Criminal Romantic Partner Index.*** A comparable Criminal Romantic Partner Index (CRPI) was created following the exact same procedures for respondents who identified having at least one associate who was a boyfriend or girlfriend. Individuals who did not identify a boyfriend or girlfriend were rated 0 in the same way that respondents who identify no associates were also assigned as 0 on the CFI (Mills et al., 2002). The plausible range for the CRPI was from 0 – 16. Two cases identified 2 specifically criminal romantic partners. For each case, the CRPI for the two criminal partners were summed and their mean taken as the participants' score on the single, total CPRI score.

***Criminal Friend Index and embedded Relational Health Index score.*** In order to combine the Relational Health Indices with the criminal associates identified on the MCAA, the RHI was embedded in the Criminal Friend Index. The mean for each RHI score for each of the four associates identified in the MCAA was multiplied by the Criminal Friend Index for each of the four associates. For example, if a participant for Associate #1 had a Criminal Friend Index score (range of 0 – 16) of 12, and a mean Relational Health Index score of 3.58 (range of 1 to 5), then these two values would be multiplied together to produce a score of 42.96. Performing this calculation for each of the four friends produced a Criminal Friend Index with an embedded Relational Health Index for each associate, with a plausible range of 0 to 80. Each of these values for the four associates were summed together to produce a single variable containing the total Criminal Friend Index with the Relational Health Index embedded, with a plausible range of 0 to 320.

***Criminal Romantic Partner Index and embedded Relational Health Index score.*** A similar method was used to create a comparable variable specifically for associates identified as criminal romantic partners. The mean RHI scores for each associate identified as a criminal partner were multiplied by their individual Criminal Romantic Partner Index. This value, ranging from 0 to 80, was then the identified criminal partner's score on the single variable containing the Criminal Romantic Partner Index with the embedded Relational Health Index.

**Older criminal associates.** As noted, for the present study, participants were asked to state the age (ranging from  $\leq 12$  to 31+) of each of their associates on the Criminal Friend Index. For each identified criminal associate, if they were two or more years older than the participant at the time of assessment, that associate was coded as a 1. The only exception was for 18 year old participants, where if an associate was identified as 19 years old, they were also considered older and coded as a 1. Criminal associates who were less than or equal to the participant age were coded as a 0. This resulted in four Older Associate variables for each of the identified associates, which were summed together to produce a single Older Associates variable, with a plausible range of 0 to 4 older associates.

**Opposite-sex associates.** Participants were also asked to indicate the gender of each of their associates on the Criminal Friend Index. For each identified associate, if they were opposite to the gender of the participant, that associate was coded as a 1, and associates matching the participant's gender were coded as a 0. This resulted in four Opposite-sex Associate variables for females, and four Opposite-sex variables for males, which were summed together to produce a single Opposite-sex Associates variable, with a plausible range of 0 to 4 opposite-sex associates.

**MCAA attitude scales.** Part B of the MCAA (see Appendix A), consists of a 46-item attitude scale with four subscales. Each item is rated on a dichotomous ‘agree’ or ‘disagree’ scale. The four subscales are as follows: 12-item Violence subscale (e.g. “Someone who makes you angry deserves to be hit”), a 12-item Entitlement subscale (e.g. “Only I should decide what I deserve”), a 12-item Antisocial Intent, (e.g. “For a good reason, I would commit a crime”), and finally, a 10-item Attitudes Towards Associates (e.g. “I have committed a crime with friends”). Individual item scores are summated (agree = 1, disagree = 0) to produce a total overall attitude score ranging from 0 to 46 to 4 individual subscale scores ranging from 0 to 12, or 0 to 10 in the case of the Attitude Towards Associates subscale.

In the adult, male development sample (Mills et al., 2002) the internal consistency of the subscales was acceptable ( $\alpha = .80$  to  $.84$ ), except for Entitlement ( $\alpha = .65$ ). Although a more recent validation study found acceptable internal consistency for this subscale ( $\alpha = .80$ ; Backstrom & Bjorklund, 2008). For the present study with adolescents, Cronbach’s alphas range from  $.65$  to  $.91$  for males, and from  $.62$  to  $.89$  for females (see results section for full details).

The attitude subscales have also demonstrated validity in the prediction of both general recidivism ( $r$ ’s ranging from  $.16$  to  $.32$ ) and violent recidivism ( $r$ ’s ranging from  $.18$  to  $.30$ ) in a sample of adult male offenders (Mills, Kroner, & Hemmati, 2004). Area under the Curve (AUC) values ranged from  $.58$  to  $.67$  for the four subscales in predicting general recidivism, and from  $.61$  to  $.70$  for the prediction of violent recidivism (Mills et al., 2004). To date, no research has examined the predictive validity or the reliability of the MCAA in a mixed-gender sample of adolescent offenders.

**Pride in Delinquency Scale (PIDS).** The Pride in Delinquency Scale (PIDS; Shields & Whitehall, 1991; Appendix B) is a 10-item scale that measures an individual’s level of comfort

with engaging in criminal conduct by asking how proud or ashamed the respondent would feel engaging in a particular criminal act (i.e., beating up a child molester). Respondents are asked to reply using a scale ranging from -10 (indicative of extreme shame) to +10 (indicative of extreme pride). A constant of 100 is added to each PIDS score resulting in a final score of 0 to 200 with higher scores indicative of having greater pride in committing criminal acts.

The PIDS' convergent validity has been established by its correlations with the MCAA attitude subscales ( $r$ 's ranging from .40 to .65; Mills et al., 2002). Although it has not been significantly used with females, the PIDS was developed for youth (Shields & Whitehall, 1991), and has subsequently been found to have acceptable reliability ( $\alpha = .85$ ) and to be significantly correlated with recidivism ( $r = .36$ ) in a sample of adolescent male offenders (Skilling & Sorge, 2014). Cronbach's alphas with the present adolescent sample are acceptable, with  $\alpha = .85$  for males and  $\alpha = .87$  for females.

**Youth-Level of Service Inventory (YLS-CMI, 2.0; Hoge & Andrews, 2011).** The Youth Level of Service Inventory is an interview-based tool developed to assess risk, needs and strengths in male and female adolescent offenders aged 12 to 18 years (Hoge & Andrews, 2011). The full YLS has eight subcomponents, each measuring a domain of criminality, with 42 items in total. Three subcomponents of the YLS were used in the present study: peer relations (4 items; e.g., "Some delinquent acquaintances"; plausible range of 0 - 4), attitudes/orientation (5 items; e.g., "Callous, little concern for others"; plausible range of 0 - 5), and family circumstances (6 items; e.g., "Inadequate supervision"; plausible range of 0 - 6). The tool is scored on the basis of an interview and file review, with higher scores indicating higher risk/needs in each subcomponent.

In the normative sample, Hoge and Andrews (2011) reported the Cronbach's alphas for males and females for each subcomponent (attitudes,  $\alpha = .61$  to  $.65$  for males,  $\alpha = .56$  to  $.60$  for females; peer relations,  $\alpha = .71$  to  $.73$  for males,  $\alpha = .71$  to  $.74$  for females; family,  $\alpha = .64$  to  $.67$  for males,  $\alpha = .65$  to  $.67$  for females). For the present sample, the intraclass correlation coefficients (ICC) were previously determined for each subcomponent (attitudes, ICC =  $.513$ ; peer relations, ICC =  $.557$ ; family, ICC =  $.645$ ; Harris, 2013). The present sample has Cronbach's alphas ranging from  $.55$  to  $.67$  across the three subcomponents (see results section for full details). Additionally, Hoge and Andrews (2011) reported significant correlations between each subcomponent and reoffending across multiple studies (attitudes, ranging from  $r = .29$  to  $.32$ ; peer relations, ranging from  $r = .14$  to  $.35$ ; family, ranging from  $r = .16$  to  $.30$ ).

**Achenbach's Youth Self-Report (YSR).** The Achenbach's Youth Self-Report (YSR) measure (Achenbach, 1991) is a 112-item self-report measure of emotional and behavioural problems developed for youth aged 11 to 18 years. Two of the subscales from this measure were used in the current study: the 13-item anxiety/depression subscale (e.g., "I cry a lot"), and the 8-item withdrawn/depressed subscale (e.g., "There is very little that I enjoy"). Responses are recorded on a 3-point Likert scale where the participant rates how true each statement is of them in the present or in the past six months, from not true (0) to very true or very often (3), with higher scores indicating a greater frequency of anxiety/depression or withdrawn/depressed thoughts and behaviours. Both subscales have been found to have acceptable concurrent validity. The subscales have been significantly correlated with depression ( $r = .61$  for anxiety/depression;  $r = .54$  for withdrawn/depressed; Ivarsson, Gillberg, Arvidsson, & Broberg, 2002) among junior highschool students, and significantly correlated with Diagnostic Statistical Manual (DSM) depression and anxiety criteria among youth (Achenbach & Rescorla, 2001). For the present

sample, Cronbach's alphas for the anxiety/depression subscale were  $\alpha = .85$  for males, and  $.86$  for females, while for the withdrawn/depressed subscale,  $\alpha = .70$  for males, and  $.74$  for females.

**Rosenberg Self-Estem Scale (RSES).** The Rosenberg Self-Esteem Scale (Rosenberg, 1965), developed with highschool students, is one of the most commonly used measures of self-esteem. It is a 10-item self-report scale where responses to 10 statements on overall self-worth/self-acceptance (e.g., "At times, I think I am no good at all") are measured on a 3-point Likert scale from strongly disagree (0) to strongly agree (3), with higher scores indicating a higher level of self-esteem. The RSES has been found to be negatively correlated with depression, anxiety, and stress (Sinclair et al., 2010). For the present sample, Cronbach's alphas for males were  $\alpha = .83$ , and for females,  $\alpha = .87$ .

**General Self-Efficacy Scale (GSES).** The General Self-Efficacy Scale is a 12-item measure asking about self-efficacy in certain situations (Bosscher & Smit, 1998), which was adapted from an original 17-item scale originally developed with undergraduate students (Sherer, et al., 1982). It has been used across multiple countries with both adolescents and adults. Participants rate how much they agree with each statement on a 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5), with higher scores indicating greater expectations of self-efficacy. It has demonstrated acceptable convergent validity by its positive correlations with indices of self-esteem, positive affect, optimism, and quality of life (Luszczynska, Gutierrez-Dona, & Schwarzer, 2005). For the present sample, Cronbach's alphas for males were  $\alpha = .84$ , and for females,  $\alpha = .86$ .

**Recidivism.** Release, movement, and recidivism information was obtained from the Ministry of Children and Youth Services (MCYS) and the Ministry of Community Safety and

Correctional Services (MCSCS) on July 11, 2014. This ensured that all reconvictions incurred whilst participants were youths (under 18) or adults (18+) were captured. Recidivism was operationalized in one of two ways: (1) any new conviction (excluding administration of justice offences (i.e., breaches, unlawfully at large, escapes) or (2) any new violent reconviction that occurred during a 2 year fixed follow up period. Offenses were considered violent if the offense involved threat to personal/physical safety, or actual harm was caused to a person (e.g., homicide, robbery with a weapon, major assault, minor assault, sexual offenses, threats, kidnapping, and weapon use). Noteworthy, MCYS and MCSCS data only captures reconvictions occurring in Ontario.

## **Procedures**

After all necessary approvals had been obtained (i.e., one hospital research ethics board approval, one university REB approval, one justice REB approval, and one court order), participants were either informed about the study in person by one of eight trained research assistants, via written recruitment notices that were either visible on display boards, or by staff who shared the recruitment notice in person with potential participants. The research assistants then conducted initial informed consent interviews with youth who expressed interest in the study. If consent was granted (parental/guardian consent was also required for youth < 16), the study proceeded.

Each youth participated in a semi-structured interview (approximate length 2 hours) and completed a battery of self-report questionnaires (approximate length of 1 hour). The researchers also accessed official file information while on site for collateral scoring purposes and to complete a demographic and offence coding manual. Lastly, youth were compensated up to

\$30.00 in gift cards and/or canteen funds based on level of participation (i.e., interview = \$20.00, questionnaires = \$10.00).

## Results

### Data Screening

**Missing data.** With the exception of the MCAA attitudinal scales and the Relational Health Index, the percentage of missing data for each variable in the study was under 10%. Although the percentage of missing data for the MCAA attitudes subscales ranged from 12.2% to 14.7% with 24% missing on the total attitudes score, and there was 10.3% missing on the RHI composite score of means, the Little's MCAR test was non-significant, hence indicating that the data was missing completely at random and that casewise deletion was an adequate method for dealing with missing data (Tabachnick & Fidell, 2013). Further analysis revealed that more males had missing data than females on each of the four RHI scales. Consequently, this is a potential limitation to the RHI related analyses.

**Skewness and outliers.** Data was checked for skewness and outliers (both univariate and multivariate). While some of the variables showed moderate to severe skewness, performing the analyses with the variables transformed showed similar trends as with the original variables, and so results from the untransformed variables are reported for ease of interpretation. There were no multivariate outliers detected, and only one univariate outlier on the Criminal Romantic Partner Index with the embedded RHI. However, this case was determined to be valid.

### Descriptives

**Measure of Criminal Attitudes and Associates (MCAA).** Table 2 displays the mean scores for each MCAA attitude subscale (Part B) along with the mean number of criminal peers and the Criminal Friend Index (Part A of the MCAA). The results are presented separately by

gender. T-tests revealed that females scored significantly higher than males on both the Criminal Friend Index and the number of criminal peers. However, the magnitude of these effects was small (i.e., Cohen's  $d = -.31$  and  $-.28$ , respectively). Interestingly, there were no significant gender differences for any of the attitude subscales.

Table 2

*Measure of Criminal Attitudes and Associates (MCAA) Subscale Scores  
by Gender*

Measure	Males ( $n = 159 - 190$ ) <sup>a</sup>		Females ( $n = 78 - 95$ ) <sup>a</sup>		<i>t</i> -test	<i>d</i>
	Mean ( <i>SD</i> )	Range	Mean ( <i>SD</i> )	Range		
MCAA <sup>b</sup>	25.81 (9.49)	4 to 46	25.37 (8.86)	8 to 45	0.34	.05
Violence	6.25 (3.31)	0 to 12	5.63 (3.35)	0 to 12	1.39	.19
Entitlement	6.79 (2.71)	0 to 12	6.39 (2.52)	1 to 12	1.17	.15
Antisocial	5.88 (3.54)	0 to 12	5.94 (3.37)	0 to 12	-0.14	-.02
Associates	6.69 (2.75)	0 to 10	7.05 (2.45)	0 to 10	-1.07	-.14
# of Criminal Peers	1.87 (1.42)	0 to 4	2.24 (1.25)	0 to 4	-2.14*	-.28
Criminal Friend Index	11.02 (10.74)	0 to 45	14.15 (9.24)	0 to 38	-2.43*	-.31

<sup>a</sup> $n =$  fluctuating sample size due to missing data. <sup>b</sup>MCAA = total attitude score

\* $p < .05$

**Relational Health Indices.** Each participant completed the 12-item Relational Health Index for each of the associates identified in Part A of the MCAA. Means for each of the four RHI scales (one for each identified associate) resulted in a plausible range of 1 – 5 for each associate. Consistent with Liang et al. (2010) an overall composite score of means was created by adding the four means resulting in a plausible total score ranging from 5 to 20 (composite scores were prorated in the event that participants did not identify the maximum number of

potential associates). As Table 3 illustrates, females had significantly higher mean scores for all four associates.

Table 3

*Mean Relational Health Indices Score by Gender, for Each Associate Identified on the MCAA*

	Males ( $n = 125 - 187$ ) <sup>a</sup>		Females ( $n = 67 - 93$ ) <sup>a</sup>		<i>t</i> -tests	<i>d</i>
	Mean ( <i>SD</i> )	Range	Mean ( <i>SD</i> )	Range		
Associate #1	3.83 (0.81)	1.17 to 5.00	4.23 (0.72)	1.67 to 5.00	-3.89***	-.52
Associate #2	3.54 (0.89)	1.17 to 5.00	3.94 (0.88)	1.33 to 5.00	-3.43**	-.45
Associate #3	3.38 (0.97)	1.00 to 5.00	3.92 (0.89)	1.00 to 5.00	-4.33***	-.58
Associate #4	3.44 (1.01)	1.00 to 5.00	3.83 (0.87)	1.00 to 5.00	-2.80**	-.41
Composite Score <sup>b</sup>	14.20 (2.89)	4.57 to 20	15.89 (2.08)	10.75 to 20	-5.02***	-.67
Partner Score <sup>c</sup>	3.74 (0.95)	1.33 to 5.00	4.11 (0.85)	1.67 to 5.00	-1.71	-.41

<sup>a</sup> $n$  = fluctuating sample size due to missing data. <sup>b</sup>Composite Score = summed mean RHI scores across all four criminal associates. <sup>c</sup>Partner Score = RHI composite score of means for criminal romantic partners only.

\*\* $p < .001$  \*\*\* $p < .001$

**Pride in Delinquency Scale and Youth Level of Service subcomponents.** The mean scores for the additional attitude scales, the PIDS and YLS attitude subcomponent, along with the YLS subcomponents of peer relations and family problems are presented in Table 4. PIDS scores did not significantly differ by gender. However, the YLS attitudes subcomponent was significantly higher for males. The scores on the YLS peer relations subcomponent did not significantly differ by gender, however females evidenced significantly higher scores on the YLS family subcomponent.

Table 4

*Mean Pride in Delinquency Scales and Youth Level of Service**Subcomponent Scores by Gender*

Measure	Males ( $n = 189 - 205$ ) <sup>a</sup>		Females ( $n = 89 - 95$ ) <sup>a</sup>		<i>t</i> -tests	<i>d</i>
	Mean ( <i>SD</i> )	Range	Mean ( <i>SD</i> )	Range		
PIDS	79.82 (41.19)	0 to 185	76.49 (42.14)	0 to 182	0.63	.08
YLS – Attitudes	2.08 (1.34)	0 to 5	1.68 (1.33)	0 to 5	2.37**	.30
YLS – Peers	2.63 (1.28)	0 to 4	2.58 (1.23)	0 to 4	0.31	.04
YLS – Family	2.63 (1.59)	0 to 6	3.24 (1.52)	0 to 6	-3.03**	-.39

<sup>a</sup> $n$  = fluctuating sample size due to missing data.

\*\* $p < .01$

**Criminal friends, romantic partners, and the Relational Health Index.** In order to test some of the subsequent hypotheses, recall that it was necessary to create the following variables: a combined Criminal Friend Index/Relational Health Index (CFI\*RHI), a Criminal Romantic Partner Index (CRPI), and a combined Criminal Romantic Partner Index/Relational Health Index (CPRI\*RHI). The means for each of these variables are presented in Table 5. Noteworthy, all three indices were significantly higher for females than for males.

Table 5

*Criminal Friend/Partner Index Scores with Embedded Relational Health Index by Gender*

Measure	Males ( $n = 170 - 189$ ) <sup>a</sup>		Females ( $n = 90 - 93$ ) <sup>a</sup>		<i>t</i> -test	<i>d</i>
	Mean ( <i>SD</i> )	Range	Mean ( <i>SD</i> )	Range		
CFI*RHI <sup>b</sup>	35.85 (40.63)	0 to 200	52.76 (37.80)	0 to 174	-3.36*	-.43
CRPI <sup>c</sup>	1.12 (4.20)	0 to 16	3.96 (5.18)	0 to 16	-5.64***	-.60

CRPI\*RHI<sup>d</sup>                      4.29 (11.18)    0 to 60    15.48 (22.29)    0 to 79    -5.44\*\*\*    -.63

<sup>a</sup>*n* = fluctuating sample size due to missing data. <sup>b</sup>CFI\*RHI = Criminal Friend Index with embedded Relational Health Index. <sup>c</sup>CRPI = Criminal Romantic Partner Index. <sup>d</sup>CRPI\*RHI = Criminal Romantic Partner Index with embedded Relational Health Index.

\**p* < .05 \*\*\**p* < .001

**Recidivism outcomes.** As Table 6 illustrates, 57.7% of the sample recidivated during the 24-month follow-up period, whereas 39.3% recidivated violently. Notably, males were significantly more likely to recidivate both generally and violently.

Table 6

*Recidivism Base Rates by Gender at 24 Month Fixed Follow-up*

	Males ( <i>n</i> = 191)		Females ( <i>n</i> = 100)		Total ( <i>n</i> = 291)			
Recidivism	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)	$\chi^2$	<i>Phi</i>
General	115	(60.2)	46	(46.0)	168	(57.7)	5.362*	.14
Violent	84	(44.2)	30	(30.0)	114	(39.3)	5.546*	.14

\**p* < .05

**Research Hypothesis #1: Are female adolescent offenders more likely to associate with romantic criminal partners, older associates, and members of the opposite sex than their male counterparts?**

The nature of the associate groups for males and females were examined to explore possible differences by gender. First, females (42.2%, *n* = 43) were significantly more likely to report having a criminal romantic partner than their male counterparts (14.8%, *n* = 31;  $\chi^2 = 28.478$ , *p* < .001, *Phi* = .30). Second, with a plausible range of 0 older associates to 4 older associates, males reported *M* = 0.83 (*SD* = 1.00) older friends, and females reported *M* = 1.61 (*SD* = 1.28) older friends, and this was significantly different by gender, with females reporting more older friends on average (*t* (310) = -5.831, *p* < .001, *d* = -.68). Also with a plausible range

of 0 to 4, the mean number of opposite-sex friends reported by males was  $M = 1.33$  ( $SD = 0.89$ ) and females reported  $M = 1.62$  ( $SD = 0.95$ ) opposite-sex friends, which was significantly different by gender ( $t(282) = -2.567, p < .05, d = -.32$ ).

### **Research Hypothesis #2: Are the original MCAA and RHI Friend Scale reliable and valid?**

**Reliability.** As Table 7 illustrates the MCAA attitude total and subscale scores demonstrated acceptable internal consistency for both genders, with Cronbach's alphas comparable to those found in the adult male development sample (Mills et al., 2002). Reliability coefficients were not calculated for the MCAA Criminal Friend Index, as it is not a series of items, but the result of a mathematical equation.

All YLS subcomponents had alphas that were somewhat lower than those reported in the Hoge and Andrews (2011) manual, with the exception of the attitudes subcomponent for females. Lastly, the PIDS demonstrated adequate internal consistency for both males and females with high alpha values (see Table 7).

Table 7

#### *Cronbach's Alphas for the MCAA Attitude Scales, PIDS, and YLS Subcomponents*

	Males ( $n = 159 - 205$ ) <sup>a</sup>	Females ( $n = 78 - 95$ ) <sup>a</sup>	Total Sample ( $n = 237 - 300$ ) <sup>a</sup>
Measure (# of Items)	<i>Alpha</i>	<i>Alpha</i>	<i>Alpha</i>
MCAA <sup>b</sup> (46)	.91	.89	.90
Violence (12)	.83	.83	.82
Entitlement (12)	.65	.62	.66
Antisocial Intent (12)	.85	.82	.83
Associates (10)	.81	.78	.80

PIDS (10)	.85	.87	.88
YLS Attitudes (5)	.52	.63	.56
YLS Peers (4)	.67	.63	.67
YLS Family (6)	.57	.45	.55

<sup>a</sup>*n* = fluctuating sample size due to missing data. <sup>b</sup>MCAA = total attitude score

The mean item-total correlations for each scale were also included as an additional measure of internal consistency. All correlations were either close to or above the recommended mean item-total correlation of .30 (Nunnally & Bernstein, 1994). Mean inter-item correlations for each scale were also calculated, with most mean correlations remaining in the recommended range of .10 to .30 (Nunnally, 1967). The mean correlations are presented in Table 8.

Table 8

*Mean Item-Total and Inter-Item Correlations for the MCAA Attitude Scales, PIDS, and YLS Subcomponents*

Measure (# of Items)	Males ( <i>n</i> = 159 - 205) <sup>a</sup>		Females ( <i>n</i> = 78 - 95) <sup>a</sup>		Total Sample ( <i>n</i> = 237 - 300) <sup>a</sup>	
	Mean Item Total <i>r</i>	Mean Inter-item <i>r</i>	Mean Item Total <i>r</i>	Mean Inter-item <i>r</i>	Mean Item Total <i>r</i>	Mean Inter-item <i>r</i>
MCAA Total (46)	.400	.175	.368	.151	.387	.166
Violence (12)	.477	.276	.484	.282	.480	.279
Entitlement (12)	.389	.145	.274	.120	.297	.137
Antisocial (12)	.522	.322	.476	.277	.507	.306
Associates (10)	.497	.308	.453	.271	.483	.296
PIDS (10)	.611	.419	.593	.405	.603	.413
YLS Attitudes (5)	.293	.179	.401	.273	.327	.205

YLS Peers (4)	.478	.349	.413	.284	.456	.327
YLS Family (6)	.313	.183	.222	.118	.292	.168

<sup>a</sup>*n* = fluctuating sample size due to missing data

The four RHI scales for each friend evidence acceptable alphas, demonstrating excellent internal consistency for both genders (Table 9).

Table 9

*Reliability of the Relational Health Indices for Each of the Four Associates*

	Males ( <i>n</i> = 144 - 180) <sup>a</sup>	Females ( <i>n</i> = 76 - 89) <sup>a</sup>	Total Sample ( <i>n</i> = 220 - 265) <sup>a</sup>
12 items	<i>Alpha</i>	<i>Alpha</i>	<i>Alpha</i>
Associate #1	.90	.88	.90
Associate #2	.91	.93	.93
Associate #3	.93	.94	.91
Associate #4	.93	.93	.93

<sup>a</sup>*n* = fluctuating sample size due to missing data.

Mean inter-item correlations were large for both males and females (Table 10). All mean item-total correlations exceeded .30, and the mean inter-item correlations were within the .40 to .50 range. Mean inter-item correlations greater than .30 can sometimes be the result of sampling error due to a small number of cases (Nunnally, 1967).

Table 10

*Mean Item-Total and Inter-Item Correlations of the Relational Health Indices for Each of the Four Associates*

	Males ( <i>n</i> = 144 - 180) <sup>a</sup>	Females ( <i>n</i> = 76 - 89) <sup>a</sup>	Total Sample ( <i>n</i> = 220 - 265) <sup>a</sup>
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12 items	Mean Item Total <i>r</i>	Mean Inter-item <i>r</i>	Mean Item Total <i>r</i>	Mean Inter-item <i>r</i>	Mean Item Total <i>r</i>	Mean Inter-item <i>r</i>
Associate #1	.633	.445	.612	.429	.636	.450
Associate #2	.668	.485	.697	.523	.685	.508
Associate #3	.702	.525	.728	.566	.720	.441
Associate #4	.716	.544	.701	.529	.716	.545

<sup>a</sup>*n* = fluctuating sample size due to missing data.

**MCAA scale intercorrelations.** As expected, the MCAA total attitude subscales and the Criminal Friend Index were correlated with each other (see Table 11). Overall, the attitude subscales were either moderately or strongly associated with each other. For females, the Entitlement subscale was not significantly correlated with the number of criminal peers, however it was moderately correlated with the CFI.

Table 11

*Measure of Criminal Attitude and Associates (MCAA) Scale Intercorrelations*

	Males ( <i>n</i> = 159 - 190) <sup>a</sup>					
	1	2	3	4	5	6
MCAA <sup>b</sup>	.830**	.672**	.848**	.779**	.458**	.512**
Violence (1)	1.00	.487**	.587**	.492**	.226**	.300**
Entitle (2)		1.00	.397**	.331**	.214**	.249**
Antisocial (3)			1.00	.666**	.546**	.591**
Associates (4)				1.00	.578**	.577**
Number of Criminal Peers (5)					1.00	.789**
CFI (6)						

Females ( $n = 77 - 95$ ) <sup>a</sup>						
	1	2	3	4	5	6
MCAA	.796**	.752**	.898**	.643**	.316**	.358**
Violence (1)	1.00	.508**	.607**	.329**	.324**	.315**
Entitle (2)		1.00	.576**	.375**	.120	.254*
Antisocial (3)			1.00	.588**	.408**	.400**
Associates (4)				1.00	.470**	.512**
Number of Criminal Peers (5)					1.00	.773**
CFI (6)						

<sup>a</sup>  $n$  = fluctuating sample size due to missing data. <sup>b</sup>MCAA = total attitudes score.

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

### **Convergent validity of the Measure of Criminal Attitudes and Associates (MCAA).**

The convergent validity of the MCAA was demonstrated by correlating the attitude scales and Criminal Friend Index with related measures of criminal attitudes and peers. As can be seen in Table 12, the MCAA attitudes scales were significantly correlated with both additional attitude measures (Pride in Delinquency Scale and Youth Level of Service subcomponents), for both males and females. Since criminal attitudes and associates are related, further evidence of the MCAA's convergent validity was demonstrated by its significant correlations for both genders with the MCAA attitude subscales and the YLS peers subcomponent, and the correlations between the CFI and the additional attitude measures. For males, the only low correlation was between the Entitlement subscale and the YLS peers subcomponent.

Table 12

*Correlations Between the Measure of Criminal Attitudes and Associates (MCAA) and Related Measures*

Measures	Males ( $n = 155 - 205$ ) <sup>a</sup>			Females ( $n = 73 - 95$ ) <sup>a</sup>		
	PIDS	YLS Attitude	YLS Peers	PIDS	YLS Attitude	YLS Peers
MCAA <sup>b</sup>	.668**	.370**	.405**	.377**	.558**	.426**
Violence	.505**	.262**	.253**	.304**	.498**	.246*
Entitle	.367**	.233**	.166*	.247*	.434**	.324**
Antisocial	.692**	.366**	.411**	.418**	.454**	.409**
Associates	.624**	.419**	.501**	.407**	.289**	.473**
Number of Criminal Peers	.454**	.373**	.405**	.295**	.259*	.285**
CFI	.488**	.389**	.466**	.273**	.210*	.301**

<sup>a</sup>  $n$  = fluctuating sample size due to missing data. <sup>b</sup>MCAA = total attitudes score

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

**Divergent validity of the MCAA.** Mills and Kroner (2000) theorized that the MCAA should not be significantly correlated with indices of theoretically non-relevant scales, such as those that measure depression and anxiety. Correlations with the Achenbach Youth Self-Report (YSR) depression and anxiety subscales demonstrated adequate divergent validity with the present sample. Overall, the correlations between the MCAA scales and the YSR were generally non-significant and/or negative, although for males the total attitude score and two of the subscales (Violence and Entitlement) had significant correlations with the withdrawn/depressed subscale (Table 13).

Table 13

*Correlations Between the MCAA and Theoretically Non-relevant Indices*

	Males ( $n = 146 - 193$ ) <sup>a</sup>		Females ( $n = 73 - 92$ ) <sup>a</sup>	
	YSR Depression/ Anxiety <sup>b</sup>	YSR Withdrawn/ Depressed <sup>c</sup>	YSR Depression/ Anxiety <sup>b</sup>	YSR Withdrawn/ Depressed <sup>c</sup>
MCAA <sup>d</sup>	.132	.202*	-.051	.022
Violence	.068	.166*	.043	.074
Entitle	.088	.160*	-.065	-.013
Antisocial	.082	.087	-.060	.066
Associates	.115	.136	.023	.106

<sup>a</sup>  $n$  = fluctuating sample size due to missing data. <sup>b</sup>YSR = Youth Self-Report, Depression/Anxiety subscale.

<sup>c</sup>YSR = Youth Self-Report, Withdrawn/Depressed subscale. <sup>d</sup>MCAA = total attitudes score

\* $p < .05$

**Convergent and divergent Validity of the Relational Health Indices.** For the Relational Health Index, convergent validity was demonstrated by correlating the RHI for each MCAA associate and the RHI composite score with other indices of mental health: the 10-item Rosenberg Self-Esteem Scale (RSES) and the 12-item General Self-Efficacy Scale (GSES). The RSES was only significantly correlated with two of the associates for males, and was not significantly correlated for any of the associates for females. The GSES was correlated with two associates for females, but only with one for males (Table 14).

For divergent validity, the RHI scales were correlated with indices of mental illness, specifically the Achenbach Youth Self-Report depression/anxiety and withdrawn/depressed subscales. As can be seen in Table 14, each RHI scale was negatively associated with the indices of depression and anxiety.

Table 14

*Correlations Between the Relational Health Indices for Each MCAA**Associate and Related Measures*

Males ( $n = 135 - 193$ ) <sup>a</sup>				
	RSES <sup>b</sup>	GSES <sup>c</sup>	YSR Depression/ Anxiety <sup>d</sup>	YSR Withdrawn/ Depressed <sup>e</sup>
Associate #1	.221**	.269**	.049	-.021
Associate #2	.124	.094	-.094	-.154
Associate #3	.186*	.094	-.036	-.097
Associate #4	.124	.138	-.058	-.041
Composite Score	.163	.142	-.024	-.092
Females ( $n = 70 - 92$ ) <sup>a</sup>				
Associate #1	.169	.226*	-.031	-.181
Associate #2	.149	.211	-.008	-.251*
Associate #3	.036	.332*	-.162	-.322**
Associate #4	.092	.141	-.048	-.144
Composite Score <sup>f</sup>	.218	.385**	-.076	-.354**

<sup>a</sup>  $n$  = fluctuating sample size due to missing data <sup>b</sup>RSES = Rosenberg's Self-Esteem Scale.

<sup>c</sup>GSES = General Self-Efficacy Scale. <sup>d</sup>YSR = Youth Self-Report, Depression/Anxiety subscale

<sup>e</sup>YSR = Youth Self-Report, Withdrawn/Depressed subscale. <sup>f</sup>RHI composite score of means for all identified criminal associates.

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

**Predictive validity of the MCAA.** The Area under the Curve (AUC) is an accuracy statistic that indicates the probability that from a randomly selected recidivist and non-recidivist, the recidivist will score higher on the predictor variable. An AUC gives an indication of the

effect size, such that a value of .56 is approximate to a Cohen's  $d$  of .20 (small effect), a .64 is approximate to a  $d$  of .50 (medium effect), and a .71 is approximate to a  $d$  of .80 (large effect; Rice & Harris, 2005). For the present sample, the AUC values generated by the Receiver Operating Characteristic analyses are presented with confidence intervals in Table 15.

As Table 15 illustrates, based on this indicator of predictive validity, the effects ranged from small to moderate across the MCAA attitude scales and the Criminal Friend Index for both general (.56 to .67) and violent recidivism (.52 to .61). Overall, for males and females, the AUC values were higher for general than for violent recidivism. For females, the largest effects for the MCAA were for the total attitude score (.70) and the Violence subscale (.73) for general recidivism. For males, the largest effects were moderate for Violence (.64) and the CFI (.64) on general recidivism. The CFI appears to have lower predictive ability for both males and females, but the effect is stronger for males for general recidivism.

The PIDS was moderately associated with recidivism for males on general recidivism (.65) but evidenced a small effect with violent recidivism (.60). The association between the PIDS for females was low for both general (.59) and violent recidivism (.57).

The YLS subcomponent associations with general recidivism were small to moderate for males (.62 to .70) and small to large for females (.57 to .71). For violent recidivism, the YLS subcomponent associations were small to moderate for males (.56 to .65) and small for females (.62).

Table 15

*Receiver Operator Characteristic Area under the Curve for General and Violent Recidivism*

General Recidivism		
Males ( $n = 191$ )	Females ( $n = 100$ )	Total ( $n = 291$ )

	AUC	CI	AUC	CI	AUC	CI
MCAA <sup>a</sup>	.61	.52 to .71	.70	.57 to .80	.64	.56 to .71
Violence	.64	.55 to .73	.73	.62 to .84	.67	.60 to .74
Entitlement	.60	.51 to .69	.56	.44 to .69	.59	.52 to .66
Antisocial Intent	.61	.53 to .70	.63	.51 to .75	.62	.55 to .69
Associates	.55	.46 to .64	.61	.48 to .62	.56	.49 to .63
CFI	.64	.56 to .72	.53	.42 to .65	.59	.52 to .65
Number of Criminal Associates	.56	.51 to .58	.51	.39 to .63	.56	.49 to .63
PIDS	.65	.57 to .73	.59	.47 to .71	.63	.56 to .70
YLS Attitudes	.70	.62 to .78	.70	.59 to .81	.70	.64 to .77
YLS Peers	.63	.54 to .71	.71	.61 to .81	.65	.59 to .72
YLS Family	.62	.53 to .70	.57	.45 to .70	.58	.51 to .65

## Violent Recidivism

	Males ( <i>n</i> = 190)		Females ( <i>n</i> = 100)		Total ( <i>n</i> = 290)	
	AUC	CI	AUC	CI	AUC	CI
MCAA <sup>a</sup>	.55	.46 to .65	.66	.52 to .79	.58	.50 to .66
Violence	.58	.49 to .68	.67	.55 to .79	.61	.54 to .69
Entitlement	.56	.47 to .65	.61	.47 to .74	.58	.51 to .65
Antisocial Intent	.55	.46 to .64	.61	.48 to .75	.57	.49 to .64
Associates	.51	.42 to .60	.56	.43 to .69	.52	.44 to .59
CFI	.60	.51 to .68	.60	.47 to .73	.58	.51 to .65

Number of Criminal Associates	.58	.49 to .67	.53	.40 to .66	.55	.48 to .62
PIDS	.60	.51 to .69	.57	.43 to .70	.59	.52 to .66
YLS Attitudes	.65	.57 to .73	.62	.49 to .74	.65	.58 to .71
YLS Peers	.58	.50 to .66	.62	.56 to .78	.61	.54 to .67
YLS Family	.56	.47 to .64	.62	.49 to .76	.56	.48 to .63

<sup>a</sup>MCAA = total attitudes score

For the regression analyses, due to non-significant results with violent recidivism, only the results for general recidivism are reported. Full results for violent recidivism can be seen in Appendix C.

**Research Hypothesis #3a: Do criminal friends and criminal partners predict recidivism, and is this effect stronger for females with criminal romantic partners?**

**Effect of criminal friends.** Research Question #3a attempted to determine if having criminal friends would predict recidivism, and if this effect would depend on gender. Logistic regression analyses using Hayes Process for SPSS (Hayes, 2013) with the original Criminal Friend Index revealed a significant effect of criminal associates on general recidivism ( $Z = 3.056$ ,  $p < .01$ ). However, the interaction between the CFI and gender was non-significant. Full results can be seen in Table 16.

Table 16

*Results for Logistic Regression of the Effect of Criminal Friends on General Recidivism, Moderated by Gender*

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General Recidivism  
( $n = 264$ )

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	<i>B</i>	<i>(SE)</i>	<i>Z Score</i>	<i>OR (95% CI)</i>
<b>Predictor</b>				
Criminal Friend Index	.051	(.017)	3.056**	(0.018 - 0.083)
Gender	-.217	(.443)	-0.491	(-1.085 - 0.650)
<b>Moderator</b>				
Gender * CFI	-.037	(.028)	-1.320	(-0.092 - .018)

*Note.* Confidence intervals based on 10,000 bootstrapped samples; Hosmer and Lemeshow goodness-of-fit statistics,  $\chi^2 = 1.035$ ,  $p = .998$ ,  $R^2 = .075$  (Nagelkerke), \*\* $p < .01$

**Effect of criminal romantic partners.** It was hypothesized that the effect of having a criminal partner would predict recidivism, and this effect would be stronger for females. As noted, the Criminal Romantic Partner Index was used as the measure of criminal partners. For criminal romantic partners, the effect on general recidivism was significant ( $Z = 2.221$ ,  $p < .05$ ). The interaction between the Criminal Romantic Partner Index and gender only approached significance, indicating that the effect of having a criminal romantic partner on general recidivism is not conditional on gender. The full results are presented in Table 17.

Table 17

*Results for Logistic Regression of the Effect of Criminal Romantic Partners on General Recidivism, Moderated by Gender*

	General Recidivism ( $n = 241$ )			
	<i>B</i>	<i>(SE)</i>	<i>Z Score</i>	<i>OR (95% CI)</i>
<b>Predictor</b>				
CRPI <sup>a</sup>	.252	(.113)	2.221*	(0.030 – 0.475)
Gender	-.413	(.324)	-1.332	(-1.065 – 0.169)

Moderator

Gender \* CRPI<sup>a</sup>                      -0.237 (.121)                      -1.959                      (-0.474 – 0.0001)

*Note.* Confidence intervals based on 10,000 bootstrapped samples; Hosmer and Lemeshow goodness-of-fit-statistics,  $\chi^2 = 2.511$ ,  $p = .473$ ,  $R^2 = .073$  (Nagelkerke)

<sup>a</sup>CRPI = Criminal Romantic Partner Index

\* $p < .05$

### **Research Hypothesis #3b: Does including ratings of relational health (RHI) for criminal associations predict recidivism, and is this moderated by gender?**

**Effect of the CFI with the embedded Relational Health Index.** It was hypothesized that having higher relational health in relationships with criminal friends would predict recidivism, and that this effect would be stronger for females. For the CFI with the embedded Relational Health Index, the effect on general recidivism was significant ( $Z = 2.075$ ,  $p < .05$ ) however, the interaction with gender was non-significant. This indicates that higher ratings of relational health in relationships with criminal friends predicts general recidivism, but this effect is not conditional on gender. The full results can be seen in Table 18.

Table 18

*Results for Logistic Regression of the Effect of Criminal Friends with Embedded Relational Health Indices on General Recidivism, Moderated by Gender*

Predictor	General Recidivism ( $n = 262$ )			
	<i>B</i>	<i>(SE)</i>	<i>Z Score</i>	<i>OR (95% CI)</i>
CFI RHI <sup>a</sup>	.009	(.004)	2.075*	(0.001 - 0.017)
Gender	-.446	(.418)	0.286	(-1.266 - 0.373)

## Moderator

Gender * CFI RHI <sup>a</sup>	-0.005	(.007)	-0.730	(-0.019 – 0.009)
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*Note.* Confidence intervals based on 10,000 bootstrapped samples; Hosmer and Lemeshow goodness-of-fit statistics,  $\chi^2 = 2.766$ ,  $p = .948$ ,  $R^2 = .048$  (Nagelkerke).

<sup>a</sup>CFI RHI = Criminal Friend Index with embedded Relational Health Index

\* $p < .05$

**Effect of the Criminal Romantic Partners Index with the RHI.** It was hypothesized that higher relational health in relationships with criminal partners would predict recidivism more strongly for females. For criminal romantic partners with the embedded Relational Health Index, the effect on general recidivism was significant ( $Z = 2.177$ ,  $p < .05$ ), however, the interaction only approached significance. This indicates that having higher relational health with a criminal romantic partner predicts recidivism, but this is not conditional on gender. The full results are presented in Table 19.

Table 19

*Results for Logistic Regression of the Effect of Criminal Romantic Partners with Embedded Relational Health Indices on General Recidivism, Moderated by Gender*

Predictor	General Recidivism ( $n = 241$ )			
	<i>B</i>	<i>(SE)</i>	<i>Z Score</i>	<i>OR (95% CI)</i>
CRPI RHI <sup>a</sup>	.065	(.030)	2.177*	(0.065 – 0.124)
Gender	-.430	(.316)	-1.362	(-1.049 – 0.189)
Moderator				
Gender * CRPI RHI <sup>a</sup>	-.062	(.031)	-1.960	(-0.123 – 0.000)

*Note.* Confidence intervals based on 10,000 bootstrapped samples; Hosmer and Lemeshow goodness-of-fit statistics,  $\chi^2 = 1.940$ ,  $p = .585$ ,  $R^2 = .070$  (Nagelkerke)

<sup>a</sup>CRPI RHI = Criminal Romantic Partner Index with embedded Relational Health Index.

\* $p < .05$

**Research Hypothesis #4: Does having a high quality relationship with a criminal friend and/or partner mediate the relationship between criminal friends and partners, and is this effect stronger for females, particularly for those with criminal partners?**

**Indirect effect of criminal friends and relational health.** It was hypothesized that having higher relational health with criminal friends would mean greater influence of those criminal friendships on recidivism, and that this effect would be stronger for females. Moderated-mediation analyses were run for general recidivism, with criminal friends (Criminal Friend Index) as the predictor, and relational health ratings (RHI composite score) as the mediator, and gender as a moderator of the indirect pathway. The indirect effect through relational health ratings was non-significant. This effect was not conditional on gender, as shown by the confidence intervals for each effect, which contain zero (see Table 20). This indicates that a higher rating of relational health does not mediate the effect of criminal friends on recidivism, for males or females.

Table 20

*Conditional Indirect Effect of Criminal Friends and Relational Health on Recidivism*

General Recidivism ( $n = 208$ )			
	<i>B</i>	<i>(SE)</i>	<i>(95% CI)</i>
Conditional Indirect Effect			
Males	-.003	(.005)	(-0.017 – 0.005) (-0.018 – 0.004)

Females	-.005	(.005)
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**Indirect effect of criminal romantic partners.** Using the romantic partner CFI as a predictor, the indirect effect of criminal romantic partners mediated by the RHI composite score for criminal partners on general recidivism was not significant for males or females. This indicates that the effect of having a criminal romantic partner on recidivism is not mediated by having higher ratings of relational health, nor is this conditional on gender (Table 21).

Table 21

*Conditional Indirect Effect of Criminal Romantic Partner and Relational Health on Recidivism*

	General Recidivism ( <i>n</i> = 63)		
	<i>B</i>	( <i>SE</i> )	(95% <i>CI</i> )
Conditional Indirect Effect			
Males	-.0002	(.021)	(-0.048 – 0.035)
Females	-.005	(.016)	(-0.064 – 0.008)

**Research Hypothesis #5: Does having criminal attitudes mediate the effect of criminal partners and friends on recidivism, and is this effect strongest for females who have high quality relationships with criminal friends and romantic partners?**

**Indirect effect of criminal friends through criminal attitudes.** It was hypothesized that criminal attitudes would mediate the effect of criminal friends on recidivism, and that this effect would be equal for males and females. The indirect effect of criminal friends (Criminal Friend Index) on general recidivism through criminal attitudes (MCAA total attitude score) was

significant for males, ( $CI = 0.010 - 0.048$ ), and also significant for females ( $CI = 0.005 - 0.042$ ). However, this gender difference was non-significant, as indicated by the overlapping confidence intervals (Table 22). Although the indirect effect of criminal peers on general recidivism was significant, it was not conditional on gender. However, the effect of criminal friends on general recidivism is mediated through criminal attitudes.

Table 22

*Conditional Indirect Effect of Criminal Friends and Criminal Attitudes on Recidivism*

	General Recidivism ( $n = 219$ )		
	<i>B</i>	<i>(SE)</i>	<i>(95% CI)</i>
<b>Conditional Indirect Effect</b>			
Males	.027	(.010)	(0.010 – 0.048)
Females	.019	(.009)	(0.005 – 0.042)

**Indirect effect of criminal romantic partners through criminal attitudes.** It was hypothesized that criminal attitudes would mediate the effect of having a criminal romantic partner on recidivism, and that this effect would be stronger for females. The indirect effect of having a criminal romantic partner on general recidivism was significant for females ( $CI = 0.006 - 0.061$ ), but not for males. Although a gender difference does appear to exist for the indirect effect, because the confidence intervals overlap between males and females (Table 23), this gender difference must be presumed non-significant. This indicates that the indirect effect of having a criminal romantic partner on recidivism through attitudes is not conditional on gender.

Table 23

*Conditional Indirect Effect of Criminal Romantic Partners and Criminal Attitudes on Recidivism*

	General Recidivism ( <i>n</i> = 202)		
	<i>B</i>	( <i>SE</i> )	(95% <i>CI</i> )
Conditional Indirect Effect			
Males	.020	(.015)	(-0.005 - 0.055)
Females	.026	(.014)	(0.006 – 0.061)

**Indirect effect of criminal friends and relational health through criminal attitudes.**

The indirect effect of the Criminal Friend Index combined with the embedded RHI on general recidivism was significant for males ( $CI = 0.003 - 0.012$ ), and for females ( $CI = 0.001 - 0.009$ ). Overlapping confidence intervals indicate that there was no significant gender difference for the indirect effect. However, although the indirect effect is not conditional on gender, it does appear that the effect of criminal peers combined with relational health is mediated through criminal attitudes for general recidivism (see Table 24).

Table 24

*Conditional Indirect Effect of Criminal Friends with Embedded RHI and Criminal Attitudes on Recidivism*

	General Recidivism ( <i>n</i> = 218)		
	<i>B</i>	( <i>SE</i> )	(95% <i>CI</i> )

Conditional Indirect Effect			
Males	.006	(.002)	(0.003 – 0.012)
Females	.004	(.002)	(0.001 - 0.009)

**Indirect effect of criminal romantic partners and relational health through attitudes.** The indirect effect of the CFI for romantic partners combined with relational health on general recidivism was significant for females ( $CI = 0.001 - 0.014$ ), but only approached significance for males (Table 25), however, there was no significant gender difference. Although there appeared to be a gender difference in the mediated effect, the confidence intervals overlap, indicating that this difference was non-significant, meaning the indirect effect is not conditional on gender. However, it does appear that the effect of criminal romantic partners with the RHI is mediated through criminal attitudes.

Table 25

*Conditional Indirect Effect of Criminal Romantic Partners with Embedded RHI and Criminal Attitudes on Recidivism*

General Recidivism ( $n = 202$ )			
	<i>B</i>	<i>(SE)</i>	<i>(95% CI)</i>
Conditional Indirect Effect			
Males	.005	(.004)	(-0.002 – 0.014)
Females	.006	(.003)	(0.001 - 0.014)

**Research Hypothesis #6: Does having criminal attitudes and criminal friends mediate the effect of family problems on recidivism, and is this effect stronger for females?**

**Indirect effect of family problems through attitudes.** The indirect effect of family problems (as measured by the YLS subcomponent) on general recidivism was significant for both males ( $CI = 0.020 - 0.181$ ) and females ( $CI = 0.003 - 0.202$ ). This indicates that criminal attitudes (as measured by the MCAA total attitude score) mediate the relationship between family problems and general recidivism, but this effect is not conditional on gender (see Table 26).

Table 26

*Conditional Indirect Effect of Family Problems and Criminal Attitudes on Recidivism*

	General Recidivism ( $n = 206$ )		
	<i>B</i>	<i>(SE)</i>	<i>(95% CI)</i>
Conditional Indirect Effect			
Males	.081	(.041)	(0.020 - 0.187)
Females	.072	(.049)	(0.004 - 0.202)

**Indirect effect of family problems through criminal friends.** The indirect effect of family problems on general recidivism was significant for males ( $CI = 0.008 - 0.156$ ) but not for females. Although the effect seems to be stronger for males, the overlapping confidence intervals indicate no significant gender difference in the mediated effect (see Table 27). Overall, it appears that criminal friends (as measured by the CFI) only weakly mediate the effect of family problems on general recidivism.

Table 27

*Conditional Indirect Effect of Family Problems and Criminal Friends on Recidivism*

	General Recidivism ( <i>n</i> = 249)		
	<i>B</i>	( <i>SE</i> )	(95% <i>CI</i> )
Conditional Indirect Effect			
Males	.069	(.037)	(0.007 - 0.156)
Females	.026	(.029)	(-0.012 – 0.109)

### Discussion

The purpose of the study was twofold. First, the study investigated the reliability and validity of the Measure of Criminal Attitudes and Associates (MCAA; Mills et al., 2002) and the Friend subscale of the Relational Health Index (RHI; Liang et al., 2010) with adolescent offenders, particularly females. Second, the study examined whether or not the incorporation of feminist-informed relational variables (criminal romantic partners, relational health, and family problems) could improve the ability to predict criminal reoffending, particularly among females.

#### Nature of Associates

The purpose of Research Question #1 was to explore the nature of the associates identified on the MCAA to determine if there were gender differences in the makeup of criminality, age, gender, and type of relationship among the associates. As hypothesized, it was found that females in the sample reported criminal romantic partners more often than the males. This finding was consistent with past research showing the importance of intimacy in girls' lives, and the theorized impact this could have on criminality (Comstock et al., 2008; Haynie et al.,

2005). Additionally, females reported a higher frequency of older friends than males. This is an important finding, as it implies that females may be more likely to be influenced by older associates, and this could be part of a female-specific pathway to crime. For example, McAdams, Salekin, Marti, Lester, and Barker (2014) found that having older male friends at the age of 12 predicted antisocial behaviour at 13, and was significantly correlated with delinquency at ages 13 to 15. However, this was the case for both males and females, meaning more research is required to determine if there are gender differences for the effect of older friends.

Females also reported a higher number of opposite sex friends compared to males. This confirms some past research, such as Pleydon and Schner (2001), who found that delinquent girls were more likely than non-delinquent girls to be part of a mixed-gender group as opposed to same-sex groups. Overall, the nature of the associates identified by the MCAA provide some evidence that there are important differences between males and females in their criminal associations, possibly indicating gender-specific needs in this area, thus supporting some feminist theories regarding female pathways to crime (Van Voorhis, 2012).

### **Criminal Friends Versus Criminal Partner**

The Criminal Friend Index showed gender differences, with females reporting a higher index and more criminal associates. This indicates that perhaps female adolescent offenders need more intervention at the relationship level, which would confirm feminist theories of pathways to crime (Comstock et al., 2008; Covington & Bloom, 2006). An important question is if the higher number of criminal associates and time spent with them actually predicts offending outcomes differently for males and females.

In Research Questions 3 to 5, this study aimed to demonstrate that for females, the *type* of association (criminal romantic partner vs. a criminal friend) is what matters more for the

maintenance of criminality. However, in sum this was not the case. The Criminal Friend Index predicted recidivism for both males and females, not only providing evidence of the predictive validity of the CFI, but confirming research showing that criminal friends are important predictors of reoffending among adolescents (Lonardo et al., 2009) regardless of gender (Andrews & Bonta, 2010). However, because of the importance of intimacy in females' relationships (Liang et al., 2010; Miller, 1986), it was expected that criminal partners would predict recidivism for females more strongly. The interaction between gender and the Criminal Romantic Partner Index only approached significance when gender was the moderator of the effect of having a criminal romantic partner on recidivism. Having a criminal partner did predict recidivism, and also indirectly effected recidivism through criminal attitudes, both of which confirmed the hypotheses. However, due to insignificant interactions and overlapping confidence intervals between males and females, it cannot be concluded that this effect is stronger for females.

One possible explanation for the failure to find a gender difference is that the use of the Criminal Romantic Partner Index method with criminal partners may not have been the best method for measuring the effect of criminal partners specifically, as there was a lower prevalence of criminal partners. It is also possible the CRPI was not appropriate for measuring the effects of a single associate's criminality on the offender, as the method for creating the index was derived from an equation meant to measure the combination of criminality and time spent with several associates (the Criminal Friend Index).

Research Question 5 hypothesized that criminal attitudes would mediate the relationship between criminal friends/partners and recidivism, and that this would be conditional on gender, such that the effect of a criminal romantic partner on recidivism would be stronger for females.

As expected, for criminal friends, criminal attitudes mediated the effect on general recidivism for both males and females. However, this effect was non-significant for violent recidivism, which can be explained by the fact that the MCAA attitude scales appeared to be less strongly associated with violent recidivism overall. When criminal partner was used as the predictor, the effect on general and violent recidivism was very small, and no gender differences emerged, contrary to expectations. Although criminal attitudes do seem to mediate the effect of criminal friends, which is in line with past research showing that the two factors are highly related (Andrews & Bonta, 2010), the present study did not provide any evidence that this effect was stronger for females. While this could indicate that groups of friends are more influential on criminal attitudes than a single criminal partner, it is also possible that the effect of relationships on attitudes and reoffending depends on the *quality* of the relationship.

### **Reliability and Validity of the MCAA**

It was demonstrated that the MCAA is acceptably reliable and valid for use with adolescents, both males and females. The attitudes subscales and the Criminal Friend Index were significantly correlated with other indices of criminal attitudes and peers (the Pride in Delinquency Scale and Youth Level of Service Inventory). This was the case for both males and females, indicating that the MCAA is a valid measure for testing criminal attitudes and associates among adolescents.

The reliability of the measure was only questionable for the Entitlement subscale, which for both males and females had low alpha coefficients as well as mean-total item correlations that were below the suggested .30 cutoff (Nunnally, 1994). It is possible that the more abstract nature of some of the items for the subscale are not appropriate for adolescents, which could indicate that the attitude scales could be improved by rewording the items for youth. However,

the Entitlement subscale was significantly correlated for both males and females with the PIDS and YLS attitudes subcomponent, suggesting that while it may not be as strong a measure of attitudes as the other MCAA subscales, it still appears to have some support.

It is important to note that while the MCAA touches on two of the three classes of attitudes (Andrews & Bonta, 2010), neutralizations (“It’s understandable to hit someone who insults you”; Mills et al., 2002) and identification with criminal others (“I have committed a crime with friends”; Mills et al., 2002), it has less to do with rejection of convention. However, the Pride in Delinquency Scale deals with both identification with criminal others, and rejection of convention because it deals with how proud someone would feel committing delinquent acts. This means the MCAA and PIDS measure related facets of attitudes, but also test different content areas of attitudes. Consequently, moderate correlations between the two measures were expected, and demonstrate convergent validity for the MCAA. Similarly, convergent validity was demonstrated by the correlations between the MCAA attitude scales and Criminal Friend Index and the YLS subcomponents. The YLS deals with criminal attitudes and associates in general, while the MCAA samples more specific content, meaning the scales were strongly related, but not identical.

In terms of gender differences on the MCAA, no differences were found between males and females on any of the attitude subscales in terms of prevalence, which is consistent with past theorizing (Andrews & Bonta, 2010) and research (Simourd & Andrews, 1994) indicating that criminal attitudes are similar across gender. However, as already noted, gender differences found on the Criminal Friend Index could indicate that there are some gender differences in adolescent offender associate groups.

### **MCAA Validation With Adolescents**

Since the Measure of Criminal Attitudes and Associates (MCAA) was developed for adult males, its validation with adolescents, especially females, was an important step. Overall, the utility of the MCAA as a measurement tool for adolescent males and females was established. Interestingly, compared to the original development sample for the MCAA (Mills et al., 2002), the current sample showed that adolescent offenders appear to have higher scores than the adult males on the attitude measures. While the total mean for adult male offenders was 14, the mean totals for the present sample were approximately 25 for both males and females. Subscale scores were within the bottom third of the plausible ranges in Mills et al., (2002) adult male sample. However, for the present sample, subscale scores were in the mid to upper third range for both genders. Additionally, both male and female adolescents evidenced higher means than the adult males for number of criminal associates (adult males,  $M = 1.30$ ; Mills et al., 2002), and substantially higher Criminal Friend Indices (adult males,  $M = 6.00$ ; Mills et al., 2002).

These findings could be explained by a number of factors. First, it is possible that adolescents actually have higher attitudes and more criminal associates than adults. This would be consistent with age-crime curves, which show that criminal behavior peaks during adolescence for both males and females, and then typically declines into adulthood (D'Unger, Land, & McCall, 2002). It is possible that the peak in criminal behavior is accompanied by a peak in criminal attitudes and associates, which would explain the higher scores for both factors found for the current adolescent sample compared to the Mills et al. (2002) adult male sample. Second, the higher MCAA scores could be due to the fact that the present sample had a higher than average level of risk as demonstrated by the Youth Level of Service Inventory risk scores. Total risk scores for males (community,  $M = 19.03$ ,  $SD = 8.96$ ; custody,  $M = 22.20$ ,  $SD = 6.89$ ) and females (community,  $M = 14.21$ ,  $SD = 5.68$ ; custody,  $M = 23.15$ ,  $SD = 6.88$ ) were higher

than the means reported for the normative sample (male community,  $M = 10.88$ , custody,  $M = 19.15$ ; female community,  $M = 10.21$ , custody,  $M = 19.72$ ; Hoge & Andrews, 2011). Therefore, the high MCAA scores could be a function of the sample having higher criminality and risk of criminality than average adolescent offenders. Regardless, the findings do demonstrate that females are associating with more criminal friends, and that males and females are endorsing equal levels of criminal attitudes, meaning the MCAA does not show gender differences in the prevalence of an important risk factor hypothesized by gender-neutral theorists such as Andrews and Bonta (2010) to be equally important for both genders.

**Predictive validity.** Overall, the MCAA attitudes scales and Criminal Friend Index appeared to predict general recidivism better than violent recidivism, according to the Areas under the Curve (AUC). Additionally, in the regression models, the CFI more often predicted general than violent recidivism. However, the attitude scales had higher AUCs than the Criminal Friend Index, possibly indicating that criminal attitudes are a stronger or more stable predictor of recidivism among adolescents than criminal associates, or that criminal attitudes are simply more valid.

Interestingly, the AUCs were higher for females than males overall, however, this is not necessarily a significant gender difference. The highest attitude AUCs for females were for the total attitudes score (.70) and attitudes towards violence (.73) on general recidivism. For males, the highest attitude AUCs were for attitudes towards violence (.64), antisocial intent, and the total attitudes score (both were .61) for general recidivism. The higher AUCs for females are not entirely unexpected, since some past research has shown females to have higher predictive values than males on measures like the Level of Service Inventory (LSI; Smith et al., 2009). However, the reasons for this are not very well understood, nor are these values for females

necessarily significantly higher than those obtained for males. For the present study, while the prevalence of criminal attitudes was not different by gender, it is possible that for some types of attitudes (i.e., attitudes towards violence) there may be gender differences for the prediction of recidivism. It is possible that a higher AUC for females on attitudes towards violence may be due to higher levels of violence or aggression with the female sample. However, the differences in AUCs between males and females for the present study may not have been significant.

The AUCs for the Criminal Friend Index were higher for males for both types of recidivism, which is in contrast to past research showing that tools developed for males work better for females. It is possible that criminal associates have a greater impact on males' reoffending, which would confirm some past research that has found criminal associates to be more predictive for males than females (Piquero, Gover, MacDonald, & Piquero, 2005). This could indicate that the CFI has greater predictive validity for males than for females, or that the CFI is simply not a good predictor for females. More research should be done to determine how best to construct a measure of criminal associates that predicts recidivism for females specifically, especially since criminal associates has been found to be a strong predictor for females in past research (Hubbard & Pratt, 2002; Rowe, 2002).

It is interesting to note that the AUCs were higher for the PIDS for males than females on both types of recidivism. This could indicate that the PIDS is a better measurement tool for males. It is possible that pride in criminal behaviour is a more male-specific facet of criminal attitudes, possibly because pride in delinquent acts and rejection of convention could support machoism in male criminal identities. The PIDS could be tapping into more masculine traits (such as machoism), which is important to consider in measurement tools, since males score higher than females on measures of masculinity (Zell, Krizan, & Teeter, 2015).

Overall, the MCAA appears to have low to moderate predictive ability of recidivism for adolescents, and this appears to be largely gender-neutral, confirming mainstream correctional researchers' assertions of criminal attitudes and associates being equally predictive across gender (Andrews & Bonta, 2010).

However, based on some of the differences found in the associates variables, and the inherently male-oriented content of some attitudes measures (e.g., the PIDS), it could be argued that in order for a measure to be truly "gender-neutral", it should not only have equal predictive validity for males and females, but equal content and face validity. In other words, the sampling of the items should be representative of both male and female theorized pathways to crime (i.e., gender-informed). Consequently, while this study indicates gender-neutrality according to the mainstream correctional definition, it raises some questions regarding the definition of "gender-neutral", and whether true neutrality in measures should be determined through prediction only. This could mean that viewing the MCAA as "gender-neutral" based only predictive validity may not allow for other possibly gender-specific variations in the measure.

### **Validity of the Relational Health Index Friend Scale With Adolescent Offenders**

While the Relational Health Index for youth has never been validated or used within a correctional sample, the validity and reliability of the Friend subscale in the RHI was tested with the present sample to explore gender-informed questions about adolescent criminality. The mean scores found for the current sample (ranging across the four associates from 3.44 to 3.83 for males, and 3.83 to 4.23 for females), were comparable to the means found in the non-criminal youth sample in Liang et al. (2010). As in the present study, females in Liang et al (2010) had a significantly higher mean ( $M = 4.06$ ) than males ( $M = 3.80$ ), indicating higher ratings of relational health in their friendships. This pattern of higher ratings of relational health for

females in friendships was found for all of the four friends identified in the MCAA, which confirms the Liang et al. (2010) findings that girls value mutuality, intimacy, and expressivity more highly than males, or at least perceive these factors within their relationships more so than males. The fact that this was determined to be the case in a criminal justice sample indicates that gender-responsive programming that is indeed relational-focused is warranted, as has been argued by others (Comstock et al., 2008; Covington & Bloom, 2006).

For the current sample, the RHI was only significantly correlated with self-efficacy for females, for two of the associates and the composite score. For males, out of the four scales for each friend, two were correlated with self-esteem, and one with self-efficacy. Since relational health was only significantly correlated with self-efficacy for females, and not self-esteem, it is possible that self-efficacy (the belief in one's capacity and ability to reach goals) is more important in criminal relationships for females than for males. This fits into some previous research, such as Holtfreter, Reising, and Morash (2004), who outlined research showing that female offenders are often involved in social networks that provide very low emotional, social, and instrumental support. Essentially, a lack of "social capital" keeps these women from improving their location and social network and becoming more self-sufficient (Holtfreter et al., 2004), or in the terms of the current study, women are low in self-efficacy. Female adolescents may receive support for their self-efficacy within their relationships with criminal others. This points to female-specific needs in relationship with criminal associates.

Overall, there is partial support for the convergent validity of the RHI Friend scale with adolescent offenders. The Liang et al. (2010) confirmed convergent validity by correlating the RHI with self-esteem, school engagement, and social support, while the present study only correlated the scale with self-esteem and self-efficacy. While the positive correlations show that

there is some association between these indices and the RHI, not all correlations were significant. This could possibly be explained by fluctuating sample sizes, however, it is also possible that validation of the RHI requires additional measures (i.e., indices of social support, engagement at school) to be correlated within a correctional sample.

Finally, the RHI showed adequate divergent validity by its negative correlations with measures of depression, anxiety, and withdrawn/depressed behaviour. In the Liang et al. (2010) sample, the Friend subscale was negatively correlated with depression ( $r = -.18$ ), and for the current sample, all correlations with the depression indices were negative for both males and females. It is important to note that while the negative correlations for males in the present sample were not significant, for females, two of them were significant at the  $p < .01$  level and one at the  $p < .05$  between the RHI and the withdrawn/depressed scale. This suggests that for adolescent female offenders, positive relational health in friendships is related to lower occurrences of withdrawn and depressed behaviour, providing support for the divergent validity of the RHI-friend scale in a criminal justice sample.

### **Effect of Relational Health**

Within each research question looking at the type of relationship (friend versus partner), variables were tested that included the nature of the relationship, in other words, the extent of perceived empowerment, mutuality, and authenticity. Because of the hypothesized importance of these factors for females (Liang et al., 2010; Miller, 1986), this led to the theory that relationships with higher levels of empowerment, mutuality and authenticity, as measured by the RHI, would be the most influential. Consequently, if a friend or partner in these relationships was criminal, it would mean a higher likelihood of females engaging in criminal behavior, and this would be strongest in relationships with criminal partners.

This theory was not supported in the present study. Including ratings of relational health in the Criminal Friend Index did predict general recidivism, but there was no gender difference. Also, there was a decrease in the model fit (amount of variance explained in the outcome by the model) between using the original CFI and then including the RHI, for both criminal friends and criminal partners. This indicates that the inclusion of relational health may have reduced the effect of criminal friends/partners. One possible explanation for this is that having higher relational health within relationships with criminal others could act as a buffer against criminal activity, even among associates who are criminal. Also, it is possible that criminal friends and partners who provide more relational health benefits are more likely to have lower criminality.

For the indirect models, it was hypothesized that a) the RHI would mediate the effect of criminal friends and partners on recidivism, and b) that the effect of criminal friends and partners through criminal attitudes on recidivism would be stronger for females when the RHI was embedded in the criminal associates indices. However, there was no support for the hypothesized stronger effect for females when including the RHI, both for criminal friends and criminal partners. Relational health ratings did not mediate the effect of criminal friends or partners, meaning the effect of criminal associates does not depend on the quality of the relationship with those associates.

When criminal attitudes were the mediator, the effect of including relational health in the criminal friend/partner predictors did not support the stronger hypothesized effects for females. While relational health combined with the Criminal Friend Index did predict recidivism through the mediation of criminal attitudes, this was not conditional on gender. The effect of combining relational health with criminal partner relationships through attitudes was very small for recidivism, with no gender difference. While criminal attitudes do mediate the effect of criminal

relationships, as already determined, they do not strongly mediate the effect of friends or partners on recidivism when including relational health ratings.

Overall, criminal friends appeared to be an equally important risk factor for males and females, regardless of the relational health of those friendships. Furthermore, having criminal friends was associated with holding criminal attitudes, which was related to reoffending. The development and maintenance of attitudes favourable towards crime can likely be attributed in part to having criminal friends. This predicted recidivism for both males and females. The predictive validity of the MCAA in this regard lends support to research showing that criminal associates and attitudes are major risk factors for recidivism for both genders, and consequently should be targets for treatment. This stands in contrast to some feminist researchers who suggest that too much emphasis is put on factors that are considered the strongest predictors (i.e., criminal attitudes and associates; Van Voorhis, 2012). This does not necessarily rule out the importance of including female-specific variables, but it does indicate that how one views empowerment, authenticity, and mutuality in one's relationship does not necessarily impact how that relationship influences an individual in criminal activities. This appeared to be the case for both general friends and romantic partners.

### **Family Problems**

For the final research question, another factor theorized to be more important for females was tested. Given the importance of relationships for females, and the impact of early abuse, family problems were hypothesized to be more strongly related to reoffending for females. While the effect of family problems on general recidivism was mediated by criminal attitudes, confirming past research that shows these factors to be highly related (Andrews & Bonta, 2010; Steketee et al., 2013), there were no gender differences. As for criminal friends, this only weakly

mediated the effect of family problems on general recidivism, but again, there were no gender differences. However, it is possible that research with females should investigate more specific aspects of family problems. For example, Steketee et al., (2013) found a greater association between family disruption (i.e., substance abuse, serious fights, and/or divorce/separation among parents) and delinquency for females than for males.

The stronger mediation by criminal attitudes over criminal friends indicates that youth may reoffend because of criminal attitudes which develop as a result of family problems. This could result from adolescents learning attitudes and behaviours favourable to crime through their parents, which would be consistent with social learning perspectives (Andrews & Bonta, 2010). This confirms that attitudes are an important criminogenic need and target for youth offenders. However, family problems do not seem to strongly influence an individual's association with criminal friends, which is in contrast to some past research which suggests that issues within the family can lead to association with delinquent others (Andrews & Bonta, 2010). The lack of gender differences in the prediction of recidivism from family problems is also in contrast to feminist theories which suggest family issues are more important for female pathways to crime (Kruttschnitt, 2013).

### **Limitations**

One of the limitations for the present study was the amount of missing data on the MCAA and RHI. The loss of multiple data points at the case level caused removal of cases from analyses, even if only a small number of data points were missing. Consequently, a significant number of cases were left out of the analyses, which may have contributed to the weak effects seen in the regression models.

Another limitation was the method by which the Relational Health Index was integrated into the MCAA. This method resulted in highly skewed distributions, although it should be noted that skewed distributions for relational health ratings are typical, according to Liang et al. (2002), and transformed variables countering the skewness did not change the trends of the results. However, integrating the scale into the Criminal Friend Index may not have been the best way to capture relational health within each relationship. Consequently, the resultant variables were untested and not validated before their use in the regression models, making interpretation of them difficult. A limitation of the RHI was that it has never been used with correctional samples or in predictive models. While there was partial support for its validity with adolescent offenders, more research is required to determine if its use is appropriate with a criminal justice sample.

One possible reason the RHI did not add significant incremental predictive validity to the Criminal Friend Index is that relational health should be viewed as a protective factor in the context of relationships with criminal others. The present study hypothesized the opposite, specifically that the quality of the criminal relationship would strengthen the influence of that relationship. In other words, relationships with criminal others that were higher in quality would mean criminal friends and partners would have a greater influence on the development and perpetuation of criminal behaviour. However, in contrast, other research such as Benda (2005) provide evidence that high quality relationships might actually decrease the influence of criminality. Further research should explore this association for females.

Specific to the hypotheses regarding associates, one important limitation was that recidivism was predicted by criminal associates at the time of assessment. However, there was no information on the nature of the samples' relationships at the time of recidivism, which occurred up to two years after the initial interview. It is possible that the effects of associates

needs to be examined over time, particularly for romantic partners. For example, Woodward et al (2002) found that overall, at the age of 21 both males and females reported the lowest levels of offending if they had a non-deviant partner, and highest levels if they had a deviant partner. Increased offending at 18 was also related to increased offending at 21, showing that partner choice and previous offending seemed to work together to determine the risk of offending at 21, for both males and females. Additionally, Oudekerk, Burgers, and Reppucci (2014) looked at the effect of deviant partners on continued offending behaviour among females from adolescence to adulthood. Overall, they concluded that deviant adolescent females paired with deviant partners in adulthood, and the continuation of offending across adolescence into adulthood was moderated by partner deviance. It is therefore possible that the effects of delinquent partners are more apparent in early adulthood than in adolescence.

### **Implications and Directions for Future Research**

Although this study demonstrated that criminal attitudes and associates as measured by the MCAA appear to be similar for both males and females overall, there are some questions that should be addressed in future research. It is possible that for youth the Entitlement subscale is not reliable. Further testing of this subscale with adolescents, especially with regards to gender differences, should be done to establish predictive validity, as well as to determine if word changes among items could increase reliability. Further validation of the MCAA should also be done with samples of purely violent youth to test the prediction of violent recidivism specifically. Also, additional research on the differences between adolescent self-report (i.e., MCAA) of criminal attitudes versus assessment (i.e., YLS) of criminal attitudes could help to determine if one method of measuring risk factors is more appropriate for adolescents.

With regards to the Criminal Friend Index, there should be future research on how the age, gender, and type of relationship of associates work together or separately to influence female criminality, and if this differs for males. While some significant differences were found in the makeup of the associate groups within the present sample, the coverage of the topic was only exploratory and preliminary.

Some past research has indicated that there may be differences between female delinquent and non-delinquent peer groups. Pleydon and Schner (2001) conducted a study to compare adolescent female offenders and adolescent female non-offenders' self-reports regarding their relationships with best friends and their peer groups. For friendships, there was no difference between groups on the friendship variables used (intimacy, attachment, loyalty, help, closeness, security, trust), and no differences in conflict between groups. However, females in the delinquent group did report more perceived peer pressure than non-delinquent females. Delinquent females were also more likely to be in a mixed peer group (both males and females). These differences in the social dynamics of female antisocial peer groups need to be thoroughly explored, especially with different relationship types.

The influence of intimate partners on female criminality is a topic that especially requires further inquiry, particularly with regards to feminist theories. Perhaps rather than focusing on how intimate and familial relationships are related to female offending, more research should focus on how they can be growth-fostering (Miller, 1986), and consequently promoters of pro-social behaviour as protective factors. The Relational Health Index could be tested as a protective factor to see if it reduces recidivism in females who have criminal romantic partners.

Additional testing of gender-neutral measures with female-specific variables, such as poverty, abuse, and relational variables should continue in order to ensure that theorized female

needs are fully represented in correctional assessment and research, in combination with established gender-neutral criminogenic needs. As previously mentioned, it is important to determine if measures are truly gender-neutral with regards to more than just predictive validity. For example, possible differences in content validity (e.g., are the items representative of female-specific pathways to crime?) should be determined, in addition to predictive validity. Also, another area of research should look into creating a criminal attitudes and associates measure for females from the ground up. For example, there should be a sampling of possible female-specific content for criminal attitudes and associates in order to create and test tools built particularly for measurement with females, and to determine if this is a better method of testing gender differences than simply adding gender-informed content to existing measures developed with males.

### **Conclusion**

The Measure of Criminal Attitudes and Associates (MCAA) is a valid tool for measuring criminal attitudes and associates among adolescent offenders. It also appears to be valid for predicting general recidivism, although attitudes appear to predict better for females, and the Criminal Friend Index appears to predict better for males. More validation is required for violent recidivism. Future research should aim to improve the reliability and predictive validity of the attitude subscales, and explore the gender differences in mean scores on the Criminal Friend Index. While the present study did not provide evidence for the female-specific effect of certain factors, such as the effect of criminal partners, relational health, and family problems on recidivism, further research with both higher and lower risk youth samples should be done. There should especially be efforts to incorporate gender-informed tools and variables within studies

involving gender-neutral measures, as well as research into constructing a female-specific criminal attitudes and associates measure from the ground up.

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**Appendix A:**  
**MCAA and RHI-Y**  
**Friends Questionnaire**

This questionnaire asks some questions about your friends, girlfriends/boyfriends (e.g., someone you truly care about and may be physically intimate with—holding hands, kissing etc) and acquaintances. There are no right or wrong answers.

Consider the 4 people you spend the most time within the community. If you had a boyfriend or girlfriend in the community please make sure that this person is included as one of the four people you spend time with in the community. No names please of the people you are referring to.

**PERSON #1**

1. How much of your free time do you spend with person #1? (Please circle your answer)												
less than 25%			25% - 50%			50% - 75%			75% - 100%			
2. How old is person #1? (Please circle your answer)												
≤12		13	14	15	16	17	18	19-25	26-30	31+		
3. Person #1 is: (Please circle your answer)												
My friend				my acquaintance				my girlfriend/boyfriend				
4. Has person #1 ever committed a crime?								Yes	No			
5. Does person #1 have a criminal record?								Yes	No			
6. Has person #1 ever been to jail?								Yes	No			
7. Has person #1 tried to involve you in a crime?								Yes	No			
8. Is person #1 male?								Yes	No			
9. Is person #1 female?								Yes	No			
								never	seldom	sometimes	often	always
10. Even when there's something hard to talk about, I can be real								1	2	3	4	5

with this friend.	
11. After talking with this friend, I feel excited and happy.	1 2 3 4 5
12. The more time we spend together, the closer we get to each other.	1 2 3 4 5
13. I feel like this friend understands me.	1 2 3 4 5
14. My friend and I think it is important to keep making our friendship better.	1 2 3 4 5
15. When we don't agree, I can talk to this friend about the way I feel without worrying if she or he will think badly of me.	1 2 3 4 5
16. I enjoy this friendship so much that I want to find other friendships like this one.	1 2 3 4 5
17. It is hard to talk about my deepest feelings and thoughts with this friend.	1 2 3 4 5
18. This friendship makes me feel good about myself.	1 2 3 4 5
19. This friend helps me change for the better.	1 2 3 4 5
20. I can tell my friend when he or she has hurt my feelings.	1 2 3 4 5
21. This friendship helps me grow in important ways.	1 2 3 4 5

**PERSON #2**

1. How much of your free time do you spend with person #2? (Please circle your answer)										
less than 25%			25% - 50%			50% - 75%			75% - 100%	
2. How old is person #2? (Please circle your answer)										
≤12	13	14	15	16	17	18	19-25	26-30	31+	
3. Person #2 is: (Please circle your answer)										

My friend	my acquaintance	my girlfriend/boyfriend
4. Has person #2 ever committed a crime?	Yes	No
5. Does person #2 have a criminal record?	Yes	No
6. Has person #2 ever been to jail?	Yes	No
7. Has person #2 tried to involve you in a crime?	Yes	No
8. Is person #2 male?	Yes	No
9. Is person #2 female?	Yes	No

	never	seldom	sometimes	often	always
10. Even when there's something hard to talk about, I can be real with this friend.	1	2	3	4	5
11. After talking with this friend, I feel excited and happy.	1	2	3	4	5
12. The more time we spend together, the closer we get to each other.	1	2	3	4	5
13. I feel like this friend understands me.	1	2	3	4	5
14. My friend and I think it is important to keep making our friendship better.	1	2	3	4	5
15. When we don't agree, I can talk to this friend about the way I feel without worrying if she or he will think badly of me.	1	2	3	4	5
16. I enjoy this friendship so much that I want to find other friendships like this one.	1	2	3	4	5
17. It is hard to talk about my deepest feelings and thoughts with this friend.	1	2	3	4	5
18. This friendship makes me feel good about myself.	1	2	3	4	5

19. This friend helps me change for the better.	1	2	3	4	5
20. I can tell my friend when he or she has hurt my feelings.	1	2	3	4	5
21. This friendship helps me grow in important ways.	1	2	3	4	5

**PERSON #3**

1. How much of your free time do you spend with person #3? (Please circle your answer)										
less than 25%			25% - 50%			50% - 75%			75% - 100%	
2. How old is person #3? (Please circle your answer)										
≤12	13	14	15	16	17	18	19-25	26-30	31+	
3. Person #3 is: (Please circle your answer)										
My friend			my acquaintance				my girlfriend/boyfriend			
4. Has person #3 ever committed a crime?								Yes		No
5. Does person #3 have a criminal record?								Yes		No
6. Has person #3 ever been to jail?								Yes		No
7. Has person #3 tried to involve you in a crime?								Yes		No
8. Is person #3 male?								Yes		No
9. Is person #3 female?								Yes		No

	<b>never</b>	<b>seldom</b>	<b>sometimes</b>	<b>often</b>	<b>always</b>
10. Even when there's something hard to talk about, I can be real with this friend.	1	2	3	4	5

11. After talking with this friend, I feel excited and happy.	1	2	3	4	5
12. The more time we spend together, the closer we get to each other.	1	2	3	4	5
13. I feel like this friend understands me.	1	2	3	4	5
14. My friend and I think it is important to keep making our friendship better.	1	2	3	4	5
15. When we don't agree, I can talk to this friend about the way I feel without worrying if she or he will think badly of me.	1	2	3	4	5
16. I enjoy this friendship so much that I want to find other friendships like this one.	1	2	3	4	5
17. It is hard to talk about my deepest feelings and thoughts with this friend.	1	2	3	4	5
18. This friendship makes me feel good about myself.	1	2	3	4	5
19. This friend helps me change for the better.	1	2	3	4	5
20. I can tell my friend when he or she has hurt my feelings.	1	2	3	4	5
21. This friendship helps me grow in important ways.	1	2	3	4	5

**PERSON #4**

1. How much of your free time do you spend with person #4? (Please circle your answer)										
less than 25%			25% - 50%			50% - 75%			75% - 100%	
2. How old is person #4? (Please circle your answer)										
≤12	13	14	15	16	17	18	19-25	26-30	31+	
3. Person #4 is: (Please circle your answer)										
My friend				my acquaintance				my girlfriend/boyfriend		

4. Has person #4 ever committed a crime?	Yes	No
5. Does person #4 have a criminal record?	Yes	No
6. Has person #4 ever been to jail?	Yes	No
7. Has person #4 tried to involve you in a crime?	Yes	No
8. Is person #4 male?	Yes	No
9. Is person #4 female?	Yes	No

	never	seldom	sometimes	often	always
10. Even when there's something hard to talk about, I can be real with this friend.	1	2	3	4	5
11. After talking with this friend, I feel excited and happy.	1	2	3	4	5
12. The more time we spend together, the closer we get to each other.	1	2	3	4	5
13. I feel like this friend understands me.	1	2	3	4	5
14. My friend and I think it is important to keep making our friendship better.	1	2	3	4	5
15. When we don't agree, I can talk to this friend about the way I feel without worrying if she or he will think badly of me.	1	2	3	4	5
16. I enjoy this friendship so much that I want to find other friendships like this one.	1	2	3	4	5
17. It is hard to talk about my deepest feelings and thoughts with this friend.	1	2	3	4	5
18. This friendship makes me feel good about myself.	1	2	3	4	5

19. This friend helps me change for the better.	1	2	3	4	5
20. I can tell my friend when he or she has hurt my feelings.	1	2	3	4	5
21. This friendship helps me grow in important ways.	1	2	3	4	5

### Attitudes Questionnaire

This questionnaire is made up of a series of statements for which you can respond by showing whether you agree or disagree with them. There are no right or wrong answers.

**A = Agree    D = Disagree (Circle One Answer)**

A   D	1. It's understandable to hit someone who insults you.
A   D	2. Stealing to survive is understandable.
A   D	3. I am not likely to commit a crime in the future.
A   D	4. I have a lot in common with people who break the law.
A   D	5. There is nothing wrong with beating up a child molester.
A   D	6. A person is right to take what is owed them, even if they have to steal it.
A   D	7. I would keep any amount of money I found.
A   D	8. None of my friends have committed crimes.
A   D	9. Sometimes you have to fight to keep your self-respect.
A   D	10. I should be allowed to decide what is right and wrong.
A   D	11. I could see myself lying to the police.
A   D	12. I know several people who have committed crimes.
A   D	13. Someone who makes you very angry deserves to be hit.
A   D	14. Only I should decide what I deserve.
A   D	15. In certain situations I would try to outrun the police.

A D	16. I would not steal, and I would hold it against anyone who does.
A D	17. People who get beat up usually had it coming.
A D	18. I should be treated like anyone else no matter what I've done.
A D	19. I would be open to cheating certain people.
A D	20. I always feel welcomed around criminal friends.
A D	21. It's all right to fight someone if they stole from you.
A D	22. It's wrong for a lack of money to stop you from getting things.
A D	23. I could easily tell a convincing lie.
A D	24. Most of my friends don't have criminal records.
A D	25. It's not wrong to hit someone who puts you down.
A D	26. A hungry man has the right to steal.
A D	27. Rules will not stop me from doing what I want.
A D	28. I have friends who have been to jail.
A D	29. Child molesters get what they have coming.
A D	30. Taking what is owed you is not really stealing.
A D	31. I would not enjoy getting away with something wrong.
A D	32. None of my friends has ever wanted to commit a crime.
A D	33. It's not wrong to fight to save face.
A D	34. Only I can decide what is right and wrong.
A D	35. I would run a scam if I could get away with it.
A D	36. I have committed a crime with friends.
A D	37. Someone who makes you really angry shouldn't complain if they get hit.
A D	38. A person should decide what they deserve out of life.

A D	39. For a good reason, I would commit a crime.
A D	40. I have friends who are well known to the police.
A D	41. There is nothing wrong with beating up someone who asks for it.
A D	42. No matter what I've done, its only right to treat me like everyone else.
A D	43. I will not break the law again.
A D	44. It is reasonable to fight someone who cheated you.
A D	45. A lack of money should not stop you from getting what you want.
A D	46. I would be happy to fool the police.

## Appendix B

### Pride in Delinquency Scale

#### PDS

I am going to read you a list of behaviours. You may have done some of them; there are probably some you haven't done. It doesn't really matter if you've done them or not. What I'd like you to do is **imagine** for a moment that you had done each of them, and tell me how you'd feel about yourself if you had done them: proud or ashamed. In fact, I'd like you to rate each of them on a scale that goes from **positive ten to negative ten (+10 to - 10)**. You'd give it a positive number if you'd be proud to do it, and a negative number if you'd be ashamed to do it. The bigger the number, the more proud or ashamed you'd be. So if you gave it a positive 8, 9, or 10, you'd be extremely proud to do it. If you gave it a 4, 5, or 6, you'd be moderately ashamed to do it. If you gave it a positive 1 or 2 you'd be just a little bit proud. If you had no feelings, if you' be right in the middle, you'd give it a 0. Let me give you a few examples before we begin. Most people give a positive 10 to saving the life of a drowning child, because they are extremely proud to do a thing like that. Most people would give a negative 10 to murdering a young child, because they'd be extremely ashamed to do a thing like that. Most people would give a 0 to waking up in the morning, because they wouldn't be proud or ashamed to get up. They just get up and get going. Now remember, I want you to tell me how'd you feel about doing each of these things, not how most people would feel. Ready?

- |  |
|--|
| 1. ___ Beating up a child molester.  |
| 2. ___ Committing sexual assault.  |
| 3. ___ Breaking into a family's home when no one is in and stealing jewelry and a VCR.   |
| 4. ___ Seeing a store being robbed and <u>not</u> calling the police.                    |
| 5. ___ Driving home after a party when you've had too much to drink.                     |
| 6. ___ Striking someone who insults you; let's say they call you a "goof".               |
| 7. ___ Selling Drugs.  |
| 8. ___ Carrying a concealed weapon, like a pistol, without a licence.                    |
| 9. ___ Pointing a shotgun at a store clerk your own age and telling him/her (same gender |

as client) to hand over all the money in the til.

10. \_\_\_\_ Getting away from the police after a high speed chase.

**Total** = \_\_\_\_ + 100 = \_\_\_\_ %ile

## Appendix C

### Regression Results for Violent Recidivism

#### Research Hypothesis #3a

Table 16

*Results for Logistic Regression of the Effect of Criminal Friends on Violent Recidivism,*

*Moderated by Gender*

Violent Recidivism ( <i>n</i> = 263)				
	<i>B</i>	<i>(SE)</i>	<i>Z</i> Score	<i>OR</i> (95% <i>CI</i> )
<b>Predictor</b>				
Criminal Friend Index	.030	(.015)	2.084*	(0.002 - 0.059)
Gender	-.851	(.503)	-1.621	(-1.801 – 0.171)
<b>Moderator</b>				
Gender * CFI	.007	(.029)	0.224	(-0.050 – 0.063)

*Note.* Confidence intervals based on 10,000 bootstrapped samples; Hosmer and Lemeshow test of goodness-of-fit,  $\chi^2 = 3.669$ ,  $R^2 = .059$  (Nagelkerke).

\**p* < .05

Table 17

*Results for Logistic Regression of the Effect of Criminal Romantic Partners Violent Recidivism,*

*Moderated by Gender*

Violent Recidivism ( <i>n</i> = 240)				
	<i>B</i>	<i>(SE)</i>	<i>Z</i> Score	<i>OR</i> (95% <i>CI</i> )
<b>Predictor</b>				

CRPI <sup>a</sup>	.043	(.057)	0.761	(-0.068 – 0.154)
Gender	-.640	(.348)	-1.841	(-1.322 – 0.042)
Moderator				
Gender * CRPI <sup>a</sup>	-.023	(.072)	-0.326	(-0.165 – 0.118)

*Note.* Confidence intervals based on 10,000 bootstrapped samples; Hosmer and Lemeshow statistics for goodness-of-fit,  $\chi^2 = 0.085$ ,  $p = .994$ ,  $R^2 = .030$  (Nagelkerke).

<sup>a</sup>CPRI = Criminal Romantic Partner Index

### Research Hypothesis #3b

Table 18

*Results for Logistic Regression of the Effect of Criminal Friends with Embedded Relational Health Index on Violent Recidivism, Moderated by Gender*

Predictor	Violent Recidivism ( $n = 261$ )			
	<i>B</i>	<i>(SE)</i>	<i>Z Score</i>	<i>OR (95% CI)</i>
CFI RHI <sup>a</sup>	0.004	(.004)	1.172	(-0.003 – 0.012)
Gender	-1.064	(.478)	-2.226	(-2.001 – -0.127)
Moderator				
Gender * CFI RHI <sup>a</sup>	0.006	(.007)	0.850	(-0.008 – 0.020)

*Note.* Confidence intervals based on 10,000 bootstrapped samples; Hosmer and Lemeshow, goodness-of-fit statistics,  $\chi^2 = 3.009$ ,  $p = .884$ ,  $R^2 = .050$  (Nagelkerke).

<sup>a</sup>CFI RHI = Criminal Friend Index with embedded Relational Health Index

Table 19

*Results for Logistic Regression of the Effect of Criminal Romantic Partners with Embedded Relational Health Index on Violent Recidivism, Moderated by Gender*

Violent Recidivism ( <i>n</i> = 240)				
	<i>B</i>	( <i>SE</i> )	<i>Z</i> Score	<i>OR</i> (95% <i>CI</i> )
Predictor				
CRPI RHI <sup>a</sup>	.011	(.015)	0.792	(-0.079 – 0.040)
Gender	-.690	(.341)	-2.024	(-1.358 – -0.022)
Moderator				
Gender * CRPI RHI <sup>a</sup>	-.003	(.018)	-0.180	(-0.038 – 0.032)

*Note.* Confidence intervals based on 10,000 bootstrapped samples; Hosmer and Lemeshow goodness-of-fit statistics,  $\chi^2 = 0.088$ ,  $p = .993$ ,  $R^2 = .032$  (Nagelkerke).

<sup>a</sup>CRPI RHI = Criminal Romantic Partner Index with embedded Relational Health Index

#### Research Hypothesis #4

Table 20

*Conditional Indirect Effect of Criminal Friends and Relational Health on Violent Recidivism*

Violent Recidivism ( <i>n</i> = 207)			
	<i>B</i>	( <i>SE</i> )	(95% <i>CI</i> )
Conditional Indirect Effect			
Males	-.002	(.004)	(-0.013 – 0.003)
Females	-.004	(.004)	(-0.015 - 0.002)

Table 21

*Conditional Indirect Effect of Criminal Romantic Partner and Relational Health on Violent Recidivism*

Violent Recidivism ( <i>n</i> = 63)			
	<i>B</i>	( <i>SE</i> )	(95% <i>CI</i> )
Conditional Indirect Effect			
Males	.0001	(.018)	(-0.031 – 0.043)
Females	.003	(.003)	(-0.010 – 0.057)

### Research Hypothesis #5

Table 22

*Conditional Indirect Effect of Criminal Friends and Criminal Attitudes on Violent Recidivism*

Violent Recidivism ( <i>n</i> = 218)			
	<i>B</i>	( <i>SE</i> )	(95% <i>CI</i> )
Conditional Indirect Effect			
Males	.014	(.009)	(-0.002 – 0.033)
Females	.010	(.008)	(-0.0004 – 0.030)

Table 23

*Conditional Indirect Effect of Criminal Romantic Partners and Criminal Attitudes on Violent Recidivism*

Violent Recidivism ( <i>n</i> = 201)			
	<i>B</i>	( <i>SE</i> )	(95% <i>CI</i> )

Conditional Indirect Effect			
Males	.013	(.011)	(-0.002 – 0.045)
Females	.017	(.012)	(0.001 – 0.050)

Table 24

*Conditional Indirect Effect of Criminal Friends with Embedded RHI and Criminal Attitudes on Violent Recidivism*

Violent Recidivism ( <i>n</i> = 217)			
	<i>B</i>	( <i>SE</i> )	(95% <i>CI</i> )
Conditional Indirect Effect			
Males	.004	(.002)	(0.0003 – 0.008)
Females	.002	(.002)	(0.0001 – 0.007)

Table 25

*Conditional Indirect Effect of Criminal Romantic Partners with Embedded RHI and Criminal Attitudes on Violent Recidivism*

Violent Recidivism ( <i>n</i> = 201)			
	<i>B</i>	( <i>SE</i> )	(95% <i>CI</i> )
Conditional Indirect Effect			
Males	.003	(.003)	(-0.001 – 0.012)
Females	.004	(.003)	(0.000 to 0.012)

**Research Hypothesis #6**

Table 26

*Conditional Indirect Effect of Family Problems and Criminal Attitudes on Violent Recidivism*

Violent Recidivism ( <i>n</i> = 205)			
	<i>B</i>	( <i>SE</i> )	(95% <i>CI</i> )
Conditional Indirect Effect			
Males	.054	(.036)	(-0.001 – 0.146)
Females	.049	(.041)	(-0.003 – 0.169)

Table 27

*Conditional Indirect Effect of Family Problems and Criminal Friends on Violent Recidivism*

Violent Recidivism ( <i>n</i> = 248)			
	<i>B</i>	( <i>SE</i> )	(95% <i>CI</i> )
Conditional Indirect Effect			
Males	.060	(.036)	(-0.001 – 0.143)
Females	.022	(.026)	(-0.010 – 0.102)