

# The relationship between juvenile psychopathic traits, delinquency and (violent) recidivism: A meta-analysis

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A meta-analysis of  $k = 53$  studies containing 60 non-overlapping samples and 10,073 participants was conducted to investigate whether psychopathy was associated with delinquency and (violent) recidivism in juveniles. The results showed that psychopathy was moderately associated with delinquency, general recidivism, and violent recidivism. Moderator effects revealed that various study and participant characteristics influenced the strength of the association between psychopathy, delinquency, and (violent) recidivism. It was concluded that screening for the (early) detection of psychopathy is important, as delinquent behavior and recidivism can be predicted from psychopathy as early as the transition from middle childhood to adolescence. **Keywords:** Psychopathy, juvenile delinquency, recidivism, meta-analysis.

Psychopathy is a multidimensional construct that consists of a variety of cognitive, affective, and behavioral characteristics. Researchers in the adult psychopathy field tend to disagree about what would be the best representation of the factor structure for psychopathy. Initially two factors, antisocial behavior and low emotionality, were distinguished (Harpur et al., 1989). Cooke and Michie (2001) distinguished between three dimensions of psychopathy, namely, narcissism, callous/unemotional traits, and impulsive and sensation-seeking behavior (Cooke & Michie, 2001). Hare (2003) provided a four-factor structure, an interpersonal, an affective, a behavioral lifestyle and an antisocial factor, with two higher-order factors similar to the originally derived two factors. There is a vast body of empirical research showing a link between psychopathic traits and criminal (re)offending in adults (e.g., Frick & White, 2008; Gendreau, Goggin, & Smith, 2002; Walters, 2003b). Psychopathic traits, however, are already visible in early childhood and adolescence (Lynam, Charnigo, Moffitt, Raine, Loeber, and Stouthamer-Loeber, 2009; Obradovic, Pardini, Long, & Loeber, 2007), and various studies have shown a relationship between psychopathic traits and antisocial behavior in both delinquent (Brandt, Kennedy, & Curtin, 1997) and non-delinquent youth (Frick et al., 2003; Marsee, Silverthorn, & Frick, 2005).

Research on psychopathy in children and juveniles is not without problems, which relates to the fact that little psychometric data exist on psychopathy measures, while the data that exist suggest significant limitations to almost all psychopathy measures (Kotler & McMahon, 2005; Sharp & Kine,

2008). Some researchers argue that it even seems impossible to adequately assess psychopathy in juveniles, as they are still developing (Edens, Skeem, Cruise, & Cauffman, 2001). Other researchers contend that high levels of psychopathic traits, especially with respect to the behavioral dimension (impulsiveness and sensation-seeking behaviors), may rather reflect normative developmental problems, as these behaviors show a peak during adolescence (Edens et al., 2001; Seagrave & Grisso, 2002). This might seriously limit the utility of the psychopathy construct for juveniles (Edens & Vincent, 2008). Kotler and McMahon (2005) also criticize studying the associations between psychopathic traits and delinquency in juveniles, as both might have the same etiological background. Furthermore, some researchers argue that labeling a child as a psychopath can have a stigmatizing effect (Edens et al., 2001).

A vast body of empirical research, however, does not support criticisms of the juvenile psychopathy construct. For example, Lynam et al. (2009) and Lynam, Caspi, Moffitt, Loeber, and Stouthamer-Loeber (2007) showed psychopathy to be rather stable from ages 7 to 17 and ages 13 to 24, respectively. Lynam, Derefinko, Caspi, Loeber, and Stouthamer-Loeber (2007) provided evidence for the content validity of juvenile psychopathy inventories. Finally, Murrie, Boccaccini, McCoy, and Cornell (2007) found no negative effects associated with psychopathy labels in a juvenile justice context.

Although obvious problems exist with the assessment and diagnosis of psychopathy in youth, it seems important to identify psychopathy earlier in life in an attempt to avoid the negative consequences thereof. The present study aims to summarize and

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quantify research on the relationship between psychopathy and delinquency in juveniles, and can be seen as an extension of the meta-analysis by Edens, Campbell, and Weir (2007), who included studies until the publication year 2005. Of the 21 studies included, 18 appeared between 2001 and 2005. Between 2005 and 2010 more than 20 new studies appeared, which illustrates that research on the relationship between psychopathy and delinquency is developing rapidly, and is increasingly focused on juveniles with psychopathic traits. It is therefore both timely and necessary to reexamine the evidence by conducting a new meta-analysis. The first aim of the present meta-analysis was to examine whether there is a relationship between psychopathy and delinquency, including first-time offending and recidivism.

Whereas previous meta-analyses included only studies using official records of delinquency (Edens et al., 2007; Hemphill, Hare, & Wong, 1998; Walters, 2003a), the present meta-analysis includes studies using both self-report and official records of delinquency and recidivism. The use of official records on delinquency involves the risk of underestimating the total number of criminal acts, as there is more criminality than is reported in the official systems. Official records are vulnerable to selection bias in the justice system (Edens et al., 2007) and depend on the willingness of civilians to report, the willingness of police to process the report, and the tracing and prosecution policies of the police/justice system (Blom, Van der Laan, & Huijbregts, 2005). Notably, Hendriks (2010) estimated that not more than one out of thirty property offenses and not more than one out of twenty violent offenses lead to a conviction, which suggests that it is only a specific subsample of delinquent juveniles who get arrested and are subsequently convicted. These juveniles probably share some characteristics that increase their risk of being caught and convicted. Self-reported data, however, are not 100% reliable either. For instance, Breuk, Clauser, Stams, Slot, and Doreleijers (2007) showed that juvenile delinquents tend to underreport on their delinquent behavior. In general, self-reported delinquency usually yields a reliable picture of mild offenses, whereas severe offenses remain invisible. For psychopathic traits, parent-report resulted in stronger associations with delinquency than self-report data (White, Cruise, & Frick, 2009).

In order to determine whether the source of information affects the effect size of the relationship between psychopathy and delinquency in juveniles up to 18 years of age, both questionnaires (self-report, parent/teacher/therapist report) and official data on delinquency and recidivism were used in the present meta-analytic study. This study is an extension of Edens et al. (2007), as both delinquency and recidivism were included, whereas Edens et al. focused only on recidivism. Additionally, the present meta-analytic study included various psychopathy

assessment tools where previous meta-analyses tended to focus only (e.g., Skeem, Edens, Camp, & Colwell, 2004) or mainly (Edens et al., 2007) on the Psychopathy Check List Youth Version (PCL-YV).

In the present meta-analysis, moderator analyses were conducted to examine whether characteristics of the participants (e.g., sample type, gender, and ethnicity) might influence the relationship between psychopathy and (re)offending. For both gender and ethnicity, previous studies have shown equivocal results, suggesting ethnic and gender differences in psychopathy. Moreover, as we were specifically interested in the association between psychopathy and delinquent behavior, it is relevant to examine whether there are differences between community and offender samples (Asscher, Wissink, Deković, Stams, & Prinzie, 2011). Furthermore, some characteristics of the studies (e.g., publication status, design, and assessment tool) were included in the moderator analyses. For example, alpha of the psychopathy assessment instrument was included, as there are indications that there are problems with the psychometric qualities of psychopathy assessment instruments in juveniles (Kotler & McMahon, 2005; Sharp & Kine, 2008).

## Method

### *Sample of studies*

The primary search method involved inspection of the electronic databases Web of Science, PsychINFO, ERIC, ISI web of Knowledge, and Google Scholar. The literature search included all studies published since 1990 and before 2010. The following keywords were used for searching in varying combinations: 'psychopath\* and delinquen\* in youth or adolescence, psychopathy and recidivism, callous/unemotional traits and delinquency, conduct problems, juvenile delinquency and psychopathy, psychopathic traits'. In the second step, studies were located using the ancestry method, that is, inspection of the reference sections of the articles, the narrative reviews and book chapters. Additionally, we searched papers that cited articles we had already included. Finally, authors were contacted by email in order to obtain unpublished work and to obtain more information than was provided in the articles.

Studies were inspected and included if they met the following selection criteria. First, the studies had to be from publication period 1990–2010 and written in English. Second, the juvenile psychopathy questionnaire should have been filled out while the participants were under 18. Third, studies were included only if delinquency and/or (violent) recidivism were outcome measures. Studies with aggression, externalizing behavior, hostility, anger, and/or incidents in treatment groups as outcome measures were not included. The main reason for not including these measures is the conceptual clarity of the paper. In the present meta-analysis we were specifically interested in the association between psychopathic traits and delinquent behaviors. Although we do recognize that there is a certain similarity between delinquency and aggression,

the research shows that these two types of behavior are conceptually and empirically distinguishable: they are differentially concurrently related to risk factors (Dishion & Patterson, 2006), and show different developmental trajectories (aggression shows decrease, whereas delinquency shows increase throughout adolescence; Bongers et al., 2004). Moreover, in contrast to delinquency, the research literature for aggression shows a wide variety of definitions and instruments.

Cross-sectional as well as longitudinal studies were included. For longitudinal studies, the number of months to follow-up assessment was coded. Different sample types, such as offenders, incarcerated juveniles, community samples, treatment groups, and juveniles in probation, were included. All included samples were statistically independent. When there were studies reporting on the same data, the study to be included was selected on the basis of the following criteria: (1) the research question was closest to our research question, (2) the study presented the most complete results, and (3) the study had the largest sample. If multiple questionnaires had been used to assess the psychopathy construct, the least frequently used instrument was selected for this meta-analysis in order to ensure sufficient questionnaires per category to allow comparing categories. In those cases where too little information was provided to be able to calculate the effect size ( $r$ ), authors were emailed in order to obtain additional information. If the authors did not respond ( $n = 2$ ), and if there were no other effect sizes (e.g., betas) that we could use, the study was excluded from the meta-analysis. Fifty-three studies met the inclusion criteria, providing data on 60 different samples. An overview of the included studies is presented in the online appendix, Table 1.

In the present study, delinquency is defined as criminal offenses committed by participants in a community sample (both self-reported and official records), and criminal offenses (both self-reported and official records) committed by convicted offenders. Recidivism is defined as any reoffense or reconviction of offenders.

### *Coding the studies*

The following associations between psychopathy and delinquency were coded. First, the associations between the separate psychopathic traits (callous/unemotional, narcissism, and impulsivity) and delinquency and recidivism were coded. Subsequently, the associations between the total psychopathy score and delinquency, recidivism, and violent recidivism were coded.

*Sample characteristics* such as gender, sample type (incarcerated, offender, community sample, and ethnicity) and mean age of the child were coded.

The following *study characteristics* were coded: study design (cross-sectional or longitudinal), sample size, impact factor of the journal in which the study was published, publication status, publication year of the study, assessment method for psychopathy (self-report, other report, diagnostic interview), delinquency (self-report/other report/official data), and recidivism (self-report/other report/official data) were coded, as well as the number of items used to assess psychopathy and Cronbach's alpha per questionnaire. We also coded whether the same informants were used to gain information on psychopathy and delinquency.

### *Interrater reliability*

All studies were blindly coded by the first and fifth author. Interrater agreement of the total effect sizes was 87.5% and of the moderators 98%.

### *Analytic strategy*

A correlation coefficient was coded as most studies reported point biserial correlations. When correlations had to be calculated from other statistics (e.g., chi square), formulae provided by Lipsey and Wilson (2001) were used to recalculate to  $r$ s. Those statistics for which no formula was presented, e.g., AUCs, were transformed with the help of the table provided by Rice and Harris (2005). When only betas from a multivariate regression analysis were reported, we contacted the authors. If authors did not respond, we used the multivariate betas as effect sizes in the present meta-analysis. According to Peterson and Brown (2005), this does not result in fundamentally different outcomes.

Effect sizes were analyzed with SPSS 16 macros from Lipsey and Wilson (2001). The correlations were first transformed to Fischer  $z$ -scores, then the results were aggregated using the MeanES SPSS macro (Lipsey & Wilson, 2001). Separate effect sizes were calculated for the association between psychopathy and delinquency and between psychopathy and recidivism. To assess the impact of psychopathy on delinquency and (violent) recidivism, SPSS macros (Lipsey & Wilson, 2001) were utilized, and fixed effect sizes were computed.

We determined whether the samples were homogeneous in order to establish whether the individual study effect sizes estimate the same population mean, that is, to detect to what extent effect sizes were constant across studies. Homogeneity analyses were conducted with the  $Q$  statistic (Lipsey & Wilson, 2001). A significant  $Q$  value indicates heterogeneity in the distribution of effect sizes. In order to explain heterogeneity, moderator analyses were conducted using SPSS macros by Lipsey and Wilson (2001). We conducted fixed effect moderator analyses, as we assumed the variability across studies to be systematic, allowing moderator analyses. The categorical variables (gender, publication status, etc.), were analyzed with the MetaF macro (Lipsey & Wilson, 2001), which performs an analysis of variance-like procedure. MetaF divides the total variability into a portion that can be explained by the moderator and a residual portion (as expressed as  $Q_{\text{Between}}$  and  $Q_{\text{Within}}$  values). A significant  $Q_{\text{Between}}$  value indicates that the differences between the categories are larger than what can be expected by sampling error (Lipsey & Wilson, 2001).

For continuous variables, macro MetaReg (Lipsey & Wilson, 2001) was used, a regression-like procedure, providing homogeneity statistics for the regression model ( $Q_{\text{regression}}$ ) and for the sum of squares residual ( $Q_{\text{error}}$ ) (Edens et al., 2007; Lipsey & Wilson, 2001).

### *File-drawer analysis*

Another problem with meta-analyses is publication bias. Studies that report significant results have a larger probability of being published, and consequently



are easier to find. Edens et al. (2007) indeed reported weaker effect sizes for unpublished studies. This so-called publication bias could result in a file-drawer problem, which suggests the sample of studies found for the researched area to be incomplete and not representative for the total sample of studies. To examine whether such publication bias or file-drawer problem exists, we calculated the fail-safe number to estimate the number of unpublished studies that were not included in the meta-analysis, but that could render the overall significant effect size nonsignificant if they had been included (Durlak & Lipsey, 1991). Meta-analytic findings are considered to be robust if the fail-safe number exceeds the critical value obtained with Rosenthal's (1995) formula of  $5 * k + 10$ , in which  $k$  is the number of studies used in the meta-analysis. If the fail-safe number falls below this critical value, a publication bias or file-drawer problem may exist.

## Results

Fifty-three studies were included in the present meta-analysis, providing data on  $N = 60$  independent samples. In total, data of 10,073 participants were analyzed. Sample sizes ranged from 30 (Myers, Burket, & Harris, 1995) to 1,170 (Cauffman, Kimonis, Dmitrieva, & Monahan, 2009) participants, with an average of 168 participants per study. The mean age of the participants was 15.43, ranging from ages 9.3 to 18.4. In Table 2 in the online appendix, the results of the three meta-analyses of psychopathy and (violent) (re) offending are presented. For the interpretations of the magnitude of effect sizes, the criteria formulated by Cohen (1988) were used. Effect sizes are categorized as small ( $r = .10$ ), moderate ( $r = .25$ ) and large ( $r = .40$ ).

### Psychopathy and delinquency

Thirty-two studies with 5,908 participants were included in the meta-analysis examining the association between total psychopathy and delinquency. This meta-analysis yielded a moderately significant effect size ( $r = .23$ ,  $p < .001$ ), which means that higher levels of psychopathic traits were associated with higher levels of self-reported delinquent behavior. The fail-safe number (3539.35) turned out to be robust, i.e., larger than Rosenthal's critical number of 170 ( $32 * 5 + 10 = 170$ ). The overall mean effect size was heterogeneous ( $Q = 118.54$ ,  $p < .001$ ), indicating that the variation across studies might be caused by study or sample characteristics. We therefore carried out moderator analyses.

The results of the moderator analyses are presented in Table 3 (online appendix). Informant on psychopathy and delinquency and sample type were significant moderators. Clinical judgment of psychopathy,  $Q_{between} (1; 30) = 5.03$ ,  $p < .05$ , yielded a larger effect size ( $r = .27$ ) than self-reported psychopathy ( $r = .21$ ). Other reports of delinquency,  $Q_{between} (2; 28) = 13.27$ ,  $p < .01$ , yielded a larger

effect size ( $r = .33$ ) than self-reported delinquency ( $r = .20$ ) and official delinquency data ( $r = .23$ ). The effect size was larger for studies using a combined sample ( $r = .60$ ) than for offender ( $r = .24$ ) and community ( $r = .25$ ) samples:  $Q_{between} (2; 28) = 17.80$ ,  $p < .001$ . The moderator effect for gender just failed to reach significance:  $Q_{between} (2; 29) = 5.85$ ,  $p = .054$ , indicating a trend. Effect sizes were larger for mixed samples of males and females ( $r = .26$ ) and for samples consisting of females only ( $r = .24$ ) than for samples consisting of males only ( $r = .19$ ).

Analyses of continuous moderators revealed that age of assessment was a significant moderator ( $\beta = -.41$ ,  $p < .001$ ), indicating that the relationship between psychopathy and delinquency was stronger when delinquency was assessed at a younger age. Additionally, stronger associations between psychopathy and delinquency were found when more reliable instruments were used ( $\beta = .30$ ,  $p < .001$ ) and when the psychopathy assessment tool consisted of a larger number of items ( $\beta = .27$ ,  $p < .001$ ).

### Psychopathy and recidivism

Thirty-nine studies with 5,853 participants were included in the meta-analysis examining the association between psychopathy and recidivism. This meta-analysis yielded a moderately significant effect size ( $r = .21$ ,  $p < .001$ ), meaning that across studies higher levels of psychopathic traits were associated with higher levels of self-reported recidivism. The fail-safe number (3424.00) turned out to be robust. Since the effect sizes proved to be heterogeneous ( $Q = 153.50$ ,  $p < .001$ ), we conducted moderator analyses.

Analyses of the categorical moderators showed that informant on psychopathy significantly moderated the relation between psychopathy and recidivism:  $Q_{between} (1; 38) = 33.17$ ,  $p < .001$ , (see also Table 3, online appendix), indicating that clinical judgment ( $r = .27$ ) was more strongly associated with recidivism than self-reported psychopathy ( $r = .11$ ). Secondly, informant on delinquency was significant,  $Q_{between} (1; 38) = 12.04$ ,  $p < .001$ , indicating that the association between psychopathy and delinquency was stronger when others (parents, therapists, teachers) reported on the delinquent behavior ( $r = .47$ ) than when official data ( $r = .20$ ) were used. Thirdly, with regard to the psychopathy instrument that was used, stronger associations were found when the PCL or PCL-YV had been used ( $r = .25$ ),  $Q_{between} (1; 38) = 22.95$ ,  $p < .001$ , than when other psychopathy assessment instruments had been employed ( $r = .12$ ). Fourthly, differences were found for the country where the study was conducted,  $Q_{between} (2; 37) = 24.56$ ,  $p < .001$ , in that stronger associations were found for the relationship between psychopathy and recidivism in Canada ( $r = .29$ ) than in the USA ( $r = .16$ ) and Europe ( $r = .13$ ). Fifthly, effect sizes significantly differed with regard to

publication status,  $Q_{between}(1; 38) = 12.08$ ,  $p < .001$ , in that larger effect sizes were found for published ( $r = .25$ ) than for unpublished studies ( $r = .16$ ). Finally, the model for sample type was significant,  $Q_{between}(1; 38) = 28.84$ ,  $p < .001$ , indicating that the effect size was larger for studies using a combined sample ( $r = .44$ ) than for samples consisting of offenders only ( $r = .18$ ).

Analyses of continuous moderators revealed that both study and participant characteristics moderated the relationship between psychopathy and recidivism. The association was stronger for older studies ( $\beta = -.50$ ,  $p < .001$ ), for studies using a psychopathy instrument consisting of fewer items ( $\beta = -.32$ ,  $p < .001$ ) and for studies using a more reliable psychopathy assessment instrument ( $\beta = .34$ ,  $p < .001$ ). Moreover, the association between psychopathy was stronger when the psychopathy assessment took place at a younger age ( $\beta = -.23$ ,  $p < .001$ ) and when the percentage of immigrants in the studies was lower ( $\beta = -.39$ ,  $p < .001$ ).

### Psychopathy and violent recidivism

Twenty-nine studies with 3,545 participants were included in the meta-analysis on the relation between psychopathy and violent recidivism. This meta-analysis yielded a moderately significant effect size ( $r = .22$ ,  $p < .001$ ), which means that across studies higher levels of psychopathic traits were associated with higher levels of violent recidivism. The fail-safe number (1756.97) turned out to be robust, meaning there was no indication of publication bias. The effect sizes were heterogeneous ( $Q = 128.99$ ,  $p < .001$ ). Results are presented in Table 3 in the online appendix.

Moderator analyses for the relationship between psychopathy and violent recidivism revealed a moderator effect for informant on delinquency,  $Q_{between}(1; 28) = 6.76$ ,  $p < .01$ , indicating that the association between psychopathy and violent recidivism was much stronger when others (parent, teacher or therapist) reported on the juvenile's delinquent behavior ( $r = .41$ ), than when official data ( $r = .21$ ) were used. Additionally, the association between psychopathy and violent recidivism was stronger for published studies ( $r = .26$ ), than for unpublished studies ( $r = .16$ ):  $Q_{between}(1; 28) = 8.43$ ,  $p < .01$ . Another significant moderator effect was found for gender,  $Q_{between}(2; 27) = 15.53$ ,  $p < .001$ , in that samples with both males and females yielded larger effect sizes ( $r = .26$ ) than samples consisting of males only ( $r = .12$ ) or females only ( $r = .08$ ). Finally, a trend was found for sample type,  $Q_{between}(1; 28) = 3.54$ ,  $p < .10$ , again indicating that combined samples yielded a larger effect size ( $r = .30$ ) than samples consisting of offenders only ( $r = .21$ ).

Analyses of the continuous moderators (Online appendix, Table 4) showed that psychopathy instruments consisting of larger numbers of items

were associated with stronger relationships between psychopathy and violent recidivism ( $\beta = .30$ ,  $p < .001$ ). Secondly, continuous moderator analyses showed that greater reliability of the psychopathy assessment instrument was associated with stronger relationships between psychopathy and violent recidivism ( $\beta = .51$ ,  $p < .001$ ).

### Additional analyses

In order to examine the relationships between callous/unemotional, narcissistic and impulsive traits and (re)offending, we calculated the effect size for each trait. In Table 5 (in the online appendix), the results of six meta-analyses on the associations between the different psychopathic traits (callous/unemotional, narcissism and impulsiveness) and delinquency as well as recidivism are presented. There were too few studies linking the three individual psychopathic traits to violent recidivism (two studies) to conduct a separate meta-analysis for this outcome measure. Small effect sizes were found for the relationships between these traits and delinquency (ES ranging from,  $r = .12$  to  $r = .18$ ). Moderate effect sizes were found for the relationships between the three psychopathic traits and recidivism (ES ranging from  $r = .18$  to  $r = .25$ ).

There was an indication for publication bias for the relationship between narcissism and recidivism, as the fail-safe number was not above Rosenthal's (1995) criterion (RC): the fail-safe number was 14.63 for the relationship between narcissism and recidivism (RC = 25). The other fail-safe numbers were above Rosenthal's (1995) criterion, being 248.56 for the relationship between callous-unemotional traits and delinquency (RC = 55), 105.47 for the relationship between callous-unemotional traits and recidivism (RC = 60), 50.91 for the relationship between narcissism and delinquency (RC = 35), 129.38 for the relationship between impulsiveness and delinquency (RC = 35), and 145.88 for the relationship between impulsiveness and recidivism (RC = 50).

The overall effect size proved to be heterogeneous for callous-unemotional traits ( $Q_{CU\_DEL} = 32.90$ ,  $p < .01$ ,  $Q_{CU\_REC} = 26.30$ ,  $p < .01$ ), impulsiveness ( $Q_{IMP\_DEL} = 29.47$ ,  $p < .001$ ,  $Q_{IMP\_REC} = 21.22$ ,  $p < .01$ ), and narcissism ( $Q_{NARC\_DEL} = 9.24$ ,  $p < .10$ ,  $Q_{NARC\_REC} = 6.20$ ,  $p < .05$ ). However, we conducted no further moderator analyses to explain heterogeneity because of the small number of studies, ranging from 3 to 10 per meta-analysis.

### Discussion

The current meta-analytic study showed moderate relationships between psychopathic traits in juveniles and (later) delinquent behavior and (violent) recidivism. Several sample and study characteristics moderated this relationship. First, the association between psychopathic traits and (re)offending was

somewhat weaker when self-reported psychopathy was used instead of clinical judgment of psychopathy. A possible explanation is that self-report can be affected by psychopathy itself, such as manipulative behavior, glibness and callousness. Moreover, the association between psychopathic traits and (re)offending was somewhat weaker when self-report and official data of delinquency were used compared to other report of delinquency, which indicates that official delinquency data may result in a slight underestimation of the relationship between psychopathy and delinquency. Caution is thus needed when interpreting results of studies using a single information source, as differences exist between self and other reports of delinquency and data derived from official sources.

Results for the relationship between psychopathy and recidivism indicated that effect sizes were largest when the PCL questionnaire was used. The PCL may capture aspects of psychopathy that are strongly related with delinquency, and which are not captured by other instruments. Alternatively, stronger associations may also derive from some degree of item-content overlap (contamination) between psychopathy, as measured with the PCL, and delinquent behavior, which might result in stronger associations between psychopathic traits and recidivism. Finally, it is possible that the PCL is better at capturing true psychopathy, as it is an interview-based assessment instrument, rather than a questionnaire.

Furthermore, location where the study was conducted was related to the effect size. The present meta-analysis confirmed that effect sizes for the association between psychopathy and recidivism of studies conducted in Canada were larger than effect sizes of studies that were conducted in Europe and the USA. This is in line with the finding of Olver, Stockdale, and Wormith (2009). There are several explanations for Olver et al.'s finding, such as differences between countries in legal and correctional system variables, including policy initiatives on the management of juvenile delinquency and punitive sentencing policies, or cultural differences between the study samples. Finally, the fact that Canadian researchers used the PCL only, for which stronger associations were found with delinquency and recidivism than for other instruments, might be an explanation for this result.

There were also some characteristics of the samples used that influenced the strength of the association between psychopathy and recidivism. Sample type moderated the relationship between psychopathy and (violent) recidivism, with the largest effect sizes for samples combining offenders and non-offenders. This result is not surprising, as the variation in both psychopathy and delinquency is likely to be largest in these samples, which can result in higher correlations. Additionally, age of psychopathy assessment moderated the relationship

between psychopathy and delinquency and between psychopathy and recidivism, indicating that when psychopathy was assessed at younger ages, the associations with delinquency and recidivism were stronger. Post hoc analyses revealed that for both the relation between psychopathy and delinquency and the association between psychopathy and recidivism, the strength of association was medium during middle childhood/early adolescence and small in late adolescence. One explanation for this is provided by Dadds et al. (2009), who found that school-aged children high on psychopathic traits had cognitive empathy deficits that diminished with increasing age, suggesting that these children were either able to improve their cognitive empathic skills or able to learn to cover up these deficiencies. It is a process that is likely to continue during the course of adolescence. This explanation may also pertain to other psychopathic traits, suppressing the strength of the association between psychopathy and delinquency.

Moreover, for delinquency and violent recidivism a gender effect was found, indicating that effect sizes were somewhat larger in mixed-gender samples than in same-sex samples. This effect may be attributable to the greater heterogeneity of mixed samples. For delinquency, effect sizes were also somewhat larger in female samples than in male samples. A possible explanation is found in the 'gender paradox' (Hipwell & Loeber, 2006), which indicates that there are only a few girls showing psychopathic traits, but these girls constitute a particular disturbed group, showing high levels of delinquent behavior. The relationship between psychopathy and violent recidivism, however, proved to be absent in girls and present in boys, which replicates findings reported by Edens et al. (2007). The opposite moderator effect of gender on the relationship between psychopathy and delinquency and violent recidivism, respectively, may be explained by differences in the expression of delinquency between boys and girls, with girls showing less violent behaviors.

Also in line with Edens et al., (2007) the present meta-analysis showed stronger associations between psychopathy and recidivism for non-immigrants. A plausible explanation is that psychopathy assessments are less suitable for ethnic minority groups, as they have been developed and validated for Caucasian samples (Cooke, Kosson, & Michie, 2001).

When the associations between individual psychopathic traits and (re)offending were examined, both impulsiveness and callous-unemotional traits were equally strongly associated with delinquency and impulsiveness was somewhat more strongly associated with recidivism. This is a surprising finding, as in previous research (e.g., Kimonis, Frick, & Barry, 2004; Kruh, Frick, & Clements, 2005) callous-unemotional traits proved to be the most important predictors of delinquency. Possibly, the relatively strong relation between impulsiveness and



delinquency as well as recidivism can be explained by the age range in the present meta-analytic study. In mid-adolescence behavioral traits, such as impulsivity, are more likely to be present than in other age periods (Crone, Bullens, Van der Plas, Kijkuut, & Zelazo, 2008), and thus could have resulted in the larger effects sizes for impulsivity (Edens et al., 2001; Moffitt, 1993; Seagrave & Grisso, 2002). Alternatively, the strong association between impulsiveness and delinquent behavior may also be caused by content-overlap between the behavioral constructs of psychopathy and delinquent behavior.

Finally, it is important to note that there are some explanations for only modest associations between psychopathy and delinquent behavior in the present meta-analysis. First, it is possible that problems with the assessment of psychopathy have influenced the strength of association between psychopathy and delinquency. For instance, we found greater reliability of psychopathy assessments to be associated with larger effect sizes. Second, the fluidity of psychopathology symptoms during childhood and adolescence might have negatively influenced the magnitude of effect sizes.

Given that the effect size for the relation between psychopathy and delinquency is only modest, and it is the affective dimension that differentiates psychopathy from conduct disorder, whereas the behavioral dimension links psychopathy with conduct disorder, one could consider including psychopathy as a subtype marker in conduct disorder in the DSM-V (APA, 2011). Moffitt et al. (2008) plead that early identification and treatment of callous-unemotional traits in children provides an opportunity for interventions, and should therefore be included in Conduct Disorder.

Some limitations of this meta-analysis should be mentioned. First, only a few studies examined individual psychopathic traits, in particular narcissism, which limits the generalizability of the results pertaining to individual psychopathic traits. Second, when interpreting the results of the additional analyses on the separate components of psychopathy, one should bear in mind that there is disagreement in the literature on the number of psychopathic traits (Cooke & Michie, 2001; Hare, 2003; Harpur, Hare, & Hakstian, 1989). However, most of the studies included in this meta-analysis still reported on a three-factor structure. Third, the significant relationship between narcissism and recidivism must be interpreted with great caution, because of possible publication bias, as the RC criterion was not met. Finally, it is important to note that key to the psychopathy construct is its affective features (callous-unemotional traits) so as to distinguish it from antisocial behavior in general. Before we can definitely state that psychopathy predicts delinquency and recidivism in juveniles, more studies focusing on the affective features need to be conducted.

Notwithstanding these limitations, this study is the first to compare the effect sizes of the relationships between psychopathy and delinquency and (violent) recidivism. Whereas most studies focused on the relationship between psychopathic traits and reoffending in delinquent samples, the present study showed that psychopathy is equally important for (first time) offending in adolescents from the general population. Moreover, when the separate psychopathic traits are examined in juveniles, both callous-unemotional traits and impulsiveness appear to be important. Therefore we plead for a refinement of the assessment of psychopathy during adolescence, for signaling psychopathic traits such as manipulative and cold behaviors in early stages, and for not neglecting the potential negative consequences of these behaviors. However, given the modest effect sizes, the difficulties in adequately assessing juvenile psychopathy and the serious implications of this label, caution is needed should it be used to make court and sentencing decisions.

Further research is needed in order to determine the role of psychopathy in juvenile females and immigrants of non-Caucasian descent and to specify individual psychopathic traits during adolescence. This future research on the relationship between psychopathy and delinquent behavior should focus on both delinquency and recidivism. It is important to collect both self-reported data on delinquent behavior as well as official data, as the present meta-analysis showed that the use of official data might reduce the strength of the association between psychopathy and delinquency. This study showed that psychopathy can be a factor that contributes to the development and maintenance of juvenile delinquency. Although much is still unknown about psychopathy and the role of psychopathic traits in juvenile delinquency, the present meta-analysis indicates that early signaling of psychopathy can be useful, because delinquent behavior and recidivism are moderately related as early as the transition from middle childhood to adolescence.

## Supporting information

Additional Supporting Information may be found in the online version of this article:

**Table 1** Overview of included studies

**Table 2** Effect sizes for total psychopathy and (re) offending measures

**Table 3** Results of discrete moderator analyses

**Table 4** Results of regression analyses for continuous moderators

**Table 5** Effect sizes for psychopathic traits and delinquency and recidivism (Word document)

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## Key points

- The present meta-analytic study showed moderate associations between psychopathy and delinquent behavior.
- Various study and participant characteristics moderated the strength of the association between psychopathy, delinquency and (violent) recidivism.
- Caution is needed when interpreting results of studies using a single information source, as differences exist between self- and other reports of delinquency and official data.
- Whereas most studies found a relationship between psychopathy and reoffending in delinquent samples, the present study showed that psychopathy is equally important for (first time) juvenile offenders from the general population.
- Careful screening for (early) psychopathy in juveniles is important, because delinquent behavior and recidivism can be predicted from psychopathy as early as the transition from middle childhood to adolescence.

## References

References marked with an asterisk (\*) are studies that were included in this meta-analysis.

- American Psychological Association (APA). (2011). *DSM-5: The future of psychiatric diagnosis*. Retrieved February 20, 2011 from <http://www.dsm5.org/Pages/Default.aspx>.
- \*Asscher, J.J., Deković, M., Manders, W.A., Van Vugt, E.S., Van der Laan, P.H., & Prins, P.J.M. (2009). *The relationship between psychopathy and delinquency: Gender and ethnic differences*. Unpublished manuscript. Amsterdam: University of Amsterdam.
- Asscher, J.J., Wissink, I.B., Deković, M., Stams, G.J.J.M., & Prinzie, P. (2011). *Delinquent behavior, negative relationship with parents and deviant peers in delinquent and nondelinquent adolescents: Different processes, informant bias, or both?* Manuscript submitted for publication.
- \*Auslander, B.A. (1998). *An exploratory study investigating variables in relation to juvenile sexual reoffending*. Unpublished doctoral dissertation, Florida State University, Tallahassee, FL.
- Blom, M., Van der Laan, A.M., & Huijbregts, G.L.A.M. (2005). *Monitor Jeugd terecht 2005. [Monitor juveniles brought to trial]*. The Hague: Ministry of Justice/ WODC (Cahier 2005 - 2).
- \*Boccaccini, M.T., Epstein, M., Poythress, N., Douglas, K.S., Campbell, J., Gardner, G., et al. (2007). Self-report measures of child and adolescent psychopathy as predictors of offending in four samples of justice-involved youth. *Assessment*, 14, 361–374.
- Bongers, I.L., Koot, H.M., Van der Ende, J., & Verhulst, F.C. (2004). Developmental trajectories of externalizing behaviors in childhood and adolescence. *Child Development*, 75, 1523–1537.
- \*Brandt, J.R., Kennedy, W.A., C.J.P., & Curtin, J.J. (1997). Assessment of psychopathy in a population of incarcerated adolescent offenders. *Psychological Assessment*, 9, 429–435.
- Breuk, R.E., Clauser, C.A.C., Stams, G.J.J.M., Slot, N.W., & Doreleijers, T.A.H. (2007). The validity of questionnaire self-report of psychopathology and parent-child relationship quality in juvenile delinquents with psychiatric disorders. *Journal of Adolescence*, 30, 761–771.
- \*Caldwell, M., Skeem, J., Salekin, R., & Van Rybroek, G. (2006). Treatment response of adolescent offenders with psychopathy features: A 2-year follow-up. *Criminal Justice and Behavior*, 33, 571–596.
- \*Campbell, M.A. (2003). *The relative contribution of psychopathy and traditional risk factors predicting young offender recidivism*. Unpublished doctoral dissertation, Dalhousie University, Halifax, Nova Scotia, Canada.
- \*Campbell, M.A., Porter, S., & Santor, D. (2004). Psychopathic traits in adolescent offenders: An evaluation of criminal history, clinical, and psychosocial correlates. *Behavioral Sciences and the Law*, 22, 23–47.
- \*Catchpole, R.E.H., & Gretton, H.M. (2003). The predictive validity of risk assessment with violent young offenders: A 1-year examination of criminal outcome. *Criminal Justice and Behavior*, 30, 688–708.
- \*Cauffman, E., Kimonis, E.R., Dmitrieva, J., & Monahan, K.C. (2009). A multimethod assessment of juvenile psychopathy: Comparing the predictive utility of the PCL:YV, YPI, and NEO PRI. *Psychological Assessment*, 21, 528–542.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd edn). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Cooke, D.J., Kosson, D.S., & Michie, C. (2001). Psychopathy and ethnicity: Structural, item, and test generalizability of the psychopathy checklist-revised (PCL-R) in Caucasian and African American participants. *Psychological Assessment*, 13, 531–542.
- Cooke, D.J., & Michie, C. (2001). Refining the construct of psychopathy: Towards a hierarchical model. *Psychological Assessment*, 13, 171–188.
- Crone, E.A., Bullens, L., Van der Plas, E.A.A., Kijuit, E.J., & Zelazo, P.D. (2008). Developmental changes and individual differences in risk and perspective taking in adolescence. *Development and Psychopathology*, 20, 1213–1229.
- \*Cruise, K.R. (2000). *Measurement of adolescent psychopathy: Construct and predictive validity in two samples of juvenile offenders*. Denton, TX: University of North Texas.
- Dadds, M.R., Hawes, D.J., Frost, A.D., Vassallo, S., Bunn, P., Hunter, K., et al. (2009). Learning to 'talk the talk': The relationship of psychopathic traits to deficits in empathy across childhood. *Journal of Child Psychology and Psychiatry*, 50, 599–606.
- \*Declercq, F., Markey, S., Vandist, K., & Verhaeghe, P. (2009). The Youth Psychopathic Trait Inventory: Factor structure and antisocial behaviour in non-referred 12–17-year-olds. *Journal of Forensic Psychiatry and Psychology*, 20, 577–594.



- Dishion, T.J., & Patterson, G.R. (2006). The development and ecology of antisocial behavior in children and adolescents. In D.J. Cohen, & D. Cicchetti, (Eds), *Developmental psychopathology* (pp. 503–541). Hoboken, NJ: Wiley.
- \*Dodds, L.D. (1999). *Legislative exclusion statutes and psychopathy: Balancing rehabilitation ideals and retribution goals with juvenile offenders*. Ann Arbor, MI: Medical College of Pennsylvania and Hahnemann University.
- \*Dolan, M.C., & Rennie, C.E. (2007). The relationship between psychopathic traits measured by the Youth Psychopathic Traits Inventory and psychopathology in a UK sample of conduct disordered boys. *Journal of Adolescence*, 30, 601–611.
- \*Dolan, M.C., & Rennie, C.E. (2008). The structured assessment of violence risk in youth as a predictor of recidivism in a United Kingdom cohort of adolescent offenders with conduct disorder. *Psychological Assessment*, 20, 35–46.
- \*Douglas, K.S., Epstein, M.E., & Poythress, N.G. (2008). Criminal recidivism among juvenile offenders: Testing the incremental and predictive validity of three measures of psychopathic features. *Law and Human Behavior*, 32, 423–438.
- Durlak, J.A., & Lipsey, M.W. (1991). A practitioner's guide to meta-analysis. *American Journal of Community Psychology*, 19, 291–332.
- \*Edens, J.F., & Cahill, M.A. (2007). Psychopathy in adolescence and criminal recidivism in young adulthood: Longitudinal results from a multiethnic sample of youthful offenders. *Assessment*, 14, 57–64.
- Edens, J.F., Campbell, J.S., & Weir, J.M. (2007). Youth psychopathy and criminal recidivism: A meta-analysis of the psychopathy checklist measures. *Law and Human Behavior*, 31, 53–75.
- Edens, J.F., Skeem, J.L., Cruise, K.R., & Cauffman, E. (2001). Assessment of 'juvenile psychopathy' and its association with violence: A critical review. *Behavioral Sciences and the Law*, 19, 53–80.
- Edens, J.F., & Vincent, G.M. (2008). Juvenile psychopathy: A clinical construct in need of restraint? *Journal of Forensic Psychology Practice*, 8, 186–197.
- \*Frick, P.J., Cornell, A.H., Barry, C.T., Bodin, S.D., & Dane, H.E. (2003). Callous-unemotional traits and conduct problems in the prediction of conduct problem severity, aggression, and self-report of delinquency. *Journal of Abnormal Child Psychology*, 31, 457–470.
- Frick, P.J., & White, S.F. (2008). Research Review: The importance of callous-unemotional traits for developmental models of aggressive and antisocial behavior. *Journal of Child Psychology and Psychiatry*, 49, 359–375.
- \*Gavazzi, S.M., Yarcheck, C.M., & Chesney-Lind, M. (2006). Global risk indicators and the role of gender in a juvenile detention sample. *Criminal Justice and Behavior*, 33, 597–612.
- Gendreau, P., Goggin, C., & Smith, P. (2002). Is the PCL-R really the 'unparalleled' measure of offender risk? A lesson in knowledge cumulation. *Criminal Justice and Behavior*, 29, 397–426.
- \*Gretton, H.M., Hare, R.D., & Catchpole, R.E.H. (2004). Psychopathy and offending from adolescence to adulthood: A 10-year follow-up. *Journal of Consulting and Clinical Psychology*, 72, 636–645.
- \*Gretton, H.M., McBride, M., Hare, R.D., O'Shaughnessy, R., & Kumka, G. (2001). Psychopathy and recidivism in adolescent sex offenders. *Criminal Justice and Behavior*, 28, 427–449.
- Hare, R. D. (2003). *Hare Psychopathy Checklist-Revised (PCL-r)*, 2nd edn. *Technical manual*. North Tonawanda, NY: Multi-Health Systems.
- Harpur, T.J., Hare, R.D., & Hakstian, A.R. (1989). Two-factor conceptualization of psychopathy: Construct validity and assessment implications. *Psychological Assessment*, 1, 6–17.
- Hendriks, J. (2010). *Wie Joost weet, mag het zeggen [who knows Joost, may say it]*. Speech on the inauguration as professor of forensic psychology and psychiatry at the Free university of Amsterdam (November 11).
- Hemphill, J.F., Hare, R.D., & Wong, S. (1998). Psychopathy and recidivism: A review. *Legal and Criminological Psychology*, 3, 139–170.
- Hipwell, A., & Loeber, R. (2006). Do we know which interventions are effective for disruptive and delinquent girls? *Clinical Child and Family Psychological Review*, 9, 221–255.
- \*Jack, L. (2000). *Psychopathy, risk/need factors, and psychiatric symptoms in high-risk youth: Relationships between variables and their link to recidivism*. Vancouver, BC: Simon Fraser University.
- Kimonis, E.R., Frick, P.J., & Barry, C.T. (2004). Callous-unemotional traits and delinquent peer affiliation. *Journal of Consulting and Clinical Psychology*, 72, 956–966.
- \*Kimonis, E.R., Frick, P.J., Munoz, L.C., & Aucoin, K.J. (2007). Can a laboratory measure of emotional processing enhance the statistical prediction of aggression and delinquency in detained adolescents with callous-unemotional traits? *Journal of Abnormal Child Psychology*, 35, 773–785.
- \*Kimonis, E.R., Frick, P.J., Skeem, J.L., Marsee, M.A., Cruise, K., Munoz, L.C., et al. (2008). Assessing callous-unemotional traits in adolescent offenders: Validation of the Inventory of Callous-Unemotional Traits. *International Journal of Law and Psychiatry*, 31, 241–252.
- \*Kosson, D.S., Cyterski, T.D., Steuerwald, B.L., Neumann, C.S., & Walker-Matthews, S. (2002). The reliability and validity of the Psychopathy Checklist: Youth Version (PCL:YV) in nonincarcerated adolescent males. *Psychological Assessment*, 14, 97–109.
- Kotler, J., & McMahon, R. (2005). Child psychopathy: Theories, measurement, and relations with the development and persistence of conduct problems. *Clinical Child and Family Psychology Review*, 8, 291–325.
- Kruh, I.P., Frick, P.J., & Clements, C.B. (2005). Historical and personality correlates to the violence patterns of juveniles tried as adults. *Criminal Justice and Behavior*, 32, 69–96.
- \*Langstrom, N., & Grann, M. (2000). Risk for criminal recidivism among young sex offenders. *Journal of Interpersonal Violence*, 15, 855–871.
- \*Langstrom, N., & Grann, M. (2002). Psychopathy and violent recidivism among young criminal offenders. *Acta Psychiatrica Scandinavica*, 106(Suppl. 412), 86–92.
- Lipsey, M.W., & Wilson, D.B. (2001). *Practical meta-analysis* (vol. 49). Thousand Oaks, CA: Sage.
- Lynam, D.R., Caspi, A., Moffitt, T.E., Loeber, R., & Stouthamer-Loeber, M. (2007a). Longitudinal evidence that psychopathy scores in early adolescence predict adult psychopathy. *Journal of Abnormal Psychology*, 116, 155–165.
- Lynam, D.R., Charnigo, R., Moffitt, T.E., Raine, A., Loeber, R., & Stouthamer-Loeber, M. (2009a). The stability of psychopathy across adolescence. *Development and Psychopathology*, 21, 1133–1153.
- Lynam, D.R., Derefinko, K.J., Caspi, A., Loeber, R., & Stouthamer-Loeber, M. (2007b). The content validity of juvenile psychopathy: An empirical examination. *Psychological Assessment*, 19, 363–367.
- \*Lynam, D.R., Miller, D.J., Vachon, D., Loeber, R., & Stouthamer-Loeber, M. (2009b). Psychopathy in adolescence predicts official reports of offending in adulthood. *Youth Violence and Juvenile Justice*, 7, 189–207.
- \*Marczyk, G.R., Heilbrun, K., Lander, T., & DeMatteo, D. (2005). Juvenile decertification: Developing a model for classification prediction. *Criminal Justice and Behavior*, 32, 278–301.
- \*Marsee, M.A., Silverthorn, P., & Frick, P.J. (2005). The association of psychopathic traits with aggression and delinquency in non-referred boys and girls. *Behavioral Sciences and the Law*, 23, 803–817.
- \*Marshall, J., Egan, V., English, M., & Jones, R.M. (2006). The relative validity of psychopathy versus risk/needs-based assessments in the prediction of adolescent offending behaviour. *Legal and Criminological Psychology*, 11, 197–210.

- \*McEachran, A. (2001). *The predictive validity of the PCL:YV and the SAVRY in a population of adolescent offenders*. Burnby, BC: Simon Fraser University.
- \*McKinnon, L.J. (2004). *Predicting the risk of violence in a young offender population: The predictive validity of the PCL:YV and the YLS/CMI*. Thunder Bay, ON: Lakehead University.
- Moffitt, T.E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental review. *Psychological Review*, 100, 674–701.
- Moffitt, T.E., Arseneault, L., Jaffee, S.R., Kim-Cohen, J., Koenen, K.C., Odgers, C.L., Slutske, W.S., & Viding, E. (2008). Research review: DSM-V conduct disorder: Research needs for an evidence base. *Journal of Child Psychology and Psychiatry*, 49, 1–42.
- Murrie, D.C., Boccaccini, M.T., McCoy, W., & Cornell, D.G. (2007). Diagnostic labeling in juvenile court: How do descriptions of psychopathy and conduct disorder influence judges? *Journal of Clinical Child and Adolescent Psychology*, 36, 228–241.
- \*Myers, W.C., Burket, R.C., & Harris, H.E. (1995). Adolescent psychopathy in relation to delinquent behaviors, conduct disorder, and personality disorder. *Journal of Forensic Sciences*, 40, 436–440.
- Obradovic, J., Pardini, D.A., Long, J.D., & Loeber, R. (2007). Measuring interpersonal callousness in boys from childhood to adolescence: An examination of longitudinal invariance and temporal stability. *Journal of Clinical Child and Adolescent Psychology*, 36, 276–292.
- \*Odgers, C.L., Reppucci, N.D., & Moretti, M.M. (2005). Nipping psychopathy in the bud: An examination of the convergent, predictive, and theoretical utility of the PCL-YV among adolescent girls. *Behavioral Sciences and the Law*, 23, 743–763.
- Olver, M.E., Stockdale, K.C., & Wormith, J.S. (2009). Risk assessment with young offenders. A meta-analysis of three assessment measures. *Criminal Justice and Behavior*, 36, 329–353.
- \*O'Neill, M.L., Lidz, V., & Heilbrun, K. (2003). Adolescents with psychopathic characteristics in a substance abusing cohort: Treatment process and outcomes. *Law and Human Behavior*, 27, 299–313.
- \*Pardini, D.A. (2006). The callousness pathway to severe violent delinquency. *Aggressive Behavior*, 32, 590–598.
- \*Parsons, E.M. (2005). *Validity of the PCL:YV for predicting recidivism among incarcerated young male offenders*. Unpublished master's thesis, University of Alberta, Edmonton, Alberta, Canada.
- \*Penney, S.R., & Moretti, M.M. (2007). The relation of psychopathy to concurrent aggression and antisocial behavior in high-risk adolescent girls and boys. *Behavioral Sciences and the Law*, 25, 21–41.
- Peterson, R.A., & Brown, S.P. (2005). On the use of beta coefficients in meta-analysis. *Journal of Applied Psychology*, 90, 175–181.
- \*Piatigorsky, A., & Hinshaw, S.P. (2004). Psychopathic traits in boys with and without attention-deficit/hyperactivity disorder: Concurrent and longitudinal correlates. *Journal of Abnormal Child Psychology*, 32, 535–550.
- \*Poythress, N.G., Dembo, R., Wareham, J., & Greenbaum, P.E. (2006). Construct validity of the Youth Psychopathic Traits Inventory (YPI) and the Antisocial Process Screening Device (APSD) with justice-involved adolescents. *Criminal Justice and Behavior*, 33, 26–55.
- Rice, M.E., & Harris, G.T. (2005). Comparing effect sizes in follow-up studies: ROC area, Cohen's d, and r. *Law and Human Behavior*, 29, 615–620.
- \*Ridenour, T.A., Marchant, G.J., & Dean, R.S. (2001). Is the revised psychopathy checklist clinically useful for adolescents? *Journal of Psychoeducational Assessment*, 19, 227–238.
- \*Rieger, M., Stadtland, C., Freisleder, F.J., & Nedopil, N. (2009). Structured psychiatric assessment of risk for violent recidivism in juvenile offenders. *Nervenarzt*, 80, 295.
- Rosenthal, R. (1995). Writing meta-analytic reviews. *Psychological Bulletin*, 118, 183–192.
- \*Rowe, R. (2002). *Predictors of criminal offending: Evaluating measures of risk/needs, psychopathy, and disruptive behavior disorders*. Carleton University, Ottawa, CA.
- \*Ručević, S. (2009). Psychopathic personality traits and delinquent and risky sexual behaviors in Croatian sample of non-referred boys and girls. *Law and Human Behavior*, 1–13.
- \*Salekin, R.T. (2008). Psychopathy and recidivism from mid-adolescence to young adulthood: Cumulating legal problems and limiting life opportunities. *Journal of Abnormal Psychology*, 117, 386–395.
- \*Schmidt, F., McKinnon, L., Chattha, H.K., & Brownlee, K. (2006). Concurrent and predictive validity of the Psychopathy Checklist: Youth Version across gender and ethnicity. *Psychological Assessment*, 18, 393–401.
- Seagrave, D., & Grisso, T. (2002). Adolescent development and the measurement of juvenile psychopathy. *Law and Human Behavior*, 26, 219–239.
- Sharp, C., & Kine, S. (2008). The assessment of juvenile psychopathy: Strengths and weaknesses of currently used questionnaire measures. *Child and Adolescent Mental Health*, 13, 85–95.
- \*Skeem, J.L., & Cauffman, E. (2003). Views of the downward extension: Comparing the Youth Version of the Psychopathy Checklist with the Youth Psychopathic traits Inventory. *Behavioral Sciences and the Law*, 21, 737–770.
- Skeem, J.L., Edens, J.E., Camp, J., & Colwell, L.H. (2004). Are there ethnic differences in levels of psychopathy? A meta-analysis. *Law and Human Behavior*, 28, 505–527.
- \*Sluijs, J., & Stams, G.J.J.M. (2009). *The predictive validity of the Psychopathy Checklist: Youth Version for recidivism in a Dutch sample*. Amsterdam: University of Amsterdam.
- \*Stockdale, K.C. (2008). *The validity and reliability of the Violence Risk Scale-Youth Version (VRS-YV)*. Saskatoon: University of Saskatchewan.
- \*Vaughn, M.G., Howard, M.O., & DeLisi, M. (2008). Psychopathic personality traits and delinquent careers: An empirical examination. *International Journal of Law and Psychiatry*, 31, 407–416.
- \*Viljoen, J.L., Elkovitch, N., Scalora, M.J., & Ullman, D. (2009). Assessment of reoffense risk on adolescents who have committed sexual offenses. Predictive validity of the ERASOR, PCL:YV, YLS/CMI, and Static-99. *Criminal Justice and Behavior*, 36, 981–1000.
- \*Vincent, G.M., Odgers, C.L., McCormick, A.V., & Corrado, R.R. (2008). The PCL: YV and recidivism in male and female juveniles: A follow-up into young adulthood. *International Journal of Law and Psychiatry*, 31, 287–296.
- \*Vitacco, M.J., Caldwell, M.F., Van Rybroek, G.J., & Gabel, J. (2007). Psychopathy and behavioral correlates of victim injury in serious juvenile offenders. *Aggressive Behavior*, 33, 537–544.
- Walters, G.D. (2003a). Predicting criminal justice outcomes with the psychopathy checklist and lifestyle criminality screening form: A meta-analytic comparison. *Behavioral Sciences and the Law*, 21, 89–102.
- Walters, G.D. (2003b). Predicting institutional adjustment and recidivism with the psychopathy checklist factor scores: A meta-analysis. *Law and Human Behavior*, 27, 541–558.
- White, S.F., Cruise, K.R., & Frick, P.J. (2009). Differential correlates to self-report and parent-report of callous-unemotional traits in a sample of juvenile sexual offenders. *Behavioral Sciences and the Law*, 27, 910–928.

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