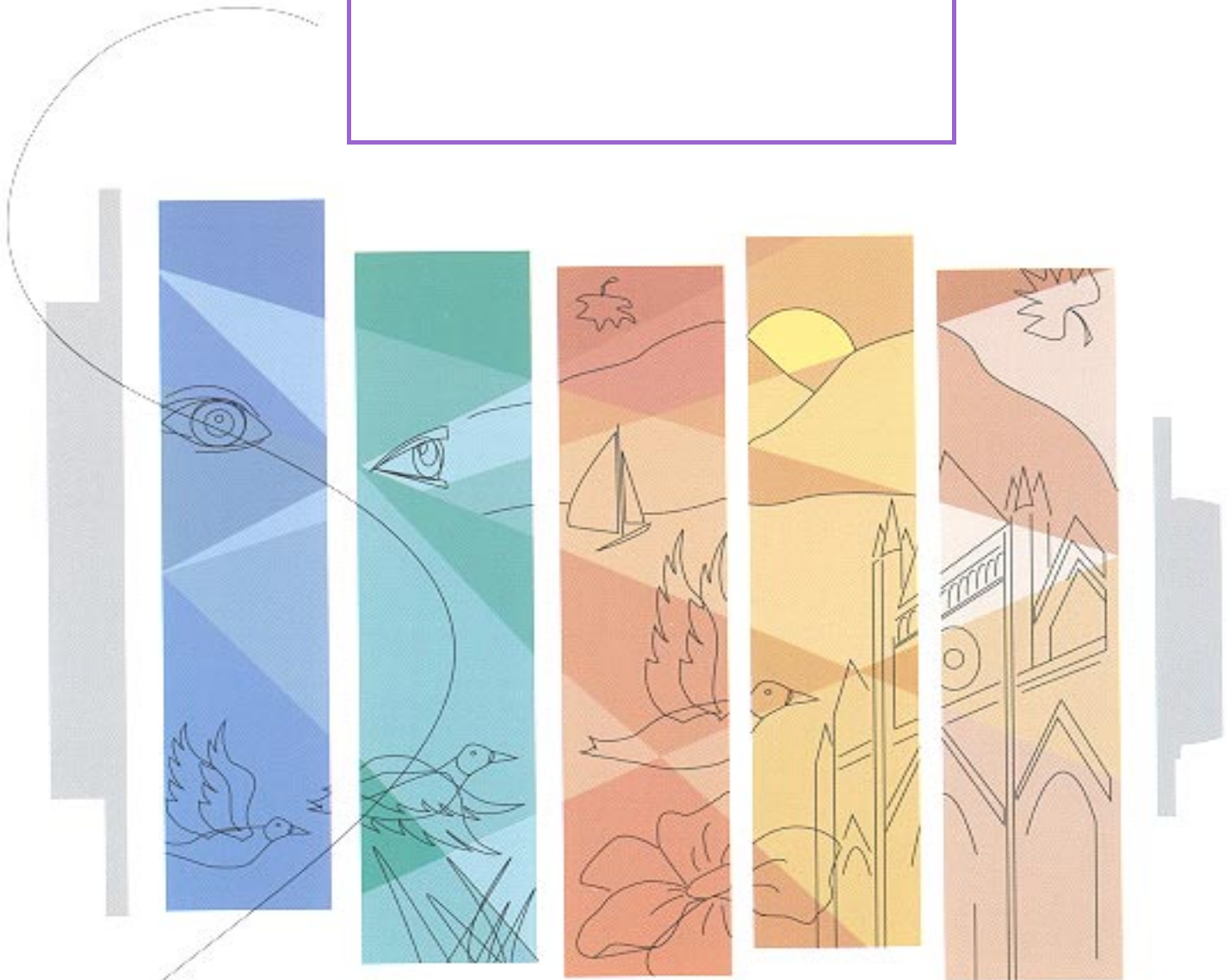




Research Branch  
Direction de la recherche

Corporate Development  
Développement organisationnel

**Case Needs Review:  
Associates/Social Interaction Domain**



**Case Needs Review:  
Associates/Social Interaction Domain**

by

Claire Goggin, Paul Gendreau, Glenn Gray

Centre for Criminal Justice Studies  
University of New Brunswick  
Saint John, NB

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## **EXECUTIVE SUMMARY**

A narrative review and meta-analysis of the associates/social domain was conducted. Thirty-five studies generated 75 effect sizes with recidivism. The associates/social domain produced a correlation with recidivism of  $r = .18$ , replicating the results of a previous meta-analysis which indicated that this domain is one of the most robust predictors of recidivism. Of the three components of the associates/social domain (i.e., companions, crime neighbourhood, and criminal family), the most useful was the companions category. In addition, a literature search uncovered other measures that assessed the associates/social construct. Specific recommendations were made as to how to improve the Case Needs Identification Analysis measure employed by the federal Correctional Service of Canada.

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## INTRODUCTION

Within the criminological literature there is widespread consensus that the extent to which an offender associates with anti-social peers is critically important to an understanding of the development of criminal behaviour and the prediction of recidivism (Andrews & Bonta, 1994; Gendreau, Little, & Goggin, 1996). In regards to the developmental literature, the evidence is persuasive that the onset of high rate delinquency during adolescence is inextricably linked to a youth's social ties (Moffitt, 1997). The meta-analyses of the delinquency prediction literature have confirmed this fact. Delinquents who have had more extensive social attachments to other delinquents re-offended at higher rates (Lipsey & Derzon, 1997; Simourd & Andrews, 1994).

For whatever reason, the assessment of criminal associates in the adult offender literature has been relatively neglected. This is surprising, as surveys have identified association with criminal others as one of the most prevalent problems amongst adult offenders (see Motiuk, 1997). Indeed, we have located just two adult risk-need protocols that have attended to the assessment of criminal associates to any degree (Gendreau, et al., 1996). The two measures in question are the Level of Service Inventory - Revised (LSI-R) (Andrews & Bonta, 1995) and the Case Needs Identification and Analysis (CNIA) protocol (Motiuk, 1993; Motiuk & Brown, 1994) which is used by the federal Correctional Service of Canada.

Furthermore, a recent meta-analysis of the predictors of adult offender recidivism (Gendreau, et al., 1996) found that the criminal associates or companions predictor domain was under represented (only 27 effect sizes, many from the LSI-R) compared to other predictor domains. More importantly, however, for the purposes of this investigation, was that companions (defined as identification and/or socialization with criminal others) was one of the more robust predictors of recidivism ( $r=.18$ ), comparable to such powerful predictors as criminal history (Gendreau, et al., 1996).

Obviously, the potential usefulness of the criminal associates predictor domain for predicting adult recidivism is considerable. Given that one of the major risk/need assessment protocols used in corrections (the CNIA) is currently undergoing significant revisions, to that end, a re-assessment of the predictive validity of the criminal associates domain is timely. Thus, the purposes of the present study were as follows:

1. To update the Gendreau, et al., (1996) meta-analysis vis-à-vis the companions predictor domain.
2. To broaden the scope of the domain by searching for valid criminal associate predictors in addition to companions.
3. To review the psychological test literature for recent psychometric instruments that measure the criminal associates construct.

## METHOD

### Sample of Studies

A literature search for relevant studies published between January 1994 and December 1997 was conducted using the ancestry approach and library abstracting services. These studies were added to the existing database reported in the Gendreau, et al., (1996) meta-analysis. For a study to be included, the following criteria applied:

1. Data on the offender was collected prior to the recording of the criterion measures. A minimum follow-up period of six months was required. If a study reported more than one follow-up period, data from the longest interval was used.
2. Treatment studies that directly attempted to change offender attitudes or behaviour were not included.
3. Recidivism had to be recorded when the offender was an adult (18 years or older).
4. The criterion had to have a no-recidivism category. Studies that used “more” vs. “less” crime categorizations were not used. The criterion measures were arrest, conviction, incarceration, or probation/parole violation.
5. Each study was also required to report statistical information that could be converted into a common metric or effect size (i.e., Pearson  $r$ ).

### Design and Procedure

#### Coding the studies.

For each study the following information was recorded:

1. Study characteristics: published document and decade of publication.
2. Study sample characteristics: age, gender, race, type of offender, intake risk level, and history of violent offence.



3. Study methodology: sample size, type of outcome criterion, length of follow-up, extreme groups design, subject attrition, adequate description of subjects, assessment/reporting of multiple recidivism outcomes, and recidivism data assessed by raters blind to assessment of predictors.

An index of study quality was obtained by scoring responses to methodological quality items (see METH1, METH2, METH10, METH11, and METH12 in Appendix).

### **Predictor Categories**

The criminal associates predictor domain was divided into 3 categories, which were comprised of the following constituents:

1. Companions – LSI-R companions subset, criminal acquaintances/friends/associates, and identification with criminal others.
2. Crime neighborhood – high crime rate, area of socialization.
3. Family criminality – subject living in a family environment where parents/siblings were involved in crime.

### **Effect size calculation.**

The procedures for calculating effect sizes in predictor studies have been detailed elsewhere (Gendreau, Goggin, & Law, 1997; Gendreau, et al., 1996). Briefly, Pearson product-moment correlation ( $r$ ) coefficients were produced for all predictors in each study that reported a numerical relationship with a criterion. When statistics other than Pearson  $r$  were presented, their conversion to  $r$  was undertaken using the appropriate statistical formulae (Rosenthal, 1991). Where a  $p$  value of greater than .05 was the only reported statistic, an  $r$  of .0 was assigned.

Next, the obtained correlations were transformed using Fisher's table. Then, according to the procedures outlined by Hedges and Olkin (1985, p. 230-232), the statistic  $z^{\pm}$ , representing the weighted estimation of Pearson  $r$ , was calculated for each predictor category by dividing the sum of the weighted  $z$ 's per predictor category by the sum of each predictor's sample size minus three across that category.

In order to determine the practical utility of various predictors relative to each other, the common language (CL) effect size indicator (McGraw & Wong, 1992) was also employed. The CL statistic converts an effect size into the probability that the value of a predictor-criterion relationship sampled at random from the distribution of one predictor category (e.g., companions) will be greater than that sampled from another distribution (e.g., crime neighbourhood).

#### Significance testing.

To determine which of the predictor categories predicted criterion significantly different from zero, the mean  $z^{\pm}$  values for each group were multiplied by the value of  $(N - 3k)^{1/2}$ , where  $N$  = the number of subjects per predictor category and  $k$  = the number of predictors per category (Hedges & Olkin, 1985).

A one-way analysis of variance (ANOVA) and the Student Newman Keuls (SNK) test using Pearson  $r$  were also employed to assess differences in the relationship of moderator variables (i.e., length of follow-up, study characteristics, etc.) with outcome criteria.

The CL statistic does not involve significance testing. Unless otherwise specified, alpha was set at .05 2-tail for all significance tests.

## **RESULTS**

### **Study Characteristics**

We identified 35 studies as suitable for the meta-analysis which generated 75 effect sizes. For those variables where at least 50% of the studies reported information on sample and study characteristics, the results were as follows: (a) 97% of effect sizes came from studies which assessed males only or mixed gender samples, (b) 71% of effect sizes were associated with adult or mixed adult/juvenile samples, (c) effect sizes were evenly distributed across the decades (1960-1990), (d) 69% of effect sizes were associated with subjects of mixed risk levels, (e) less than 5% of effect sizes were associated with offenders with a violent or sexual offence history, (f) 93% of effect sizes came from studies with a minimum 2 year follow-up period, (g) 86% of outcomes included conviction, incarceration, or a combination thereof, (h) the vast majority of effect sizes were associated with non-violent recidivism.

### **Meta-Analysis: Predictive Validities**

The thirty-five studies generated 75 effect sizes or individual correlations between a criminal associate predictor and a criterion (i.e., recidivism). The criminal associate domain contained three predictor categories: companions, crime neighbourhood, and criminal family. The results are outlined in Table 1 and are interpreted in the following manner.

**Table 1: Mean effect sizes for criminal associates predictor domains**

Predictor ( <u>k</u> )	<u>N</u>	<u>M</u> <u>r</u>	<u>CI</u>	<u>M</u> <u>z</u> <sup>±</sup>	<u>CI</u>
1. Companions (38)	16,118	.19(.10)	.16 to .20	.21*	.19 to .22
2. Crime neighbourhood (6)	7,226	.12(.08)	.03 to .21	.15*	.12 to .17
3. Criminal family (31)	16,322	.17(.10)	.13 to .21	.12*	.11 to .14
4. Total (75)	39,676	.18(.10)	.16 to .20	.17*	.16 to .18

Note. k = effect sizes per predictor domain; N = subjects per predictor domain; M r = mean Pearson r (SD); M z<sup>±</sup> =  $\Sigma [(z_r) \times (\underline{n}) - 3] \div (\underline{n} - 3)^{1/2}$  where n = number of subjects per effect size; CI = confidence interval about mean Pearson r and mean z<sup>±</sup>. \*p<.05.

In case of row 1, the companions category produced 38 effect sizes involving 16,118 offenders. The mean correlation (r) was .19 and the confidence interval about mean r ranged from .16 to .20. The weighted r (z<sup>±</sup>) for the same category was .21 and it's CI ranged from .19 to .22. Each of the predictor categories predicted recidivism significantly greater than 0. When examining mean r values, the CIs associated with each of the three predictor categories overlapped. This, however, was not the case when mean r values were weighted for sample size. The 95% confidence interval for companions did not overlap with that of either crime neighbourhood or criminal family.

As indicated in Table 2, the common language effect size indicator (CL) demonstrated that the companions predictor category produced higher correlations with criterion than did it's counterparts, 56% better compared with criminal family, and 67% of the time compared with crime neighbourhood.

**Table 2: Common language effect size indicators<sup>1</sup>**

	Criminal Family	Crime Neighbourhood
Companions	56	67
Criminal Family		61

<sup>1</sup>Common language effect size indicators for mean  $r$  values. Predictor domains are listed on the left in rank order of number of favourable comparisons.

### **Meta-Analysis: Moderators**

An examination of the relationship between mean effect size per predictor category by study moderators was also conducted, resulting in few meaningful comparisons. For example, neither age [ $F(2,65) = 1.21, p > .05$ ] or gender of the samples studied [ $F(1,65) = <1$ ] had any influence on the magnitude of effect sizes.

With regard to study characteristics, the use of high, low, or mixed risk samples resulted in no difference in mean effect size [ $F(2,69) = <1$ ]. Given the skewed distribution of effect sizes for offenders with a violent or sexual offence history ( $k=2$ ) versus those without ( $k=70$ ), further analysis was deemed inappropriate.

Several methodological variables, including a composite index of quality, were also examined. None, however, showed a significant relationship with effect size. One exception to the above is noted. Effect sizes generated by studies from peer-reviewed journals or published books were significantly higher than those from unpublished sources [ $F(1,73) = 5.90, p < .05$ ].

## **Assessment Protocols**

Besides the LSI-R and the CNIA, five other measurement instruments that assessed the criminal associates domain in some detail were located. Each of the measures contained items of potential usefulness for the upcoming revisions to the CNIA. They were the Criminal Socialization and Lifestyle Questionnaire (CSLQ; Zamble, Conroy, & Brown, 1997), the Social Network Rating Scheme (SNRS) (S. Brown, personal communication, January 20, 1998), the Differential Association Questionnaire (Jensen, 1972), the Exposure to Family and Peer Deviance Indices (Severy, 1973), and the Index of Social Contacts (Arnold, 1965).

## DISCUSSION AND RECOMMENDATIONS

The results from this investigation again confirm that the criminal associates domain is one of the most powerful predictors of recidivism. The companion component of this domain produced a mean  $r$  of .19 and a weighted  $r$  ( $z^{\pm}$ ) of .21 with recidivism, virtually identical to that reported by Gendreau, et al., (1996). While the companion database has been increased from 27 to 35 effect sizes, it must be recognized that this is still a small number of effect sizes. Moreover, it has little to say about how well companions predicts recidivism for females and native samples. As to the former, some argue (Gendreau, Goggin, and Paparozzi, 1996) that many of the predictors of female and male recidivism are quite similar, but there is no evidence in regard to companions. There have been two studies on natives (Bonta, 1989; Bonta, LaPrairie, and Wallace-Capretta, 1987). The correlations for companions and recidivism for natives and non-natives were similar (.18 and .22, respectively).

By including crime neighbourhood and criminal family as part of the criminal associates predictor domain, we made a somewhat controversial decision. Crime neighbourhood, is admittedly, a weak approximation of the criminal associates construct. This category only included six effect sizes and the mean weighted effect size was heavily skewed by one study with a large sample size that measured “area of socialization: inner city versus rural”. The other category, criminal family, is usually considered to be a “family” domain predictor (see Gendreau, et al., 1996). Nevertheless, association with criminal parents and siblings is a form of social interaction with criminals with potential long-lasting effects (53 % of the effect sizes in this category came from juvenile or “mixed age” studies that followed subjects for several years until adulthood). The magnitude of this predictor variable was similar to that of companions in the case of unweighted  $r$  only.

### **Recommendations: CNIA**

Besides extending the knowledge base regarding the ability of the criminal associates predictor domain, a major purpose of this study was to contribute to revisions of the CNIA. The CNIA has 11 items in its associates/social domain with 2 principal components; attachments and interpersonal relations. The meta-analytic database reported on in this study was small and the

range of items within each category was limited. Thus, some of the following recommendations reflect speculative clinical wisdom. With these caveats in mind, we suggest the following:

1. As there is strong empirical validity for the companions predictor category, the existing items in the attachments category should continue to be used. Whether seven items are necessary is debatable. For example, the LSI-R companions section has only four items which generated adequate predictive validities in the meta-analysis. Another approach would be to adapt some items from the SNRS. The “density” scores from the associates, respect, instrumental, and emotional support domains of this instrument seem particularly intriguing. At the very least the SNRS should be piloted in the system. It could produce predictive validities ( $r_s$ ) in the range of .20 to .30.
2. Another possible item for the attachment section of the CNIA would be to assess changes in an offender’s socialization patterns while in the community (Arnold, 1965). Assuming that the information is available, an additional question on prison socialization patterns prior to release on parole would also be useful.
3. Whether a criminal family item or two should be in the CNIA associates/social interaction domain is open to question. There is already one item of this nature in the marital/family domain. Secondly, the way the item was asked in this meta-analysis was far in the offenders past, thus, out of place in the associates/social domain where all of it’s items reflect the present. Possibly, the question could be asked in the present tense and also focus on family offence rates and depth of illegal involvement (cf., Severy, 1973).
4. If a question pertaining to crime neighbourhoods is included it might better be phrased in terms of the offender perception of crime problems in the area (see Jensen, 1972).



5. It is our view that the four items in the interpersonal relations principal component of the CNIA are rather problematic. This meta-analysis did not find any predictor items that covered the four items. They might well belong somewhere in the personal domain group or, perhaps interpersonal relations should become a domain in itself.

In conclusion, this meta-analysis, notwithstanding its aforementioned limitations, confirms that the attachment component of the associates/social interaction domain is a very important part of the CNIA.

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## APPENDIX

### Coding Guide

RECORD	Reprint record number
AUTHOR	Study author
YEAR	Study/report year
DECADE	Study/report decade
JOURNAL	Journal/book/report/etc.
	Value            Labels
	1                Journal
	2                Report
	3                Unpublished report
	4                Book
CODE2	Coders's identity
	Value            Labels
	1                Glenn Gray
	2                Paul Gendreau
	3                Claire Goggin

STUDY1

Published  
Value

Label

1	yes (edited journal, edited book, or book)
2	No
3	Unable to determine
9	Missing

SAMP1

Age of sample at time of initial assessment

NOTE: the predictor may be measured when the sample was less than 18 years of age, but the recidivism data must be measured when the sample was 18 years of older.

Value

Label

1	Juvenile (80% of sample less than 18 years)
2	adult (80% of sample greater than 18 years)
3	mixed age group
9	missing

SAMP2

Gender of sample

Value

Label

1	male (>90%)
2	female (>90%)
3	mixed
9	missing

SAMP3

Race of sample

Value

Label

1	White (>90%)
2	Black (>90%)
3	Aboriginal (>90%)
4	Other
5	Undifferentiated
9	Missing



SAMP6 Risk level of sample

NOTE: to be “author-defined”, the author must report the use of an actuarial risk-assessment protocol in defining the risk level of the sample. This will over-ride the risk level determined by the Centre for Criminal Justice Studies research team.

1	Author-defined: low risk
2	Author-defined: high risk
3	Author-defined: mixed
4	CCJS-defined: low risk (<=1 conviction, no previous incarcerations)
5	CCJS-defined: high risk (>=2 convictions, any previous incarcerations)
6	CCJS-defined: mixed
9	missing

SAMP7 History of violence/sexual offence

Value	Label
1	Yes to either (80% minimum)
2	No to both (80% minimum)
9	Missing

SAMP8 Type of offender

Value	Label
1	Sex offender (80% minimum)
2	Mentally disordered (80% minimum)
3	Undifferentiated
9	Missing

SAMP9 Violent vs. non-violent sample

Value	Label
1	Non-violent (80% minimum)
2	Violent (80% minimum)
3	Undifferentiated
9	Missing

PREDICT Predictor variable

CAT2	Predictor categorization
	Value      Label
	1            Criminal family
	2            Crime neighbourhood
	3            Companions
METH1	Extreme groups design
	Value      Label
	0            No (9 to SAMP1, SAMP2, or SAMP3)
	1            Yes
METH11	Assessment/reporting of multiple outcomes
	Value      Label
	0            No
	1            Yes
	2            Unknown
METH12	Recidivism data evaluated by raters blind to assessment of the predictor
	Value      Label
	0            No
	1            Yes
	2            unknown
QUALITY	Overall study quality
NOTE: Score determined by responses to METH1, METH2, METH10, METH11, and METH12.	
QUALITY2	Overall study quality split a median of QUALITY score
	Value      Label
	0            Less than or equal to median value
	1            Greater than median value

METH3	Follow-up interval in years
	Value      Label
	2            6 months -<1 year
	3            1 year -<2 years
	4            2 years - <5 years
	5            5 years +
	9            Missing
METH4	Type of recidivism
	Value      Label
	1            Probation/parole violation
	2            Arrest
	3            Conviction
	4            Incarceration
	5            Mixed
METH5	Study sample size
NRYES	Number of non-recidivists HIGH on predictor
NRNO	Number of non-recidivists LOW on predictor
RYES	Number of recidivists HIGH on predictor
RNO	Number of recidivists LOW on predictor
RECIDPC	Percentage of recidivism
METH6	Statistical test employed
	Value      Label
	1            r
	2            chi-square
	3            t
	4            F
	5            p
	6            %
METH7	Value of statistic
DEGREE	Degrees of freedom
METH8	Pearson r value

