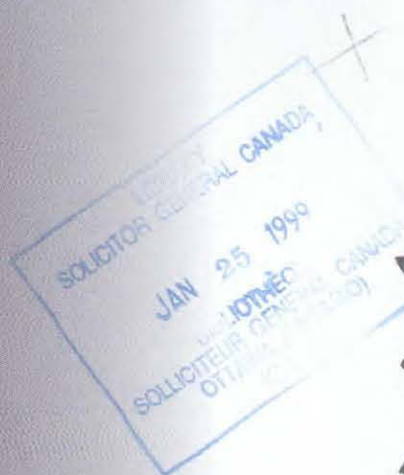# FORUM

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Offender needs — Providing the focus for our correctional interventions

by *Gilbert Taylor*[1]
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Corrections is concerned with reducing the incidence of criminal behaviour. Most incarcerated offenders eventually return to the community. It is the primary function of every correctional agency to administer the offender's sentence in a manner that does the most to ensure the offender does not become involved in criminal activity again and is prepared for return to society as a law-abiding citizen at the earliest possible opportunity. As is clearly enunciated in the Mission of the Correctional Service of Canada,[2] this involves the two major themes of assisting offenders and controlling their behaviour.

Correctional agencies make many important management decisions during the course of an offender's sentence, including initial and revised custody level, institutional placement and transfers, assignment to rehabilitative programs, type and intensity of supervision, consideration for conditional release or extended incarceration, and return to custody after release. All of these decisions can be related to the themes of assistance and control, and all should involve a comprehensive assessment of the nature and level of risk the individual offender presents.

This article examines the importance of evaluating offender needs as part of the overall assessment of risk. Information obtained from this needs assessment is critical, both for making the sentence management decisions described above, and for providing the focus for our correctional interventions.

Why assess offender needs?

To answer this question adequately it is useful to review four principles of offender classification for correctional management and treatment as advanced by Andrews and Bonta.[3]

1. *Risk Principle:* Higher-risk cases benefit from intensive intervention; lower-risk cases benefit most from low (or no) levels of service.

2. *Need Principle:* We can achieve the greatest reductions in recidivism by targeting criminogenic needs[4] for treatment and supervision.

3. *Responsivity Principle:* Our treatment programs and supervision approaches will be most effective when geared to the offender's own abilities and learning style.

4. *Principle of Professional Discretion:* Careful use of professional judgment and discretion can improve the structured assessment and management of risk.

Risk principle

Research has clearly demonstrated that we can distinguish between offenders according to the level of risk each presents, that higher-risk offenders reoffend more often than lower-risk offenders, and that the risk principle does work in practice. For example, a recent meta-analysis of 400 research studies on the effectiveness of treatment with juvenile offenders found greater reductions in reoffending when higher-risk offenders were treated than was the case for lower-risk offenders; similar results were found with another meta-analysis using a sample of 294 tests and treatments.[5]

Need principle

There is convincing evidence to support the need principle as well. Research conducted by the Correctional Service of Canada revealed that offenders with criminogenic needs are significantly more likely to fail on conditional release[6] and that assessments of offender risk and needs were good predictors of outcome on parole.[7] Using an actuarial instrument, the Level of Supervision Inventory (LSI) to assess criminogenic needs, Andrews and Robinson[8] discovered that the LSI scores changed over time and that the changes were related to changes in recidivism. Other researchers[9] have found that assessing a variety of static and dynamic risk factors using actuarial methods, providing more intensive levels of treatment to higher-risk offenders, and targeting criminogenic needs in a manner consistent with the characteristics of the offender results in considerably reduced rates of recidivism.

The combined assessment of risk associated with criminal history and need levels of offenders actually increases the predictive power of the risk assessment. In a 1993 study

conducted by Motiuk and Brown,[10] high-risk/high-need offenders were four times as likely to fail on conditional release as were low-risk/low-need offenders.

We must not underestimate the contribution that offender needs assessments make to the overall assessment and management of risk. In a recent follow-up to their 1996 review of the Service's day parole program, Grant and Gillis[11] confirmed that an increase in either risk or need levels was closely associated with an increase in failure rates (see Table 1). However, they noted one exception: offenders who were assessed as low-risk/high-need had higher re-admission and reoffending rates than offenders assessed as high-risk/low-need. What is more, the rate for reoffending with violence was higher for the low-risk/high-need group. For these cases, need level was more important than risk level in predicting day parole outcome using several measures of failure.

Research also supports the utility of distinguishing between criminogenic and non-criminogenic needs. In a recent meta-analysis, Dowden[14] provided an in-depth examination of the need principle. Analyses focused on the "more promising" (criminogenic) and "less promising" (non-criminogenic) targets for change identified by Andrews and Bonta.[15]

Tables 2 and 3 present the results for each of the individual criminogenic and non-criminogenic need targets. Dowden reported that each of the non-criminogenic needs was either not related to, or was negatively associated with, reductions in recidivism. Each of the criminogenic needs, on the other hand, was positively correlated with reduced recidivism. More important, 75% of the individual criminogenic need targets produced significant reductions in recidivism.

An overall test of the need principle was also completed. Dowden reported that programs that appropriately addressed the need principle were associated with significantly higher mean effect sizes ($r = .19$, $k=169$) than programs that did not ($r = -.01$, $k = 205$). These findings suggest that correctional treatment programs that seek to reduce recidivism should target appropriate criminogenic needs.

Table 1					
Day Parole Outcome According to Risk/Need Levels					
		Type of Day Parole Outcome[1]			
Risk/Need (offenders)	**Number** of cases	**Re-admission**	**Technical** violations	**New** offence	**Violent** offence
Low/Low	82	4.88%	4.88%	3.66%	3.66%
Low/Medium	102	11.76%	1.96%	8.91%	.98%
Low/High	14	28.57%	7.14%	21.43%	7.14%
High/Low	21	14.29%	14.29%	14.29%	4.76%
High/Medium	71	26.76%	9.86%	18.31%	4.23%
High/High	49	36.73%	20.41%	20.41%	4.08%
Chi-squared values (N = 339)		29.22 $p<.001$	17.94 $p<.01$	13.43 $p<.05$	NS

[1] The outcome groups are not mutually exclusive; an offender can be represented in more than one group.

To summarize, research both within and outside the Service has shown that:

There is other evidence of the relative importance of needs assessment. Comparing violent and non-violent female offenders according to their risk/need levels, Blanchette[12] discovered that violent women were assessed as having higher need levels than non-violent women; surprisingly, differences associated with static risk factors were minor. In another study,[13] Blanchette found clear gender differences in community-supervised offenders based on level and nature of offender needs.

- factors related to an offender's criminal history (static risk factors) are strongly related to failure on conditional release;

- there is a consistent relationship between the number and type of offender criminogenic needs (dynamic risk factors) and recidivism; and

- the assessment of **both** static and dynamic risk greatly improves our ability to predict which offenders will reoffend.

Table 2

Criminogenic Needs Targeted: Rank Ordered by Frequency and Their Correlation with Recidivism Reduction

Targeted Need	Frequency	r
Academic	72	.21**
Anger/antisocial feelings	62	.32**
Other needs	61	.30**
Self-control	59	.33**
Pro-social model	40	.26**
Antisocial attitudes	37	.23**
Vocational skills	32	.04
Family: affection	24	.29**
Information: Substance abuse	22	.08
Substance abuse treatment	21	.03
Reduce antisocial peers	19	.11*
Relapse prevention	18	.16**
Family: Supervision	17	.31**
Barriers to treatment	12	.27**
Vocational skills + job	12	.24**
Mentally disordered: Medication	2	.01
Attitudes toward substances	0	–
Child protection	0	–
Mentally disordered: Shelter	0	–

$* p < .05; ** p < .01$
Source: C. Dowden, reference #14

Table 3

Non-Criminogenic Needs Targeted: Rank Ordered by Frequency and Their Correlation with Recidivism Reduction

Targeted Need	Frequency	r
Vague/emotional personal problems	90	-.04
Physical activity	43	.00
Fear of official punishment	41	-.25**
Increase conventional ambition	29	.00
Family: Other interventions	26	-.09
Increase cohesive antisocial peers	20	-.09
Increase self-esteem	15	-.08
Accepts criminal thinking	7	-.04
Improved living conditions	0	–

$** p < .01$
Source: C. Dowden, reference #14

Clearly, accurate assessment of the offender's criminogenic needs makes a valuable contribution to the overall assessment of risk. Offender needs are dynamic risk factors that can be targeted for correctional intervention and regularly reassessed.

Responsivity principle

Once we have appropriately targeted the offender's criminogenic need areas and have identified a level of service that corresponds to the assessment of risk, we should consider the mode and style of service that is best suited to the individual offender. Generally, programs that have proven to be the most effective have focused on cognitive behaviour and social learning. Andrews and Bonta[16] report on studies that demonstrate the differential effectiveness of rehabilitation programs depending on the nature of the treatment provided and the characteristics of the offenders involved. They also point out that, while there is a growing body of research in this area, further study is warranted.

In 1986, the Service implemented Case Management Strategies, a structured procedure for establishing offender supervision require- ments that respects the responsivity principle. Originally developed in 1975 by the Wisconsin Bureau of Community Corrections (and also known as the Client Management Classification System[17]), this approach helps Service staff develop effective supervision strategies based on specific offender types. The determination of strategy group is completed automatically based on comprehensive information contained in the Offender Intake Assessment (see later for discussion of the OIA).

Principle of professional discretion

The three preceding principles for correctional treatment demonstrate the value of objective approaches to offender assessment. In fact, the Service currently uses two statistically based instruments (discussed later in this article) to identify and reassess the criminogenic need of its offenders.

A wealth of literature clearly demonstrates that actuarial prediction tools consistently outperform prediction methods that rely

exclusively on clinical assessments.[18] Actuarial methods offer correctional professionals some definite advantages over clinical approaches:

- they are generally more systematic and consistent;
- they are usually more accurate;
- they represent a fairer assessment (Clinical judgment tends to be more conservative to avoid "false negatives.");
- they offer greater legal protection for the assessor; and
- they are more efficient. (The assessor is not required to explain his or her approach to the assessment and conclusions for each case.)

Andrews and Bonta do argue, though, that correctional staff should use actuarial information provided by the application of the risk, need and responsivity principles in an informed and sensitive way. Although they are efficient, empirical tools are still subject to error. Carefully using professional judgment to override objective results in exceptional cases can improve the accuracy of assessments; this principle applies to all situations where clinical and objective assessments are used jointly.

How does the Service assess offender needs?

Offender Intake Assessment: In 1994 the Correctional Service of Canada replaced existing penitentiary placement practices with the OIA process, a systematic approach to assessment at admission. Information is obtained from various internal and external sources, including the courts, police, probation officers, victims, family members, employers and the offender. The OIA may also include supplementary assessments in such areas as education/vocation, psychology, family violence and psychopathy. Using a multidisciplinary team approach and case conferencing, case managers at centralized intake units then integrate the information into a comprehensive summary report. For each offender, case managers provide an overall risk/need rating, ranging from "low/low" to "high/high." Since implementation of the OIA, all newly admitted federal offenders have been assigned a risk/need classification. This assessment

information is currently available for 11,530 Correctional Service of Canada inmates, representing more than 93% of the Service's incarcerated population.[19]

The intake assessment report uses a revolutionary automated format for recording information: details of the assessment are entered on screen in the Offender Management System (OMS), the Service's mainframe computer network. In each area of the assessment, indicators (short statements describing a risk factor) are flagged where present, and risk and need levels are rated. This approach makes it possible to combine precise statistical information related to offender need and risk for use by managers and researchers.

The OIA process has two main components: criminal risk assessment and case needs identification and analysis.

Criminal risk assessment: The offender's criminal risk level is rated as high, medium or low based on a systematic review of static risk information concerning the offender's criminal history, including previous adult and youth court involvement, details about use of violence and sex offending, and the results of an actuarial recidivism prediction scale (SIR-R1).

Case needs identification and analysis: Using a similar approach, the offender's case needs level is rated based on a detailed review of seven need areas:

- employment;
- marital/family;
- associates/social interaction;
- substance abuse;
- community functioning;
- personal/emotional orientation; and
- attitude.

For each need area, case managers flag indicators (risk factors) and rate the severity of need. They also provide details and programming recommendations for need dimensions requiring intervention, describe the offender's motivation for change and other specific characteristics (e.g., learning disabilities), chronicle the offender's social history and note any immediate concerns (suicide, physical and mental health).

How does the Service use this information?

An accurate assessment of the offender's risk/need classification informs case management decisions throughout the offender's sentence:

- the information collected and analyzed during the OIA process is used to make decisions about the need for immediate intervention or intensive supervision, programming and security requirements, initial custody level and assignment to a placement institution;

- at the receiving institution, the results of the intake risk/needs assessment forms the basis of the offender's correctional treatment plan: criminogenic needs are ranked and targeted for intervention, with intensity of treatment corresponding to the offender's level of risk;

- decisions to transfer the offender to reduced security, to grant a conditional release to the community or to detain the offender past the statutory release date are also based on a structured assessment of the offender's risk and need; and

- once the offender is granted a supervised release, parole officers use the Community Intervention Scale, an actuarial risk/needs instrument implemented in 1990, to determine the minimum frequency of supervision contacts and to orient management of the case.

Task Force on Reintegration of Offenders

Not all the processes described above are functioning as well as they should. Responding to internal and external pressures to review its case management operations, the Service formed the Task Force on Reintegration of Offenders, which submitted its final report[20] in January 1997. The Task Force recognized that the Correctional Service of Canada is legally mandated to use the least restrictive measures consistent with the protection of the public, and that management of offenders according to the risk, need and responsivity principles can help the Service fulfil that mandate.

Among the many recommendations put forward by the Task Force was a proposal to use a risk-related differentiation process to place offenders into three intervention categories based on the risk/needs rating produced through the OIA:

1. release-oriented intervention for low-risk offenders;

2. institutional and community intervention for moderate-risk offenders; and

3. high-intensity intervention for offenders in the high-risk category.

Other findings related to the risk, need and responsivity principles include recommendations for the Service to:

- focus more on risk management tools;

- broaden the range of techniques to manage risk; and

- review the design and application of the Case Needs Identification and Analysis (CNIA) instrument to ensure it helps staff accurately identify and rank criminogenic need.

What changes are forthcoming?

In response to the Task Force's specific recommendation regarding the CNIA, the Service's Research Branch and Correctional Operations Sector will be consulting field staff across the country to review recent research findings related to the predictive ability and usefulness of the components of the CNIA instrument.

An operational review group known as Operation Bypass has identified several significant changes to case management operations, soon to be implemented, that will affect risk/needs assessment and management practices in the Service. Included in the changes are:

- the creation of a reintegration potential rating based exclusively on the results of multiple risk/needs assessment instruments (OIA, SIR-R1, Custody Rating Scale);

- the periodic reassessment of risk/needs ratings throughout the period of incarceration (currently possible only during the period of community supervision);

- the more prominent placement of risk/needs assessment results in reports prepared by staff for decision-making purposes; and

- a restructuring of OMS to facilitate electronic management of case information, the preparation of reports and the automatic calculation of actuarial risk scores.

It is clear that the Correctional Service of Canada now recognizes the contribution that objective risk assessment can make to the management of the offenders under its charge. Research conducted within and outside the Service has been invaluable in helping to establish a strategic direction that will enable the Service to achieve its Mission. This is particularly true for offender needs; the assessment of criminogenic needs is becoming increasingly important in providing the focus for our correctional interventions. ∎

[1] 340 Laurier Avenue West, Ottawa, Ontario K1A 0P9.

[2] Mission Statement: "The Correctional Service of Canada, as part of the criminal justice system and respecting the rule of law, contributes to the protection of society by actively encouraging and assisting offenders to become law-abiding citizens, while exercising reasonable, safe, secure and humane control." Source: Communication Branch, *The Mission of the Correctional Service of Canada* (Ottawa, ON: Correctional Service of Canada, 1997).

[3] D. A. Andrews and J. Bonta, *The Psychology of Criminal Conduct* (Cincinnati, OH: Anderson Publishing Co., 1994).

[4] *Criminogenic needs* may be defined as those offender need areas in which treatment gain will reduce the likelihood of recidivism; they have also been referred to as dynamic risk or contributing factors. On the other hand, *non-criminogenic needs* are those need areas that, while dynamic, are **not** associated with a potential reduction in recidivism; they have also been referred to as non-contributing factors.

[5] M. W. Lipsey, "What do we learn from 400 research studies on the effectiveness of treatment with juvenile delinquents?" *What Works: Reducing Reoffending*, J. McGuire, ed. (Chichester, UK: John Wiley & Sons, 1995): 63–78; and D. A. Andrews, *Toward the Expanded Meta-analysis: Theoretical Issues*, paper presented at the American Society of Criminology meetings, Boston, 1995, in: Don A. Andrews, "Criminal recidivism is predictable and can be influenced: An update," *Forum on Corrections Research*, 8, 3 (1996): 42–44.

[6] L. L. Motiuk and S. L. Brown, *The Validity of Offender Needs Identification and Analysis in Community Corrections*, Report R-34 (Ottawa, ON: Correctional Service of Canada, 1993).

[7] B. Grant and C. Gillis, *Day Parole Program Review: Case Management Predictors of Outcome*, Report R-52 (Ottawa, ON: Correctional Service of Canada, 1996).

[8] D. A. Andrews and D. Robinson, *The Level of Supervision Inventory: Second Report* (Toronto, ON: Ontario Ministry of Correctional Services, Research Services, 1984).

[9] P. Gendreau and C. Goggin, "Principles of effective correctional programming," *Forum on Corrections Research*, 8, 3 (1996): 38–40. See also P. Gendreau, T. Little and C. Goggin, *A Meta-Analysis of the Predictors of Adult Offender Recidivism: Assessment Guidelines for Classification and Treatment* (Toronto, ON: Corrections Branch, Ontario Ministry Secretariat, 1995).

[10] Motiuk and Brown, *The Validity of Offender Needs Identification and Analysis in Community Corrections*.

[11] B. Grant and C. Gillis, *Day Parole Program Outcome, Criminal History and Other Predictors of Successful Sentence Completion* (Ottawa, ON: Correctional Service of Canada, in press).

[12] K. Blanchette, "Comparing violent and non-violent female offenders on risk and need," *Forum on Corrections Research*, 9, 2 (1997): 14–18.

[13] K. Blanchette, "A profile of federally sentenced women in the community: Addressing needs for successful integration," *Forum on Corrections Research*, 10, 1 (1998): 40–43.

[14] C. Dowden, *A Meta-Analytic Examination of the Risk, Need and Responsivity Principles and Their Importance Within the Rehabilitation Debate*, unpublished M.A. thesis (Ottawa, ON: Psychology Department, Carleton University, 1998).

[15] Andrews and Bonta, *The Psychology of Criminal Conduct*.

[16] Andrews and Bonta, *The Psychology of Criminal Conduct*. See also J. Bonta, "The responsivity principle and offender rehabilitation," *Forum on Corrections Research*, 7, 3 (1995): 34–37.

[17] For a description of CMCS and a review of CMCS evaluation studies see: C. Baird and D. Neuenfeldt, "Improving correctional performance through better classification: The client management classification system," *NCCD Focus* (August 1990): 1–7. (NCCD is the National Council on Crime and Delinquency.)

[18] See the following works for a thorough examination of the issue of clinical versus statistical judgment in prediction and decision-making: William M. Grove and Paul E. Meehl, "Comparative efficiency of informal (subjective, impressionistic) and formal (mechanical, algorithmic) prediction procedures: The clinical–statistical controversy," *Psychology, Public Policy, and Law*, 2, 2 (1996): 293–323. See also C. D. Webster, G. T. Harris, M. E. Rice, C. Cormier and V. L. Quinsey, *The Violence Prediction Scheme: Assessing Dangerousness in High Risk Men* (Toronto, ON: Centre of Criminology, University of Toronto, 1994). And see V. L. Quinsey, G. T. Harris, M. E. Rice, and C. A. Cormier, *Violent Offenders: Appraising and Managing Risk* (Washington, DC: American Psychological Association, 1998).

[19] Data from Research Branch, Correctional Service of Canada, August 1998.

[20] Correctional Service Canada, *Task Force on Reintegration, Final Report* (Ottawa, ON: Correctional Service of Canada, 1997).

The Case Needs Review Project: Background and research strategy

by **Shelley L. Brown**[1]
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In 1996, the Correctional Service of Canada assembled a Task Force on Reintegration of Offenders with a mandate to provide explicit recommendations for enhancing the reintegration of offenders back into the community. The Task Force specifically recommended that the Service review the Case Needs Identification and Analysis (CNIA) component of the Offender Intake Assessment (OIA) process. This article describes an initiative launched by the Research Branch to meet this recommendation and establishes a frame of reference for the remaining articles in this issue.

Background

In the late 1980s and early 1990s a series of public inquiries and Service task force reports underscored a need for improved offender assessment and information-sharing within and between components of the criminal justice system. Consequently, the Service assembled a National Offender Intake Assessment Working Group with the mandate to design and develop a systematic approach to offender assessment on admission to a federal correctional institution. After consultation and an extensive literature review, the working group developed, piloted and eventually implemented the Offender Intake Assessment (OIA) process in November 1994.[2]

Briefly, the OIA is a comprehensive and integrated evaluation of the offender at the time of admission. It begins with an assessment of immediate physical and mental health needs, security risks, and suicide potential. Afterward, the offender is assessed by the Criminal Risk Assessment (CRA) and Case Needs Identification and Analysis (CNIA) components of the OIA. This information is then used to determine the offender's institutional placement and correctional plan.[3]

> **Using the indicator ratings as a guide, each need domain is rated on either a three- or four-point scale ranging from 'factor seen as an asset to community adjustment' to 'considerable need for improvement'.**

What is Case Needs Identification and Analysis?

The CNIA protocol identifies seven need domains, including employment, marital/family, associates, substance abuse, community functioning, personal/emotional, and attitude. Each need domain is subsequently divided into principal components, and in some cases, subcomponents. The subcomponents are a series of yes/no indicators, about 200 in total.

About half of the indicators are accompanied by 'help messages' that facilitate scoring. As an example, the substance abuse domain has 3 principal components, 7 subcomponents, and 29 indicators. The principal component 'abuses alcohol' has three corresponding subcomponents, 'pattern', 'situations' and 'interference'. Sample indicators associated with the 'pattern' subcomponent include 'drinks on a regular basis' and 'has a history of drinking binges'.

Using the indicator ratings as a guide, each need domain is rated on either a three- or four-point scale ranging from 'factor seen as an asset to community adjustment' to 'considerable need for improvement'. An overall low-, medium- or high-needs rating is created by compiling information derived from the severity and number of needs identified by the CNIA, information derived from the post-sentence community assessment, and information gleaned from the initial assessment of immediate medical, health and suicide concerns. As with the individual case need ratings, the overall need level is derived largely through professional judgment (see Motiuk, this volume, for more information).

Project impetus

Since the implementation of the OIA, three audits conducted by the Auditor General of Canada[4] have concluded, "that there are systemic weaknesses in the Service's management of its reintegration activities…"[5] In response, the Service assembled the Task Force on Reintegration of Offenders with the explicit mandate to identify essential problem areas and to suggest how to enhance the reintegration process. In regard to the OIA, the Task Force specifically recommended "that the design and application of the CNIA instrument be reviewed to ensure it identifies and prioritizes only those offender needs related to criminal behaviour."[6] In response, the Research Branch launched a three-tiered initiative to address this recommendation.

Research strategy

The first initiative involved a statistical examination of the CNIA and criminal recidivism. As of March 31, 1998, more than 12,500 full OIAs have been completed. A further 3,380 offenders assessed by the OIA have since been released and subsequently followed up. Results from this initiative are presented by Motiuk (this volume).

For the second initiative, an external review of each need domain was conducted. The emphasis was on predictive studies that examined the ability of a given need domain and its corresponding components and indicators to predict criminal recidivism in adult offender populations. Further, reviewers were asked to provide recommendations for streamlining the CNIA. The Research Branch conducted the community functioning review internally and contracted with several external experts to complete the other reviews. The volume of literature on substance abuse prompted the Branch to undertake two reviews: an external review that focused largely on assessment-related issues and an internal review that examined the relationship between substance abuse risk factors and criminal behaviour.

> **The emphasis was on predictive studies that examined the ability of a given need domain and its corresponding components and indicators to predict criminal recidivism in adult offender populations.**

Each review involved a quantitative meta-analysis, a qualitative narrative review or a combination of the two. A meta-analysis is a statistical technique that allows researchers to objectively aggregate the size of a relationship between two variables (i.e., criminal associates and recidivism) across numerous studies in the form of an effect size or correlation coefficient. A narrative review involves a qualitative examination of a given area whereby a reviewer reads all relevant literature and renders a summary statement based on the reviewer's subjective interpretation. Both approaches are useful for theory building, identification of new research directions and assessment of the current state of the literature.[7]

The final component of this project is a two-tiered consultation phase. The first stage of the consultation was conducted at the Service's National Headquarters. The target audience included stakeholders from Program Development and Evaluation, Aboriginal Affairs, Women Offenders, Research, Policy, Strategic Planning, and Reintegration. This stage involved a one-day symposium during which reviewers summarized their main findings and recommendations. The findings from the CNIA statistical review were also presented. In essence, this issue of *Forum* presents the material delivered at that symposium.

The second stage of the consultation, scheduled for the near future, has three objectives: to disseminate the research findings that emerged from this initiative to people working in the field; to receive input from field staff regarding the practical utility and desirability of the proposed recommendations; and to receive feedback from the field regarding the operational impact of dropping indicators with either no or weak support, retaining indicators with moderate or strong support, and adding new indicators identified as theoretically or empirically promising. After the field consultations, the CNIA will be revised in accordance with the research findings and the operational needs raised by relevant stakeholders. ■

[1] 340 Laurier Avenue West, Ottawa, Ontario K1A 0P9.

[2] L. L. Motiuk, "Classification for correctional programming: The offender intake assessment process," *Forum on Corrections Research*, 9, 1 (1997): 18–22.

[3] Motiuk, "Classification for correctional programming: The offender intake assessment process."

[4] Auditor General of Canada, *Correctional Service of Canada—Supervision of Released Offenders*, Cat. no. FA1-1994/11E (Ottawa, ON: Minister of Public Works and Government Services Canada, 1994); Auditor General of Canada, *Correctional Service of Canada—Rehabilitation Programs for Offenders*, Cat. no. FA1-1996/1-10E. (Ottawa, ON: Minister of Public Works and Government Services Canada, 1996); Auditor General of Canada, *Correctional Service of Canada—Reintegration of Offenders*, Cat. no. FA1-1996/3-30E (Ottawa, ON: Minister of Public Works and Government Services Canada, 1996).

[5] Auditor General of Canada, *Correctional Service of Canada—Reintegration of Offenders*.

[6] Correctional Service of Canada, *Task Force on Reintegration, Final Report* (Ottawa, ON: Correctional Service of Canada, 1997). Available from the Offender Reintegration Branch, Correctional Service of Canada, 340 Laurier Avenue West, Ottawa, ON K1A 0P9.

[7] J. McGuire and P. Priestley, "Reviewing 'What works': Past, present and future," *What Works: Reducing Reoffending: Guidelines from Research and Practice*, J. McGuire, Ed. (Chichester, UK: John Wiley & Sons, 1995): 3–34.

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RESEARCH IN BRIEF

11

Using dynamic factors to better predict post-release outcome

by **Larry Motiuk**[1]
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Research conducted by the Correctional Service of Canada has resulted in a federal system that uses the Offender Intake Assessment (OIA) process as a standardized method for classifying adult prisoners. OIA is a comprehensive evaluation of the offender at the time of admission. It involves the collection and analysis of information on an offender's criminal and mental health history, social situation, education and other factors relevant to determining criminal risk and identifying offender needs.[2]

On arrival at an Intake Assessment Unit, each offender undergoes an admission interview and an orientation session. An initial assessment screens an offender for immediate physical health, security (personal and others' safety), mental health and suicide concerns. After this, the offender progresses to the two core components of the OIA process: criminal risk assessment and case needs identification and analysis (CNIA).

The design and development of the CNIA instrument was based on the premise that offender risk and need should drive service delivery, and correctional interventions should focus on successful reintegration.[3] The CNIA protocol provides indicators and ratings on each of the seven dynamic risk factors (employment, marital/family, associates, substance abuse, community functioning, personal/emotional and attitude).[4] This provides a basis for establishing the offender's correctional plan.

Studies have found that offenders with identified needs at admission are at much greater risk of returning to custody than offenders without these needs.[5] Since the Service began using the OIA process in 1994,[6] it has completed nearly 12,500 full OIAs and entered them into the Offender Management System. This article illustrates the value of systematically targeting dynamic factors at admission.

CNIA

The scheme for the CNIA component of OIA covers as wide a variety of dynamic factors as possible. These need areas (target domains) build on experience with offender needs instruments and are typical of those included in most needs assessment instruments used in other jurisdictions.

Each of the seven target domains is tied to conventional behaviour:

- *employment* – the value placed on work and the role of work in one's life;

- *marital/family* – the value placed on being with family and the support one derives from family;

- *associates* – the value placed on non-criminal associates and the opportunity for positive social interaction;

- *substance abuse* – the value placed on living without reliance on alcohol and/or drugs;

- *community functioning* – the value placed on having the knowledge and necessary skills for daily living;

- *personal/emotional* – the value placed on being in control of one's life; and

- *attitude* – the value placed on living in law-abiding ways.

In the past, we looked at the target domains and determined the need at that level of detail.

Chart 1	
Target domain	**Substance abuse**
Principal component	**Alcohol abuse**
Subcomponent	*Pattern*
Indicators	1. Abuses alcohol?
	2. Began drinking at an early age?
	3. Drinks on a regular basis?
	4. Has a history of drinking binges?
	5. Has combined the use of alcohol and drugs?
Subcomponent	*Situations*
Indicators	6. Drinks to excess during leisure?
	7. Drinks to excess during social situations?
	8. Drinks to relieve stress?
Subcomponent	*Interference*
Indicators	9. Drinking interferes with employment?
	10. Drinking interferes with marital/family?
	11. Drinking interferes with social relations?
	12. Drinking has resulted in law violations?
	13. Drinking interferes with health?

The CNIA scheme makes a thorough analysis of the need domains by systematically breaking them down (principal components and subcomponents) to the lowest level (indicators). Although this paper cannot describe the mechanics of the entire OIA–CNIA process, an example will serve our purposes; Chart 1 illustrates how the target domain substance abuse is broken down into subcomponents and indicators.

Once the analysis for alcohol abuse is complete, the rater would repeat the same process for drug abuse. The scheme forces the rater to answer "Yes" or "No." "Yes" responses signal a problem.

Domain ratings

After completing the analysis for a particular need domain, the rater determines the severity of the dynamic factor on a qualitative scale ranging from "factor seen as an asset to community adjustment" to "considerable need for improvement" (see Chart 2). The domain level or impressions ratings are only determined after reviewing, considering and assessing: the file information; supplementary information from the community (such as collaterals, police reports and presentence reports); results of supplementary assessments (such as psychological assessment); colleagues; and the offender.

Offender needs on admission to prison

The CNIA protocol is an objective classification instrument; its seven target domains have been shown to predict suspension of community supervision.[7]

While the OIA–CNIA protocol is administered to all admissions to the Canadian federal system, a post-implementation follow-up of offenders subsequently released yielded 3,380 male offenders (average period in the community 250 days). Interestingly, the base rate for return to federal custody was 9.3%. Moreover, of those returned, nearly three quarters had their

conditional release revoked without having committed a new offence. The reduced variability (low base rate) in the outcome criterion (return to federal custody) may lead to seemingly deflated correlations.

Chi-square and correlation analyses were conducted for each target domain rating, the aggregate of all domain indicators and the rate of post-release return to federal custody. All of the dynamic factor ratings were found to be significantly associated with return to prison (see Table 1).

Table 1

Predictive Validity of Domain Ratings Assessed by the OIA–CNIA (3,380 male offenders)

Domain	Percentage with identified need	Percentage returned to prison	Return to prison r
Employment	66.4	11.9	.17
Marital/family	48.5	12.6	.12
Associates	65.3	12.3	.17
Substance abuse	62.0	12.1	.15
Community functioning	51.2	13.0	.14
Personal/emotional	83.9	10.6	.11
Attitude	50.3	11.7	.09

*Note all r values, p < .001

Similarly, all of the indicator composites were found to be significantly associated with return to prison (see Table 2).

Table 2

Predictive Validity of Domain Indicator Composites Assessed by the OIA–CNIA (3,380 male offenders)

Domain	Mean	SD	Range	Return to prison r
Employment	9.96	5.59	0–27	.14
Marital/family	5.65	3.79	0–24	.11
Associates	3.22	2.17	0–11	.19
Substance abuse	8.78	8.17	0–29	.17
Community functioning	4.73	2.84	0–17	.14
Personal/emotional	10.10	6.47	0–33	.15
Attitude	3.9	3.70	0–20	.19

*Note all r values, p < .001

Chart 2

Case Need Identification and Analysis: Domain Rating Guidelines

Factor seen as an asset to community adjustment	No immediate need for improvement	Some need for improvement	Considerable need for improvement
Employment:			
Employment has been stable and has played an important role for the offender.	Neither employment, under-employment, sporadic employment or chronic unemployment has interfered with the offender's daily functioning.	Any of the aforementioned has caused minor adjustment problems for the offender in the community.	Employment situation has caused serious adjustment problems for the offender in the community.
Marital/family:			
There is evidence of very positive relationships and considerable support of parents, relatives or spouse.	There is evidence of a satisfying and caring relationship within a marriage and/or family that has resulted in no current difficulties for the offender in the community.	There is evidence of uncaring, hostility, arguments, fighting or indifference in the marital/family relationships resulting in occasional instability.	Any of the aforementioned has been interfering consistently with the offender's performance in the community.
Associates:			
There is evidence of the offender having had positive personal associations and considerable support.	There is evidence that the offender has had mostly non-criminal and/or positive associates.	The offender has had a lack of positive associates and/or some negative companions (e.g., criminal).	The absence of positive associates and/or the presence of negative companions have interfered consistently with the offender's performance in the community.
Substance abuse:			
	The extent, nature and pattern of alcohol and/or drug consumption by the offender while in the community have had no influence on his/her adjustment (e.g., abstinence, social drinking).	Alcohol and/or drug consumption has caused moderate adjustment problems for the offender in the community.	Substance abuse has caused serious adjustment problems for the offender in the community.
Community functioning:			
The offender has been effectively managing his/her situation (i.e., accommodation, deportment, health, finance, communication, leisure, support)	Knowledge of the necessary skills for daily living has not been causing difficulties.	Any of the aforementioned has been causing situational or minor difficulties in the community.	The offender's community functioning has been causing severe difficulties.
Personal/Emotional:			
	None of the offender's characteristics or patterns (i.e., self-concept, cognition, behavioural, sexual behaviour, mental ability, and/or mental health) has been interfering with daily functioning in the community.	Characteristics or patterns of personal/emotional orientation have caused minor interference with the offender's daily functioning in the community	Any of the aforementioned has seriously interfered with the offender's daily functioning in the community.
Attitude:			
There is evidence of a very positive attitude and considerable involvement in prosocial activities (e.g., work, school, family, treatment and supervision).	The offender's attitudes toward justice, society, property, violence and lifestyle have not been interfering with his/her daily functioning in the community.	The offender's attitudes have caused minor interference with his/her daily functioning in the community.	Any of the aforementioned has seriously interfered with the offender's daily functioning in the community.
Overall needs rating:	**Low**	**Medium**	**High**

Using regression analysis, we sought to determine which need domain was the most powerful predictor of post-release outcome. To do this, the seven domain ratings were entered into a stepwise regression equation. For male offenders, the strongest predictors of post-release outcome (in order of magnitude) were employment, substance abuse, associates, marital/family and personal/emotional.

Indicator composites for each domain were also entered into a stepwise regression equation. Using this approach, the most significant variables were associates, attitude, substance abuse and employment. Because these indicators are linked to return to federal custody, these findings support the notion that the assessment of

> **These findings support the notion that the assessment of dynamic factors (a subset of overall risk) should be driving correctional interventions.**

criminogenic needs (a subset of overall risk) should be driving correctional interventions.

Conclusion

In sum, it appears that offender classification instruments such as the OIA–CNIA, which assess "dynamic" (employment, $r = .16, p < .001$) risk factors, are reliable predictors of post-release outcomes. As an intake risk-management tool, the CNIA can apparently be useful for estimating an offender's level of intervention, and the degree or intensity of need is clearly related to post-release outcome. ■

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Case need domain: "Employment"

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This article presents the findings of a narrative review and meta-analysis of the employment domain. Sixty-seven studies generated 200 effect sizes with recidivism and produced a mean correlation with recidivism of r = .13. In this result, employment was subsumed within a social achievement domain (r = .15). An examination of the mean r values associated with the seven categories of the employment domain indicated that education/employment (r = .26), employment needs at discharge (r = .15) and employment history (r = .14) were among the most powerful predictor categories. Further, a literature search uncovered several measures that assessed the employment construct. Specific recommendations were made as to how to improve the Case Needs Identification Analysis (CNIA) instrument used by the Correctional Service of Canada.

Of all of the predictors of offender recidivism, the employment domain[2] is probably the most prosaic. Indeed, it has generated little debate compared with other predictors, such as social class of origin, personal distress and personality.[3] In general, it has been assumed that the employment domain is a moderately good predictor of recidivism. This conclusion has been confirmed by meta-analyses of the literature about juvenile and adult offenders.[4] Surveys have also revealed that employment, vocational training and financial needs are the strongest deficits among adult offenders.[5]

Almost all adult offender risk instruments include an employment domain item. To our knowledge, however, only two risk measures, the Level of Service Inventory — Revised (LSI-R)[6] and the CNIA protocol have explored this area in depth. Ten LSI-R items and 35 CNIA items deal with the employment domain. Since the CNIA is currently undergoing significant revisions, a reassessment of the predictive validity of the employment domain is timely. This study updates the 1996 meta-analysis[7] of education and employment as part of the social achievement domain. It also reviews the literature that deals with psychological testing for recent psychometric instruments used to measure the employment construct.

Sample of studies

We conducted a literature search for relevant studies published between January 1994 and December 1997. These studies were added to the database reported in the 1996 meta-analysis of the predictors of recidivism among adult offenders. As well, studies from two recent meta-analyses of the predictors of recidivism for mentally disordered and sex offenders were also added.[8]

Studies were chosen using the following criteria:

- Data on the offender was collected before the recording of the criterion measure.

- The follow-up period was a minimum of six months. If a study reported more than one follow-up period, data from the longest interval was used.

- Recidivism had to be recorded when the offender was 18 years or older.

- The criterion measures were arrest, conviction, incarceration, or a probation or parole violation.

- Each study had to report statistical information that could be converted into a common metric or effect size (i.e., Pearson *r*).

Predictor domain

The employment predictor domain was divided into seven categories:

1. employment history — frequently unemployed, ever fired, unstable work history;

2. employment needs at discharge — no employment plans after release, poor job motivation, employment need;

3. employment status at intake — unemployed at intake, not employed before incarceration;

4. financial — poor financial management, major financial problems, low income;

5. education/employment — LSI rating of education/ employment, academic/ vocational;

6. school achievement — few years of education, less than grade 12, poor school achievement; and

7. school maladjustment — suspension/ expulsion, school discipline problems.

Pearson product-moment correlation (r) coefficients were produced for all predictors in each study that reported a numerical relationship with recidivism. When statistics other than Pearson r were presented, their conversion to r was undertaken using the appropriate statistical formula. Next, standard statistical procedures were used to weight each r according to sample size.

Study characteristics

We identified 67 studies as suitable for the meta-analysis that generated 200 effect sizes. For those variables where at least 50% of the studies reported information on sample and study characteristics, the results were as follows:

- 91% of effect sizes came from studies with a one-year or greater follow-up period;

- 82% of effect sizes came from studies that assessed only males or had mixed gender samples;

- 82% of effect sizes were associated with non-violent recidivism;

- 76% of effect sizes were associated with adult or mixed adult and juvenile samples;

- 75% of outcomes included conviction, incarceration or a combination of both;

- 69% of studies came from the 1980s or 1990s;

- 62% of effect sizes were associated with subjects of mixed risk levels; and

- 16% of effect sizes were associated with offenders with a violent or sexual offence history.

Predictive validities

The results in Table 1 can be interpreted in the following manner. Reading from the left of row 1, the employment history category produced 34 effect sizes involving 23,415 offenders. The mean correlation (r) was .14 and the confidence interval (CI) about mean r ranged from .11 to .17. The weighted r (z^+) for the same category was .18 and its CI ranged from .17 to .19.

When examining mean r, the CIs for the education/employment predictor category (5) did not overlap with those of predictor categories 1, 3, 4 or 6, and overlapped only minimally with those of categories 2 and 7. In the case of weighted r (z^+), the employment needs at discharge and employment history predictor categories did not overlap with any of the other groupings. The drop in value from a mean r of .26 to a mean z^+ of .10 for the education/employment category reflects the fact that three effect sizes within that group had large sample sizes and produced weak correlations with the criterion (r < .12).

The common language effect size indicator (CL)[9] was used to compare the relative practical application of the various predictors. This procedure demonstrated the education and employment predictor categories produced higher correlations with recidivism than did the other predictors, ranging from 70% of the time compared with employment

Table 1					
Mean Effect Sizes for Employment and Education Predictor Categories					
Predictor *(k)*	N	*Mr* (SD)	CI	*Mz*	CI
1. Employment history (34)	23,415	.14 (.10)	.11–.17	.18*	.17–.19
2. Employment needs at discharge (16)	4,961	.15 (.12)	.09–.21	.19*	.16–.22
3. Employment status at intake (28)	12,990	.11 (.13)	.06–.16	.10*	.08–.12
4. Financial (27)	14,457	.13 (.10)	.09–.17	.10*	.08–.12
5. Education/employment (20)	9,142	.26 (.18)	.18–.34	.10*	.08–.12
6. School achievement (60)	37,245	.10 (.10)	.07–.12	.10*	.09–.11
7. School maladjustment (15)	11,822	.14 (.08)	.10–.19	.11*	.09–.13
Total (200)	114,032	.13 (.12)	.12–.15	.12*	.11–.13

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

needs at discharge to 81% of the time compared with school achievement. Employment needs at discharge produced higher correlations with recidivism than did five other predictor categories 52% to 63% of the time. Of the two school-based predictors, school maladjustment was greater than school achievement 62% of the time.

The predictors listed in Table 1 were then collapsed into three categories: education, employment and education/employment combined. The results are described in Table 2. For mean r, the CIs for the education/ employment category do not overlap with the other two groups. Using weighted mean r values (z^+), however, the employment category CIs do not overlap with the education or combined education/employment categories. The CL index indicated that the education/ employment predictor category produced higher correlations with recidivism than employment and education 74% and 79% of the time, respectively.

Opportunity, the Employment Checklist, the Intrinsic Job Motivation scale, the Maladaptive Behaviour Record, the Occupational Self-Efficacy scale, the Value of Employment, the Work Beliefs scale, and the Work Involvement scale.[10]

Discussion

This meta-analysis confirmed the usefulness of the employment predictor domain. Given that it generated a database of 200 effect sizes and 114,032 offenders, the employment predictor domain is established as a moderately strong predictor of recidivism.

Further research may establish that these results have underestimated the predictive potential of the employment domain. Questions regarding offender risk measures have been limited to basic grade achieved/ employment history items. More attention should be focused on assessing the offenders' values, beliefs, and satisfactions with employment and acquiring related skills. We recommend that this domain be considered in a more dynamic fashion, similarly to what has been argued for the conceptualization of IQ with offenders.[11] In support of this view, our database revealed that items that assessed factors such as "non-rewarding work" and "poor job motivation" sometimes produced r values greater than .20. In one large-scale follow-up of offenders, a measure of work beliefs, when compared with a wide range of predictor domains, generated the strongest correlations with recidivism.[12]

This database contains very few studies with female and Aboriginal samples. Those studies included often produced inconsistent findings for females and reported higher correlations between employment and recidivism for non-Aboriginal versus Aboriginal offenders. A great deal more research on gender and ethnicity is needed.

Table 2

Mean Effect Sizes for Collapsed Employment and Education Predictor Categories

Predictor (k)	N	Mr (SD)	CI	Mz	CI
1. Education (75)	49,067	.11 (.10)	.08–.13	.11*	.10–.11
2. Employment (105)	55,823	.13 (.11)	.11–.15	.14*	.14–.16
3. Education/Employment (20)	9,142	.26 (.18)	.18–.34	.10*	.08–.12
Total (200)	114,032	.13 (.12)	.12–.15	.12*	.12–.13

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

Further analyses revealed that mean effect sizes did not vary by study decade, published versus unpublished sources, gender, age, race, risk level or by most methodological variables. Effect sizes associated with an adequate description of subjects, however, were significantly lower than those generated by studies where demographic data was not provided.

Assessment protocols

In addition to the LSI-R and the CNIA, we identified nine potential "employment" assessment protocols. They are the Australia Work Ethic scale, the Awareness of Limited

Recommendations

The employment domain of the CNIA consists of 6 principal components and 10 subcomponents. The database in this meta-analysis substantiates the continued use of the first three indicators in the education/skills subcomponent, five of the indicators in the history subcomponent, as well as all of the indicators in the dismissed/departure, economic gain and (from the interventions principal component) history subcomponents. Unfortunately, this meta-analysis did not contain effect sizes that addressed the content of the other CNIA employment indicators.

Our recommendations for revising the employment domain of the CNIA are:

- Continue to use the above-noted indicators, although some judicious culling (e.g., choose one of "less than grade 8" or "less than grade 10") would be helpful. In addition, review the need to include 35 indicators in the employment domain. By comparison, the LSI-R employment/education section contains 10 items, although we are not suggesting a draconian reduction in items to the CNIA employment domain.

- Add an item on school maladjustment factors.

- Serious consideration should be given to adapting several items from the following scales: Australia Work Ethic, Intrinsic Job Motivation, Occupational Self-Efficacy, Work Beliefs and Work Involvement.

- Consider adopting measures such as the General Aptitude Test Battery (or an approximate Canadian equivalent like the Canadian Adult Achievement test). We realize this recommendation is controversial, but based on the following argument. The employment domain is a useful predictor of recidivism. Good employment skills are necessary for a successful, prosocial reintegration into society. Research has shown that the best predictor of job success, by far, is this type of measure. Although they are time consuming, we believe that these measures would provide information that would help the case management process considerably for offenders' rehabilitation. ∎

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[2] The employment domain in this study is defined by the CNIA protocol. [See L. L. Motiuk and S. L. Brown, *The Validity of Offender Needs Identification and Analysis in Community Corrections*, Report R-34 (Ottawa, ON: Correctional Service of Canada, 1993).] Besides standard employment items, the CNIA also includes some educational achievement items.

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Case need domain: "Marital and family"

by *Elizabeth Oddone Paolucci, Claudio Violato* and *Mary Ann Schofield*[1]
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This article reviews the research on marital and family variables as they relate to adult criminal recidivism. Recidivism studies have examined an array of marital and family variables ranging from family size and birth order to family tension and quality of parent–child relationships. The literature review was organized according to family psychopathology, attachment and parent–child relationship, childhood abuse, family structure and birth order, and marital relationship. Despite methodological flaws, the evidence suggests that maintaining healthy family relations may reduce recidivism.

Criminality is viewed as a complex phenomenon involving multiple biological, sociological, psychological and situational antecedents.[2] There is substantial evidence that a wide range of demographic, family and individual factors are correlated with patterns of criminal activity. Consequently, predicting criminality or even understanding fully its antecedents has been an enormous challenge for correctional workers, forensic scientists and clinicians.

Issues related to the probability of recidivism have been a matter of both practical and scientific concern for many years. Although it remains unclear whether factors explaining the onset of offending are the same as those accounting for the continuation or termination of the adult criminal career, comparatively few studies have examined these issues.

Popular belief suggests that family ties, employment, marriage, children and holding other social bonds within the community mitigate criminal behaviour by providing people with a social investment in conformity. Further, growing evidence supports the

> **Popular belief suggests that family ties, employment, marriage, children and holding other social bonds within the community mitigate criminal behaviour by providing people with a social investment in conformity.**

hypothesis that factors such as negative-quality parent–child relationships, familial criminality, parental illness and separation from parents increase the likelihood of juvenile delinquency and adult criminality.

Methodology

A thorough search identified existing publications of adult criminal recidivism. For this study, all available data was extracted from automated databases such as PsychInfo, HealthGate, Medline and the National Criminal Justice Reference System. Key search terms included criminal recidivism and family, crime and family, crime and marriage, crime and prevalence of family problems, family variables and crime, and family assessment instruments.

A total of 238 studies were reviewed for their theoretical and methodological applications, as well as for the empirical results. Of these, 193 were empirical studies and 35 were classified as theoretical. The majority of the studies (n=149) examined samples of 100 or more recidivists. The most common sampling method was that of convenience (n=148).

More than half of the recidivism studies did not include a contrast group (n=132). Sixty-six studies were retrospective, 38 were longitudinal and 19 were retrospective-longitudinal studies. Multivariate analyses were the highest level of statistical analysis for 65 of the studies, while frequencies and structural equation modelling were the highest level in 25 studies.

Family psychopathology

It is not unreasonable to expect that some biological predisposition toward antisocial behavior may characterize serious recidivistic and violent criminal offenders. One study examined the contribution of mental disorder in the biological backgrounds of adoptees. Multiple recidivistic nonviolent criminal behavior was found at a significantly elevated rate in adopted sons when mental disorder and criminal involvement were characteristic of the adoptees' biological families. A similar, but nonsignificant, elevation was found for rates of violence. Parental diagnostic types associated most strongly with sons' later criminal involvement were drug abuse, alcohol abuse and personality disorders. Parental psychoses were not related to offspring recidivism or violence in this cohort. The study also took into account possible confounding effects of missing data, institutionalization prior to adoption, information given to adoptive parents by the adoption agencies about the child's biological background, historical period, perinatal factors and selective placement.[3] Lastly, a recent meta-analysis confirmed the presence of a relationship between family criminality and general recidivism among adult offenders.[4] However, the individual contributions attributable to biological predisposition versus environmental influence could not be ascertained.

Parent–child relationship

Predictions of adult criminality based on knowledge of the parent–child relationship have been useful in understanding the role of development and familial variables in recidivism. Specifically, it has been suggested that the absence of early secure attachment to parents may predispose individuals to a life of delinquency and repeated criminal behaviour. One study reported a highly significant interaction between delivery complications and early child rejection in predicting violence,

suggesting that those who experienced both birth complications and early child rejection were most likely to become violent offenders in adulthood. The interaction between birth complications and early child rejection was again significant when comparing violent criminals with noncriminals.[5]

Further research suggests that inappropriate discipline, negative parental supervision, attachment to parent and runaway behaviour are predictive of adult criminal conduct.[6] A recent meta-analysis also confirmed that family rearing practices (i.e., lack of supervision and affection, conflict, and abuse) were predictive of recidivism.[7] Lastly, there is some evidence to suggest that early paternal influences are stronger than maternal influences in fostering violent criminality.[8]

> **Further research suggests that inappropriate discipline, negative parental supervision, weak attachment to parent and runaway behaviour are predictive of adult criminal conduct.**

Experience of childhood abuse

The experience of childhood physical and sexual abuse within or outside the family is often related to the quality of parent–child relationships. A prevalent clinical assumption regarding both adult and adolescent sex offenders is that many have been sexually abused as children. There is some evidence to support this assumption, particularly in regard to sexual offences perpetrated against male children. A recent study found that 75% of adolescent offenders who ever assaulted a male child reported sexual abuse, in comparison with only 25% of those who assaulted female children, peers or adults.[9] Other research suggests a link between childhood sexual abuse and later drug abuse, juvenile delinquency and criminal behaviour.[10] In contrast, a recent meta-analysis involving sexual offenders reported no relationship between childhood sexual abuse and sexual recidivism.[11] In sum, the evidence that supports the "violence breeds violence" hypothesis should be interpreted cautiously given the weak methodological rigour typically associated with this area of research.[12]

Family structure and birth order

Research that has investigated the relationship between family structure (size or birth order) and recidivism has generally produced inconclusive findings. Some researchers have concluded that number of siblings is not related to recidivism[13] and others have found support for the predictive relationship between family size or birth order and criminal recidivism. For example, number of older sisters has been found to be related to both number of prior incarcerations and number of months of incarceration.[14] Similarly, some evidence indicates that there is a relationship between extreme ordinal positions (i.e., firstborns and lastborns) and criminal behaviour.[15] Clearly, further research is required.

Marital relationship

Several longitudinal studies have carefully examined childhood familial experiences in relation to adult criminal lifestyles, but few have examined life events such as marriage and parenthood and their impact on criminal behaviour. Despite some inconsistent findings, a recent review that examined the relationship between marriage and criminality reported that attachment to a spouse was associated with a decrease in the likelihood of adult criminality. Maintaining an active family interest while incarcerated and establishing a mutually satisfying relationship after release were associated with decreases in subsequent reoffending.[16]

As well, a recent meta-analysis involving sexual offenders revealed that being single was associated with sexual recidivism.[17]

Conclusions

Although numerous demographic and psychosocial variables have been studied as potential predictors of criminal recidivism among adults, measures of past behaviour appear to be among the most stable predictors of future violence and criminality. However, various family factors have also been implicated. Some of these include family psychopathology, quality of parent–child relationships, experiences of childhood victimization, and marital status and quality of relationship. Much remains to be learned about whether adult family life can alter a delinquent's criminal career and can buffer criminogenic influences in adulthood.

> **Although numerous demographic and psychosocial variables have been studied as potential predictors of criminal recidivism among adults, measures of past behaviour appear to be among the most stable predictors of future violence and criminality. However, various family factors have also been implicated.**

Much of the research has been methodologically flawed, fragmentary, descriptive and correlational. Only in the last decade have multivariate statistical approaches been applied to a comprehensive array of variables. It is recommended that sophisticated multivariate techniques be applied in future research. Clearly, future research could be directed toward articulation of the combined role of demographic, family and individual variables among subgroups of the heterogeneous criminal population. This information could then serve as the basis for designing effective prevention and intervention programs.

Among already-convicted and institutionalized adult offenders, establishing and maintaining healthy family relations may help reduce recidivism. In both community and institutional settings, it is recommended that mental health and correctional professionals endeavour to provide opportunities for regular, positive offender–family interactions. For many offenders, this may mean treatment for self as well as for the family subsystem (i.e., parents, close relatives and intimate partner). Although far from elucidating the causal relationship between family life and adult criminality, the existing research justifies action that strengthens family interaction. ■

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Coming up in *Forum on Corrections Research*

The January 1999 issue of FORUM will present various themes: "Family Violence," "Sex Offenders" and "Staff Safety."

Coming up in the May 1999 issue of *Forum on Corrections Research*

The May 1999 issue of FORUM will focus on "Youthful Offenders." Suggested themes of upcoming issues include: "Managing Women Offenders" and "Aboriginal Offenders."

CASE NEED DOMAINS

Case need domain: "Associates and social interaction"

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This article presents the findings of a narrative review and a quantitative meta-analysis that examined how well the criminal associates and social interaction domain predicts recidivism. A meta-analysis is a statistical technique that aggregates the findings of several individual studies. The results of each study are converted into a common measure, known as an effect size (e.g., a Pearson r correlation coefficient), to enable comparison. Although both weighted and unweighted effect sizes can be used, the weighted effect size is generally considered to be more accurate since it adjusts the size of the correlation based on the size of the sample.

Thirty-five studies generated 75 effect sizes with recidivism. The associates and social interaction domain produced an average effect size with recidivism of r = .18, replicating the results of a previous meta-analysis[2] that indicated that this domain is one of the most robust predictors of recidivism. Within this domain there were three components, of which association with criminal companions proved to be the strongest predictor, followed by crime neighbourhood (crime rate in area of socialization) and criminal family (whether parents or siblings are involved in crime). Moreover, the literature search uncovered additional measures that may prove useful for the upcoming revisions to the Case Needs Identification and Analysis (CNIA). Specific recommendations for enhancing the associates and social interaction domain of the CNIA are provided.

In the criminological literature, there is general agreement that the extent to which an offender associates with antisocial peers is critically important to the development of criminal behaviour and the prediction of recidivism.[3] In the developmental literature, evidence suggests that serious delinquency during adolescence is linked to social ties.[4] Meta-analyses in delinquency prediction have confirmed this.[5]

The effects of associating with criminals among adult offenders, however, has been relatively neglected. This is surprising, as surveys have identified association with criminals as one of the most prevalent problems of adult offenders.[6] Furthermore, a recent meta-analysis of the predictors of adult offender recidivism found that the associates and social interaction predictor domain was under-represented compared with other predictor domains. More importantly, however, was that this domain was one of the more robust predictors of recidivism.[7]

A re-assessment of the predictive validity of this construct is timely given the evaluation of the CNIA. Consequently, this study has the following three objectives: to update a recent meta-analysis that examined the predictive validity of the associates and social interaction domain; to broaden the scope of the domain by searching for valid predictors in addition to criminal associates; and to review the psychological test literature for recent psychometric instruments that measure the criminal associates and social interaction domain.

> In the criminological literature, there is general agreement that the extent to which an offender associates with antisocial peers is critically important to the development of criminal behaviour and the prediction of recidivism.

Methodology

We conducted a literature search for relevant studies published between January 1994 and December 1997. These studies were added to the database used in the 1996 meta-analysis.[8]

Only studies that met the following criteria were included:

- Data on the offender was collected before the recording of the criterion measure. A minimum follow-up period of six months

was required. If a study reported more than one follow-up period, we used the data from the longest interval.

- Recidivism had to be recorded when the offender was an adult (18 years or older). The criterion measures were arrest, conviction, incarceration, or probation or parole violation.

- information that could be converted into a common measure such as the Pearson *r* correlation coefficient was also required.

Further, we excluded treatment studies that directly attempted to change offender attitudes or behaviour.

We recorded sample characteristics such as age, gender, race, type of offender, intake risk level and violent offence history for each study.

Results

The literature search located 35 studies deemed suitable for the meta-analysis that generated 75 effect sizes between a criminal associate predictor and recidivism. Three predictor categories of the criminal associates domain were found: companions, crime neighbourhood and criminal family. "Companions" was measured either by the associates subset of the Level of Supervision Inventory—Revised (LSI-R),[9] or other variables tapping criminal acquaintances, friends and associates, or identification with criminal others. "Crime neighbourhood" assessed the crime rate for the offender's area of socialization. "Criminal family" assessed whether the offender was living in a family environment where parents or siblings were involved in crime.

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 the effect sizes came from male or mixed gender samples; (b) 71% were associated with adult or mixed adult/juvenile

samples; (c) 69% were associated with subjects of mixed risk levels; and (d) less than 5% were associated with offenders with a violent or sexual offence history. The majority of effect sizes were derived from studies that used a minimum two-year follow-up period, defined recidivism in terms of conviction, incarceration or a combination thereof, and were associated with non-violent recidivism.

As seen in the Table 1, 75 effect sizes based on 39,676 offenders generated a statistically significant mean Pearson *r* of .18 between associates and recidivism. The companions subcomponent yielded the strongest relationship with recidivism ($Mr = .19$), followed by criminal family ($Mr = .17$), and crime neighbourhood ($Mr = .12$). The 95% confidence interval for companions about Mz^+ further reinforces this finding, as it does not overlap with crime neighbourhood or criminal family.

Further analyses revealed that gender, age, risk level and methodological rigour did not influence the results.

Table 1

Mean Effect Sizes for Criminal Associates Predictor Domain

Predictor (k)	N	Mr (SD)	CI	Mz	CI
Companions (38)	16,118	.19 (.10)	.16–.20	.21*	.19–.22
Crime neighbourhood (6)	7,226	.12 (.08)	.03–.21	.15*	.12–.17
Criminal family (31)	16,332	.17 (.10)	.13–.21	.12*	.11–.14
Total (75)	39,676	.18 (.10)	.16–.20	.17*	.16–.18

Note: k = number of effect sizes per predictor domain; N = subjects per predictor domain; Mr = mean Pearson r; SD = standard deviation; Mz* = weighted version of Mr; CI = confidence interval
* p < .05.

Assessment protocols

In addition to the LSI-R and the CNIA, the review located five other measurement instruments that assessed the criminal associates predictor domain. Each measure contained items that may prove useful for the upcoming revisions of the CNIA. These are the Criminal Socialization and Lifestyle Questionnaire (CSL),[10] the Social Network Rating Scheme (SNRS),[11] the Differential Association Questionnaire,[12] the Exposure to Family and Peer Deviance Indices,[13] and the Index of Social Contacts.[14]

Discussion

The results of this investigation confirm that the associates and social interaction domain, particularly the companions subcomponent, is one of the most powerful predictors of recidivism. The ability of companions in predicting recidivism for female and Aboriginal samples is problematic. Some argue that many of the predictors of adult female and male recidivism are similar,[15] despite the paucity of evidence. Two studies have demonstrated that companions is equally predictive of recidivism for both Aboriginal and non-Aboriginal offender groups.[16]

We made a somewhat controversial decision by including crime neighbourhood and criminal family as part of the criminal associates predictor domain, and we admit that crime neighbourhood is a weak approximation of the criminal associates construct. This category included only six effect sizes and the mean weighted effect size was heavily skewed by one study with a large sample that measured "area of socialization: inner city versus rural."

The other category, criminal family, is usually classified as a "family" domain predictor. Nevertheless, association with parents and siblings who are criminals is a form of social interaction with criminals with potentially long-lasting effects. The magnitude of this predictor variable was similar to that of companions in the case of the unweighted r only.

Recommendations

Besides improving the knowledge base of the criminal associates predictor domain, a major purpose of this study was to make recommendations for revising the CNIA. The CNIA has 11 items in its associates and social domain with two principal components: attachments and interpersonal relations. The meta-analytic database in this study was small and the range of items within each category was limited. Therefore, some of the following recommendations reflect speculative clinical wisdom.

As there is strong empirical validity for the companions predictor category, the existing items in the attachments category should continue to be used. It is debatable whether seven items are necessary. For example, the LSI-R companions section has only four items that 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 are particularly intriguing. The SNRS should, at the very least, be piloted in the system. This could produce adequate predictive validities.

> **As there is strong empirical validity for the companions predictor category, the existing items in the attachments category should continue to be used.**

Another possibility for the attachment section of the CNIA would be to assess changes in an offender's socialization patterns while in the community. If the information is available, an additional question on prison socialization patterns before release on parole would also be useful.

Whether a few criminal family items should be in the CNIA associates and social interaction domain is questionable. There is already one item of this nature in the marital and family domain. Also, the way the item was asked in this meta-analysis was far in the offender's past, thus, out of place in the associates/social domain where all of its items reflect the present. The question could be asked in the present tense and should also focus on family offence rates and depth of illegal involvement.

If a question pertaining to crime neighbourhoods is included, it might be phrased in terms of the offender's perception of crime problems in the area.

We believe that the four items in the interpersonal relations principal component of the CNIA are problematic. This meta-analysis did not find any predictor items that covered the four items. They may well belong in the personal domain group or perhaps interpersonal relations should become a domain in itself.

Despite these limitations, this meta-analysis confirms that the attachment component of the associates and social domain is a very important part of the CNIA. ■

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Case need domain: "Substance abuse"

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This article presents the findings of a meta-analytic review of substance abuse factors and criminal recidivism. We examined 45 studies that produced 116 effect sizes with recidivism. Overall, the meta-analysis generated a weighted mean effect size of .10. The predictor category of combined alcohol and/or drug problem yielded the highest mean effect size, followed by the predictor categories of drug abuse problem, parental substance abuse and alcohol abuse problem. Based on this review, we provide recommendations for streamlining the substance abuse domain of the Case Needs Identification and Analysis (CNIA) component of the Offender Intake Assessment (OIA) process

American and Canadian survey findings show that approximately 70% of incarcerated offenders have substance abuse problems. Further, more than 50% of offenders have acknowledged a link between substance use and their most recent offence.[2] A meta-analysis involving 60 effect sizes reported a moderate correlation between a recent history of alcohol or drug abuse and recidivism (average $r = .14$).[3] Clearly, the inclusion of substance abuse in the Service's needs assessment protocol, the CNIA, is justified.

The Service's Task Force on Reintegration recently recommended that "the design and application of the CNIA instrument be reviewed to ensure it identifies and prioritizes only those offender needs related to criminal behaviour."[4] As a result, this article examines the relationship between the substance abuse domain of the CNIA and adult criminal recidivism (see "The Case Needs Review Project: Background and research strategy" in this volume for a description of the CNIA and its various domains).

Methodology

The relationship between substance abuse and the ability to predict recidivism was evaluated

> **The predictor category of combined alcohol and/or drug problem yielded the highest mean effect size, followed by the predictor categories of drug abuse problem, parental substance abuse and alcohol abuse problem.**

through a quantitative meta-analysis. A meta-analysis is a statistical technique that aggregates the findings of several studies. The results of each study are converted into a common statistic known as an effect size (e.g., a Pearson r correlation coefficient). Although both a weighted and an unweighted effect size can be used, the weighted effect size is considered more accurate since the size of the correlation is adjusted according to sample size. Studies used in the 1996 meta-analysis of the predictors of criminal recidivism[5] were considered for this meta-analysis.

A search for additional studies published between January 1994 and December 1997 was conducted using two computerized databases: PsycLIT and the National Criminal Justice Reference Service. The key search terms included prediction, recidivism, crime, criminal behaviour, substance abuse, drug abuse and alcohol abuse. The search identified more than 200 studies that we considered for inclusion.

Studies were selected using the following criteria:

- substance abuse factors were assessed before recidivism;

- sufficient statistical information was provided for effect size calculations;

- offender samples were used; and

- offenders had not received substance abuse treatment. We included this criterion to ensure that treatment effects would not influence the relationship between a given substance abuse risk factor and recidivism.

If multiple follow-up periods were reported, data from the longest interval were used. Recidivism included technical violations of conditional release, arrests, charges, convictions and reincarceration. If several outcome criteria

were reported in a particular study, the correlation corresponding to the most serious type of recidivism was used.

Results

Study descriptives. In this meta-analysis, 45 studies produced 116 effect sizes with recidivism. Most effect sizes came from predominantly adult samples (85%), primarily male offenders (65%). Further, 55% of the effect sizes were based on Canadian samples and were published in peer review journals or scholarly books. Lastly, almost 60% of the effect sizes were based on follow-up periods of two years or more.

Assessment methodologies. Almost 25% of the effect sizes were based on a combination of assessment techniques, including file review, offender self-reports and interviews. However, the most popular assessment technique used in isolation was the file review (66%). Further, approximately 15% of effect sizes were derived from risk and need assessment protocols such as the Level of Supervision Inventory (LSI),[6] the Level of Service Inventory—Revised (LSI-R),[7] the Community Risk Needs Management Scale,[8] or the community version of the CNIA.[9] Interestingly, almost 85% of the effect sizes came from dichotomous predictor variables.

Meta-analytic findings. Table 1 displays the meta-analytic findings. Overall, the meta-analysis generated a statistically significant weighted mean effect size of .10 between substance abuse and recidivism. Although the mean effect sizes for each individual predictor category were significantly different from zero, the combined alcohol and drug problem predictor category yielded the highest weighted mean effect size ($Mz^+ = .22$), followed by drug abuse problem ($Mz^+ = .19$), parental substance abuse ($Mz^+ = .13$) and alcohol abuse problem ($Mz^+ = .12$).

The substance abuse domain of the CNIA is composed of 29 yes-and-no indicators. The indicators are grouped according to one of three principal components: alcohol abuse, drug abuse or interventions. The alcohol and drug

> **Overall, the meta-analysis generated a statistically significant weighted mean effect size of .10 between substance abuse and recidivism.**

abuse components are further broken down into three subcomponents — pattern, situations or interference — while the interventions principal component consists of one subcomponent, called history. An attempt was made to organize the meta-analytic findings around the principal components, subcomponents and indicators of the CNIA's substance abuse domain. Unfortunately, this strategy proved difficult. As Table 2 demonstrates, effect sizes were available for only eight indicators. However, most of the mean effect sizes for each individual predictor category were significantly different from zero. It should be noted that "early-age drinking" yielded the highest mean effect size ($Mz^+ = .27$), with corresponding confidence intervals that did not overlap with any of the other predictor categories.

Additional statistical analyses examined whether the results were influenced by variables such as age, gender, risk level and whether the study was published. No significant relationship was found between these variables and the observed effect sizes.

Conclusions and recommendations

Overall, the findings of this meta-analysis support the inclusion of the substance abuse domain in the CNIA. Moderate support was found for the alcohol and drug abuse principal components, the alcohol and drug pattern subcomponents, and the drug and alcohol interference subcomponents. However, we did not locate any studies that examined the situations subcomponents. Among the indicators, "abuses drugs," "early-age drinking," and "drug use has resulted in law violations" rendered strong support, while "abuses alcohol," and "drinking has resulted in law violations" showed moderate support. Further, weak support was found for "history of drinking binges," "early drug use," and "has gone on drug-taking sprees." However, these results should be interpreted cautiously because of the small number of effect sizes. We were unable to locate any predictive studies that examined the remaining indicators. Lastly, we chose to exclude the interventions principal component from the review for reasons already noted.

Table 1

Unweighted (Mr) and Weighted Mean Effect Sizes (Mz⁺) for Substance Abuse Predictor Categories

Predictor (k)	N	Mr	Mz⁺ᵃ	CI
Alcohol abuse problem (36)	23,922	.11	.12*	.11–.13
Drug abuse problem (38)	25,409	.18	.19*	.18–.20
Alcohol and/or drug problem (11)	3,214	.22	.22*	.19–.26
Substance abuse related to past/current charge (19)	28,600	-.03	-.02	-.03– -.01
Parents were substance abusers (12)	3,433	.13	.13*	.09–.16
Total (116)	84,578	.12	.10*	.09–.10

Note. *p < .01; k = number of effect sizes per predictor; N = number of subjects per predictor; Mr = unweighted mean effect size; Mz⁺ = weighted mean effect size; CI = confidence intervals about Mz⁺.
ᵃ Mz⁺ values are weighted according to sample size.

Table 2

Unweighted (Mr) and Weighted Mean Effect Sizes (Mz+) for the Principal Components, Subcomponents and Indicators of the CNIA Substance Abuse Domain

Predictor (k)	N	Mr	Mz⁺ᵃ	CI
Principal component: Alcohol abuse (36)	23,922	.11	.12*	.11–.13
Subcomponent: Pattern (28)	22,121	.11	.12*	.11–.14
Abuses alcohol (25)	21,231	.10	.12*	.11–.14
Early-age drinking (2)	380	.26	.27	…ᵇ
History of drinking binges (1)	510	.01	.01	…
Subcomponent: Interference with daily living (8)	1,801	.11	.10*	.06–.15
Drinking has resulted in law violations (7)	1,197	.12	.13*	.08–.19
Principal component: Drug abuse (38)	25,409	.18	.19*	.18–.20
Subcomponent: Pattern (33)	24,039	.17	.19*	.18–.20
Abuses drugs (28)	20,364	.18	.21*	.19–.22
Early drug use (1)	802	.09	.09	…
Has gone on drug-taking sprees (3)	2,681	.09	.18*	.04–.12
Subcomponent: Interference with daily living (5)	1,370	.19	.18*	.13–.23
Drug use has resulted in law violations (4)	766	.22	.24*	.17–.31

Note *p < .01; k = number of effect sizes per predictor; N = number of subjects per predictor; Mr = unweighted mean effect size; Mz⁺ = weighted mean effect size; CI = confidence intervals about Mz⁺.
ᵃ Mz⁺ values are weighted according to sample size.
ᵇsignificance testing and confidence intervals could not be reliably calculated when k < 3.

There are several possible strategies for streamlining the substance abuse domain. First, as noted by other reviewers of the CNIA, it is questionable whether 29 indicators are necessary when similar protocols based on fewer items produce equally impressive results.[10] Therefore, the removal of empirically weak indicators and the combining of highly similar items should be considered. As well,

including detailed instructions with each indicator might be beneficial. These instructions should be clearly defined and have concrete scoring guidelines to guarantee consistent ratings. Regardless, the substance abuse domain of the CNIA and its various components have demonstrated a moderate to strong relationship with criminal recidivism. ∎

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Case need domain: "Substance abuse assessment review"

by *Fred Boland, Kathy Henderson* and *Jan Baker*[1]
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About two thirds of offenders experience substance abuse problems to some degree. This high prevalence, along with data from large surveys and police reports of substance involvement at the time of arrest, indicate a strong association between substance abuse and crime. Accurate assessment that leads to appropriate treatment is therefore paramount if offenders are to be safely reintegrated into the community. This article highlights key findings from an extensive review[2] that examined the prevalence of substance abuse among offender populations as well as the various measures that have evolved for substance abuse assessment in offender and non-offender populations. We also offer recommendations for enhancing the substance abuse domain of the Case Needs Identification and Analysis (CNIA) instrument currently used by the Correctional Service of Canada.

Research has consistently concluded that alcohol problems, drug problems and a mixture of the two are associated with crime.[3] Further, incarcerated substance abusers are a heterogeneous group and differ in many ways. Assessment makes it possible to identify an offender's particular needs, match them with appropriate treatment and manage risk when the offender is released. In addition, thorough assessment allows the creation of a database of substance-related information that is useful for research and planning purposes. This article therefore briefly considers the prevalence of substance abuse among federally sentenced offenders in the Correctional Service of Canada. It then highlights key findings from an extensive report[4] that reviewed various substance abuse assessment measures developed for use in offender and non-offender populations, and recommends ways to improve the substance abuse domain of the CNIA.

Prevalence of substance abuse

It is now much easier to establish the prevalence of substance abuse problems among Canadian federal offenders, thanks to the database created by the routine screening of new admissions using the Computerized Lifestyle Assessment Instrument (CLAI).[5]

The CLAI is a self-report, multidimensional assessment tool that includes the Alcohol Dependence Scale (ADS),[6] the Drug Abuse Screening Test (DAST)[7] and a series of additional substance abuse indicators. According to information obtained from the CLAI, approximately two thirds of federally incarcerated male offenders report some degree of alcohol or drug abuse problem.[8] Although samples are much smaller, indications are that female offenders are less likely to report alcohol problems (28%) but more likely than male offenders to report drug problems (65% versus 48%).[9] Similarly, Aboriginal offenders are twice as likely to report severe alcohol abuse problems than are their non-Aboriginal counterparts. Finally, Aboriginal and non-Aboriginal offenders report similar rates of severe drug abuse problems.[10]

Review of assessment measures

It has been noted that "there are literally hundreds of published instruments for use in assessing alcohol problems."[11] The list grows even longer when other substances are included. Not surprisingly, our review reflected this breadth and quantity. We located various assessment measures ranging from one-minute, self-report screening instruments requiring minimal expertise to highly involved, structured interviews and comprehensive assessment batteries requiring considerable time and expertise to complete, administer and interpret. Among these instruments, more than 60 individual measurement of substance abuse contained adequate information for evaluative purposes. Highlights from this review are presented below.

Assessment review highlights

- There are several substance abuse assessment approaches. Among them are self-report questionnaires, observer reports based on behaviour ratings, combined self

and observer reports, face-to-face structured, semi-structured or open-ended interviews administered by clinical or non-clinical staff, computer-administered protocols, and laboratory tests that tap biological markers of current and chronic use of certain substances.

- The greatest source of debate about optimal information-gathering techniques seems to concern the validity of self-report data. Frequently, the questioning of the integrity and validity of self-report data is pitted against the limited information accessible through an observer report and the limited or questionable sensitivity and time-frame constraints of biological markers. We agree with the conclusion[12] that, in most circumstances, self-reports tend to be fairly accurate and are therefore a useful and valid source of information. However, in circumstances where under- or over-reporting is suspected, the use of collateral sources is recommended to support self-report data.

- Substance abuse measures can be classified according to one of five functional dimensions. First are those that simply screen for the presence or absence of a problem. Second are measures that elaborate on the nature and severity of the problem. Third are specific instruments that not only help establish treatment and relapse prevention targets but also assess changes associated with treatment. Fourth are comprehensive batteries of tests that serve multiple functions including screening, problem severity assessment, multiple need identification, treatment planning and research database construction. Last are laboratory assessments, which are mainly used to screen for biological signs of current and chronic use of certain substances.

- There are several brief and reasonably sensitive screening instruments. However, since all admissions to federal prisons are assessed by the more comprehensive CLAI, the use of such a screening instrument would be redundant.

- There are several measures for assessing the severity of substance abuse problems that show strong reliability and validity. However, our review showed that the reliability, validity and other qualities of

the ADS and DAST, currently used by the Service as part of the CLAI, are as good as or better than any comparable instrument available.

- Although there are several excellent comprehensive assessment batteries currently available, the CLAI is possibly the most comprehensive. Further, we can find no compelling reason to suggest the use of any other comprehensive battery in its place. Nevertheless, one shortcoming is that the CLAI does not screen for neurological deficits. This is particularly problematic given that substance abusers, especially those with severe alcohol problems, commonly have neurological deficits that can interfere with treatment response.

- Several instruments assess specific treatment and relapse prevention targets. These instruments tap a range of content areas, including the identification of high-risk situations, cravings for drugs or alcohol, the offender's expectations of negative consequences associated with immediate alcohol or drug consumption, the offender's confidence associated with maintaining abstinence in high-risk situations, and treatment readiness and motivation. Although prominent substance abuse programs of the Correctional Service of Canada have adopted some of these measures, additional measures boasting excellent psychometric properties should also be considered for inclusion.

- Some laboratory assessments measure biological indicators of recent use (e.g., breath alcohol tests, saliva testing or urinalysis) and long-term substance abuse (e.g., liver functioning). Currently, laboratory tests are of fairly limited utility in determining the severity of a problem or in assessing treatment targets, particularly among incarcerated populations, although some assessments, particularly those designed to measure recent use, are helpful in monitoring abstinence compliance.

The CNIA substance abuse domain

The substance abuse domain of the CNIA comprises three principal components: alcohol abuse, drug abuse and interventions. The alcohol and drug abuse components are further

divided into three subcomponents: pattern, situations and interference. The interventions component comprises only one subcomponent: history. Finally, 29 individual yes-and-no indicators are associated with the various subcomponents.

Our review revealed that the substance abuse domain of the CNIA covers all the essential areas required to ensure that an existing problem is spotted and offers some indication of problem severity. Nevertheless, how those content areas are measured and defined could be enhanced. One strategy for improvement might be to reduce the level of subjectivity associated with the scoring of certain indicators. Highly specific indicators could be used to build concrete definitions for more global indicators. For example, the global indicator "abuses alcohol" could be scored on the basis of information derived from the remaining highly specific alcohol abuse indicators such as "drinks on a regular basis," "history of drinking binges" and "combines the use of alcohol and drugs." Moreover, indicators that are typically considered specific treatment and relapse prevention targets (e.g., situational factors) could be deleted from this assessment, given that they are usually assessed much more thoroughly with participation in substance abuse programs. Finally, the

development of a strategy that routinely incorporates CLAI findings into the CNIA assessment of substance abuse indicators would likely improve detection of problems and better estimate their severity. This would undoubtedly enhance the practical utility of the substance abuse domain.

Conclusion

Substance abuse is a significant problem among federally incarcerated offenders. Moreover, several highly reliable and well-validated instruments for measuring substance abuse are currently available. The use of the CLAI by the Correctional Service of Canada is commendable given that this battery of tests is one of the most comprehensive, reliable and valid assessment tools currently available. Although the CNIA requires some modification in terms of scoring and item restructuring, it addresses the major content areas deemed necessary to screen accurately for substance abuse and to assess the severity of the problem. Ultimately, the development of a strategy that integrates CLAI and CNIA information will yield an assessment approach that accurately and expediently identifies the existence of a substance abuse problem as well as the extent of that problem. ∎

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Case need domain: "Community functioning"

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This article presents the results of a quantitative meta-analysis that examined the predictive relationship between community functioning variables and adult recidivism. Twenty studies were identified that yielded 79 effect sizes. An overall weighted mean effect size of .10 was obtained. Leisure produced the strongest effect size, followed by finance, accommodation and support (use and/or knowledge of social services). Deportment (defined as self-presentation and hygiene) and health were not related to recidivism. Studies that examined communication difficulties and history of community intervention were not identified in the recidivism literature. Based on the meta-analytic results, suggestions are provided for enhancing the utility of the community functioning domain of the Case Needs Identification and Analysis (CNIA) instrument.

Over the last few decades there has been a strong focus on identifying risk factors related to criminal recidivism. Surprisingly, few predictive studies have focused on community-related variables such as accommodation, finance and the use of leisure time. Recently, the Correctional Service of Canada's Task Force on Reintegration recommended that "the design and application of the Case Needs Identification and Analysis (CNIA) instrument be reviewed to ensure it identifies and prioritizes only those offender needs related to criminal behaviour."[2] Consequently, this report will provide an overview of the predictive literature pertaining to the community functioning domain of the CNIA and adult criminal recidivism. A detailed description of the CNIA and its various domains is provided by Brown (this volume).

Methodology

A quantitative meta-analysis was performed that examined the predictive relationship between community functioning variables and adult recidivism. Briefly, a meta-analysis is a statistical technique that aggregates the findings of several individual studies. The results of each study are converted into a common measure, known as an effect size (e.g., a Pearson *r* correlation coefficient), to enable comparison. Although both weighted and unweighted effect sizes can be used, the weighted effect size is generally considered to be more accurate since it adjusts the size of the correlation based on the size of the sample.

An extensive search was conducted that spanned the adult recidivism literature from January 1974 to February 1998. The literature was identified by two computerized databases: PsycLIT and the National Criminal Justice Reference Service. Keyword search terms included the principal components, subcomponents and indicators outlined in the community functioning domain of the CNIA. They were searched in isolation and in combination with recidivism, conditional release and supervision revocation.

Only studies that met the following criteria were included:

- they explored the relationship between community functioning variables and adult recidivism;

- they contained sufficient statistical information for effect size calculation; and

- they measured the variable of interest before the offender recidivated.

These requirements narrowed the meta-analysis to 20 studies. Our definition of recidivism included arrests, charges, reincarcerations, reconvictions and technical violations. For studies reporting multiple outcome measures, the most serious type of recidivism was used. Also, in cases where multiple follow-up periods were reported, the longest interval was coded.

Some of the identified studies included community functioning variables not covered by the CNIA. As a result, the analyses covered two additional categories: living companions (comparing those living alone to those living with others) and childhood community functioning (accommodation stability during childhood and parental financial stability).

Results

Twenty studies were identified yielding 79 effect sizes. Canadian samples accounted for more than 80% of these effect sizes. More than 50% of effect sizes came from unpublished reports (e.g., government reports, thesis manuscripts) and male samples, and more than 70% of the reports had a follow-up period longer than six months.

Approximately half of the effect sizes were obtained using either dichotomous or multi-level rating scales. In addition, the Level of Supervision Inventory[3] or its revised version, the Level of Service Inventory — Revised [4] accounted for 25% of the effect sizes; the Community Risk Needs Management Scale[5] accounted for 7.5%; the community version of the CNIA[6] accounted for 7.5%; and the remaining 10% were either not reported or derived from other risk and need assessment protocols.

Table 1 presents the meta-analytic findings illustrating the relationship between community functioning variables and recidivism. Overall, a statistically significant weighted mean effect size of .10 was obtained. The majority of the predictor categories were significantly different from zero, with leisure producing the largest weighted mean effect size ($Mz^+ = .24$), followed by finance ($Mz^+ = .13$), accommodation ($Mz^+ = .11$) and support ($Mz^+ = .11$). However, the strength of the relationship between leisure and recidivism may have been inflated because of the large effect size of one particular study (see Table 2). As a result, the unweighted effect size ($Mr = .20$) may offer a more realistic estimate of this relationship. The remaining predictor categories of deportment, health, living companions and childhood

Table 1

Unweighted (*Mr*) and weighted mean effect sizes (*Mz·*) for community functioning predictor categories

Predictor category (*k*)	N	*Mr*	*Mz·*[a]	CI
Accommodation (23)	7,824	.19	.11***	.09–.13
Deportment (1)	573	.08	.08	…[b]
Health (7)	3,717	.05	.04	-.01–.07
Finance (18)	5,735	.19	.13***	.10–.16
Leisure (9)	2,743	.20	.24***	.21–.28
Support (7)	2,679	.12	.11**	.07–.15
Living companions (6)	3,913	.05	.03*	-.00–.06
Childhood community functioning (8)	6,311	.08	.09***	.06–.11
Total (79)	33,495	.15	.10***	.09–.11

Note: *p<.05, **p<.01, ***p<.001; k = number of effect sizes per category; N = number of subjects per category; Mr = unweighted mean effect size; Mz· = weighted mean effect size; CI = confidence intervals about Mz·.

[a] Effect sizes are weighted according to sample size.

[b] Confidence intervals could not be reliably calculated when k<3.

Table 2

Unweighted (*Mr*) and Weighted Mean Effect Sizes (*Mz·*) for Community Functioning Components and Indicators

Subcomponents and/or indicators (*k*)	N	*Mr*	*Mz·*[a]	CI
Stability – Has unstable accommodation (13)	3,892	.22	.16**	.13–.19
Self-presentation – Has poor self-presentation (1)	573	.08	.08	…[b]
Physical – Has physical problems (3)	1,118	.04	.04	-.02–.10
Budgeting (6)	1,753	.17	.16**	.11–.20
Has no hobbies (1)	573	.08	.08	…[b]
Organized activities – Does not participate in organized activities (1)	920	.35	.37**	…[b]
Social assistance (6)	2,595	.11	.11**	.07–.15
Unaware of social services (1)[c]	573	.07	.07	…[b]
Has used social services (4)[c]	1,512	.13	.13**	.08–.18

Note: Subcomponents are **bolded** and *italicized*.

*p<.05, **p<.01, ***p<.001; k = number of effect sizes per component/indicator; N = number of subjects per component/indicator; Mr = unweighted mean effect size; Mz· = weighted mean effect size; CI = confidence intervals about Mz·.

[a] Effect sizes are weighted according to sample size.

[b] Confidence intervals could not be reliably calculated when k<3.

community functioning all produced weighted mean effect sizes that were less than .10. Lastly, the principal components of communication and intervention (as defined by the CNIA) were not identified in the recidivism literature.

A more detailed meta-analysis was conducted on a reduced set of effect sizes (31) that directly paralleled existing subcomponents and indicators comprising the community functioning domain of the CNIA. As Table 2 illustrates, the strongest weighted mean effect size was obtained for the indicator 'does not participate in organized activities' ($Mz^+ = .37$), followed by the subcomponent 'budgeting' ($Mz^+ = .16$) and the indicator 'has unstable

accommodation' ($Mz^+ = .16$). The strong relationship between recidivism and 'does not participate in organized activities' is based on the results from only one study, however, and subsequently may be inflated. Self-presentation and physical health were not significantly related to recidivism.

A series of analyses were conducted on several potential moderator variables identified in the literature. This type of analysis is useful for determining whether observed effect sizes vary across different factors such as gender or study source (i.e., published versus unpublished). However, only study source emerged as a statistically significant moderator of effect size. More specifically, published articles ($Mr = .17$) produced a larger effect size than unpublished articles ($Mr = .11$). This finding is not surprising given that published articles are more likely to exclude nonsignificant results. Thus, the results do not reflect a publication bias given that more than half of the effect sizes came from unpublished reports.

Conclusions

The results of this meta-analysis demonstrate that many of the items outlined in the community functioning domain of the CNIA successfully identify offender needs related to criminal recidivism. There was moderate to strong empirical support for the principal components of accommodation, finance, support and leisure. However, only weak empirical support was obtained for the components of deportment and health. The principal components of communication and intervention (as defined by the CNIA) were not identified in the recidivism literature. Thus, we could not ascertain their relationship to criminal behavior.

The results of this meta-analysis point to a few modifications that may enhance the community functioning domain. First, it may be beneficial to consider removing any principal component that does not identify needs related to criminal

behaviour. Consequently, health and deportment would be removed. Arguably, these variables could be conceptualized as non criminogenic needs, that is, factors that require intervention but are not related to criminal recidivism. A focus on such variables, in an intervention capacity, may become increasingly important as our offender population continues to age. Further, the Service's legal mandate requires that we exercise 'humane control' in the course of sentence administration and management. Thus, perhaps we could situate such needs in an entirely different instrument or, alternatively, assess them collectively in a new need domain designation: 'non-criminogenic needs'.

Currently, the community functioning domain comprises 8 principal components, 17 subcomponents and 21 indicators. Thus, it may also be beneficial to streamline the subcomponents and indicators for the remaining principal components. First, it may be prudent to collapse across subcomponents that are conceptually similar, such as finance and support. Second, collapsing across the indicators associated with leisure, finance and accommodation might help to alleviate any unnecessary redundancy. Last, since the majority of indicators were not identified in the literature, it may be useful to use the remaining indicators to facilitate scoring of the instrument. These changes might serve to increase the clarity and practical utility of the instrument without sacrificing its predictive ability.

Despite the lack of empirical support for some of the individual components and indicators, the majority of the community functioning variables currently outlined in the CNIA obtained stronger empirical support than did other community functioning variables (i.e., living companions and childhood community functioning). Clearly, the CNIA instrument is tapping appropriate community functioning factors related to criminal behaviour and with further validation and field consultations, the practical utility of this dynamic instrument will continue to improve. ■

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Case need domain: "Personal and emotional orientation"

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This review examines the empirical literature that documents a link between personal and emotional need factors and criminal and recidivistic behaviour. We presented empirical evidence to support the continued use or the elimination of each of the principal components and subcomponents of the Case Needs Identification and Analysis (CNIA). Where empirical information was limited, we used theoretical judgments to recommend how the constructs should be used in the future. The empirical and theoretical literature supports the continued use of the cognition and behavioural principal components and the elimination of the self-concept, mental ability, mental health and intervention principal components. We provide some recommendations for a pared-down personal and emotional domain.

The personal and emotional domain of the Correctional Service of Canada's risk and needs assessment protocol, the CNIA, is a broad grouping of criminogenic needs that are believed to predict recidivism. Criminogenic needs are dynamic risk factors that help reduce recidivism when they are coupled with appropriate treatment. The indicators include a large number of items that attempt to assess cognitive deficiencies such as weak problem-solving skills and rigid thinking, behavioural problems such as impulsivity and a tendency to take risks, and other personal characteristics such as neuroticism and mental disorder.

In addition to examining the link between personal and emotional need factors and criminal recidivism, we will address two other issues. First, we will provide information that will help us to determine whether regrouping will improve assessment within the personal and emotional domain. Second, we will provide guidelines for grouping existing items.

> **The empirical and theoretical literature supports the continued use of the cognition and behavioural principal components and the elimination of the self-concept, mental ability, mental health and intervention principal components.**

Methodology

Initially, we used the PsycLIT bibliographic software to search for studies that have examined constructs in the domain. Keyword searches focused on variations of the wording of indicators. We narrowed the searches to studies that focused on samples that contained criminal populations, including adult and juvenile offender groups. We also cross-referenced to assemble relevant literature. Overall, we identified several hundred relevant references.

When we uncovered several studies with identical findings, we chose the most typical study for this review. We also eliminated a number of studies that were off topic, or that repeated findings found in other studies with better methodologies. This review represents our best judgment of the studies that provide the best information about the various personal and emotional need factors. Thus, when a number of studies were available, we generally featured recent, predictive studies with adult offenders that used a prospective design. However, evidence derived from juvenile samples was included if there was a paucity of research from adult-based samples.

The personal and emotional need domain consists of 7 principal components, 25 subcomponents and 46 indicators. To simplify the review process, we frequently combined subcomponents and indicators. In many cases the individual need indicators were too specific to furnish definitive information about the constructs. Our review of the studies led to our reassigning some indicators to alternative principal components or subcomponents. We argue that the ethnicity,

religion, family ties and gang membership indicators provide redundant information that could be better covered in other domains. Therefore, we have not included these subcomponents in the review.

Self-concept

This part of the review focused on the possibility of including the indicator physical prowess and self-esteem in the CNIA. While the concept of physical stature and criminality has garnered some interest,[2] recent references to it are rare. Therefore, the inclusion of an indicator such as physical prowess is problematic in the CNIA.

Offenders' self-esteem is frequently a target for intervention.[3] However, individual studies and narrative and quantitative reviews indicate that self-esteem is not a major predictor of post-release behaviour and may not be a good indicator either of risk or of criminogenic need.

Cognition

We organized our examination of the literature around the following constructs: impulsivity, problem-solving ability, interpersonal skills and empathy. Impulsivity serves as a broad category for many of the indicators included under the cognitive and behavioural domains. For this reason, we subsumed related subcomponents and indicators under the impulsivity rubric. These include "manages time poorly," "poor self-monitoring" and "lacks conscientiousness." The link between impulsivity and delinquency is not disputed in the delinquency literature.[4] A variety of studies based on adult samples have produced similar results.

Little research has been done on the link between general problem-solving skills and criminality among adult offenders. The majority of research is based on delinquent subsamples; few studies have examined the relationship between general problem-solving and recidivism. At the same time, evidence suggesting that general problem-solving skills should not be assessed as a criminogenic need is

> **Offenders' self-esteem is frequently a target for intervention. However, individual studies and narrative and quantitative reviews indicate that self-esteem is not a major predictor of post-release behaviour and may not be a good indicator either of risk or of criminogenic need.**

slim. That there is a link between criminal behaviour and problem-solving has high face validity as evidenced by the many interventions designed to increase problem-solving skills. In addition, the delinquency literature shows that an offender's level of problem-solving skills helps predict the likelihood of recidivism. In theory, problem-solving is also related to impulsivity. Although we need more data to assess the dynamic and predictive qualities of problem-solving skills in adult samples, this construct should remain an important component of the CNIA protocol.

There has been much development in the program area and considerable discussion along theoretical lines, but little research addresses the relationship between interpersonal skills and criminal behaviour, especially recidivism. However, given the weight of theoretical arguments linking interpersonal skill deficits and criminal behaviour and that the broader interpersonal conflict construct predicts recidivism,[5] we believe that interpersonal skills should continue to be assessed as a criminogenic need.

Lack of empathy has frequently been perceived as a major factor in the development of criminal behaviour and in the perpetration of certain types of crimes. In the adult offender studies, we found mixed evidence of a relationship between empathy and recidivism. Nevertheless, the theoretical arguments combined with the evidence supporting a relationship between empathy and recidivism are persuasive enough to lead us to recommend that empathy be retained. It may be necessary to develop some methods of measurement to assist those who must assess offender empathy.

Behavioural

Assertion, neuroticism, aggression, risk-taking, coping and sexual behaviour are some of the subcomponents included under the behavioural principal component. Some of the original subcomponents and indicators within

the behavioural domain have been reported in the cognitive subcomponent described above. Poor coping skills, which has been shown to be a major deficit area for offenders,[6] is included under problem-solving.

There is some evidence that offenders lack assertiveness. However, no studies show a link between assertiveness and criminal behaviour. While assertiveness in isolation may not be highly correlated with criminal offending or recidivism, a lack of assertiveness may promote recidivism when combined with other skill deficits. Therefore, until strong evidence regarding the lack of predictability of assertiveness becomes available, it appears that assertiveness should be retained as an indicator.

Neuroticism refers to a more pervasive personality trait that includes such features as ongoing anxiety and worry, as well as insecurity, nervousness and emotionality. Neither the literature about juveniles nor that which discusses adult offenders provides strong evidence that neuroticism should be regarded as a critical factor. Further, treatment of neuroticism does not seem to be related to recidivism. Consequently, it should be dropped from the personal and emotional domain.

We grouped the three constructs of aggression, anger and hostility because of their similarities and their like descriptions in the literature. While aggression appears as a separate construct in many studies, anger and hostility are frequently grouped together. In recent years the construct of anger has been used more frequently than hostility.

While more research on the relationship between anger management skills and post-release recidivism is required, the abundance of evidence regarding the differing levels of anger control between criminal and non-criminal populations suggests that anger management is an important construct. The inability to control anger may account for much of the violent crime committed by recidivist offenders, especially those who are prone to violent behaviour when angered. For this reason, we recommend that anger

indicators be included in the personal and emotional need domain. There is also ample evidence to suggest that offenders who have aggressive tendencies are at higher risk of committing crimes after being released than those who do not have these tendencies. The evidence also suggests that measures of aggression that are taken during incarceration help predict the likelihood of violent behaviour. Therefore, aggression should remain in the domain as a criminogenic need indicator.

A penchant for risk-taking refers to a preference for activities that involve risk or danger. Generally, the data suggest that risk-taking should be included in the domain. Although the evidence is limited, it seems likely that gambling is a criminogenic need and an indicator of risk-taking behaviour.

The majority of the research on the ability to predict criminal behaviour and recidivism based on sexual behaviour is limited to the study of sex offender populations. The data in a recent meta-analysis support the inclusion of deviant sexual preferences and deviant sexual attitudes as indicators of criminogenic need.[7] Given the nature of sex offending and the interest in sexual recidivism, sexual behaviour items that predict recidivism could be grouped as a separate domain. The Service's policy focus on sex offenders also justifies the use of a separate assessment domain.

Mental ability, mental health and interventions

The ability to predict delinquency, adult criminality and recidivism based on mental ability has frequently been controversial among researchers. It is unclear whether the knowledge of mental deficiency in an offender would help predict recidivism. As well, the evidence does not support the inclusion of mental deficiency as a criminogenic need within the personal and emotional need domain.

Offenders with mental disorders are often viewed as a dangerous subgroup that have a high rate of post-release recidivism, especially

> It is unclear whether the knowledge of mental deficiency in an offender would help predict recidivism.

violent recidivism. However, a recent meta-analysis[8] showed that offenders with mental disorders were less likely to commit general or violent crimes on release than other offenders. Therefore, mental health indicators should be eliminated from the domain.

Lastly, we argue that "interventions" should be excluded as indicators of criminogenic needs. These interventions, such as participation in programs, the taking of prescribed medications or undergoing an assessment in the personal and emotional need domain, are not reliable predictors of recidivism. While a history of intervention may help to predict the likelihood that some offenders will commit crimes again, in other cases the ability to predict recidivism based on interventions may be weakened. This would occur, for example, if interventions were prescribed for an offender who did not demonstrate high needs in the personal and emotional area or who had lowered the likelihood of recidivism by participating in interventions.

Conclusions and recommendations

There is a need for more literature that deals with personal and emotional need factors as predictors of recidivism, and particularly as dynamic predictors of recidivism. Within the existing literature there is sufficient evidence to recommend the elimination of some of the current principal components of the personal and emotional need domain. There is evidence in the literature to support reorganizing the principal components of the domain and streamlining them by simplifying and reducing the number of subcomponents. More work is also required to define subcomponents by

generating specific indicators that can be measured based on available case management sources.

We recommend a reorganization based on the following principles:

- a fit between need factors related to recidivism and existing categories of program delivery within the Service;
- a realignment of indicators from subcomponents that are no longer considered different from other subcomponents;
- greater conceptual distinctness between subcomponents;
- a reduction in overlap between principal components; and
- greater emphasis on dynamic need factors related to recidivism.

We believe that the personal and emotional need domain would be best represented by four principal components:

1. cognitive — problem-solving skills and thinking styles;

2. self-control — impulsivity and life planning deficits;

3. interpersonal — interpersonal problem-solving and empathy; and

4. aggression — aggressive tendencies and anger.

We also recommend that, to bolster the validity of the domain, more effort be devoted to refining existing indicators and generating additional indicators and corresponding scoring instructions. ∎

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Case need domain: "Attitude"

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This article presents the findings of a meta-analysis that examined the predictive potency of criminal and antisocial attitudes in 32 studies. The review is organized around the principal components, subcomponents and indicators that make up the attitudinal domain of the Case Needs Identification and Analysis (CNIA). The meta-analysis yielded 112 correlations with recidivism/ misconducts. Overall, the meta-analysis indicated that the justice, violence and lifestyle components of the CNIA are moderately related to recidivism. In contrast, the society component was only weakly related to recidivism. The predictive power of the property component could not be ascertained given that no studies examined its relationship to future criminal behaviour. Although the strongest CNIA indicator was non-conforming attitudes, the weakest CNIA indicators were attitudes toward employment and school, marital and family, interpersonal relations, and personal and emotional stability. Interestingly, the review identified neutralizations — denial and minimization techniques employed by offenders to minimize the severity and nature of their offending — an established construct in the literature but not identified in the CNIA, as a significant predictor.

Definition and constructs

A single definition of an attitude is somewhat elusive as definitions have shifted and redefined themselves throughout the decades. However, the following definition has stood the test of time: "an attitude is a relatively stable pattern of beliefs, feelings and behaviour tendencies toward some object."[2] Moreover, attitudes are learned, malleable entities that directly influence behaviour. These hypotheses have been well corroborated in the published literature across several disciplines.

The importance of attitudes in offender rehabilitation was first recognized almost a century ago. Since then, at least 168 studies, including a recent meta-analytic review,

> **Overall, the meta-analysis indicated that the justice, violence and lifestyle components of the CNIA are moderately related to recidivism.**

confirm the ability of attitudes to predict criminal behaviour for both institutional and community adjustment.[3] Attitudes are also productive targets for intervention, with changes in values and beliefs resulting in marked changes in behaviour.[4]

In general, attitudinal constructs, both pro-social and antisocial, have not been used consistently in criminal behaviour prediction literature (n = 168) compared with the measurement of personality factors (n = 621) and psychological distress (n = 226). Yet antisocial attitudes demonstrate a stronger relationship with criminal behaviour (r = .22) than either of the aforementioned variables (r = .21 and r = .08 respectively).[5]

Despite the relative empirical disinterest, the construct of criminal attitudes is strongly rooted in several prominent theories of criminal conduct that have emerged during the last 60 years. Even the various criminological theories that compete or even directly contradict one another, such as Freud's psychodynamic approach emphasizing innate mechanisms such as the id and Sutherland's differential association theory that emphasizes social learning, all agree on the utility of measuring antisocial attitudes, values and beliefs.

Overview

In 1990, the Correctional Strategy incorporated multi-method and multi-predictor assessment techniques and systematic reassessments into the rehabilitation regime. The Strategy established, among other things, the primacy of offenders' criminogenic needs in directing offender programming to ensure maximal post-release adjustment. In 1994, the Offender

Intake Assessment (OIA) process was implemented across the Correctional Service of Canada. This process yields a comprehensive and systematic evaluation of each offender on admission to federal custody. Moreover, the OIA provides a baseline evaluation for routine reassessments during rehabilitation, and directs treatment and services during incarceration.

This meta-analysis provides a comprehensive overview of the literature on the relationship between the CNIA attitudinal indicators and criminal behaviour. The review will also identify those attitudes currently not assessed by the CNIA but that are present in the literature.

Methodology

The predictive efficiency of the CNIA attitudinal indicators was evaluated by a quantitative meta-analysis involving 32 of 645 studies originally identified as potentially relevant. A meta-analysis is a statistical technique that allows researchers to objectively aggregate the magnitude of a relationship between two variables across numerous studies in the form of an effect size (e.g., a Pearson r correlation coefficient). In the present meta-analysis, 32 studies produced 112 effect sizes with recidivism. Recidivism was broadly defined to include prison misconducts, conditional release technical violations, arrests, charges and reconvictions. These studies were restricted to those that used a longitudinal research design with a specified follow-up duration, provided sufficient statistical information necessary for the meta-analytic calculations and used offender samples. Further, an average inter-rater reliability estimate of .92, whereby all the studies were coded by two individuals and 92% of the time they interpreted and coded the study exactly the same, demonstrated an acceptable level of coding reliability.

> **Although the strongest CNIA indicator was non-conforming attitudes, the weakest CNIA indicators were attitudes toward employment and school, marital and family, interpersonal relations, and personal and emotional stability.**

A qualitative evaluation was also conducted. This component provided a narrative summary of psychometric and post-dictive classification studies that were not predictive. These studies were reviewed in light of possible future contributions to the attitude domain of the CNIA.

Key findings

The meta-analysis revealed several descriptive findings. First, 84% of the effect sizes were based exclusively on male offenders. Second, 60% of the studies were conducted in Canada with 64% of these coming from federal institutions. Third, the most commonly adopted assessment approach was the pencil-and-paper self-report questionnaire format (62%). Information pertaining to age (59%), employment status (90%), education level (78%), ethnic origin (72%) or marital status (90%) was often not reported.

The meta-analysis left little doubt that attitudes in general are potent predictors of future behaviour of offenders. The weighted and unweighted mean effect sizes for each principal component, subcomponent and indicator are displayed in Table 1. Weighted effect sizes were calculated to account for magnitudinal differences accorded by the sample size of the study. Overall, the justice, violence and lifestyle components of the CNIA were moderately related to recidivism with weighted mean effect sizes ranging between .12 and .17. In contrast, the society component was only weakly related to recidivism (weighted mean effect size = .06). The predictive power of the property component could not be ascertained given that no studies were found that examined its relationship to future criminal behaviour. Although the strongest CNIA indicator was non-conforming attitudes (weighted mean effect size = .21), the weakest CNIA indicators

Table 1

Meta-analytic Results: Weighted (*Mz⁺*) and unweighted (*Mr*) Mean Pearson *r* Correlation Coefficients with Corresponding Confidence Intervals by Predictor

Predictor (*k*)	N	*Mr*	CI	*Mz⁺*	CI
Justice (35)	4,873	.18	.12–.22	.12*	.09–.15
Laws– Negative toward law (17)	3,472	.18	.16–.25	.12*	.09–.15
Enforcement – Negative toward police (4)	706	.18	...ᵃ	.17	...
Judicial system – Negative toward courts (2)	464	.14	...	.11	...
Corrections (12)	2,099	.16	.05–.22	.10*	.06–.14
Negative toward corrections (10)	2,210	.14	.05–.22	.10*	.06–.14
Negative toward community supervision (0)	0	–	–	–	–
Negative toward rehabilitation (3)	524	.27	...	.13	...
Society (32)	11,780	.15	.09–.20	.06*	.04–.08
Convention (30)	11,123	.15	.09–.21	.06*	.04–.08
Employment/educationᵇ has no value (3)	1,793	.07	...	.02	...
Marital/family relations have no value (4)	1,579	.25	...	.06	...
Interpersonal relations have no value (16)	10,706	.13	.06–.20	.05*	.03–.07
Values substance abuse (0)	0	–	–	–	–
Basic life skills have no value (2)	418	.24	...	.11	...
Personal/emotional stability has no value (3)	360	.03	...	.04	...
Elderly – Elderly have no value (0)	0	–	–	–	–
Women/men – Women/men roles are unequal (2)	685	.19	...	.17	...
Minorities (ethnic/religion/disabled) (1)	573	.12	...	.12	...
Property (0)	0	–	–	–	–
Personal – Disrespectful of personal belongings (0)	0	–	–	–	–
Communal – Disrespectful of public property (0)	0	–	–	–	–
Commercial – Disrespectful of commercial property (0)	0	–	–	–	–
Violence (6)	1,025	.15	.04–.26	.17*	.11–.23
Domestic – Supportive of domestic violence (0)	0	–	–	–	–
Instrumental – Supportive of instrumental violence (6)	1,025	.15	.04–.26	.17*	.11–.23
Lifestyle (39)	7,394	.16	.13–.19	.16*	.14–.18
Goal directed – Lacks direction (7)	3,585	.12	.05–.20	.10*	.07–.13
Conforming – Non-conforming (27)	5,001	.20	.15–.25	.21*	.18–.23
Neutralizationsᶜ (5)	1,012	.14	...	.10	...

*Note: *p < .05; k = number of effect sizes per indicator/component; N = number of subjects per indicator/component; Mz⁺ = weighted mean Pearson r; Mr = unweighted mean Pearson r.*
ᵃ*Significance testing and confidence intervals could not be reliably calculated when k < 5.*
ᵇ*Although education is not part of this indicator, it was included given that the literature examined it simultaneously with employment.*
ᶜ*Neutralizations are not part of the original CNIA indicators but were included because of demonstrated empirical support.*

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(weighted mean effect sizes < .10) were attitudes toward employment and school, marital and family, interpersonal relations, and personal and emotional stability. There was a moderate relationship between neutralizations and recidivism.

Further analyses revealed that there were no statistically significant differences between the ability of attitudes to predict community versus institutional adjustment. As well, predictive potency did not differ between assessment methods employing a single indicator versus those using multiple indicators simultaneously. However, the results did approach statistical significance in favour of the multiple indicator approach.

Conclusion

The review uncovered an extensive and comprehensive literature base involving attitude assessments with offenders. However, this research lacked the convincing longitudinal predictive studies that definitively substantiate the hopeful claims of preliminary psychometric, correlational and cross-sectional studies.

Further much of the research did not examine several CNIA indicators. For instance, not a single study could be located that addressed the aspects of attitudes toward substance abuse, the elderly, disrespect toward any type of property, or intolerance of disabled persons

> The obvious strength of the CNIA attitude domain lies in its multi-dimensional nature spanning a broad spectrum of values and beliefs.

or other cultures. Despite this, 112 predictive effect sizes tapping specific CNIA attitudinal indicators were located with a large majority demonstrating modest predictive capability. In sum, there is empirical support for the presence of the attitude domain in the CNIA.

The obvious strength of the CNIA attitude domain lies in its multi-dimensional nature spanning a broad spectrum of values and beliefs. However, given scarce resources and demanding time pressures, it may be most profitable to consider focusing on those attitudes that have produced at least moderate correlations with recidivism. Another potential amendment to the CNIA process would be to incorporate measures examining changes in attitudes as an offender progresses through the system. Attitudes are dynamic in nature and may easily provide a natural pocket of greater predictive potency if resources were focused on pertinent changes. Moreover, one might consider adding additional indicators that tap neutralization techniques such as denial of victim injury and denial of responsibility. Lastly, promising new attitudinal concepts such as those contained in the Criminal Self-efficacy Scale[6] and the Violence Belief Survey[7] could potentially merit inclusion in the CNIA protocol. However, such amendments require exploration during field consultations. ∎

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Dynamic factors and recidivism: What have we learned from the Case Needs Review Project?

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In response to the Task Force Report on Offender Reintegration, the Research Branch of the Correctional Service of Canada conducted a review of the Case Needs Identification and Analysis (CNIA) component of the Offender Intake Assessment (OIA) process. The CNIA protocol appraises offender needs on admission to the federal correctional system. The review consisted of a series of narrative and meta-analytic reviews as well as an outcome study that examined the CNIA's ability to predict return to prison. Collectively, this project confirmed the overall relationship between the CNIA and criminal behaviour. Each of the seven case need domains (i.e., employment, marital/family, associates and social interaction, substance abuse, community functioning, personal and emotional, and attitudes) was moderately related to recidivism. While the components of most CNIA domains were found to be moderately related to recidivism, strong predictors were criminal companions, non-conforming criminal attitudes, inadequate use of leisure time, and substance abuse problem(s). Examples of weak predictors were: learning disabilities, physical problems that interfere with work, parenting skills, social isolation, communication difficulties, personal hygiene, physical health, neuroticism, mental disorder, and intolerance of other religions, disabled persons or the elderly. The reviews led to recommendations for streamlining and improving the CNIA. This article summarizes the main findings and recommendations from the CNIA review project

Background

In 1996, the Service assembled a Task Force on Offender Reintegration with a mandate to identify key problem areas and provide concrete suggestions for enhancing the safe reintegration of offenders into the community. One of the recommendations central to this paper is "that the design and application of the CNIA instrument be reviewed to ensure it identifies and prioritizes only those offender needs related to criminal behaviour."[2] In response, the Research Branch conducted a three-tiered initiative: a predictive outcome study of the CNIA; several independent literature reviews of the CNIA; and a series of field consultations. This article integrates the findings and recommendations from the literature reviews and the CNIA predictive outcome study.

> While the components of most CNIA domains were found to be moderately related to recidivism, strong predictors were criminal companions, non-conforming criminal attitudes, inadequate use of leisure time, and substance abuse problem(s).

What is the CNIA instrument?

The CNIA protocol is the Service's primary assessment instrument that appraises offender needs on admission to the federal correctional system.[3] Its main function is to identify and prioritize criminogenic needs, which helps establish a treatment or correctional plan for each offender. Criminogenic needs are dynamic factors that when appropriately treated are associated with reductions in recidivism.

The CNIA comprises seven need domains, including employment, marital/family, associates, substance abuse, community functioning, personal/emotional and attitudes. Each need domain is broken down into principal components, which are divided into subcomponents. Lastly, each subcomponent comprises a series of yes/no indicators (199 in total). Based on the yes/no indicators, each need domain is rated on a four-point scale ranging from "factor seen as an asset to community adjustment" to "considerable need for improvement." For more information, see the article "The Case Needs Review Project: Background and research strategy" in this volume.

What we have learned from the CNIA literature reviews?

Recognized experts conducted independent reviews of each case need domain (for more information, please consult the original articles in this volume). Each review addressed assessment-related issues, examined the relationship between a given need domain and criminal recidivism, and proposed recommendations for enhancing the CNIA. The reviews involved either a qualitative narrative review, a quantitative meta-analysis or a combination of both.

Briefly, a narrative review involves a qualitative examination of a given area, whereby a reviewer reads all relevant literature and summarizes it based on the reviewer's subjective interpretation. In contrast, a meta-analysis is a statistical technique that allows researchers to objectively aggregate the size of a relationship between two or more variables (e.g., criminal associates and recidivism) across numerous studies in the form of an effect size such as the Pearson r correlation coefficient. Effect sizes can also be weighted to account for variations in sample size across individual effect sizes. Thus, effect sizes derived from studies based on large samples of offenders can be given more weight compared with effect sizes based on smaller samples of offenders. Typically, the weighted effect size yields a more accurate estimate.

Meta-analytic findings were available for all case need domains except for the personal/emotional domain. Table 1 summarizes the meta-analyses and can be interpreted as

follows. Reading from the left of row 1, the employment meta-analysis was based on 67 studies involving 114,032 offenders that generated 200 separate effect sizes. Overall, the average unweighted effect size or correlation between the employment domain and general recidivism was .13. The strength of this relationship did not change when the effect size was weighted or adjusted for sample size variations.

Table 1

Summary of Meta-analytic Findings from the Case Needs Review Project

Case need domain	Number of studies	Number of offenders	Number of effect sizes	Average unweighted effect size	Average effect size weighted
Employment	67	114,032	200	.13	.12
Marital/family[a]	Not available	88,652	132	.14	Not available
Associates/social interaction	35	39,676	75	.18	.17
Substance abuse	45	84,578	116	.12	.10
Community functioning	20	33,614	80	.15	.10
Personal/emotional[b]	1	3,380	1	.11	Not available
Attitudes	32	47,335	112	.16	.11

[a] The marital/family results are based on the combined findings of two separate meta-analyses: C. Dowden and S. Brown, A Meta-analytic Examination of Marital and Family Risk Predictors of General Recidivism, raw data (in progress); and P. Gendreau, T. Little and C. Goggin, "A meta-analysis of the predictors of adult offender recidivism: What works!" Criminology, 34 (1996): 575-607.

[b] Because the personal/emotional review was narrative, meta-analytic effect sizes were not available. To provide a quantifiable estimate for comparison purposes, the results from Motiuk and Nafekh (see Note 10) were used.

Analyses revealed that each weighted and unweighted effect size was statistically significant. Further, the magnitude of the various relationships is consistent with past research.[4] In sum, the results confirm the overall criminogenic relationship between each domain and recidivism.

Each reviewer undertook a more in-depth analysis to determine which factors in each domain were most strongly related to recidivism. Originally, attempts were made to organize each review around the principal components, subcomponents and indicators of the CNIA. However, in most cases, the predictor categories examined in the existing literature did not permit this type of

classification. Consequently, most reviewers used naturally occurring predictor categories deemed close approximations to CNIA principal components and subcomponents. Moreover, predictive studies for certain components of the CNIA were unavailable. Analysis at the indicator level was often unavailable or deemed unreliable. Considering all reviews simultaneously, most predictor categories produced moderate correlations with recidivism (weighted effect sizes between .10 and .19). As Table 2 demonstrates, fewer predictor categories demonstrated strong (weighted effect sizes equal to or greater than .20) or weak (weighted effect sizes less than .09) relationships with recidivism.

Table 2

Meta-analytic Reviews: Degree of Research Support Associated with Predictor Categories Within Each Case Need Domain

Case need domain	Weak or no support (weighted $r < .10$)	Moderate support (weighted r .10 –.19)	Strong support (weighted $r > .20$)
Employment		Employment history Employment needs at discharge Employment status at intake Education and/or employment problem School achievement School maladjustment	
Marital/family	Family structure (single parent, foster care)	Negative family background Marital status Marital quality	
Associates		Criminal family Crime neighbourhood	Criminal companions
Substance abuse		Alcohol abuse problem Drug abuse problem	Alcohol and/or drug problem
Community functioning	Physical health Personal hygiene	Accommodation Financial difficulties Use of social assistance	Use of leisure time
Personal/ emotional[a]	Physical prowess Neuroticism Assertion deficits Mental ability Mental disorder	Impulsivity General problem-solving Interpersonal skills Empathy Aggression/anger/hostility Risk-taking Coping Sexual behaviour[b]	
Attitudes	Attitudes toward: emotional stability, marital/family relations, interpersonal relations, employment/education	Attitudes toward justice Attitudes toward violence Denial and/or minimization of crime	Unfavorable attitudes toward convention, sentence or suspension, favorable toward crime

[a] The personal/emotional review was not a meta-analysis, so the size of the empirical relationship was estimated conservatively based on the narrative review.

[b] This result is based on samples of known sex offenders.

Lastly, the results are consistent with previous research,[5] as well as prominent theories of criminal conduct.[6]

The CNIA contains all predictor categories that were strongly related to recidivism. Further, except for denial and/or minimization of crime, the CNIA adequately represents all predictor categories classified under moderate relationship. The CNIA also contains several factors deemed weak predictors of criminal recidivism. Although these factors are not criminogenic, they require accurate assessment and appropriate intervention in accordance with the Service's legal mandate to exercise "humane control" in the course of sentence administration and management.[7] However, without jeopardizing our legal responsibilities, a more empirically palatable approach may be to situate such needs in an entirely different instrument or, alternatively, assess them collectively in a new need domain designated non-criminogenic needs.

What have we learned from the CNIA predictive outcome study?

Since the CNIA protocol was first implemented, 3,380 male offenders have been subsequently released into the community (M = 250 days in the community). Of these, 9.3% were returned to federal custody. Interestingly, almost 75% were returned for a conditional release revocation without a new offence.[8]

Table 3 compares the meta-analytic findings with the results of the CNIA predictive outcome study. Recall that the case need rating is a four-point value ranging from 'factor seen as an asset to community adjustment' to 'considerable need for improvement'. Conversely, the domain composite score reflects the sum of all indicators (where no = 0 and 1 = yes) comprising a given domain. Two noticeable trends emerged. First, it is clear that the meta-analytic findings are consistent with those obtained from the CNIA predictive outcome study. Second, with the exception of the attitudes domain and perhaps, the personal/emotional domain, there are marginal differences between the case need rating and the composite domain score in terms of their respective correlations with recidivism.

A more detailed analysis involving the individual indicators was also conducted. In sum, this analysis was generally consistent with the external meta-analytic reviews. It is also noteworthy that the statistical analysis of the personal/emotional domain indicators confirmed the conclusions reached in the narrative review (see "Case need: Personal and emotional domain" in this volume).

However, the analysis also identified indicators that were not directly related to recidivism such as learning disabilities, physical problems that interfere with work, parenting skills, social isolation, communication difficulties, personal hygiene, physical health, history of mental disorder, and intolerance of other religions, disabled persons or the elderly. A more detailed report will be made available from the Research Branch.

Table 3

Correlations Between Each Case Need Domain and Recidivism: A Comparison of the Meta-analytic Findings and the CNIA Predictive Outcome Study

Case need domain	Average weighted effect size Mr	Case need rating r	Domain composite score r
Employment	.13	.17	.14
Marital/family[a]	Not available	.12	.11
Associates/social interaction	.17	.17	.19
Substance abuse	.10	.15	.17
Community functioning	.10	.14	.14
Personal/emotional[a]	Not available	.11	.15
Attitude	.11	.09	.19

[a] Complete meta-analyses were not conducted for these domains. The r values provided in the second and third column are taken from Motiuk (see Note 8).

Top ten themes across the CNIA recommendations

- *Keep the strong, keep the moderate, but drop the weak.* Most reviews recommended that indicators demonstrating strong empirical support, strong theoretical support or moderate empirical support be retained, while indicators demonstrating either weak or no support be deleted.

- *Less is more.* Currently, the CNIA comprises 7 need domains, 35 principal components, 94 subcomponents and 199 indicators. One of the most common themes in the recommendations was the need to simplify the CNIA's structure. Among the proposed strategies was the deletion of indicators and/or subcomponents that were redundant, showed little or no correlation with recidivism or were represented in more than one need domain. Recommendations also included using highly specific indicators as operational definitions for more global constructs and creating a new need domain called non-criminogenic needs.

- *Increase objectivity, reduce subjectivity.* Fifty years of research overwhelmingly confirms

the superiority of objective, statistically based prediction strategies over purely subjective, clinically based methods.[9] This conclusion was firmly echoed in several of the recommendations that called for improved scoring guidelines as well as the development of concrete behavioural indicators.

- *Revitalize with new additions.* It was evident throughout the reviews that the CNIA could be enhanced by incorporating additional constructs ranging from intrinsic job motivation and occupational self-efficacy, to criminal self-efficacy and denial or minimization of crime.

- *View the supplementary assessment as friend rather than foe.* There is some concern that specialized or supplementary assessments may result in over-programming for low-risk and/or low-need offenders. However, two independent reviewers recommended their continued use for substance abuse and employment domains.

- *Distinguish non-criminogenic from criminogenic need.* The CNIA must distinguish better between the criminogenic need — dynamic or changeable treatment targets that are directly related to criminal behaviour — and the non-criminogenic need — treatment targets that are not related to criminal behaviour but require intervention nonetheless.

- *Maximize the dynamic nature of the CNIA.* Although the CNIA serves multiple functions, its ultimate purpose is to identify factors that can, in theory, be altered. Thus, unless it can be shown that a given static factor serves a specific operational function, every effort should be made to ensure that each component of the CNIA reflects current and/or recent circumstances, rather than events or circumstances from the past. Thus, while poor family functioning during childhood is important, what may be more crucial for effective correctional programming is current family functioning or, similarly, family functioning when offences are originally committed.

- *Assess both the need and its magnitude.* The substance abuse assessment review introduced the notion of a stepped approach to assessment. The first step involves screening for the presence of absence of a problem; the second step elaborates on the nature and severity of the problem; and the third step establishes specific treatment and relapse prevention targets and assesses changes associated with treatment. Perhaps a similar framework could be applied to the CNIA. Steps 1 and 2 would be considered a mandatory component of the CNIA, and Step 3 could be incorporated during program delivery. This strategy might reduce both unnecessary programming and redundancy in assessment.

- *Beware of specialized risk factors for specialized offender groups.* Deviant sexual preference and deviant sexual attitudes predict sexual recidivism among known sex offenders, but they do not predict general recidivism in the general male offender population. In fact, there is a slight negative correlation between these variables and general recidivism among male offenders.[10] Thus, it might be prudent to remove indicators related to sex offences from the CNIA and use them exclusively during assessments of male sex offenders.

- *More research, better research.* Perhaps the most common recommendation was a call for new and improved research, including more research on female offenders and Aboriginal offenders, and the identification of unique predictors of violent recidivism. Also mentioned were the application of advanced statistical procedures and the development and evaluation of concrete behavioural indicators with assessment strategies that do more than merely confirm that the offender has a problem.

Conclusion

The results of the meta-analyses, the narrative reviews and the CNIA predictive outcome study confirm the criminogenic relationship between each need domain and recidivism. Detailed analysis revealed that while some elements of the CNIA are weakly or strongly related to criminal recidivism, most are moderately related to criminal recidivism. It is anticipated that the combined effect of these findings and the upcoming field consultations will eventually yield a revised CNIA that satisfies current research standards as well as operational realities. ■

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