CHAPTER 3: RESULTS

Descriptive Statistics

Piloting of the CNI allowed for the distribution of criminogenic needs across the sample population to be computed. For analysis of descriptive statistics all offenders who were administered the CNI at least once were included. The following information is therefore based on a sample of 93 offenders.

The average number of offending period criminogenic needs per offender was 3.34 (standard deviation 1.12), the average number of pre-disposing period criminogenic needs was 5.18 (standard deviation 1.65), with a total average of 8.5 criminogenic needs per offender (standard deviation 2.4). The maximum number of criminogenic needs identified was 13, the minimum was 2.[1]

The remainder of this section looks at the occurrence of criminogenic needs across the entire sample. Table 1 provides frequency distributions for each potential criminogenic need among the sample of 93 offenders. (Note that offence-related emotions and cognitions is automatically identified for all offenders). The mean severity score for each need is also reported.

Table 1 *Frequency Distribution of Criminogenic Needs and Severity*

Criminogenic need	OCN % (N=93)	Mean OCN severity score (max 7)	PCN % (N=93)	Mean PCN severity score (max 7)
Offence-related emotions and cognitions	100%	6.59	N/A	N/A
Emotions	N/A	N/A	92.5%	6.62
Offence-related-cognitions	N/A	N/A	22.5%	6.63
Violence propensity	34.5%	6.56	62.5%	6.63
Alcohol and Drug	77.5%	6.58	89%	6.73
Risk taking arousal	25%	6.65	22.5%	6.86
Criminal associates	64.5%	6.68	80.5%	6.83
Gambling	3%	6.67	10.5%	6.6
Impulsivity	1%	7	5.5%	6.8
Relationships	26%	6.32	56%	6.46
Lifestyle imbalance	N/A	N/A	78.5%	6.5

* Because the mean severity score for the current data set was so high (mean for all criminogenic needs is 6.6 out of a maximum of 7), severity scores are not included in further analyses.

[1] Appendix C provides additional breakdowns for the number of criminogenic needs by offender ethnicity and age. However due to small sample numbers these results are exploratory in nature only.

Frequency distribution by OCN and PCN

For ease of interpretation, the diagrammatic presentation of criminogenic need distribution is separated into offending period criminogenic needs (OCNs) and predisposing period criminogenic needs (PCNs). All figures are reported as percentages.

Figure 1 shows the distribution of OCNs from the sample of 93 offenders. As expected, Offence-Related Emotions and Cognitions was recorded as a criminogenic need for all offenders. Of interest is the high occurrence of both Alcohol and Drug and Criminal Associates as criminogenic needs. Additional sub-categorisations are further elucidated in Figure 3.

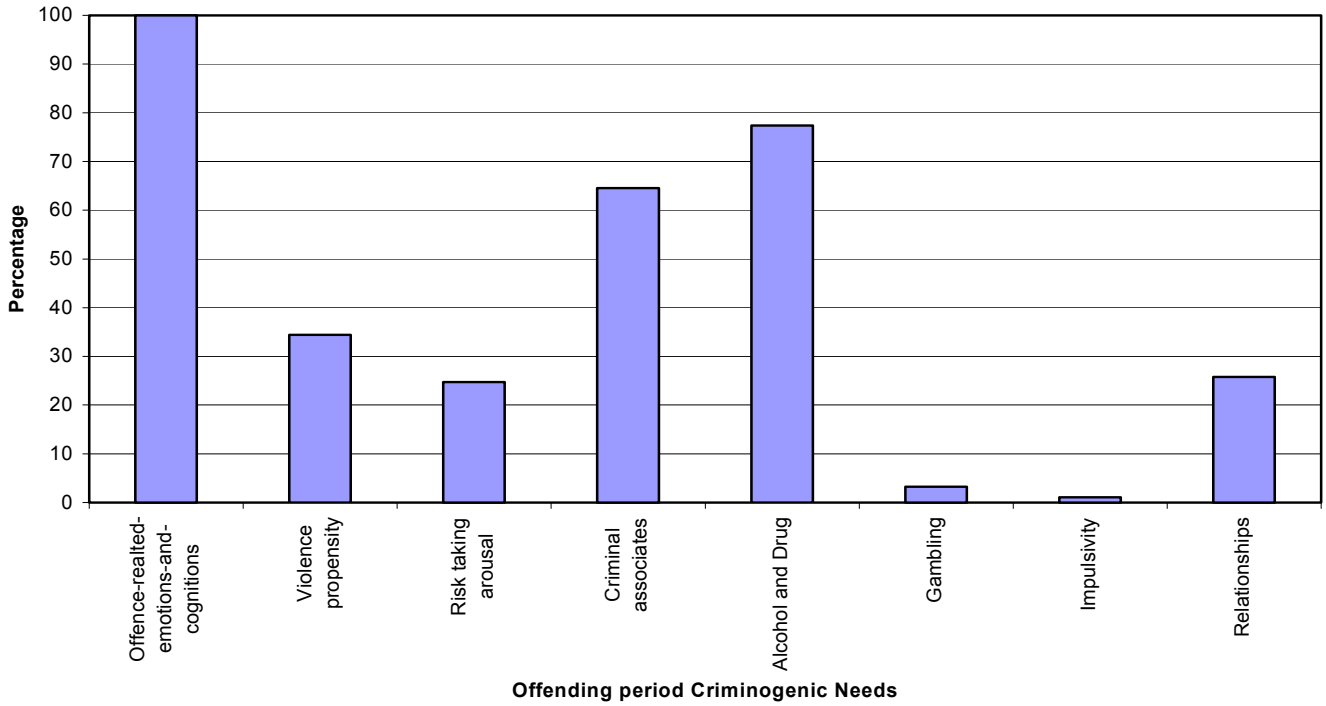

Figure 1 *Distribution of Offending Period Criminogenic Needs (N=93)*

Figure 2 illustrates the distribution of PCNs. High levels of criminogenic needs were recorded for Emotions, Violence Propensity, Lifestyle Imbalance, Alcohol and Drug, Relationships, and Criminal Associates. These criminogenic needs are further sub-categorised in Figure 4.

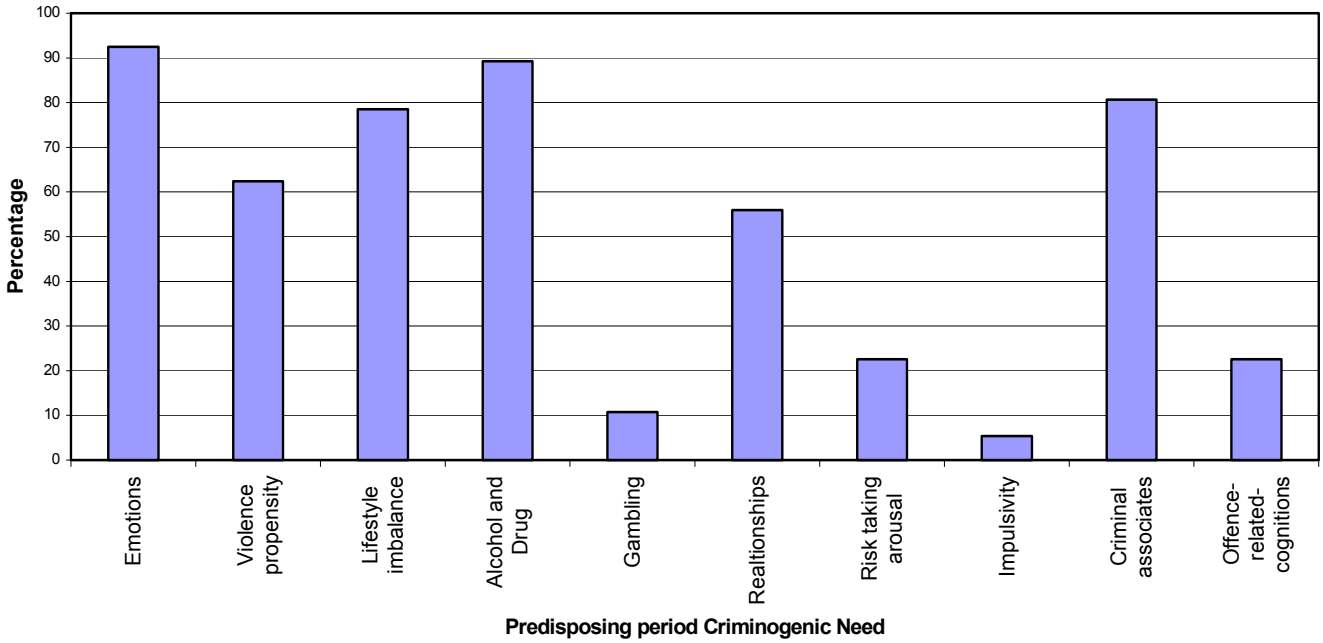

Figure 2 *Distribution of Predisposing Period Criminogenic Needs*

Frequency distribution by OCN and PCN sub-categorisation

In addition to identifying criminogenic needs the CNI also provides sub-categorisations for many of these needs. For example when Alcohol and Drug is assessed as a criminogenic need, it can be further divided into alcohol use only, drug use only, or both alcohol and drug use. The same applies for the majority of OCNs and for a number of PCNs. Figure 3 below illustrates the distribution of OCNs according to sub-categories. The breakdown of offence-related emotions and cognitions reveals an interesting pattern. Of interest was the significant number of offenders who experienced positive emotions and cognitions during commission of the offence. In a similar vein, the sub-categorisation of violence propensity reveals a considerable proportion of offenders committed instrumentally violent offences (as opposed to anger related offences).

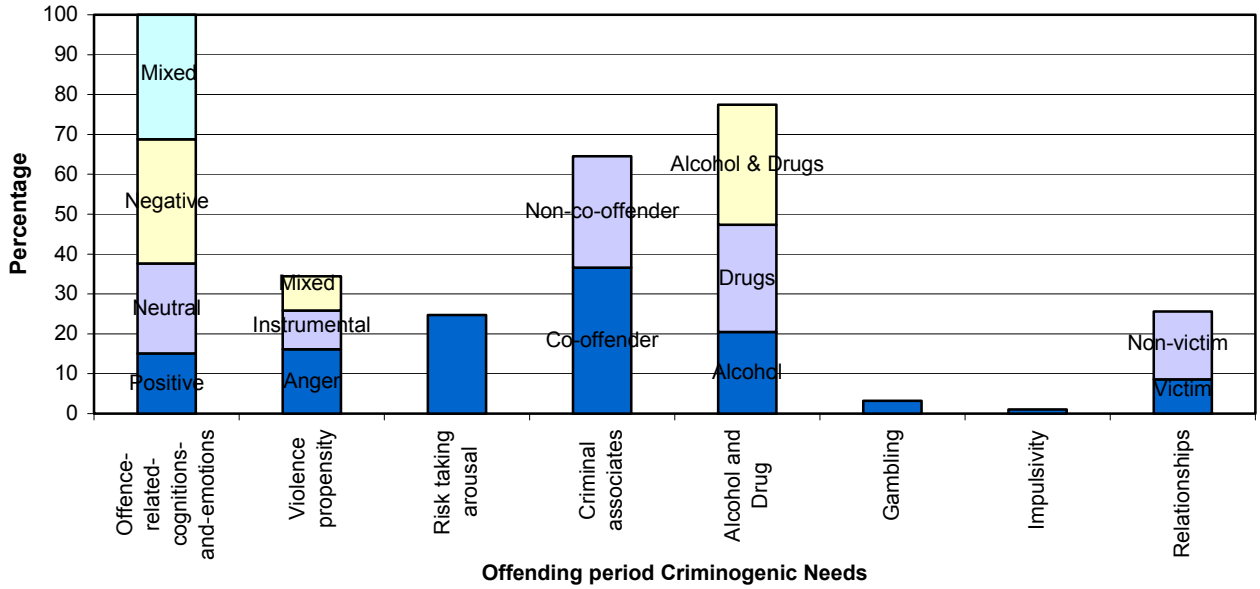

Figure 3 *Distribution of Offending Period Criminogenic Needs According to Sub-categories**

*Sub-category explanations: *Offence-related cognitions and emotions*: The 4 sub-categories refer to the polarity of emotions and cognitions experienced during commission of the offence.

Violence propensity: The 3 sub-categories refer to nature (or type) of violence. Choices are anger-related, instrumental, or mixed.

Criminal associates: The 2 sub-categories refer to whether a criminal associate was a co-offender or socially influenced the offender towards the offence without actually being involved themselves.

Alcohol and drug: The 3 sub-categories refer to consumption of alcohol, drugs, or both during the offending period.

Relationships: The 2 sub-categories refer to whether the offender knew the victim (i.e. they had a relationship of some nature) or there were negative relationship emotions and cognitions that formed a link in the offence chain.

Figure 4 below illustrates the distribution, according to sub-categories, for the predisposing period criminogenic needs. This figure also shows what rule was used to determine a PCN. This applies to the criminogenic needs of Emotions, Alcohol and Drug, Gambling, Relationships, and Risk Taking Arousal. When these needs have been identified it is necessary for assessors to functionally link the need to the offence (i.e. establishment of a functional link is required for a need to be assessed as "criminogenic"). The most commonly employed functional rule was "present in the last month". Other functional rules were infrequently employed and recorded under the "other" category. Sub-categories were not recorded for the criminogenic needs of Violence Propensity, Lifestyle Imbalance, Impulsivity, Criminal Associates, and Offence-Related Cognitions. For these criminogenic needs a functional relationship is automatically ascribed when the need is assessed as present during the pre-disposing period.

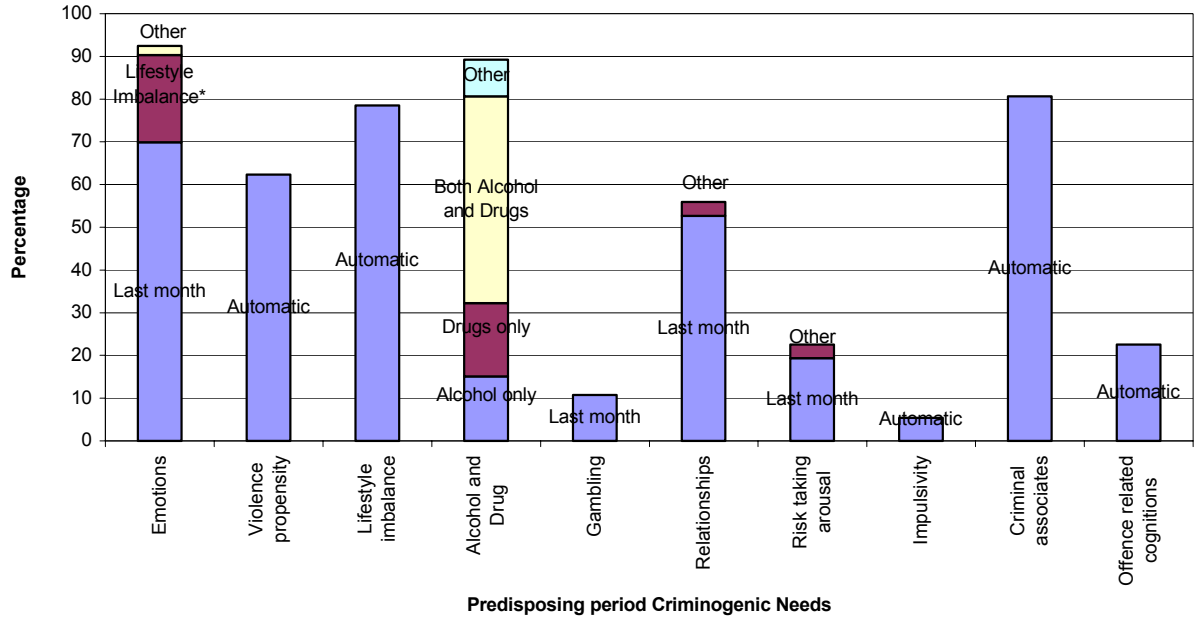

Figure 4 *Distribution of Predisposing Period Criminogenic Needs According to Sub-categories*

*Emotions is automatically identified as a criminogenic need whenever lifestyle imbalance is identified as a criminogenic need. Note, this information was not recorded when emotions had already been assessed via another functional rule (e.g., last month rule).

Psychometric Properties of the CNI

Reliability

The reliability of an inventory can be measured by the degree to which it produces similar results when administered to the same person on more than one occasion. This type of reliability is referred to as test-retest reliability. It is essentially a measure of an instrument's stability over time.

For test-retest reliability only participants that had been scored twice were included. The current analyses included the minority of offenders who had been video retested, as opposed to a live retest. A total of 71 pairs of ratings were obtained for test-retest reliability analysis.

The CNI generates 18 potential criminogenic needs (8 offending period and 10 predisposing period). These criminogenic needs are further divided into sub-categories (e.g., alcohol use only, drug use only, or both alcohol and drug use), giving a final total of 30 categorical assessments. Across these 30 categories the overall test-retest reliability was 82.7% (1762 agreements / 2130 decisions).

Validity

The validity of an inventory refers to the degree to which it measures what it is intended to measure. Two robust measures of validity are concurrent validity and predictive validity. Concurrent validity refers to the degree of agreement between a new test and an already established one (the criterion) known to measure the same or similar behaviour. Predictive validity refers to the degree to which a new test predicts a future behaviour.

CNI validation data was obtained from 89 participants. This data included completion of the full CNI, the LSI-R, the Wisconsin Client Management Classification (WISC), and the Case Needs Identification and Analysis (CNIA). These final three instruments were used to measure concurrent validity. In addition RoC and RoI scores of each participant were calculated. These were used as an interim measure of predictive validity (ultimately actual recidivism will be used).

CNI Scores

The CNI data was coded into three scores[2];

- OCN score - the number of OCNs identified.
- PCN score - the number of PCNs identified.
- Total CNI – a composite total score that equaled the combined number of OCNs and PCNs that had been identified.

Concurrent validity

Table 2, below, shows the correlations between the three CNI scores (OCN, PCN, and Total score) and each of the established measures. Correlations between the Total and PCN score, and the established measures were positive, and for the most part, statistically significant. This suggests that the Total score and PCN score measure a similar construct to that of established need measures. This provides support for the concurrent validity of the CNI as a measure of offender's criminogenic needs.

Interestingly the OCN score did not correlate well with other established measures of need. The OCN has close to a zero correlation with the LSI-R, the Wisconsin measure, and the CNIA. However it does have statistically significant correlations with actuarial measures of risk (Roc and RoI), and can therefore be seen to indeed measure a construct that is related to offending. This OCN construct however, appears to be different to that measured by other established instruments and other facets of the CNI. The OCN index therefore appears to contribute new information regarding criminogenic needs, over and above that provided by existing measures.

[2] As previously described, because the mean severity scores were so high (mean 6.6 out of a maximum of 7), severity was not included in the present analysis.

Table 2 *Correlation Table of CNI and Established Need Measures*

	OCN	PCN	Total CNI	LSI-R	WISC-N	CNIA	ROC	ROI
OCN	1.00							
PCN	.44*	1.00						
Total CNI	.78*	.90*	1.00					
LSI-R	-.03	.37*	.24*	1.00				
WISC-N^	.05	.37*	.28*	.75*	1.00			
CNIA#	.05	.20	.13	.69*	.75*	1.00		
ROC	.24*	.28*	.31*	.43*	.35*	.25*	1.00	
ROI	.35*	.30*	.37*	.25*	.31*	.20	.55*	1.00

N=73 (casewise deletion of missing data)
* Marked correlations are significant at the P<0.05 level.
^ WISC-N refers to the need subscale of the WISC instrument.
# As the CNIA provides an ordinal scale score, Spearmans correlation coefficients were calculated.

Predictive validity

The ultimate criterion measure for predictive validity will be actual recidivism. This however requires a sufficient time period to enable reoffending. In the absence of actual recidivism data the most accurate measures are the actuarial models of RoC and RoI. It should therefore be noted that these measures only provide a preliminary indication of predictive validity.

Examination of the correlations between actuarial measures of risk (RoC and RoI) and dynamic measures of need (CNI scores) reveal an interesting pattern. Given that the sample of offenders was largely selected from an incarcerated population, RoI provides a more robust statistical model than that of RoC. All three CNI indices evidenced moderate correlations with RoI. Importantly these correlations exceeded that produced by other established measures of need. This is a considerable achievement as traditional measures such as the LSI-R combine both static measures of need (i.e. those that contribute more to risk prediction) and dynamic measures of need (i.e., more strictly adhere to the prescribed definition of 'criminogenic need'). Overall these results provide preliminary support for the predictive validity of CNI with regards to both the risk of re-imprisonment and reconviction.

Summary of Major Results

- An average of 3.34 offending period criminogenic needs and 5.18 pre-disposing period criminogenic needs were identified for each offender.
- The CNI returned a very favourable test-retest reliability of 83%.
- Moderate correlations between PCN and Total CNI scores and other established measures of criminogenic need support the concurrent validity of the CNI.
- The OCN appears to contribute new information above that provided by existing measures. Moderate correlations with RoI and RoC conform that the OCN still measures a construct related to offending.
- Moderate correlations with RoC and RoI support the preliminary predictive validity of the OCN, PCN and Total CNI scores.