

The Research, Development and Statistics Directorate exists to improve policy making, decision taking and practice in support of the Home Office purpose and aims, to provide the public and Parliament with information necessary for informed debate and to publish information for future use.

Findings are produced by the Research, Development and Statistics Directorate. For further copies contact:

Communication Development Unit  
Room 275,  
Home Office,  
50 Queen Anne's Gate,  
London SW1H 9AT.

Tel: 020 7273 2084  
Fax: 020 7222 0211  
publications.rds@homeoffice.gsi.gov.uk

Editor: Carole Byron  
Printed by: TABS

© Crown copyright 2002  
ISSN 1473-8406

## An evaluation of cognitive behavioural treatment for prisoners

Caroline Friendship, Linda Blud, Matthew Erikson and Rosie Travers

The effectiveness of a prison-based cognitive behavioural treatment programme in England and Wales was measured in relation to reconviction rates. The study compared reconviction rates for those who were on the treatment programme with a matching group of offenders who were not on the programme. The evaluation also examined the respective influence of treatment with other relevant variables such as sentence length and risk of offending score.

### Key points

- Reconviction fell considerably after cognitive skills treatment. For example, two-year reconviction rates for treatment groups were up to 14 percentage points lower than matched comparison groups.
- Based on the number of prisoners expected to complete a cognitive skills programme in 2002–2003, this reduction represents almost 21,000 crimes prevented.
- This study constitutes one of the largest treatment outcome studies in Europe and provides strong evidence on the effectiveness of cognitive behavioural treatment for offenders. It confirms that the results of North American research showing the effectiveness of such programmes can be applied to a UK offender population.
- This is important evidence for the working of the accreditation process adopted by the Prison and Probation Services in England and Wales. This process ensures that standards of programme design and delivery are maintained across the prison estate and continuity of programme content and standard are available to offenders on release into the community.
- Future outcome research could improve on this retrospective design by prospective matching. Further analysis of the data reported in this study could provide more detail on the factors that are associated with a positive treatment outcome and which type of offenders benefit most from this type of intervention.
- This study forms the basis for cost-effectiveness analysis of offender programmes. This can be calculated by setting the cost to the Prison Service against the savings to the community and criminal justice system, through lower reconviction rates and a reduction in offences committed.

A large number of meta-analytical studies published in the 1980s and 1990s have demonstrated that the treatment of offenders can produce a small yet significant effect in reducing recidivism (McGuire, 1995). Collectively known as 'What Works', this research has led to a treatment ethos in offender rehabilitation and has formed the principles of evidence-based practice.

Cognitive behavioural approaches to treatment have produced the most promising results. Vennard, Sugg and Hedderman (1997) have provided a comprehensive review of this evidence. McGuire (2000) estimated the expected impact of 'What Works' programmes, based on the collective meta-analytical results, as being a reduction in recidivism of around 10 percentage points.

**The views expressed in these findings are those of the authors, not necessarily those of the Home Office (nor do they reflect Government policy)**

In England and Wales, HM Prison Service started to run Cognitive Skills programmes in 1992. Whilst the Prison Service was aware of 'What Works' principles and had applied some of these into its programmes, it had done so in a piecemeal way and not formalised best practice. From 1996, a system of accreditation has been developed within the Prison Service. This also applies to programmes run by the National Probation Service from December 1999. The process of accreditation is overseen by the Joint Prison/Probation Service Accreditation Panel. This body oversees the quality of both programme design and delivery in terms of adherence to 'What Works' principles of best practice (Home Office, 2001a).

### The evaluation

The treatment group consisted of 670 adult male offenders serving a custodial sentence of two years or more who had voluntarily participated in one of two Cognitive Skills programmes run by HM Prison Service between 1992 and 1996. Their reconviction rates after treatment were compared with a group of 1,801 adult male offenders serving two years or more who had not participated in a programme. This study, therefore, relates to programmes completed prior to or in the first year of the accreditation process.

Treatment consisted of two multi-modal programmes incorporating cognitive behavioural components, generically referred to as Cognitive Skills programmes (see below). The primary focus is on thinking skills or patterns. Maladaptive or faulty thinking patterns are also referred to as cognitive deficits and have been linked to recidivism in offenders. The programme selection criteria during this period were:

- offenders sentenced to two years or more
- current or previous sexual, violent or drug offence
- motivation to participate.

### The treatment

The treatment sample included 66 offenders (10%) who had not completed the treatment. Offenders had dropped out of the treatment programme at various stages. The reasons for dropout were:

- offender decided to leave treatment
- offender asked to leave by staff
- prison transfer
- released from prison
- other, which included illness and injury.

### Matching for a comparison group

Six empirically relevant matching variables were selected:

- current offence
- sentence length
- age at discharge
- year of discharge
- number of previous convictions
- probability of reconviction.

Probability of reconviction was generated using the Offender Group Reconviction Scale (OGRS) revised by Taylor (1999). This predicts, from a number of criminal history and demographic factors, the probability that an offender will be reconvicted within two years of release from custody or the start of a community sentence.

A profile of the treatment group was drawn up using the matching variables. This profile was used to generate a large cohort of untreated offenders (using the Inmate Information System, the central database for the prison service). It was not possible to find an exact match for every treated offender on these variables but offenders were matched within a target range, e.g. age within five-year bands and risk of reconviction score in four banded groups. For each treated offender, a pool of similar untreated offenders was identified from which three offenders were randomly selected.

### Reconviction data

Reconviction rates were derived from criminal conviction history data obtained for the treated and comparison group samples from the Offenders Index.

### The sample by risk level

The OGRS probability scores for the treatment and comparison group samples were divided into quartiles to create four risk levels (low, medium-low, medium-high and high). Two-year expected reconviction rates were generated for the sample using the average probability score for offenders in each risk group. Expected reconviction rates illustrate the match between the treatment and comparison group in terms of risk of reconviction (Table 1). In this case, the expected reconviction rates were similar across each risk band, indicating a reasonable match on criminal history variables. Where expected reconviction rates were not an exact match, the rates were slightly higher in the treatment group by 2–3%. As Reasoning and Rehabilitation

## The cognitive programmes used

### Reasoning and Rehabilitation (R&R)

Adopted by the Canadian Correctional Service  
36 sessions  
72 hours of treatment contact

### Enhanced Thinking Skills (ETS)

Adapted for use in a UK offender population  
20 sessions  
40 hours of treatment contact

### Treatment targets

- Self-control (thinking before acting)
- Inter-personal problem solving skills
- Social perspective taking
- Critical reasoning skills
- Cognitive style
- Understanding the values which govern behaviour

**Table 1 Two-year expected reconviction rates calculated using OGRS by level of risk**

Risk level	Treatment group (n=667)		Comparison group (n=1,801)	
	Sample No.	Expected reconviction rate %	Sample No.	Expected reconviction rate %
Low	101	14	586	12
Medium-low	147	39	390	37
Medium-high	166	64	424	64
High	253	88	401	85

(R&R) and Enhanced Thinking Skills (ETS) share the same theoretical basis, the programmes are analysed alongside one another.

### The long-term effectiveness of treatment

Observed two-year reconviction rates are presented for the treatment and comparison group samples (Table 2). A significant difference was found for medium-low offenders (a 14 percentage point reduction) and for medium-high offenders (11 percentage points). These differences were more than the 10 percentage point reduction suggested in the 'What Works' literature. The low and high risk groups showed a trend in the expected direction, although the difference was not statistically significant. Based on the number of prisoners expected to complete a cognitive skills programme in 2002–2003, this reduction represents almost 21,000 crimes saved. This figure was calculated using a standard Home Office methodology.

**Table 2 Two-year observed reconviction rates for treatment and comparison groups samples by level of risk**

Risk category	Treatment group reconvictions		Comparison group reconvictions		Percentage points reduction %
	%	No.	%	No.	
Low	5	5	8	46	3
Medium-low	18	26	32	126	14
Medium-high	43	72	54	229	11
High	75	189	80	319	5

### Controlling for the known predictors of reconviction

To ensure the differences between treatment and comparison group reconviction rates were due to the effect of treatment and not the effects of selection, logistic regression analysis was used. Logistic regression is used to assess the respective influence of treatment and other variables empirically related to reconviction in this study. The dependent variable in this study was reconviction within two years of discharge from prison and the independent variables were those which had been demonstrated to be related to reconviction. These variables were age at first conviction, age at sentence, age at discharge, number of previous appearances in court (at sentence), sentence

length, index offence, treatment type (R&R or ETS), risk score (OGRS) and ethnicity. The variables in the final logistic regression model were treatment, risk score (OGRS), sentence length and ethnicity.

Both R&R and ETS treatment produced a robust reduction in the probability of reconviction (significant at  $p < 0.001$ ). This represents the unique effect of treatment whilst controlling for other related variables. This gives further support to the efficacy of Cognitive Skills treatment. The model demonstrates that OGRS is a good predictor of reconviction within two years and this can be seen as a validation of this risk assessment scale. OGRS was generated using both community and prison samples and so sentence length was not applicable to its generation. It is unsurprising then, that sentence length remains significant in the current model. Asians were associated with reduced chances of reconviction and this is in keeping with the low representation of Asian offenders within the prison population in England and Wales. Only 3% of the prison population were characterised as being of Asian ethnic origin in 1990 to 2000 (Home Office, 2001b).

### Methodological issues

This reconviction study adopted a retrospective quasi-experimental design – the relevant variables are controlled for after the treatment intervention. A randomised controlled experimental design could produce more accurate research but this has rarely been achieved in criminal justice settings for both practical and ethical reasons. In HM Prison Service, denial of treatment has ethical implications as it can affect the re-categorisation of security levels in prison and parole decisions for offenders. If prisoners were denied treatment because they were allocated to the non-treatment group this could adversely affect their chances of early release.

The current design could be improved by identifying the comparison group offenders at the same time as offenders are identified for treatment. 'Prospective matching' has advantages over a retrospective approach as researchers can:

- be more aware of the variables that may be important for comparison group matching
- have more opportunity to record a wider subset of extraneous variables
- collect the same data for the treatment and comparison group, e.g. full pre-treatment assessment and most importantly, motivational factors.

### Improving practice

This study reports the efficacy of Cognitive Skills programmes run in HM Prison Service since their inception and including the first year of the accredited programme process. It is expected that future studies of subsequent Cognitive Skills programme participants will replicate or improve upon these results as the accreditation process is more established. The design of the pre-accredited programme was informed by evidence-based practice. The delivery, however, was not subjected to rigorous implementation controls, e.g. prison establishment audits. In the early running of the prison Cognitive Skills programmes, when quality of delivery measures were not in place, motivation among those running the programme was nonetheless high. It could also be argued that when treatment programmes were first introduced, the offenders who volunteered to participate in the programmes were often also highly motivated. This may explain the positive results in the lead-up to accreditation.

### Conclusions and future research

- This study constitutes one of the largest treatment outcome studies in Europe and provides strong evidence on the effectiveness of cognitive behavioural treatment for offenders. It confirms that the results of North American research showing the effectiveness of such programmes can be applied to a UK offender population.

- These results support the work of the Joint Prison/Probation Accreditation Panel adopted by the Prison and Probation Services in England and Wales. This ensures that standards of programme and design are maintained across the prison estate and that there is continuity of programme content and standard available to offenders on release into the community.
- Further analysis of the data reported in this study could provide more detail about the factors which are associated with a positive treatment outcome and which type of offenders benefit most from this type of treatment intervention.
- Future outcome research could improve on this retrospective quasi-experimental design by prospective matching.
- This study forms the basis for cost-effectiveness analysis of offender programmes. This can be calculated by putting their cost to the Prison Service against the savings to the community and criminal justice system through lower reconviction rates and a reduction in offences committed.

### References

Home Office (2001a). *What works: Second report from the Joint Prison/Probation Accreditation Panel 2000–2001*. London: Home Office.

Home Office (2001b). *Prison Statistics England and Wales 2000*. London: Home Office.

McGuire, J. (Ed.) (1995). *What Works: Reducing Re-offending – Guidelines from Research and Practice*. Chichester: Wiley.

McGuire, J. (2000). *An introduction to theory and research: Cognitive-behavioural approaches*. HM Inspectorate of Probation Report. London: Home Office.

Taylor, R. (1999). *Predicting reconvictions for sexual and violent offences using the Revised Offender Group Reconviction Scale*. Home Office Research, Development and Statistics Directorate Research Findings No. 104. London: Home Office.

Vennard, J., Sugg, D. and Hedderman, C. (1997). *Changing offenders' attitudes and behaviour: what works?* Home Office Research, Development and Statistics Directorate Research Study No. 171. London: Home Office.

A fuller report has been prepared for peer-review publication. Contact Caroline Friendship, Room 719, Abell House, John Islip Street, London SW1P 4LH.

Caroline Friendship, Linda Blud, Matthew Erikson and Rosie Travers are prison psychologists with Offending Behaviour Programmes Unit, HM Prison Service.