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Predicting dropout of incarcerated men from a long term aggression programme

Running head: Predicting treatment dropout

By

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Abstract

This study aims to use pre-treatment assessment scores to predict the dropout of 103 incarcerated male violent perpetrators undertaking a long term aggression programme, namely the Cognitive Self Change Programme (CSCP), in six English prisons. A hierarchy of best predictors of attrition in this sample is developed. Results found eight out of the 46 assessment variables analysed had a significant association with treatment dropout. Further to this Discriminant Function analysis predicted group membership with 80% accuracy, successfully distinguishing perpetrators who dropped out of the programme from those who completed it. The findings support the use of identifying risk factors pre-treatment to predict dropout and offer a practical way to identify group members likely to drop out of the CSCP in addition to identifying markers for programme improvement. The need for further research to increase our understanding of the underlying causal explanations that link specific assessment items to treatment dropout is discussed.

Key words: dropout; violence; aggression treatment; Cognitive Self Change Programme.

Implications for policy making

This paper:

- Stimulates further research investigating the underlying causal explanations that link specific assessment items to treatment dropout.
- Stimulates further research to investigate ways to reduce dropout prior to treatment taking place and to highlight markers to inform the improvement of programmes.
- Supports the utility of professionals collating pre-treatment information to identify factors that can be taken into consideration for offender suitability.

Introduction

In the last decade the Prison Service in England has seen the introduction and implementation of the Cognitive Self Change Programme (CSCP), a high intensity, cognitive-behavioural programme that aims to reduce violent recidivism in high-risk adult offenders (OBPU, 2000a). Preliminary findings regarding the effectiveness of the original programme in Vermont, Canada, suggest that it reduces recidivism (Henning & Frueh, 1996). Baro (1999) also reported improvements in institutional behaviour in offenders who had completed the first stage of a very similar programme. The Prison Service in England has adapted the CSCP to meet the rigorous demands needed in order for the programme to gain official certification by the appropriate regulating bodies. It is hoped that this careful adherence to the "What Works" literature (McGuire & Priestly, 1995) can only improve upon the success the programme has seen in Canada.

A major impediment to clinicians and researchers delivering and evaluating this programme, as with all treatment programmes, is the problem of premature termination. Offenders who drop out from treatment cannot benefit from it. In terms of the available literature examining this issue, the most regularly discussed dropout rates are those in intimate partner violence interventions, where very high rates of attrition are reported (e.g. Brown, O'Leary & Feldbau, 1997; Holtzworth-Munroe & Meehan, 2004). Studies investigating sex offenders and intimate partner aggressors suggest that dropping out of a programme increases the likelihood of recidivism (Hanson & Bussiere, 1998; Marques, Day, Nelson & West, 1994; Marques 1999). For example, Marques *et a*l found that sex offenders who had dropped out of treatment were more likely to commit violent offences in addition to new sex offences.

Therefore, not surprisingly, researchers concur that it is often those who drop out of treatment that are in the greatest need of it (e.g. Marques *et al*, 1994; McConaghy, 1999; Beyko & Wong, 2005). Ultimately unless treatment dropout is reduced those offenders who require treatment the most will not receive it. Additionally, high rates of non-completion pose a threat to the evaluation of treatment outcome and efficacy, due to samples being made

up of only those men who entered and completed treatment rather than including those who dropped out or were removed from treatment. This makes the generalisation of subsequent findings questionable (Hamberger, Lohr & Gottlieb, 2000) and reduces statistical power as a result of a smaller sample size (Harris, 1998).

A number of researchers have attempted to identify factors that are associated with or predictive of dropout. In terms of offending behaviour programmes, the bulk of the available research appears to be related to treatment with intimate partner abusers and sex offenders. The majority of these studies are based upon North American samples and many of them are focused on treatment programmes based in the community, therefore their relevance to violent offenders being treated within English prisons remains ambiguous. However, despite the different populations and settings even between these studies, there are some common groups of factors that have typically been explored. Whilst evidence relating to most of the variables below is mixed, all of them have been found to be significantly related to dropout in at least some studies.

Factors include marital status (Craissati & Beech, 2001) age (Kraemer, Salisbury & Spielman, 1998; Hamberger, Lohr & Gottlieb, 2000), race (Taft, Murphy, Elliot & Keaser, 2001), factors relating to offending history and index offence (Abel, Mittelman, Becker, Rathner & Rouleau, 1988; Browne, Foreman & Middleton, 1998), high scores on the Minnesota Multiphasic Personality Inventory (Miner & Dwyer, 1995) and the Multiphasic Sex Inventory (Craissati & Beech, 2001), psychological maladjustment including impulsivity (Kraemer *et al*, 1998; Pelissier, Camp & Motivans, 2003) and aggression (Brown, O'Leary & Feldbau, 1997; Pellissier *et al*, 2003), psychopathy (Hemphill & Hart, 2002), negative childhood experiences (Gruznski & Carillo, 1988; Hamberger, Lohr & Gottlieb, 2000), lifestyle instability (Rooney & Hanson, 2001), unemployment (Hiller, Knight & Simpson, 1999; Hamberger *et al*, 2000), education (Gruznski & Carillo, 1989), having spent time in prison (Browne et al, 1998), personality disorder (Hamberger & Hastings, 1989; Hamberger *et al*, 2000), substance misuse (e.g. Hamberger & Hastings, 1989; Browne *et al*, 1998), and verbal/reading ability (Shaw, Kerkov & Greer, 1995; Rooney & Hanson, 2001).

Although client characteristics are most commonly researched with respect to treatment dropout, a number of researchers highlight the equal importance of factors relating to therapist, programme and organisational characteristics (e.g. Stewart & Picheca, 2001). Programme characteristics include court-mandated/voluntary status, which has been found to be associated with dropout in a number of studies (Hamberger & Hastings, 1989; Craissati & Beech, 2001). Many of the causal theories relating to the above factors focus on motivation as a fundamental issue, which most clinicians and researchers agree is an important factor in itself (Miller & Tonigan, 1996).

Harris (1998) points out a number of criticisms of the literature in this area, which she feels makes the replication of such studies difficult. In particular, there are differences between studies in terms of the therapists, the populations and the programmes involved as well as differing definitions of the term dropout. Harris also criticises studies of attrition for relying on atheoretical analyses. As our understanding of the risk of reoffending is, on the whole, more sophisticated than our understanding of treatment dropout, the use of risk factors to predict dropout provides a more theoretical structure upon which to build the research in this area and avoids the subjective and random search for factors that may be linked to dropout.

The current study aims to use pre-treatment assessment scores to predict the dropout of incarcerated violent perpetrators undertaking the Cognitive Self Change Programme (CSCP). It is hypothesised that higher scores on identified risk assessments and psychometrics and lower scores on treatment readiness and responsivity scales will be significantly related to drop-out. In addition, a hierarchy of best predictors of attrition is identified so as to determine the importance of each.

Method

Participants

Participants were drawn from a database of 126 adult men who had been assessed and accepted onto the CSCP between January 2000 and July 2002 in six prisons in England. After exclusion criteria (outlined below) had been

applied, 103 men were included in this study, 52 (50.5%) of whom completed the programme and 51 (49.5%) of whom dropped out. Of these men, 83 (80.6%) were white, 2 (1.9%) were Black-African, 11 (10.7%) were Black-Caribbean and 3 (2.9%) were Black-Other. Information regarding ethnic origin was missing for 4 (3.9%) men. All participants were aged between 24 and 55 years in accordance with exclusion criteria for the programme. Further details pertaining to age were not available for this study.

Procedure

Information about the Cognitive Self Change Programme

The CSCP programme is a high dose cognitive-behavioural intervention, which targets reconviction in high-risk adult violent offenders who have a general pattern of antisocial behaviour. The programme targets the underlying patterns of thinking that sustain violence (e.g. negative thoughts, hostile attributions, cognitive distortions, antisocial attitudes and pro-criminal beliefs), as well as lack of insight into violent behaviour, violent fantasy, poor management of increased arousal or anger and socio-cognitive deficits. This is achieved through six 'blocks'.

At the time of the current study, block one was run with groups of approximately 5 offenders, who attended 17 group sessions plus 3 individual sessions. These foundation sessions aimed to enable group members develop skills for observing thoughts, feelings, attitudes and beliefs. However, Block One was revised in 2001 to incorporate the assessment procedure, 3 individual sessions and an integration phase and to work as a rolling programme which offenders could integrate into.

The core group consists of prisoners in Blocks Two-Four of the programme. In Block Two, the group members produce reports of the thoughts, feelings, attitudes and beliefs that led to their violent behaviour and develop insight into how this worked. In Block Three, they are encouraged to develop new thinking that will lead them away from hurtful behaviour and to practice these new skills through role-play. Block Four then facilitates the development of a relapse prevention plan. After completion of Block Four,

group members move into the Block Five group, which enables them to continue to practice in the prison environment. Block 6 affords structured treatment in the community post release.

The core programme lasts approximately 1 year although this is flexible and depends on the individual needs of group members. At the time of this study, the programme was relatively new to the English Prison Service and therefore there are differences between establishments in terms of the frequency and regularity of sessions. This is mainly due to differences in the number of staff trained at each establishment. As a result, some group members have been on the programme for over two years. In addition to the group sessions (up to four sessions per week), group members also attend individual sessions fortnightly and are expected to complete out-of-group assignments.

Study Inclusion/Exclusion criteria

At the time of data collection eligibility criteria for CSCP stipulated men should be between 24 and 55 years old at the time of treatment and score at least 7 on the static factors of the Violence Risk Scale (Wong & Gordon, 1999), including a full score for the item “violence throughout the lifespan”. Participants also had to have completed an accredited cognitive skills course (such as Reasoning and Rehabilitation; Ross & Fabiano, 1985).

This study is concerned with perpetrators who either dropped out (Drop Outs) or completed (Completers) the CSCP programme. Of the 126 potential men, 22 were excluded from this study as they were still participating in the programme. Definitions of the categories which were systematically applied as inclusion criteria for the study are as follows:

Drop outs - any group member who has been taken off the programme or has voluntarily chosen to leave the programme at any stage before the end of Block 4. The flexible nature of CSCP allows people who have left the programme to return at a later stage if it is deemed appropriate by staff. For the purpose of this study, perpetrators returning to treatment have been included in the ‘Drop Outs’ category.

In total 11 (21.2%) of the 52 drop out's had returned at the time of the study.

Completers - any group member who completed Block 4 regardless of level of participation or impact of treatment on his behaviour

Exclusion criteria for the programme include a Psychopathy Checklist-Revised (PCL-R; Hare, 1991) total score of 30 or more. All participants included in the study met the criteria as stipulated above.

Measures

Assessment interview and collateral review

The PCL-R has been shown to be a robust risk factor for violence in a variety of populations and also identifies offenders who are less likely to demonstrate effort, motivation and improvement and who are more likely to drop out or present security-related problems (OBPU, 2001). The HCR-20 and VRS are used to ensure that high-risk offenders are selected and to identify treatment targets. The respective authors of each risk assessment report good reliability and validity (Douglas, Ogloff, Nicholls & Grant, 1999; Wong & Gordon, 1999).

Readiness and Responsivity Interview (Serin & Kennedy, 1998)

The interviewer gathers information needed to score two scales – one indicates the participant's level of motivation and the treatment methods to which they will respond best (treatment readiness); the other centres around the idea that an offender's learning style should be matched with an appropriate tutor style and that the intensity and duration of the treatment should be appropriate (treatment responsivity).

Self-report test battery

A series of psychometric tests are completed by participants prior to the course. The battery includes the Psychological Inventory of Criminal Thinking Styles (PICTS; Walters, 1995), which measures thinking styles believed to be associated with anti-social behaviour and criminal conduct; Buss-Perry (Buss & Perry, 1992), which measures physical aggression, verbal aggression, anger and hostility; the Locus of Control (Craig, Franklin & Andrews, 1984), which measures the extent to which individuals believe that they have control over their own behaviour and can influence what happens to them and the Barratt Impulsivity Scale (BIS-12; Barratt, 1994), which measures motor impulsivity, cognitive impulsivity and non-planning impulsivity.

Results

Group Comparisons

Independent *t*-tests were computed to examine differences in the mean scores gained for each assessment/psychometric by Drop-out and Completer groups. Only eight of the 46 pre-treatment variables used in this study were found to significantly differentiate between groups. Table 1 shows the mean scores, standard deviations, t statistic and p values for the significant eight variables. It highlights that scores on the PCL-R (total, factor 1 and factor 2), the historical scale of the HCR-20 and the dynamic scale of the VRS were positively associated with dropping out of treatment, with Drop Outs scoring significantly higher than Completers. Scores on the Treatment Readiness and Responsivity Interview and Buss-Perry's physical aggression scale were negatively associated with dropping out of treatment.

Table 1 about here

Discriminant Functional Analysis

The eight variables found to significantly differentiate between groups were utilised in a Discriminant Functional Analysis where the outcome variable to be predicted was group status of Drop Outs or Completers.

70 of the 103 offenders were entered into the Discriminant Function analysis as 33 had missing information on at least one of the eight discriminating variables. The correlations between the discriminating variables and canonical discriminant functions are displayed in Table 2. Of the remaining 70 perpetrators 33 were Drop Outs and 37 Completers.

Table 2 about here

The variables are shown in descending order of best fit, with the variable most highly associated with dropout at the top of Table 2. The order of importance is only relevant to this model of eight variables, if one variable is removed or another added, the order of importance changes. Overall, this model had a highly significant value of 0.596 for the canonical correlation of all eight risk factors considered together in relation to the outcome of treatment dropout ($p<0.0001$). Although the coefficients for 'Treatment Readiness' and 'PCL-R Factor 2' are low, their inclusion in the analysis improves the accuracy of prediction, therefore they remain in the analysis.

Using this model, offenders can be classified in terms of their likelihood of being in one group (Drop Outs) over the other (Completers). Table 3 shows the comparison between predicted group membership and actual outcome status for the 70 perpetrators. Using this model 80% of perpetrators were correctly classified. The table shows good sensitivity in that 82% of men predicted to drop out did drop out of the treatment and good specificity as 78% of men predicted to complete, did so. Therefore, in total there were eight 'false positives' (men predicted to drop out but actually completed treatment) and six 'false negatives' (men predicted to complete, but who actually dropped out of the treatment).

Table 3 about here.

Discussion

This study examined pre-treatment assessment scores in a sample of male prisoners enrolled on the Cognitive Self Change Programme (CSCP) in

six English prisons with the aim of predicting drop out from the programme. Eight of the assessment scores included in the study were shown to be significantly associated with treatment dropout. Further Discriminant Function analysis using the eight variables determined a hierarchy of which variables most accurately predict dropout from the programme. Using the combination of treatment responsivity (PCL-R-factor 1; VRS-dynamic factors; HCR-20-historical factors; Buss-Perry physical aggression; PCL-R-total; treatment readiness and PCL-R factor 2), 80% of the sample were correctly classified as Completers or Drop Outs, a significant improvement over chance.

It is interesting that the most predictive variable was the responsivity scale scored from the Treatment Readiness and Responsivity Interview. This interview has been used more readily as a clinical tool on CSCP to guide tutors in terms of understanding individuals' motivations for change (treatment readiness) and potential barriers to change (treatment responsivity). The responsivity scale provides information on the offender's learning style which can be appropriately matched to tutor style and the appropriate intensity and duration of the treatment. Therefore prisoners with lower scores on the responsivity scale were significantly more likely to drop out of the CSCP programme. This is in keeping with Andrews and Bonta (2003) who propose that the principles of risk, need and responsivity should be taken into account during the design and evaluation of programmes in order to maximise programme effectiveness. Indeed research has demonstrated that treatment programmes which comply with these three principles are the most successful in reducing recidivism (Andrews *et al*, 1990). In relation to this study, the intensity of treatment should be matched to the offender's risk of recidivism and the programme should be adjusted to match the offender's responsivity level. Therefore, improvement in matching offenders to treatment according to the risk-need-responsivity-principle may reduce attrition rates. This is a particularly useful finding as it lends itself to understanding attrition predictors in terms of markers for programme improvement, rather than 'attrition profiles' that can be used to exclude offenders from treatment programmes (Beyko & Wong, 2005). However, it should be noted that many of the items in the responsivity scale overlap with PCL-R, factor one items. Further research using this scale would be extremely useful in order to determine which

additional factors in the responsivity scale relate to treatment dropout and specifically account for additional variance in the model.

Psychopathy, in particular the PCL-R factor 1 score, was strongly related to treatment dropout, despite the fact that very high PCL-R scorers were excluded from the programme. Total PCL-R scores and scores for each factor of the PCL-R were found to significantly differentiate between groups. This supports other research which found higher PCL-R scores were associated with shorter stays in therapeutic communities (Mulloy, Smiley & Mawson, 1997) and dropout among sex offenders (Seto & Barbaree, 1999).Research has considered the role of psychopathy as an obstacle to treatment (Beech, Fisher & Beckett, 1999). It is important to consider the possibility that knowledge of PCL-R scores may have an effect on the way tutors deal with high scorers. Cynicism and mistrust of high scorers may be detrimental to the therapeutic relationship and subsequently to the effectiveness of treatment (Krupnick *et al*, 1996). However, whilst psychopaths may be perceived as difficult to treat, they may still be treatable (Langton, Barbaree, Harkins & Peacock, 2006). There is as great a need to understand how therapists/tutors respond to high PCL-R scorers as there is to understand how high scorers behave and respond in treatment.

Only the historical items on the HCR-20 and the dynamic factors on the VRS were found to be significantly related to treatment dropout. These findings are in line with McConaghy (1999) and Marques *et al's* (1994) arguments that higher risk offenders are also the most likely to drop out of treatment. However, it is not clear why the other items on each of these scales were not found to be related to dropout and therefore further research is warranted.

A lower Buss Perry - physical aggression score predicted treatment dropout in this study and there are a number of possible explanations for this. It is possible that a low score indicates a participant is minimising their use of aggression and that group members who minimise their levels of aggression do not cope well with a course that pushes for objectivity in this respect. Alternatively, it could be that these group members genuinely had lower levels of physical aggression and therefore felt that the course was less relevant to them.

Limitations and implications for further research

It is important to acknowledge the limitations of this study. The definition of Drop Outs included prisoners who dropped out and returned to treatment at a later stage. This may confound results and larger data sets are needed to analyse this group in their own right.

Furthermore, whilst the focus on risk factors provided a theoretical structure for analysis in this study, it is important to recognise the contribution of other important factors related to drop out in future research, such as the impact of programme and system characteristics. This is a separate entity worthy of research in its own right and should not be neglected. Qualitative research, such as semi-structured interviews with group members who have dropped out of treatment would provide an important viewpoint that could help inform researchers in terms of programme characteristics that may make it more difficult for offenders to persist with treatment.

Conclusions

This study has shown that high scores on the PCL-R, HCR-20 (historical) and VRS (dynamic), and low scores on the Treatment Readiness, Responsivity scales and Buss-Perry (physical aggression) scales increase the likelihood of dropout from the CSCP programme in a sample of English male prisoners. Open acknowledgment of these factors, careful monitoring of them or referrals to other programmes prior to CSCP might help treatment deliverers tackle the problem of dropout. Furthermore, the relationship between treatment responsivity and dropout in this study lends support to the importance of understanding attrition predictors in terms of markers for programme improvement, rather than 'attrition profiles' used to exclude offenders from treatment programmes (Beyko & Wong, 2005).

Research in this area is still in its infancy and there is a need for further research to establish what the underlying concepts are that are leading to treatment dropout. Further replications of the methods and approaches used in this study would help to build up a clearer picture of the similarities and differences between predictors for different types of offenders and different types of programme. It is also important to balance research focused on offender characteristics with research focusing on programme and system characteristics.

Table 1

Pre-treatment variables that significantly differentiate between Drop Outs and Completers.

Pre-treatment variable	Group Satus	Mean Score	Standard Deviation	T - statistic
PCLR total	Total	18.2	5.92	
	Completers	15.76	5.41	
				4.002 **
	Drop Outs	20.69	5.40	
PCL-R Factor1	Total	5.26	3.38	
	Completers	3.56	2.64	
				5.157 **
	Drop Outs	7.00	3.18	
PCL-R Factor 2	Total	10.2	3.74	
	Completers	9.34	3.46	
				2.102 *
	Drop Outs	11.09	3.86	
HCR-20 historical	Total	12.15	2.6	
	Completers	11.44	2.40	
				3.104 *
	Drop Outs	13.11	2.58	
VRS dynamic	Total	36.06	8.4	
	Completers	33.88	8.15	
				2.951*
	Drop Outs	39.12	7.87	
Treatment readiness	Total	38.58	9.3	
	Completers	41.83	8.49	
				3.810**
	Drop Outs	34.86	8.86	
Treatment responsivity	Total	37.4	7.35	
	Completers	40.33	6.71	
				4.452**
	Drop Outs	34.05	6.64	
Buss Perry – physical aggression	Total	28.44	7.98	
	Completers	30.37	7.48	
				2.573*
	Drop Outs	26.39	8.06	

* P<0.05, ** P<0.001

Table 2

The predictive values of the 8 discriminant variables in descending order of best fit.

Pre-treatment variable	Standardised canonical discriminant function coefficients
Treatment responsivity	.607
PCL-R Factor1	.548
VRS dynamic	.485
HCR-20 historical	.365
Buss Perry – physical aggression	.302
PCL-R Total	.234
Treatment readiness	.099
PCL-R Factor 2	.061

Table 3

Accuracy of pre-treatment variables in classifying offenders who dropped out or completed treatment (N=70)

	Predicted group[a]	
Actual group	Completed (%)	Dropped Out (%)
Completers	29 (78%)	8 (22%)
Drop Outs	6 (18%)	27 (82%)

[a]80% correct classification

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