



Journal of Criminal Psychology

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Article information:

To cite this document:

Josefien J.F. Breedvelt Lucy V. Dean Gail Y. Jones Caroline Cole Hattie C.A. Moyes , (2014), "Predicting recidivism for offenders in UK substance dependence treatment: do mental health symptoms matter?", Journal of Criminal Psychology, Vol. 4 Iss 2 pp. 102 - 115

Permanent link to this document:

<http://dx.doi.org/10.1108/JCP-02-2014-0006>

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Predicting recidivism for offenders in UK substance dependence treatment: do mental health symptoms matter?

Josefien J.F. Breedvelt, Lucy V. Dean, Gail Y. Jones, Caroline Cole and Hattie C.A. Moyes

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Abstract

Purpose – *The purpose of this paper is to assess whether mental health symptoms affect one-year reoffending rates upon release from prison for participants engaging in substance dependence treatment in the UK.*

Design/methodology/approach – *A retrospective cohort study was used to assess reconviction outcomes upon release. The Comprehensive Addiction and Psychological Evaluation (CAAPE) was administered to 667 inmates admitted to the programme. The effect of mental health, drug use, and static risk factors on reoffending was assessed at one-year post release.*

Findings – *Logistic regression analysis showed that symptoms of Major Depressive Disorder at the start of substance dependence treatment increased the likelihood to reoffend, whilst Obsessive Compulsive Disorder symptoms and length of sentence decreased the likelihood to reoffend. Antisocial Personality Disorder symptoms show a trend towards increasing the likelihood to reoffend. In addition, previously established risk factors for reoffending, including dependence on heroin, crack/cocaine, and poly drug use significantly increased the likelihood of reconviction.*

Practical implications – *Depressive symptomatology pre-treatment could affect reoffending outcomes for participants in substance dependence treatment in prison. An integrative approach addressing both substance misuse and mental health factors is pivotal. Future efforts to address both simultaneously can be made to improve assessment, training, treatment, and through care for prisoners in substance dependence treatment.*

Originality/value – *Few studies have assessed the effect of mental health factors on reoffending outcomes for offenders in substance dependence treatment. A large sample was studied in an understudied population of UK prisoners in substance dependence treatment. The results have implications for clinical settings where mental health symptoms are not addressed concurrently with substance dependence. This finding can inform policy makers and practitioners who provide substance dependence treatment in prison.*

Keywords *Mental health, Prison, Depression, UK, Drug dependence treatment, Reconviction*

Paper type *Research paper*

1. Introduction

Understanding the factors that influence reoffending upon release from prison can inform offender management and rehabilitation (Brunton-Smith and Hopkins, 2013). This study contributes to the existing research on reoffending by investigating the impact mental health symptoms have on reconviction for prisoners engaged in the Rehabilitation for Addicted Prisoners Trust (RAPt) Substance Dependence Treatment Programme (SDTP).

First, this section will present an overview of the risk factors that have shown to be associated with recidivism. Second, a description of the RAPt programme will be provided. This section will conclude with an overview of the aims and scope of this study.

The authors would like to thank previous members of the research team for their contribution in data entry and collection. Special thanks to Steven L. Proctor and Norman G. Hoffmann for their feedback on the CAAPE section.

1.1 Risk factors for recidivism

Several factors have been associated with an increased risk of reoffending. Previous research has shown that heroin and cocaine dependence as well as poly drug use increase the probability of reconviction (Bennett and Holloway, 2005; Cross *et al.*, 2001; Håkansson and Berglund, 2012; Kopak *et al.*, 2014). Sentence length also seems to affect reconviction rates, with offenders on shorter sentences having an increased one-year proven reconviction rate compared to offenders on longer sentences (Boorman and Hopkins, 2012; Mulder *et al.*, 2012). Furthermore, compared to other types of offending, a history of theft and property offence significantly increases the risk to reoffend (Boorman and Hopkins, 2012; Kopak *et al.*, 2014).

Non-completion of offending behaviour programmes in prison also seems to affect reoffending outcomes. Several studies on a range of prison offending behaviour programmes in the UK have shown that non-completers have a higher risk of reoffending compared to programme completers (e.g. Hollin *et al.*, 2004; Kopak *et al.*, 2014; Merrington and Stanley, 2004).

In addition, previous research has found an association between ethnicity, reoffending, and type of re-offence (McGovern *et al.*, 2009; Wells-Parker *et al.*, 1989). A recent study by Case (2008) found that non-white offenders were more likely to be re-arrested and reconvicted than white offenders. These findings were replicated, even after controlling for offending history and index offence (McGovern *et al.*, 2009). However, when BME prisoners participated in drug rehabilitation programmes, this likelihood reduced by approximately 17 per cent (Case, 2008).

1.2 Mental health and drug dependence

Levels of drug dependence (Fazel *et al.*, 2006) and co-occurring mental health problems are disproportionately higher in incarcerated men and women compared to the general population (Grant *et al.*, 2004; James and Glaze, 2006; Jones and Hoffmann, 2006; Marsden, 2000). It is estimated that the prevalence of co-morbidity in drug treatment ranges from 20 to 93 per cent (Franken and Hendriks, 2001; Manning *et al.*, 2002; Marsden, 2000; Virgo and Higgin, 2001; Weaver, 2003).

Both substance dependence and mental health factors have been associated with an increased risk of reoffending upon release from prison (Coid *et al.*, 2007; Ullrich *et al.*, 2004; Baillargeon *et al.*, 2009; Castillo and Alarid, 2011; Ferguson *et al.*, 2008; Jaffe *et al.*, 2012; O'Driscoll *et al.*, 2012). Several studies have explored this association and it appears that some mental health factors increase the risk for reoffending and other factors decrease the risk. For example, research indicates that there is no added risk for reoffending for substance dependent participants with anxiety disorders (Håkansson and Berglund, 2012; McReynolds *et al.*, 2010). Conversely, previous research has found a significant association between reoffending and depressive symptoms for female offenders (Benda, 2005; Light *et al.*, 2013; Pelissier and O'Neil, 2000; Zust, 2009). In addition, Antisocial Personality Disorder (ASPD) has been found to be a strong predictor of reoffending (e.g. Hiscoke *et al.*, 2003; Mueser *et al.*, 2006; Peersen *et al.*, 2004; Serin *et al.*, 2013). However, little is known about which mental health problems need to be addressed in drug treatment programmes in order to reduce reoffending (O'Driscoll *et al.*, 2012).

1.3 RAPt

RAPt offers a 16-21 week SDTP. This is an accredited, intensive, 12-step, and abstinence-based programme offered in six prisons in the UK. The programme is built on an intensive and all-inclusive model combining evidence-based approaches designed to address substance dependence. The programme begins with the provision of Motivational Interviewing (Miller and Rollnick, 1991) and Seeking Safety (Najavits, 2002). This is based on empirical evidence supporting the use of these techniques in correctional settings (e.g. Bahr *et al.*, 2012; Brown *et al.*, 2006; McMurrin, 2007). The programme continues with a 12-step treatment plan based on the principles of Narcotics Anonymous, which has also been shown to have significant positive outcomes including long-term abstinence from several drugs (e.g. Gossop *et al.*, 2007). Participants are required to progress through the first five steps of the programme while contributing to group therapy sessions. Throughout the duration of the programme participants

are also required to engage with individual counseling sessions. An integral component of the programme is pro-social modeling from peer supporters and completers of the programme, or "graduates" as they are known, who can train to become peer supporters. The programme concludes with provision of a comprehensive care plan and relevant referrals (e.g. residential rehabilitation programmes), which allows participants to access aftercare once released from the facility. For additional information on the programme please refer to Kopak *et al.* (2014) and Martin and Player (2000).

Thus far, three studies have evidenced the effectiveness of the RAPt SDTP programme (Kopak *et al.*, 2014; Martin *et al.*, 2003; Martin and Player, 2000). All three studies found that completers of the programme were significantly less likely to reoffend compared to participants receiving a comparison intervention and non-completers (Kopak *et al.*, 2014; Martin *et al.*, 2003; Martin and Player, 2000). The most recent study conducted by Kopak *et al.* (2014), found that programme completion, drug of choice, index offence, and length of sentence were risk factors for reoffending upon release (Kopak *et al.*, 2014). However, none of the previous studies on the RAPt programme assessed the relationship between mental health symptoms and reoffending.

The purpose of this study is to assess whether mental health symptoms predict one year reoffending outcomes for prisoners engaging in substance dependence treatment. In addition, this study aims to evaluate which mental health factors in particular increase or decrease the likelihood to reoffend. It is hoped that the findings of this study will improve the design and implementation of drug treatment programmes in prison.

2. Material and methods

2.1 Measures

The Comprehensive Addictions and Psychological Evaluation (CAAPE) (Hoffmann, 2000), a structured diagnostic interview compatible with DSM-IV-TR criteria (American Psychiatric Association (APA), 2000), has been commonly used in the assessment of mental health disorders and substance use disorders in adults (Jones and Hoffmann, 2006; Proctor and Hoffmann, 2012; Proctor *et al.*, 2011, 2012, 2013). The CAAPE was adapted for use in the UK covering five Axis I disorders and five Axis II disorders based on the DSM-IV-TR criteria (Jones and Hoffmann, 2006). Preliminary research shows that the CAAPE possesses high internal consistency, with Cronbach's α for the individual diagnostic subscales ranging from 0.74 to 0.97 (Proctor and Hoffmann, 2012). The most recent evaluation of the CAAPE did not address the validity indices of the instrument (Proctor and Hoffmann, 2012). However, as the reliability sets the upper limit for the validity of this assessment, the reliability outcomes of the CAAPE subscales could suffice in providing preliminary support for the validity of this assessment in a prison setting (Proctor and Hoffmann, 2012). In addition, the CAAPE has been identified as showing high concurrent validity with the Structured Clinical Interview for DSM-IV (SCID) (Gallagher, 2006). The SCID is a validated psychometric questionnaire measuring similar constructs as the CAAPE and has been validated in prison settings. Both demographic and clinical content covered by the CAAPE have also been shown to be related to favourable outcomes following addictions treatment (Zywiak *et al.*, 1999).

2.2 Sample

The sample consisted of 667 men who engaged with the RAPt SDTP. The average age of the sample was 37 ($SD = 7$). The minimum age was 25 and the maximum age was 63. The inclusion criteria for admission to the programme were: meeting the DSM-IV-TR diagnostic criteria for a history of substance dependence (APA, 2000) and evidence of a link between substance misuse and offending (i.e. clients self-report the number of crimes committed to fund substance use or under the influence of substances). Each participant had to be released from prison between November 2006 and March 2010 for a minimum of one year to be eligible for inclusion.

2.3 Procedure

Participants were referred to the RAPt programme through self-referral or by their case manager. Prior to the start of the programme each participant was asked to consent for his information to

be used for the purpose of this research. Demographics, drug use history, mental health, and drug dependency scores were collected during the first 1:1 intake assessment and cross-referenced with offender records. Prior to the study, staff were provided with appropriate training to ensure consistent assessments. Recidivism in the criminal justice system was defined as any recorded offence and covers a return to the criminal justice system for any offence. Police National Computer (PNC) information on offending was retrieved for each released inmate to assess re-offending within a one-year post release period. Data were analysed 18 months after release to allow for the time taken to upload data onto the PNC and ensure accuracy.

2.4 Data analysis

Data were analysed using SPSS v. 22. Prior to the logistic regression analysis, descriptive analysis was conducted. Several variables were considered in order to predict reoffending and included in the regression model. Race was recorded according to a series of dummy variables to document prisoners' self-reported racial background (i.e. black, Asian, multiracial, other, and white).

Another consideration was prisoners' primary crime related to their imprisonment. Prisoners were grouped according to whether they were convicted of a crime against another person (e.g. assault), a property-related crime (e.g. theft), a drug-related crime, or other crimes (e.g. disorderly conduct, breach offences, weapons offences, and sexual offences).

Consistent with previous research (Kopak *et al.*, 2014), a large proportion of participants reported heroin or crack/cocaine as their primary drug (78.7 per cent of the aggregate sample) and a dichotomous measure was coded "1" to indicate heroin or crack/cocaine as a primary drug and "0" for other substances. Another binary variable was created to indicate whether or not participants reported use of a secondary drug (coded "1", and those who did not have a second drug of choice were coded "0"). A secondary drug could fall in any of the following categories: Cannabinoids, alcohol, stimulants, sedatives, hallucinogens, inhalants, or amphetamines.

A separate variable for non-completion was incorporated in the sample for those who initiated the SDTP but did not complete the programme. A binary variable was created for completion or non-completion of the programme (coded "1" for those who completed and "0" for those who did not complete the programme). The reasons most frequently cited for programme non-completion were: first, voluntary disengagement by the participant (30 per cent); second, repeated positive results on voluntary drug tests (25 per cent); third, misconduct relating to prison security issues (21 per cent); or fourth, discharge or transfer of prison (7 per cent).

3. Results

3.1 Participants

Demographic characteristics, offence history, primary drug of choice, mental health, and drug dependence data are included in Table I, separate columns are provided for reoffenders and non-reoffenders.

The sample consisted of 667 male prisoners with a mean age of 37 years ($SD = 7$). A total of 40 per cent of the sample ($n = 267$) were reconvicted and 60 per cent ($n = 400$) were not reconvicted upon release at one year follow-up. Of the RAPt programme completers, 31 per cent were reconvicted and 52 per cent of the non-completers were reconvicted. The main index offence was theft and kindred (47 per cent), followed by drug offences (20 per cent). The average time to reconviction was 147 days ($SD = 103.4$). The majority of the sample reported heroin (44 per cent) as their primary drug of choice with cocaine (crack or powder) coming second (34 per cent). Clients scores ranged between 0 and 9 on depression and the average score was 5.6 ($SD = 3$). The majority of the sample was either of white (72 per cent), black (12 per cent), or mixed ethnicity (5.2 per cent). The average sentence length was 45.6 months ($SD = 23.5$).

3.2 Regression

Hierarchic logistic regression was used to evaluate the impact of predictors on post release re-conviction. Table II shows the hierarchic logistic regression results on factors predicting

Table I Demographic characteristics and bivariate comparisons of offender groups

	Total (n = 667)	Reoffenders (n = 267)	Non-reoffenders (n = 400)
<i>Demographics</i>			
Age, years: mean (SD)	37 (7)	36.7 (7)	30 (10)
<i>Ethnicity, n (%)</i>			
Black	78 (11.7)	37 (13.9)	41 (10.3)
Other	6 (0.9)	1 (0.4)	5 (1.3)
Mixed	35 (5.2)	14 (5.2)	21 (5.3)
White	482 (72.3)	198 (74.2)	284 (71)
Asian	28 (4.2)	6 (2.2)	22 (5.5)
Missing	38 (5.7)	11 (4.1)	27 (6.8)
<i>Drug of choice, n (%)</i>			
Heroin Cocaine	525 (78.7)	224 (83.9)	301 (75.3)
Other drug	142 (21.3)	43 (16.1)	99 (24.8)
Second drug of choice	266 (39.9)	138 (51.7)	137 (34.3)
No second drug	401 (60.1)	129 (48.3)	263 (65.8)
<i>Symptom scores, mean (SD)</i>			
Major Depressive Disorder	5.6 (3)	6.0 (3)	5.4 (3)
Obsessive Compulsive Disorder	1.08 (1.1)	1.0 (1.1)	1.1 (1.1)
Anxiety Disorder	2.3 (1.4)	2.4 (1.4)	2.3 (1.4)
Eating Disorder	1.3 (1.2)	1.4 (1.1)	1.3 (1.6)
Anti-Social Personality Disorder	4.8 (1.7)	4.62 (1.8)	4.93 (1.5)
Paranoid Personality Disorder	1.9 (1.4)	1.9 (1.4)	1.8 (1.4)
Borderline Personality Disorder	2.5 (1.5)	1.9 (1.4)	2.5 (1.6)
Schizoid Personality Disorder	1.2 (1)	1.2 (1)	1.2 (1)
Conduct Personality Disorder	3.52 (2.4)	3.5 (2.3)	3.5 (2.4)

Table II Logistic regression results predicting re-offence one year after release

Variable	β (SE)	Wald's χ^2	p	OR	95% CI	
					Lower	Upper
Constant	-1.69 (1.4)	1.41	0.24	0.19		
Age	-0.01 (0.01)	0.99	0.319	0.99	0.96	1.01
<i>Race/ethnicity</i>						
White	1.57 (1.14)	1.92	0.166	4.82	0.52	44.7
Black	2.06 (1.16)	3.15	0.076*	7.84	0.81	76.3
Multiracial	1.58 (1.19)	1.75	1.86	4.87	0.47	51.0
Asian	0.92 (1.24)	0.55	0.458	2.51	0.22	28.4
Current sentence length	-0.14 (0.00)	10.92	0.001***	0.99	0.97	0.99
<i>Main offense</i>						
Offense against person	-1.96 (0.55)	12.79	0.000***	0.14	0.05	0.41
Drug offence	-1.29 (0.53)	5.92	0.015**	0.27	0.10	0.77
Theft and kindred	-0.50 (0.51)	0.96	0.327	0.61	0.23	1.64
Other offences	-0.80 (0.55)	2.07	0.150	0.45	0.15	1.33
<i>Drug of choice</i>						
Heroin or cocaine	0.59 (0.25)	5.77	0.016**	1.81	1.12	2.94
Additional drug of choice	0.46 (0.10)	5.38	0.020**	1.59	1.07	2.34
Treatment group	0.63 (0.19)	10.59	0.001***	1.87	1.28	2.74
Major Depressive Disorder	0.88 (0.03)	6.49	0.011**	1.09	1.02	1.17
Obsessive Compulsive Disorder	-0.21(0.10)	4.14	0.042**	0.81	0.67	0.99
Anxiety Disorder	0.01 (0.09)	0.01	0.921	0.99	0.83	1.18
Eating Disorder	-0.00 (0.09)	0.00	0.985	0.99	0.84	1.18
Anti-Social PD	0.11 (0.07)	2.26	0.133	1.11	0.97	1.27
Paranoid PD	0.04 (0.09)	0.19	0.666	1.04	0.87	1.24
Borderline PD	0.07 (0.08)	0.80	0.370	1.07	0.92	1.26
Schizoid PD	-0.01 (0.09)	0.00	0.947	0.99	0.83	1.19
Conduct PD	0.08 (0.05)	3.02	0.082*	0.92	0.84	1.01

Notes: $R^2 = 0.13$ (Hosmer and Lemeshow), 0.164 (Cox and Snell), 0.221 (Nagelkerke). Model $\chi^2(8) = 14.0$. * $p < 0.01$; ** $p < 0.05$; *** $p < 0.001$

re-offending within 1 year after release from prison. The results indicate that sentence length was significantly linked with reoffending (OR = 0.99, SE = 0.001, 95 per cent CI = 0.97-0.99). Longer prison sentences were related to significantly lower odds for reoffending. Those who started but did not complete treatment were more likely to reoffend (OR = 1.87, SE = 0.19, 95 per cent CI = 1.28-2.94) than programme completers. This implies non-completers were almost twice as likely to be reconvicted compared to prisoners who completed treatment. Those whose index offence was against the person showed the lowest odds of reconviction (OR = 0.14, SE = 0.55, 95 per cent CI = 0.05-0.41) compared to other types of offenders. The results also indicate that drug offences were significantly associated with reduced rates of reoffending (OR = 0.27, SE = 0.53, 95 per cent CI = 0.10-0.77) – drug offenders were almost 75 per cent less likely to reoffend than other offender types.

Prisoners who reported their primary drug was heroin or crack/cocaine were significantly more likely to have been reconvicted (OR = 1.81, SE = 0.25, 95 per cent CI = 1.12-2.94) than those who were dependent on other substances. This suggests that prisoners who use heroin or crack/cocaine are almost twice as likely to reoffend upon release compared to those whose primary drug was cannabis, alcohol, stimulants, sedatives, hallucinogens, inhalants, or amphetamines. Additionally, there was a significant relationship between secondary drug use and reconviction (OR = 1.59, SE = 0.02, 95 per cent CI = 1.07-2.34). Prisoners who were dependent on one or more additional substances were 55 per cent more likely to reoffend than those who did not report to use a secondary drug.

Whilst controlling for these variables, symptoms of depression and Obsessive Compulsive Disorder (OCD) were significantly related to reoffending upon release. The results indicate that symptoms of depression significantly increased the likelihood to be reconvicted (OR = 1.09, SE = 0.03, 95 per cent CI = 1.02-1.17) while OCD symptoms decreased the likelihood for reconviction (OR = 0.81, SE = 0.10, 95 per cent CI = 0.67-0.99) by over 20 per cent. Symptoms of ASPD were not significant, but showed a trend towards significance (OR = 1.11, SE = 0.07, 95 per cent CI = 0.97-1.27) in this model.

The current study also evaluated whether symptoms of mental health disorders were significantly associated with attrition during treatment. A consecutive regression analysis with completion or non-completion as outcome variable showed that only symptoms of panic disorder were significantly associated with attrition (OR = 1.12, SE = 0.26, 95 per cent CI = 1.03-1.22). This suggests that participants with symptoms of panic disorder were less likely to complete treatment than those with other or no mental health symptomatology.

4. Discussion

This is the first study to measure the association between co-occurring mental health symptoms and reoffending amongst men engaging in intensive drug treatment in UK prisons.

The results suggest that the presence of depressive and ASPD symptoms at the start of treatment increased the risk of reoffending one-year post release. Conversely, OCD symptoms significantly decreased the risk of reoffending. In addition, sentence length, heroin and crack/cocaine use, index offence and reporting using two drugs or more were all significant predictors of reoffending. This section will start with a detailed discussion of the findings, where after the implications are explored. Finally, the limitations and key conclusions of this paper are indicated.

4.1 Mental health symptoms

4.1.1 Depressive symptoms. Although previous research has found a significant association between reoffending and depressive symptoms in female offenders (Benda, 2005; Light *et al.*, 2013; Pelissier and O'Neil, 2000; Zust, 2009), this is the first study to associate depression with reoffending for male offenders in substance dependence treatment in the UK. Further research could explore the mechanisms that underlie this association. Areas for further research could cover factors associated with relapse such as tolerance to uncertainty (Yook *et al.*, 2010) and drug taking self-efficacy (Greenfield *et al.*, 2012), as these increase the probability to relapse and may therefore heighten the risk of re-offending.

The finding that depression was associated with an increased risk of reoffending but did not impact on treatment completion also urges further research. This result indicates that the RAPt treatment programme may be effective in engaging and retaining clients that score highly for symptoms of depression, but that a number of clients may be unable to maintain the gains made in treatment.

4.1.2 ASPD symptoms. ASPD showed a significant trend in predicting reoffending. Previous studies found ASPD to be a significant predictor for reoffending (e.g. Hiscoke *et al.*, 2003; Mueser *et al.*, 2006; Peersen *et al.*, 2004; Serin *et al.*, 2013). Further exploration of this finding is necessary to assess why ASPD was not significantly linked to reoffending in this sample. Furthermore, deficits in social problem solving skills could be studied further as these have been associated with depression (Segrin, 2000), ASPD (Oliver *et al.*, 2011), and reoffending (Antonowicz and Ross, 2005). Consecutive studies could, for example, assess whether social problem solving skill deficits are a precursor or potentially mediate the association between depression, ASPD, and reoffending.

4.1.3 OCD symptoms. Participants with OCD symptomatology had a decreased likelihood to reoffend at one-year follow-up. Due to the limited evidence base in offending literature relating to OCD, it is uncertain whether this is consistent with previous research. However, studies show substance dependent participants with anxiety disorders had no added risk for reoffending (Håkansson and Berglund, 2012; McReynolds *et al.*, 2010). The current research indicates the need for an increased awareness of OCD in substance dependence treatment. In addition, further research is needed to assess why OCD symptomatology might be a protective factor in offending outcomes.

4.2 Sentence length

The finding that longer sentence length was associated with lower odds for reoffending is consistent with previous research (Boorman and Hopkins, 2012; Kopak *et al.*, 2014). Offenders on short sentences might not benefit as much from the wide realm of services and support available in prison (Kopak *et al.*, 2014). As government initiatives aim to further reduce the length of sentences (Ministry of Justice, 2010; The Howard League for Penal Reform, 2011), research could explore different ways of providing supervision and long term interventions in the community.

4.3 Completion and non-completion

Treatment non-completion showed a significant trend in predicting reoffending outcomes, which is in line with previous research (e.g. Hollin *et al.*, 2004; Merrington and Stanley, 2004). This finding highlights the importance of increasing completion rates in order to reduce reoffending (Merrington and Stanley, 2004). However, completions in substance misuse treatment programmes in general (including lower intensity interventions aside from RAPt programmes) decreased by over 60 per cent from 2009/2010 to 2012/2013; this coincides with local partnerships taking control of funding and commissioning prison drug and alcohol treatment in 2011 (Ministry of Justice (MoJ), 2013). RAPt's SDTP completion rates have increased from 64 to 73 per cent since 2008 (Kopak *et al.*, 2014), which indicates a need for commissioners to further utilise intensive accredited programmes with higher completion rates (MoJ, 2013).

4.4 Primary drug, offending history, and poly drug use

The finding that dependency on heroin or crack/cocaine was associated with significantly higher odds for reconviction corresponds with previous research (Cross *et al.*, 2001; Håkansson and Berglund, 2012) and contributes to the evidence base on heroin and crack/cocaine being key indicators of reoffending (Bennett and Holloway, 2005). This finding directly reflects the high prevalence of these two drugs in the UK general adult population with cocaine having the highest rate of past-month use, and heroin was ranked as the fourth most prevalent drug used in the past month (Hoare and Moon, 2010).

Heroin use has been associated with acquisitive crimes. Research has found that those who reported heroin use in the past year were significantly more likely to have shoplifted compared to

those who had not used the drug (Bennett and Holloway, 2005). Another study conducted in the Netherlands supported this assertion with evidence that 71 per cent of heroin users in a treatment programme self-reported shoplifting (van der Zanden *et al.*, 2007). Similarly, studies have revealed that those involved in cocaine use were nearly 17 times more likely than non-frequent drug users to report illegal income from stealing (Cross *et al.*, 2001).

Consistent with previous research (Boorman and Hopkins, 2012), violence against the person and drug offences were linked to lower rates of reoffending compared to other offences. This cohort may have committed these types of offences under the influence of drugs and/or alcohol to fund their dependency (Carpenter, 2007). The significantly lower rates of reoffending for these types of offenders could be due to the effectiveness of the RAPt SDTP addressing substance dependency and reoffending, as evidenced by previous studies (Martin *et al.*, 2003; Martin and Player, 2000; Kopak *et al.*, 2014).

In addition, this study found that dependency on at least one additional substance significantly increased the likelihood of reoffending, which is congruent with previous research (e.g. Håkansson and Berglund, 2012). Researchers have shown that different combinations of primary and secondary drugs of choice yield similarly higher rates of reoffending than for those dependent on one substance (Håkansson and Berglund, 2012; Menard *et al.*, 2001; Menard and Mihalic, 2001). Therefore, dependency on multiple substances may warrant further assessment and consideration of additional treatment interventions in order to reduce reoffending for poly drug users (Kopak *et al.*, 2014).

4.5 Panic disorder and attrition

It was a secondary finding that symptoms of panic disorder increased the likelihood of programme attrition. This association has not been evidenced in any published research on similar populations. This unexpected finding merits future investigation as it is particularly important to examine factors that impact upon programme attrition in light of the evidence that completion of this programme predicts lower reconviction outcomes (Kopak *et al.*, 2014).

4.6 Implications

Policy reviews in the UK have suggested that the treatment of low level mental health problems are inadequately addressed in prisons (Edgar and Rickford, 2009; Bradley, 2009; Scott and Moffatt, 2012). While there has been an increase in treatment availability for drug and alcohol disorders in prison (National Treatment Agency (NTA), 2009), there is a lack of integrated treatment for comorbidity with mental health disorders (Bradley, 2009; Kay-Lambkin *et al.*, 2012; McIntosh and Ritson, 2001). Only a small proportion receives integrated treatment that addresses both conditions (Brown *et al.*, 2009; Kay-Lambkin *et al.*, 2012). The results of this study suggest that treatment for depression should be integrated in substance dependence treatment and depression should be viewed as a significant risk factor for reoffending.

Progress in service provision may be limited by a lack of open collaboration and training for staff on the management of offenders who present with both dependency and mental health problems. This is especially the case for drug treatment and mental health services in prisons, where a lack of communication and "silo working" between the two services frequently hampers treatment progress (HM Inspectorate of Prisons, 2007; Department of Health, 2002; Scott and Moffatt, 2012; Brown *et al.*, 2009).

More training, information, and research on clients with mental health problems in substance dependence treatment is needed to improve integration of teams and treatment (Department of Health, 2002, p. 16; Edgar and Rickford, 2009; Scott and Moffatt, 2012). Training could be improved by, for example, teams training each other in order to improve understanding, increase interaction, and transfer expertise (El-Guebaly, 2004; McIntosh and Ritson, 2001). Moreover, assessment measures could be improved to instill effective and reliable screening of co-occurring disorders in both drug and mental health services (El-Guebaly, 2004; McIntosh and Ritson, 2001). In addition, McIntosh and Ritson (2001) suggest that it would be desirable for all services to use identical guidelines for identification and recording of co-occurring disorders.

The finding that heroin and cocaine use was associated with an increased risk of recidivism implies a need to prioritise these risk factors in the assessment and through care planning within substance dependency treatment programmes (Kopak *et al.*, 2014). Especially as these drugs have been associated with an increased risk of acquisitive offences (Bennett and Holloway, 2005; van der Zanden *et al.*, 2007). Treatment efforts to reduce heroin use have been associated with reductions in acquisitive crime (Gossop *et al.*, 2000), which has been identified, in the current UK criminal justice climate, as a key area to target in order to reduce reoffending (Drugs: Protecting Families and Communities, 2008).

The finding that treatment completion is associated with a decrease in the risk for reoffending indicates the need to increase focus on programme completion in drug treatment programmes. Programmes could increase focus on treatment engagement. Treatment engagement has especially been associated with an increase in completion rates and a decrease in reoffending (D'Amico *et al.*, 2013). In particular, a focus on the therapeutic alliance between case worker and client could establish therapeutic engagement and increase retention (Meier *et al.*, 2005). Further incorporation of evidence-based approaches to enhance therapeutic engagement in drug treatment practices in the UK could help to reduce reoffending (NTA, 2009). In addition, factors which may lead to disengagement, also need further exploration and need to be addressed effectively in substance dependence treatment (NTA, 2009).

4.7 Limitations and conclusions

This study has several factors limiting the interpretation of the results. First, the questionnaires relied on self-report, which makes it difficult to institute reliability and validity. Second, the mental health screen was adapted from the CAAPE and was altered for validity in a prison setting. Both might affect the reliability and validity of the assessment. Third, the sample was male and mainly Caucasian, limiting the generalisability of these findings to other cultures and ethnicities. Furthermore, selection was non-random as participants either self-selected or were endorsed by their case manager.

However, despite the limitations, this study was able to evaluate a large prison based clinical sample, known to be a high-risk population for reoffending. In addition, this analysis provides critical insight into the relationship between depression, substance dependence, and reoffending. It is hoped that these findings are used in the development of substance dependence and offending behaviour treatment programmes in UK prisons.

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