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Early detection and early intervention in prison: improving outcomes and reducing prison returns

Running title: Early detection in prison

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Abstract

Our aim was to investigate whether early detection was feasible in prison and whether it could improve mental health outcomes in young prisoners. A secondary aim was to explore whether it can reduce returns to prison. Between 2011-2014 a total of 2,115 young prisoners were screened, 94 (4.4 %) met criteria for ultra-high risk for psychosis and were offered an intervention, 52 opted to receive it. Return to prison data was sought on the 52 participants, receiving a formal intervention. Of the 52 prisoners who received an intervention, 30.8% returned to custody compared to national average reconviction rates of between 45.4 - 66.5%. Our results suggest that early detection is a feasible option in a prison setting, improving mental health outcomes and reducing returns to prison. Mental health outcomes were recorded for a sub-sample of those receiving the intervention. The results indicated statistically significant improvements on measures of depression, anxiety and psychological distress.

Introduction

Prison populations are increasing around the world (Walmsley, 2003) and in the UK the prison population currently in exceeds 85,000 (Ministry-of-Justice, 2015a), with numbers projected to rise to 90,200 by June 2020 (Ministry-of-Justice, 2014b). It is widely reported that offenders present with a range of complex mental health concerns (Fazel & Seewald, 2012) that may place them at risk of re-offending in the future. Psychiatric morbidity is reported to be much higher amongst prisoners than the general population (Gunn, Maden, & Swinton, 1991) and the high prevalence of mental health problems in custody (Singleton, Gatward, & Meltzer, 1998) is a global phenomenon (Fazel & Seewald, 2012). In England and Wales, increases in the prison population have led to a rise in diagnosed mental illnesses in custody (Brooker, Gojkovic, Sirdifield, & Fox, 2009). Characteristically offenders make little use of mental health provision when in the community (Harty, Tighe, Leese, Parrott, & Thornicroft, 2003), highlighting a need to engage these hard to reach individuals in prison to ensure that those at ultra-high risk are linked in with at mental health services at the earliest opportunity.

Current mental health provision

Mental health in-reach services were introduced in UK prisons with the aim of providing equivalent care to that found in the community (Till, Forrester, & Exworthy, 2014). However, although many developments have taken place, services have faced considerable strain, indicating that further work and provision is still required (Shaw et al., 2009). Prisons have traditionally been seen as anti-therapeutic because they are primarily geared toward the provision of punishment and public protection (Smith, 2000). Arguably these same restrictions may also provide a valuable opportunity to screen and engage those who do not

routinely access health services in the community (Harty et al., 2003). Previous findings indicate that offenders will accept health services during their time in custody (Marshall, Simpson, & Stevens, 2001). Therefore, a contained environment may provide an opportunity to offer integrated services across multiple domains (including mental and physical health and substance misuse) to people who often do not access healthcare services when they are in the community (Till, Exworthy, & Forrester, 2015). They may also help to stabilise some individuals, allowing an alliance to be fostered in which effective (early) interventions can be delivered.

Psychological interventions including cognitive skills programmes have been developed in both prison and the community, offering a rehabilitative approach (Hollin et al., 2008). There is some evidence to indicate that these programmes can lead to a reduction in reconviction rates (Sadlier, 2010), however the goals and approach are markedly different from the therapeutic interventions targeting an individual's mental health problems (Harvey & Smedley, 2012). Inclusion in an offender programme is based on risk, targeting offenders' criminogenic needs (Andrews & Dowden, 2006), as opposed to the individually tailored treatment of mental health. Although there is a high prevalence of mental health problems among offenders (Singleton et al., 1998), mental health treatment services and offence based work have tended to sit separately (Forrester, MacLennan, Slade, Brown, & Exworthy, 2014).

The effectiveness of prison health services in delivering psychological therapy to improve mental health outcomes either in groups or on an individual basis is widely under investigated. As a therapeutic approach, the evidence base for Cognitive Behaviour Therapy (CBT) is strong (Hofmann, Asnaani, Vonk, Sawyer, & Fang, 2012), however there has been limited research into the effectiveness in a prison setting. A pilot randomised controlled trial of CBT for suicide prevention for male prisoners indicated that this therapy (delivered here in a group format), can have a positive impact on the number of suicidal, self-injurious

behaviours, as well as some improvement on ratings of hopelessness, depression, anxiety and self-esteem when compared to those receiving treatment as usual in the prison (Pratt, Gooding, Awenat, Eccles, & Tarrier, 2015). Case examples of individual CBT in prison have been described for the treatment of post-traumatic stress disorder (Campbell et al., 2016) and anger management problems (Huddy, Roberts, Jarrett, & Valmaggia, 2015). These examples, while limited in number, indicate a need for further exploration of their positive impact.

Early detection and early intervention in prison

Early detection and intervention in the community has been shown to be effective in reducing psychopathology (van der Gaag et al., 2013) and improving long term outcome (Valmaggia et al., 2015), as well as reducing the long term costs of care (Jarrett et al., 2012; Valmaggia et al., 2009). Recent research demonstrated that early detection screening is feasible in a prison setting, with 5% of those screened meeting criteria for Ultra High Risk for psychosis (UHR) (Jarrett et al., 2012). In the community, the longitudinal course of the UHR is highly heterogeneous (Rutigliano et al., 2016) and UHR has been found to be associated with a with an 36% risk of transition to psychosis after three years (Fusar-Poli et al., 2012), a risk which is the highest within the first two years since initial assessment (Kempton, Bonoldi, Valmaggia, McGuire, & Fusar-Poli, 2015).

In prison evidence suggests that prisoners are keen to accept early detection services (Flynn, Smith, Quirke, Monks, & Kennedy, 2012; Jarrett et al., 2012; Jarrett et al., 2015). The positive impact that early detection can have in the prison context is of particular interest (Marion-Veyron et al., 2015).

Elevated prevalence of mental health issues in offenders is well established (Fazel & Seewald, 2012) and re-offending rates remain consistently high (45.4% in adult offenders released from custody and as high as 66.5% in young offenders (Ministry-of-Justice, 2015b), it is therefore unsurprising that a clear association between the two has now been suggested and improvement of healthcare services to prevent reoffending highlighted (Chang, Larsson, Lichtenstein, & Fazel, 2015). Research into the feasibility of delivering early detection and intervention in prisons on both mental health outcomes and indicators of recidivism is therefore warranted. When setting up a service or conducting research it is important to take into account that 80% of the individuals in prison have a reading age of 11 years or less (Social-Exclusion-Unit, 2002). This can mean that at times it is difficult for some of them to identify and describe their feelings and thoughts clearly. Therefore assessment measures and treatments need to be adapted to this group.

The current study aimed to establish the feasibility of setting up an early detection and intervention service equivalent to that in the community, delivering not only screening for ultra-high risk for psychosis to all new receptions between the ages of 18 to 35, but also offering individual therapy to all those displaying need (a provision not currently available in prisons). The study aimed to establish appropriate mental health outcomes for use in a service and to research whether individual CBT interventions would impact on these measures as well as future returns to prison. To our knowledge, this is the first study of its kind to determine feasibility of delivering early detection followed by early therapeutic intervention in a prison.

Ethical approval

Ethical approval for the study was granted by Essex 2 Research Ethics Committee (REC:

08/H0302/118) to analyse data collected as part of the routine clinical screening. An Audit and Service Evaluation approval was obtained from the South London and Maudsley NHS Foundation Trust to collect the treatment outcome measures.

Method

Setting and Service Context

The London Early detection And Prevention (LEAP) team began working in prison as an extension of the Outreach And Support In South London (OASIS) community teams that aimed to screen, assess and provide interventions to those with an Ultra High Risk (UHR) state. UHR can be assumed when one or more of the following three criteria: i) first degree relative with psychosis or schizotypal personality disorder and/or ii) attenuated psychotic symptoms and/or iii) a psychotic episode lasting seven days or less then resolving itself, alongside a clear drop in functioning (Yung et al., 1996; Yung et al., 2005).

The LEAP team began operating at one adult male South London prison holding approximately 750 prisoners aged 21 and over, who were either on remand, convicted un-sentenced or sentenced. It was then extended to a second site based in South East London, accommodating 622 sentenced youth and adult offenders between the age of 18 and 30 years old. The current study was run between the end of 2011 and mid-2014. Follow-up data were collected in September 2015.

Sample and screening procedure

Weekly receptions into the prison were monitored by two Assistant Psychologists in the team. Prisoners aged 18-35 were screened by these two staff members and trained by the same lead to carry out screening in a uniform way, increasing the likelihood of inter-rater reliability. When positive for the screening, prisoners were then assessed via a semi-structured interview (see below for details). Prisoners were only excluded from the screening if there was evidence of prior mental health problems before prison or had insufficient English to answer screening questions.

Between 2011-2014 a total of 2,115 individuals were screened. All those who assessed as UHR (following screen and full assessment) were offered a CBT intervention from the LEAP team. Participants who opted to receive a CBT intervention of at least one session (indicating a minimal level of engagement with LEAP therapy) were included in this report. A decision regarding appropriate therapy measures was made once the LEAP service was more established. Pre and post therapy measures were therefore gained from a sub-sample of 20 of the 52 participants.

Materials

Screening and Assessment instruments

A two stage approach was used. A modified and validated version (Jarrett et al., 2012) of the Prodromal Questionnaire-Brief (PQ-B) (Loewy, Pearson, Vinogradov, Bearden, & Cannon, 2011) was used as a screen to initially identify those who have an UHR state. Questions elicit a yes/no response to positive psychotic symptoms items. To maximise sensitivity a positive screen was set as endorsement of at least five questions with distress (Jarrett et al., 2012).

Prisoners who screened positive on the modified PQ-B were followed-up and interviewed face to face using the Comprehensive Assessment of the at Risk Mental State (CAARMS) (Yung et al., 2005). This semi-structured interview was adapted to include Positive symptoms of psychosis (Unusual Thought Content, Non-Bizarre Ideas, Perceptual Abnormalities and Disorganised Speech) and four sections of the General Psychopathology Scale (Mania, Depression, Anxiety, Self-harm and Suicidality). Symptoms were assessed in terms of frequency, associated distress and whether they occurred with or without the use of illicit substances. The approach using the PQ-B plus the CAARMS assessment approach has been successfully validated in the community (Loewy et al., 2011; Rietdijk et al., 2012) and in a prison setting (Jarrett et al., 2012; Jarrett et al., 2016; Jarrett et al., 2015).

Based on both screening and assessment those considered to be UHR were eligible for an intervention.

Pre- and post-therapy measures

Patient Health Questionnaire-9 designed to look at depression (PHQ-9) (Kroenke, Spitzer, & Williams, 2001), the Generalised Anxiety Disorder Assessment-7 (GAD-7) (Spitzer, Kroenke, Williams, & Lowe, 2006) and the Clinical Outcomes in Routine Evaluation short version recording the level of current psychological distress (CORE-10) (Barkham et al., 2013) were used where relevant. These measures have been validated and were selected in order to measure change in symptoms of depression, anxiety and distress individuals reported experiencing these symptoms in the face of UHR states. Brief measures were used in order to limit the possibility of disengagement that can occur with lengthy, time-consuming paperwork and to ensure that those with low levels of comprehension were suitably engaged.

Return to prison

Return to prison was recorded for all individuals who received at least one session of CBT therapy as of September 2015 (just over a year after the final participant completed therapy). This time frame was used in order to match as closely as possible with national measures that analyse re-offending rates (Ministry-of-Justice, 2015b).

The Prison National Offender Management Information System that allows access to offender records was used to track whether those treated, were or had been, back in custody and for what crime.

Analyses

SPSS Version 21.0 was used to analyse the data. Descriptive statistics were run to calculate; the mean age of those treated, the median number of sessions, the frequency and percentage of those who re-admitted to prison and if the charge was violent or non-violent. Chi-squared test were performed to compare demographics in our sample with those screened, to see if those at risk of psychosis were different in any way. Non-parametric tests were used where appropriate on baseline and post intervention measures based on an analysis of the probability distributions.

Results

Prisoners eligible for intervention

A total of 2,115 participants were screened for UHR psychosis states. Eligibility for a CBT intervention from the LEAP team amounted to confirmation of UHR state following a

positive screen and then a comprehensive assessment indicating presence of symptoms. As indicated in figure 1, a total of 94 (4.4%) were classified as UHR. All these individuals (94, 4.4%) were offered an intervention but due to characteristics unique to prison settings such as expected releases, upcoming court cases and planned moves, we were only able to deliver some form of CBT intervention to 52 participants.

Figure 1

Demographics

The mean age of the 52 male participants who received an intervention from the LEAP team was 23.9 years (SD= 5.184). Statistical tests were then performed to compare our sample with the screening pool as a whole in order to further understand any complexities of our particular sample. Table 1 indicates that there were no significant differences between the groups in terms of ethnicity, implying that our sample was representative of those screened across the two prison sites. However, when compared to national prison population figures our sample and screening pool are significantly different in terms ethnicity indicating an over-representation of Black and Minority Ethnic groups (BME) groups compared with the UK prison system as a whole but consistent with statistics on local inner city London jails (Ministry-of-Justice, 2014a).

Table 1.

Qualifications, meaningful day activity and housing status prior to prison were compared between those receiving an intervention and the total numbers of prisoners screened. This decision was made based on evidence suggesting that those exposed to social adversity and underachieving are at risk of developing psychosis and schizophrenia (Bentall et al., 2014; Jones et al., 1993).

The variables were defined as either; no formal qualification or some form of qualification, meaningful day activity or unemployed prior to custody and homeless or housed. Statistical tests revealed no significant differences across these variables.

Use of illegal substances

Prevalence of drug use among those screened and those receiving treatment was also compared. We decided to look at this adversity indicator based on evidence that suggests those that the risk of conversion to psychosis is heightened in those with a history of substance abuse (Cannon et al., 2008). Those who received treatment were statistically more likely to have smoked skunk (a higher potency of cannabis) (x^2 (df1) 3.912 (p<.05). No significant differences were found regarding use of marijuana, crack cocaine, cocaine, stimulants, or opiates.

Self-harm and suicide ideation

No significant differences were found between those who were offered an intervention and the total number of prisoners screened with regard to suicide ideation but levels of self-harm

were approaching significance, X^2 (df1) =3.430, p= 0.073. Within our sample of 52 participants, 18.2 % indicated that they had previously self-harmed compared to a rate of 9.7% in all those screened. This finding corroborates previous research indicating that self-harm can be common during the pre-treatment phase of first episode psychosis too (Harvey et al., 2008).

Engagement with treatment

Participants received a median number of 6 sessions (SD=11.88). Most prisoners (N=37, 71.2%) completed the planned CBT intervention, with the number of sessions determined on a case by case basis. CBT formulation based interventions would either be low intensity involving; guided self-help, psycho-education on basic behavioural intervention or high intensity for more difficult/less clear cut cases involving complex formulations and thought challenges. Ten cases (19.2%) were transferred out to another prison before the intervention could be completed. Five prisoners (9.6%) disengaged from treatment. This data although specific to this particular study, illustrates reasons unique to a prison setting, as to why completion of a planned intervention may be prevented.

Mental health outcomes for sub-group of 20

Baseline and end of treatment measures were completed for 20 participants in our sub-group of 52. This sub-group was established once decisions on appropriate outcomes measures had been made and used with individuals who had not been subject to an unplanned move or release. Results obtained on measures of depression (PHQ-9), anxiety (GAD-7) and psychological distress (CORE-10) in a smaller sample set, indicated a reduction in symptoms following the intervention. Wilcoxon signed-rank tests showed that, individual CBT

interventions elicited statistically significant changes in; depression (N=20) (Z = -3.546, p < 0.001), anxiety (N=20) (Z = -3.598, p<0.001) and psychological distress (N=15) (Z= -3.073. p<0.002).

Post therapy feedback

Feedback scores were obtained from 15 participants who agreed and were available to record how satisfied they were with therapy, how helpful they found it and whether they would recommend it. Feedback was measured between 0-10 on a Likert scale (0 being the least satisfied and 10 the most). All participants rated their satisfaction as 7 and above and 60% rated 10 (completely satisfied). Participants all rated helpfulness as 5 and above and 53% rated 10 (most helpful). In terms of recommending the service to others, all rated this scale as 7 or above and 66.7% indicated that they would definitely recommend.

Return to prison all participants

Of the 52 participants, two (3.8%) were still in custody, yet to complete their original sentence and were therefore excluded from analysis when comparing the re-offending rates across the two groups. 34 (65.4%) had not returned to prison, 16 (30.8%) had. Of these, 11 (21.2%) had been placed in custody based on non-violent charges, 1 (1.9%) for a suggested violent offence and 4 (7.7%) had been recalled. Of those returning to prison in our sample 6.25% (1 of 16) had been charged with committing a violent re-offence compared to 17% of those who re-offended in 2009 (Ministry-of-Justice, 2012).

Discussion

The aim of this study was to establish the feasibility of offering early detection and intervention to incarcerated individuals with UHR state, as well as beginning to understand the possible impact this may have on mental health outcomes and returns to prison.

Currently resources are stretched (Till et al., 2014) and there is little provision for preventative mental health interventions addressing UHR states. We were able to establish that delivering a service offering both screening and intervention for UHR is feasible in a prison setting; improving mental health outcomes and aiding to reduce returns to prison.

In terms of offering a service that is equivalent to that offered in the community (Department-of-Health, 1999), we were able to establish that providing a comparable early detection and intervention service that helps improve mental health outcomes is feasible but presents challenges. While community mental health services undoubtedly face issues of treatment retention, the prison setting provides its own unique set of barriers. As indicated by the numbers eligible for treatment (N=94) and those who went on to receive help (N=52), a young prison population can be transient. Although we offered help to all, we were not able to deliver this at times because of refusal but more often than not due to other reasons including; scheduled criminal justice appointments, prison transfers and releases that took precedence over mental health. Despite the identified barriers, all 94 classified with an UHR as a result of assessment, were either able to access care or were facilitated in accessing treatment in other prisons or referred to community services upon release should they want it. Psychological interventions were delivered to 52 participants, with high levels of satisfaction indicated by all 15 who agreed and were available to provide feedback. Of those for whom pre- and post- therapy measures were collected, mental health outcomes improved significantly across all measures of anxiety, depression and current psychological wellbeing.

As in community samples, people with UHR were significantly more likely to report previous skunk use (Cooper et al., 2016; Valmaggia et al., 2014). A history of self-harm among our sample was also approaching significance, yet further supporting the need for psychological input in those with UHR who are likely to have co-morbid issues.

The 30.8% return to prison rate in our sample (a possible indicator of reconviction) is lower than proposed national average reconviction rates of, 45.4% in adult offenders and 66.5% in young offenders (Ministry-of-Justice, 2015b) and consistent with findings indicating that treatment of psychosis helps to delay the time to violent re-offending (Igoumenou, Kallis, & Coid, 2015). Findings are consistent with previous research, highlighting the positive impact of interventions on rates of recidivism (Friendship, Blud, Erikson, Travers, & Thornton, 2003). Previous work has, however, only focused on group interventions designed to address offending behaviour. Such programmes undeniably have a place in the criminal justice system. They are however extremely structured, are not designed to formulate and address the specific mental health issues of the individual committing crime, and pay limited attention to the therapeutic relationship and the of role supportive interactions (Rogers, Harvey, & Law, 2015).

This feasibility study suggests that there is a need for psychological interventions in prisons targeting individual mental health issues; with effective therapeutic alliances and interventions for UHR leading to a reduced likelihood of return to prison compared to national statistics (Ministry-of-Justice, 2012). Recent studies around the effectiveness of medication treatment on time to violent re-offending in those with schizophrenia (Igoumenou et al., 2015) and the impact of untreated schizophrenia both within and beyond prison on rates of violence (Keers, Ullrich, Destavola, & Coid, 2014) further support the argument for effective screening followed by intervention (medical or other) for those with psychosis or psychotic like symptoms in prisons. This study is the first to demonstrate the impact of

treatment on UHR states in improving both mental health outcomes and reducing returns to prison, however reconciling the conflict between requirements of security and rehabilitation remains a significant obstacle that may lead to disengagement in some participants.

Our study was based across two London based prisons tasked with holding those on remand, un-convicted sentenced and sentenced prisoners. Offenders were often based in these institutions for unspecified amounts of time and transferred at very short notice and without informing the mental health team. In our study alone, 10 individuals were transferred without notice to other establishments before the planned ending of the CBT intervention. Establishing ways to work more effectively within the prison regime and preventing unplanned endings that destabilise psychological work is a significant challenge. The need to address these issues in order to prevent disengagement and the reinforcement of entrenched negative attachment styles found among offenders (Casswell, French, & Rogers, 2012; Levinson & Fonagy, 2004), is of paramount importance. Further dialogue, education and establishment of links between prison and healthcare staff could in the future relieve some of these pressures.

Supportive and joint working will help to facilitate more successful interventions that are likely to impact not only on mental health outcomes and re-offending rates but also potentially provide significant cost savings to the criminal justice system. In light of our findings, interventions that can potentially reduce the economic burden of re-offending that is currently soaring between £9.5 and £13 billion a year should be further investigated, with formal cost saving analysis methods and larger sample sizes.

Limitations

The main limitation of the current study is the small sample size. Despite this, we were able to suggest a possible reduction in returns to prison compared with national statistics. Although we were not able to measure re-offending among our sample using the Police National Computer, the database used by the Ministry of Justice, it is reasonable to suggest that return to prison may be a plausible indicator of re-offending in our sample. The Police National Computer's definition of a re-offence as; *'any offence committed in a one year follow-up period and receiving a court conviction, caution, reprimand or warning in the one year follow up or a further six months waiting period'* (Ministry-of-Justice, 2011) is likely to be reflected in our prison return measure, as those who have already served a custodial sentence have a history of offending and potentially future parole restrictions that mean that the likelihood of returning for further wrong-doing is high (Prison-Reform-Trust, 2014).

This study goes some way to highlighting the contribution early detections and interventions can have to improve mental health outcomes. One question for future research though concerns the potential for reducing later risk of transition to psychosis in a treated UHR offender sample.

The absence of a control group in this current study means that the observed indicator of reduced re-offending and the improved mental health outcomes can be refuted. A randomised controlled trial comparing a control group receiving treatment as usual (according to current prison practice) and an intervention group receiving treatment as usual plus an individual CBT intervention, is now needed to provide a more rigorous examination of the relationship between mental health support for prisoners at ultra-high risk of psychosis and reduced re-offending.

Declaration of Interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

Authors and contributors:

I, Lucia R. Valmaggia confirm that I had full access to all the data in the study and that I had final responsibility for the decision to submit for publication.

We, Clare Evans, Manuela Jarrett, Andrew Forrester, Vyv Huddy, Catherine Campbell, Majella Byrne, Thomas Craig, and Lucia R. Valmaggia declare that we participated in the design, recruitment of participants, data analysis and writing of the paper.

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Table 1 Ethnicity.

	ARMS N=52	Screened N=2,115	Statistical test	Total male population N= 79,666	Statistical test
	N (%)	N (%)		N (%)	
Black	23 (44.2%)	1007 (47.6%)		9905 (12.4%)	
White	20 (38.5%)	666 (31.5%)		58808 (73.8%)	
Asian	0	25 (1.2%)		5885 (7.4%)	
Mixed Race	3.0 (5.8%)	201 (9.5%)		3250 (4.1%)	
Chinese or Other	6.0 (11.5%)	215 (10.2%)	p=.772	818 (1%)	p <.001
Unknown	0	0		1000 (1.3%)	

Exact tests were performed due to the small sample size.

UK prison statistics based on Ministry of Justice (2014) Chapter 7: Offenders under Supervision or in Custody Tables.

Table 2: *Re-admission to prison (yes/no) between end of intervention and Sep 2015*

	N (%)
Did not come back to prison	34 (65.4%)
Re-offended and violent offence	1 (1.9%)
Re-offended but non violent	11 (21.2%)
Recalled to prison due to of breach licence	4 (7.7%)
Still on original sentence	2 (3.8%)

Figure 1. CONSORT chart

Screened for eligibility via Prodromal Brief Questionnaire for Psychosis (n = 2115)

Excluded (n = 1527)

Not meeting inclusion criteria- negative screen (n = 1499)

Refused to participate despite screener indicating positive or psychotic (n = 28)

Further screened through comprehensive assessment for (n = 588)

Excluded (n =494)

Negative for Ultra High Risk for psychosis on assessment (n = 470)

Already psychotic (referred to mental health in-reach teams) (n = 24)

Positive for Ultra High Risk for Psychosis and offered a CBT intervention (n = 94)

Excluded (n =42)

Intervention not delivered due to pending, release, court appearances or planned moves.

Sample receiving CBT intervention

(n = 52)

Data collated on re-admission to prison (n =52)

Measures for pre and post therapy (n=20)