

**EFFECTIVENESS OF INTEGRATED GROUP TREATMENT FOR
CO-EXISTING SUBSTANCE MISUSE AND SERIOUS MENTAL HEALTH
PROBLEMS IN OFFENDERS**

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ABSTRACT

This thesis explores psychological group treatment provided to people with co-existing substance misuse and serious mental health problems in secure settings. The work presented draws from existing research evidence to design an empirical research study. Chapter one provides an introduction to the research literature relating to co-existing serious mental health problems and substance misuse, theoretical approaches to understanding aetiology and the links with offending behaviour. Chapter two presents a systematic literature review examining the effectiveness of substance misuse treatment provided within secure settings. The review aimed to investigate the efficacy of current structured substance misuse intervention treatment in secure settings for offenders with co-existing serious mental health problems. Chapter three provides a critique of the Stage of Change and Treatment Readiness scale, a psychometric tool widely used in the field of substance misuse treatment. The psychometric properties of this measure are critically examined and the scale's clinical utility considered. Chapter four provides a piece of empirical research exploring the efficacy of a specifically designed substance misuse group intervention developed for those with serious mental health problems within the context of two clinical settings. A mixed methods repeated measures programme evaluation design was used and is reported. Study findings are discussed in relation to methodological limitations, implications for practice and recommendations for future research. In conclusion, Chapter five discusses the full thesis findings in the context of previous literature, exploring the limitations of the current thesis and considering future directions for research and practice.

Dedication

Mum

For everything you have done for me, for your belief in me, for your unconditional love, for making me the person that I am. I love you and I miss you. I hope I have made you proud.

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CHAPTER ONE:
INTRODUCTION TO THE THESIS

Co-existing substance use and serious mental health problems

Co-existing substance misuse and serious mental health problems have been associated with a myriad of negative consequences, posing significant challenges for the clinical management of this population (Department of Health, 2004). Negative impacts associated with this problem have been indicated at both personal and societal levels. Treatments for combined mental health problems and problematic substance use, both in terms of inpatient and outpatient care, have been identified to have significantly higher costs than treatments of a single psychiatric diagnosis (Hoff & Rosenheck, 1999). Indeed, co-existing serious mental problems and substance misuse has been suggested as the most significant problem facing health provision services (McKeown, 2010). Services provided to treat mental health problems and substance misuse are commonly fragmented, with a lack of integrated treatment, potentially impacting negatively upon this client group (Baker, Kay-Lambkin & Lewin, 2007). The need for development of effective and tailored intervention to target the needs of those with co-existing problematic alcohol and/or drug use and serious mental health problems has been emphasised (Graham et al., 2001).

This initial chapter aims to set the scene for the thesis and provides a background including a discussion of definitions used, theoretical perspectives and prevalence, followed by outcomes related to both mental health and substance use and violent and offending behaviours associated with this client group.

Definitions

Despite the indicated consensus on the significance of this problem, definitions of combined serious mental health problems and substance misuse remain open to debate within the literature, with a lack of agreement on one definition. The terms ‘dual diagnosis’ or ‘comorbidity’ are used interchangeably to describe substance misuse occurring in conjunction with serious mental health disorders (Drake & Mueser, 2000). The definition provided by the Department of Health (2009a) considers co-occurring serious mental health problems and substance misuse within four contexts, as detailed below:

- A primary mental health problem that provokes the use of substances
- Substance misuse and/or withdrawal leading to serious mental health problems
- Serious mental health problems that are worsened by substance misuse
- Substance misuse and mental health problems that do not appear to be related to one another

This more encompassing approach to definition indicates the complexity of the problem, reflecting both the subjective and fluid relationship between mental health problems and substance misuse and the diversity of this heterogeneous population (Drake & Wallach, 2000). For the purposes of this thesis, the term serious mental health problems encompasses those with more enduring problems including psychosis, schizophrenia, schizoaffective disorder, bipolar disorder, post traumatic stress disorder and personality disorder. The term substance misuse refers to those with problematic drug and/or alcohol use.

Theoretical explanations for comorbidity

The utility of theoretical models in providing insight into difficulties experienced amongst groups of people with similar presenting problems is widely noted. A number of alternate theories have been proposed within the literature to explain comorbid substance use and serious mental health problems. Mueser, Drake & Wallach, (1998, cited in Hussein Rassool, 2002) suggest that, within the general aetiological framework for combined serious mental health problems and substance misuse, theories predominantly fall within two discrete approaches; psychosocial risk factor models and supersensitivity models. It is suggested that the same psychosocial risk factor models explaining substance misuse in the general population are also applicable for those with serious mental health problems. Factors including social pressure, problems relating to others and prolonged experience of negative affect have been identified as motivating substance use in those with serious mental health problems (Bellack, Bennett & Gearon, 2007).

Additional psychosocial risk factors applicable to the general population are also indicated as relevant to substance use amongst those with serious mental health problems. These include alleviation of boredom, social interaction with drug using associates and limited alternate activities in which to engage (McMurran, 2002). It is suggested that the increased prevalence of substance misuse in those with serious mental health problems, when compared with the general population, may be due to higher vulnerability to these risk factors resulting from the additional difficulty of managing difficulties associated with comorbidity (McMurran, 2002).

The individualised psychosocial risk factor approach has some empirical support. In recent research investigating reasons for substance use in those with mental health problems, Thornton, Baker, Johnson, Kay-Lambkin and Lewin (2012)

found that alcohol consumption appeared to be related to social pressure. Findings of this study indicated that alcohol consumption was influenced by social norms, essentially drinking in compliance with perceived expectations of others was cited as a major motivation for alcohol intake amongst participants. In comparison, cannabis use was reported to arise from more internal motivational factors, with pleasurable intoxication effects indicated as the most influential reason for usage. In research exploring motivation for cocaine use in bipolar disorder, reasons for drug use have been reported as consistent with substance users without bipolar disorder (Bizzarri et al., 2007). The most common factors reported to drive cocaine use were relief of boredom; alleviation of negative mood; relief of tension and feelings of euphoria.

The supersensitivity model suggests that a heightened vulnerability to the effects of substance use arising from a combination of genetic and environmental factors increases an individual's potential to culminate in the onset of a psychotic episode or relapse. This vulnerability is suggested to predispose the individual to experience severe, negative consequences as a result of what would be considered relatively minor substance use. Research is reported as providing some support for this model, with several studies indicating relapse, trigger of clinical symptoms and physical dependence associated with low quantities of drugs or alcohol use (Hussein Rassool, 2002). Within their study of factors relating to dual diagnosis, Di Lorenzo, Galliani, Guicciardi, Landi & Ferri (2014) found that, where patients' histories were available, the majority of patients within their study reported family histories of psychiatric disorder or substance misuse problems and/or stressful life events indicating support for the supersensitivity model. Only 6% of patients did not report any familial history or negative events during childhood or adolescence.

The benefits of establishing a temporal relationship between serious mental health problems and co-existing substance misuse have been suggested in helping to further understand aetiology, that is, where one factor is identified as having preceded the other, a better understanding of causal mechanisms may be ascertained (Phillips & Johnson, 2010). Increasing the understanding of the relationship between serious mental health problems and substance use may support identification of groups most at risk, in turn, providing more opportunity to effectively address the problem (Bowers & Jeffrey, 2008). However, identifying a temporal relationship between the two factors has proved difficult, due to the gradual development of both disorders and associated difficulties in identification of which was first established (Gregg, Barrowclough & Haddock, 2007). Research findings appear to be inconsistent, providing some support for both causal pathways leading to comorbidity; with substance misuse found to precede mental health problems (e.g. Cantwell et al., 1999; Di Forti et al., 2014; Di Lorenzo et al., 2014) and mental health problems found to precede substance misuse (e.g. Bellack & DiClemente, 1999; Kessler et al., 1994). Differences have been suggested between alcohol and drug use and comorbid serious mental health problems, with cannabis use associated with the onset of psychosis and alcohol use related to the development of psychiatric disorder (Di Lorenzo et al., 2014).

Mueser et al., (1998) postulate that individual differences in this diverse population may account for variability among proposed explanations. People with coexisting serious mental health problems and substance misuse have been identified as a heterogeneous group with complicated developmental trajectories lacking common causal pathways (Crome, Chambers, Fisher, Bloor & Roberts, 2009). It is suggested that multiple risk factors need to be considered in understanding the

problem of comorbidity (Gregg et al., 2007). As such, further development of holistic theories adopting a more individualised approach to dual diagnosis, may be beneficial in further understanding the complexities of the problems presented by this client group.

Comorbidity prevalence

Difficulties in understanding the onset and development of comorbid substance use and serious mental health problems extend to the accurate identification of the extent of the problem, which has proved challenging to ascertain. Within the general population, estimations of co-morbidity vary greatly, ranging between 30% and 70% of individuals presenting to mental health services (Crome et al., 2009). A recent systematic review of interventions for comorbidity suggested that over 50% of individuals with serious mental health problems experience substance misuse disorders at some point during their lifetime (Hunt, Siegfried, Morley, Sitharthan & Cleary, 2014). Furthermore, lifetime prevalence of comorbidity has been reported to be as high as 50% (Mueser, Drake & Miles, 1997) due to continued or increased substance misuse (Lambert et al., 2005) and limited presentation to mental health or substance misuse services arising from multiple social complications (Crome et al., 2009). A recent European cohort study investigating schizophrenia and comorbid substance misuse (Carrà et al., 2012) indicated that the prevalence of lifetime substance use was higher in the UK (35%) than in both Germany (21%) and France (19%). As such, combined mental health and substance misuse problems remain both serious and enduring for a significant number of people.

Evaluation of the true extent of the problem is suggested as being

compounded by general inconsistencies in prevalence data reporting (Gregg et al., 2007). It has been suggested that statistical data relating to those with complex needs, including dual diagnosis, is not effectively recorded by government services, resulting in a paucity of information (APPG, 2014). Furthermore, a range of methodological limitations within the research for co-existing serious mental health problems and substance use have been identified, including variations in definitions of comorbidity, variations in diagnostic criteria, population differences and varying validity and reliability in measures used to assess this population (Gregg et al., 2007). An increased reluctance within this client group to access services may result in further under-estimation of the extent of combined mental health and substance misuse problems. Under-recognition of comorbid serious mental health problems has been indicated in clinical treatment services for substance misuse. Significant associations have been found between a failure to address comorbidity and treatment attrition (Schulte, Meier, Stirling & Berry, 2010). A number of factors have been suggested as barriers to accessing services including ‘chaotic’ life-styles, shame regarding substance use, fears of information relating to illegal drug taking being passed to the police and concerns of being denied access to services (IAPT, 2012).

Specifically within the forensic population, co-existing substance misuse and serious mental health problems has been estimated to be even higher than in general community samples (Carrà & Johnson, 2009; Department of Health, 2009a).

Retrospective research investigating substance use in the offending population with serious mental health problems, found regular substance use in 38.3% of patients in the twelve months prior to detention in secure hospital (D’Silva & Ferriter, 2003). A national survey of treatment outcome in patients with mental illness and substance misuse identified 76% of patients discharged from secure services had a history of

substance use (Scott, Whyte, Burnett, Hawley & Maden, 2004). In more recent years, dual diagnosis rates, both in community and prison populations, have been suggested as rising due to the significant increase in the range and availability of street drugs (Department of Health, 2009a).

In particular, identification of dual diagnosis prevalence within the forensic population has been found to be more problematic than in general community samples. A number of reasons have been suggested as contributing to these difficulties, including a limited ability within the secure environment to encompass the diversity of the dual diagnosis population (Thylstrup & Johanson, 2009), along with under identification of substance misuse disorders within forensic samples (Ogloff, Lemphers & Dwyer, 2004) and under diagnosis of serious mental health problems in offending samples (McMillan et al., 2008). Fragmented and disjointed services for the treatment of mental health and substance misuse within forensic services, exacerbated by ineffective sharing of information, may go some way to explaining the difficulties in identification of the problem. This, in turn, may result in limited opportunity to manage and treat the problem, thus, increasing the risk of adverse associated consequences.

Mental health outcomes

Comorbidity has been associated with a range of adverse consequences, negatively impacting both the individual and the wider community. Research has indicated problems with life quality and functioning arising from depression and anxiety associated with this disorder (Barrowclough, Gregg, Loban, Bucci & Emsley, 2014). Withdrawal symptoms and physical health problems have been commonly associated with comorbid serious mental illness and substance misuse (Gregg et al., 2007).

Further serious consequences have included a detrimental impact on the prognosis of and severity of mental disorder (NICE, 2011) with increased symptoms at short-term follow-up (Chakraborty, Chatterjee & Chaudhury, 2014). An increased likelihood of medication non-compliance and relapse in those with co-existing serious mental health problems and substance misuse has been found (Drake & Wallach, 2000). Responses to mental health treatment appear to be more limited, with poorer outcomes suggested for comorbidity (Bahorick, Newhill & Eack, 2013). Furthermore, research has suggested high rates of self-harm, suicidal ideation (Walsh & Copello, 2014), completed suicide and homicide (Department of Health, 2001) in people with serious mental health problems and combined drug and/or alcohol misuse.

Substance misuse outcomes

In addition to poorer responses to mental health treatment, poorer substance misuse intervention outcomes are reported for this population (Sacks & Pearson, 2003). Problems with engagement in treatment have been associated with comorbidity (Banerjee, Clancy & Crome, 2002; Bellack, 2007). Research has indicated low motivation to address difficulties (Drake et al., 2001) and difficulties remaining in treatment arising from a lack of community support, medical problems and ‘chaotic’, unstable living conditions (Bellack et al., 2007). Consequently, high rates of treatment attrition are reported for this client group (Brady, Krebs & Laird, 2004). However, findings have not been conclusive regarding treatment attrition, with a systematic review of dual diagnosis and treatment retention suggesting that this client group are no more likely than counterparts without mental health problems to drop out of substance misuse treatment (Meier & Barrowclough, 2009). In view of the

high rates of substance misuse treatment attrition in the non dual-diagnosis population, this remains an important consideration for both those with and without serious mental health problems.

Comorbidity and violence

Alongside poorer outcomes for substance use and mental health, a further adverse consequence is that of violent behaviour. The association between comorbidity and elevated risk of violence has been widely discussed in the literature, with a number of studies having investigated the relationship between serious mental health problems, substance use and aggression. Whilst the association between mental health and risk of violence is a contentious issue (Walsh, Buchanen & Fahy, 2002), it would appear that there is more consensus for the relationship between co-existing serious mental health problems, substance use and risk of violence. A large-scale epidemiologic study explored the association between violence and mental disorder and found that, whilst 8% of people with schizophrenia alone reported violent behaviour, this increased to 30% when combined with comorbid substance use (Swanson, Holier, Ganju & Iono, 1990). A more recent National Epidemiologic Survey explored alcohol and related conditions in the US and provided further support for co-occurring substance use significantly increasing risk of violence for those with mental illness when compared with severe mental illness alone (Elbogen & Johnson, 2009). Mericle and Havassy (2008) in their US study of individuals accessing services and recent experience of violence, found that comorbid substance misuse and mental health problems appeared to increase the risk of both perpetrating violence towards others and also being victim to violence. In particular, alcohol was indicated as

having been consumed in 45% of incidents of perpetration or victimization (Mericle & Havassy, 2008).

Systematic review and meta-analyses of epidemiological studies of violence and mental health have indicated strong associations between serious mental health problems, comorbid substance use disorder and increased risk of violence (Soyka, 2000; Volavka, 2013; Walsh et al., 2002). Fazel, Långström, Hjern, Grann & Lichtenstein, (2009) suggested a mediating effect of substance misuse on the association between schizophrenia and violence in their longitudinal study. Findings indicated that 27.6% of patients with co-occurring substance use and schizophrenia had been convicted of a violent offence, compared with 8.5% of those with a diagnosis of schizophrenia without comorbid substance use. In a systematic review of risk and protective factors for violence in mental illness, a very strong association was found between violence and polysubstance misuse. Strong associations were found between comorbid substance misuse and violence, and recent substance misuse and violence. Moderate associations were also found between recent alcohol misuse, a history of alcohol misuse, a history of substance misuse and a history of drug misuse (Witt, Van Dorn & Fazel, 2013).

Offending

Elevated risk of violence in comorbid serious mental health problems and substance use would suggest serious implications for offending. Research has indicated an increased risk of offending behaviour in comorbid mental health problems and substance misuse (Daff & Thomas, 2014; Fazel, Lichtenstein, Grann, Goodwin & Långström, 2010; Morgan et al., 2013). As with risk factors for substance use in

serious mental health problems, risk factors for offending in those with serious mental health problems are suggested as similar to those within the general population. Andrews and Bonta (2010) proposed criminogenic risk factors for offending as offence supportive attitudes, antisocial personality, pro-criminal associates, poor education, lack of employment, relationship instability, substance misuse and limited prosocial activities. Non-criminogenic risk factors increasing vulnerability for offending are suggested as limited self-esteem, major mental disorder, previous victimisation, lack of ambition, and experience of emotional discomfort (Andrews & Bonta, 2010). As such, those already encountering potential risk factors for offending through the experience of serious mental health problems and substance misuse may be more vulnerable to other criminogenic and non-criminogenic factors. Limited coping skills, lack of opportunity and challenging social circumstances frequently associated with major mental illness (Phillips & Johnson, 2010) may further exacerbate vulnerability to risk factors with the potential to increase likelihood of offending behaviour.

Serious mental health problems have been suggested as a risk factor for violent offending irrespective of substance use, however, substance use has been identified as further increasing this risk, reinforcing the need to treat mental illness as well as substance use in order to reduce risk of offending. Types of offending associated with comorbidity are not exclusively limited to violence and include a range of non-violent offences (Short, Thomas, Mullen & Ogloff, 2013). Increased vulnerability for involvement in a drug subculture to reduce social isolation is suggested as potentially increasing the risk of offending in this client group (Williams, 2002).

Additionally, an elevated likelihood of recidivism has been found to be associated with substance misuse in offenders with serious mental health problems (Baillargeon et al., 2010; Balyakina et al., 2104; Bonta, Blais & Wilson, 2013). Reasons for heightened risk of recidivism have been suggested to include continued contact with the criminal justice system through the use of illicit drugs, increased alcohol related violence suggested as arising from the maintenance of hostile and angry feelings (Bonta et al., 2013) and poorer compliance with anti-psychotic medication resulting in experience of psychotic symptoms (Balyakina et al., 2104). Furthermore, increased likelihood of returning to live in a 'chaotic' environment without the provision of adequate support following discharge and failure to engage with follow-up services has been noted as a risk factor for recidivism (Edeh, 2002). Consequently, elevated risks for offending and re-offending in those with comorbid mental illness and substance misuse places significant economic demands on the criminal justice and health systems.

Furthermore, comorbidity has been found to persevere once individuals are detained within the secure environment with associated negative consequences. A survey of 28 NHS managed medium secure units in England suggested significant problems with continued use of drugs and/or alcohol, with reports of substance use within the past month from the majority of units included in the study (Durand, Lelliott & Coyle, 2006). Consequences of continued alcohol and/or drug use included negative impact upon mental health, implications for treatment processes and increased problematic behaviour (Durand et al., 2006). A number of inpatient studies of alcohol and drug use are consistent with these findings indicating continued substance use whilst in secure hospital settings (Bowers & Jeffery, 2008; Derry, 2008; Phillips & Johnson, 2003; Wheatley, 1998).

Thesis aims

The overall aim of this thesis was to gain a better understanding of the problems associated with co-existing serious mental health problems and substance misuse in the offending population and evaluate a treatment available for offenders detained within secure environments. The literature has highlighted limited provision of treatment for comorbid serious mental health problems and substance misuse within forensic services. The treatment available for individuals with co-existing serious mental health and substance misuse problems has been identified as lacking empirical support, with the need for additional treatment provision and associated empirical investigation recommended. Therefore, the current thesis aimed to add to this under-researched area through review of empirical studies of treatment for coexisting serious mental health problems and substance misuse provided in secure settings. Furthermore, a study using mixed methods explored the efficacy of a specifically designed substance misuse treatment for offenders with serious mental health problems aimed to provide further understanding into intervention available for this pervasive and complex problem. It was anticipated that by increasing empirical research and insight into intervention this would be beneficial in contributing to the continued development of treatment available to those with mental health and substance misuse problems.

Structure of the thesis

Chapter one of this thesis has outlined some of the background research literature relating to comorbid serious mental health problems and substance misuse, the extent of the problem and the impact that it has on the individual and society as a whole. Comorbidity is identified as a complex and pervasive problem, impacting the lives of

many. A number of serious negative consequences associated with co-existing serious mental health problems and substance misuse problems have been suggested including an increased likelihood of violence and general offending behaviour.

Chapter two is a systematic literature review examining the effectiveness of substance misuse treatment provided within secure settings. The purpose of the review was to establish the efficacy of current structured substance misuse intervention treatment in secure settings for offenders with co-existing serious mental health problems.

Chapter three critically reviews the Stage of Change and Treatment Readiness scale (SOCRATES), a psychometric tool widely used in the field of substance misuse treatment. The psychometric properties of this measure are critically examined and the scale's clinical utility considered.

Chapter four reports an empirical research study exploring the efficacy of a specifically designed substance misuse group intervention developed for those with serious mental health problems within the context of two clinical settings. A mixed methods repeated measures programme evaluation design was used for the research. Study findings are discussed in relation to methodological limitations and implications for practice.

Chapter five includes a critical discussion of the thesis findings in the context of previous literature, exploring the limitations of the current thesis and considering practice implications of findings reported.

CHAPTER TWO:
**ASSESSING THE EFFECTIVENESS OF SUBSTANCE MISUSE
PSYCHOSOCIAL INTERVENTIONS FOR INDIVIDUALS WITH CO-
EXISTING SERIOUS MENTAL HEALTH PROBLEMS IN THE SECURE
FORENSIC ENVIRONMENT: A SYSTEMATIC REVIEW**

Abstract

Aim: To systematically review existing studies assessing the effectiveness of structured substance misuse interventions in the secure forensic environment for offenders with co-existing serious mental health and substance misuse problems.

Method: A scoping exercise was completed to assess the need for and originality of the current review. A systematic approach was taken towards identifying and reviewing research literature. Six database searches were completed and additional searches conducted by hand on journals and reference lists of identified articles. Key researchers in the field were contacted. Articles were selected for the review through the application of set inclusion/exclusion criteria and were quality assessed. Data was extracted from all articles, results analysed and findings synthesised narratively.

Results: Thirteen studies met inclusion criteria and were selected for the review. The very limited evidence base was reflected in the number of eligible studies published assessing intervention for dual diagnosis in the secure setting. As such, no studies were excluded from the current review on a quality basis. A Cognitive Behavioural approach was the most frequent intervention approach in studies. Preliminary findings suggest a positive impact of intervention in terms of change in

attitudes towards substance use, some improvements in psychological functioning and indications of reduction in recidivism and substance use. However, the methodological limitations of the included studies appear to reflect similar methodological limitations identified within empirical assessment of treatment provided for these needs outside of the forensic environment. Limitations influenced reliability and generalisability of findings.

Conclusions: Despite emerging evidence suggesting that structured substance misuse treatment intervention may have some positive impact in reduction of risk and improvement of quality of general functioning, a need for further research in the field is evident. The development of methodologically robust evidence based trials will provide opportunity for reliable conclusions to be drawn and aid in the development of intervention treatment integrity, in order to more consistently meet the needs of this vulnerable population.

Introduction

As discussed within Chapter One, the impacts of co-existing substance use and serious mental health problems are significant for many. The association between substance misuse, serious mental health problems and increased risk of offending and recidivism has much empirical support. However, despite the extent of this problem within the forensic population, treatment has been fragmented and inadequate to meet the needs of this vulnerable group. The aim of this chapter is to gain an understanding of the effectiveness of structured psychosocial treatment intervention, available within secure settings, for individuals with forensic histories and co-existing substance misuse and serious mental health problems, through a systematic review of the literature. This aim will be achieved by:

- gaining an understanding of the treatment programmes available
- identification of differences within approaches
- exploring the efficacy of treatment in terms of treatment outcomes
- quality assessing the associated research
- considering findings in the context of implications for practice and future research

The literature base, assessing the efficacy of psychosocial interventions outside of the secure forensic environment in people with co-occurring serious mental health problems and substance misuse, has been suggested to be considerable (McKeown, 2001). Associated research includes numerous studies evaluating individual psychosocial treatment approaches for dual diagnosis and several systematic and meta-analytic reviews evaluating treatment in community and non-secure settings (e.g. Cleary, Hunt, Matheson, Siegfried & Walter, 2008). However, despite the considerable availability of literature, findings are inconclusive with a

number of methodological limitations suggested as contributing to this. A systematic review of studies of psychosocial interventions for people with co-occurring severe mental illness and substance misuse disorder identified a large, heterogeneous base for interventions making recommendations for methodological standardisation and more longitudinal approaches (Drake, O'Neal & Wallach, 2008). Furthermore, systematic review of psychosocial treatment for comorbid mental health problems and substance use in general community samples indicated problems with methodological design, sample selection and unclear reporting, all contributing to problems in drawing clear conclusions from the data (Cleary et al., 2008).

As discussed in Chapter One, the literature indicates a strong association between co-existing serious mental health problems, substance misuse and offending (e.g. Daff & Thomas, 2014; Morgan et al., 2013). However, there is comparatively little research available relating to structured psychosocial substance misuse treatment for offenders with co-existing serious mental health problems in forensic settings. Limited provision of treatment for substance misuse problems in the forensic environment has been highlighted, with significant need for development of intervention and associated evaluation emphasised (Derry, 2008). A recent forensic mental health services report highlighted the paucity of empirical research in this area and the need for development of the evidence base for dual diagnosis treatment in secure settings (Clark & Sandbrook, 2013).

The results of a national survey in medium secure units in the UK raised concerns regarding diverse and inconsistent approaches to intervention being used in situations outside of evidence from trials, resulting in inadequate treatment provision (Durand et al., 2006). An independent review of mental health provision in the criminal justice system commissioned by the Department of Health (The Bradley

Report, 2009), highlighted disconnected mental health and substance misuse services within the prison environment, with a dual diagnosis often restricting access to these services. This report made recommendations for the urgent development of improved services for prisoners with a dual diagnosis of mental health and substance misuse problems.

In view of the indicated serious implications of inaccessibility of intervention, inconsistent approaches and limited associated empirical research, further research is necessary to gain perspective on treatment provision and indicated efficacy of the treatment that is available to address these needs in secure forensic environments.

The current review

In order to assess the need for the current review, a search was completed to identify relevant literature and existing reviews in the related area. Searches were completed during May 2014 of the following:

- The Centre for Reviews and Dissemination (DARE)
- Cochrane Library
- PsycInfo
- The Campbell Collaboration Library of Systematic Reviews

No systematic reviews or meta-analysis were found for the psychosocial treatment of drug misuse in dual diagnosis offenders in secure forensic settings. A recent systematic review of research of psychosocial research on psychosocial interventions for people with both severe mental illness and substance misuse (Hunt et al., 2013) was found in the Cochrane Collection, however, this review focused upon a general sample of co-morbid mental illness and substance misuse rather than

the more specific dual diagnosis for forensic populations. Google Scholar searches identified a systematic review exploring research methods for psychosocial interventions for co-occurring severe mental and substance use disorders (Drake et al., 2008) and a review of empirical evidence of psychosocial interventions for dual disorders (Horsfall, Cleary, Hunt & Walter, 2009). As with the previous review, both of the populations within these reviews were general populations with co-existing substance misuse problems and serious mental disorder rather than focusing upon the forensic population, as is the aim of the current review.

Aims and Objectives

The aim of the current review is to take a systematic approach to exploring research findings for the effectiveness of substance misuse psychosocial interventions for dual diagnosis in secure forensic environments. For the purposes of this review dual diagnosis will refer to co-existing serious mental health problems and substance misuse problems, including both illicit drugs and alcohol.

Objectives of the review are:

- To identify psychosocial treatment approaches for dual diagnosis in forensic settings
- To determine whether psychosocial treatment approaches change attitudes towards substance use
- To determine whether psychosocial treatment approaches change behaviour in reducing substance use
- To determine whether psychosocial treatment approaches reduce recidivism
- To determine whether psychosocial treatment improves psychological functioning and well-being

- To identify further areas of research required

Method

Search strategy

A scoping search was conducted to identify the existing literature base for structured group interventions addressing substance misuse in offenders with co-existing serious mental health problems. This search provided a basis for the review, helped to define the research question, review parameters, identify a review plan and generate key search terms. Searches of six electronic databases were conducted on 18 and 19 June 2014 and updated in June 2016 to identify potential studies to be included in the review;

- OVID PsycINFO (1987 to June Week 3 2016)
- OVID EMBASE (1988 to June Week 3 2016)
- OVID MEDLINE (1946 to June Week 3 2016)
- Health Management Information Consortium (HMIC) (1979 to June 2016)
- Web of Science (1985-2016)
- Applied Social Sciences Index and Abstracts (ASSIA) (1985-2016)

Databases were selected as being most relevant for the search topic, informed by the scoping exercise and by existing reviews in similar areas. Date ranges (latest date 1988) were selected due to the relative recent introduction of structured interventions in secure settings and corresponding time frames of associated studies (Scott et al., 2004). Searches were restricted to English language due to time and financial implications involved with the translation of studies. Book chapters, editorials, reviews, narratives and opinion papers were excluded.

Search terms were identified and adapted accordingly for each database. Full details of database search terms can be found in Appendix 1. Keywords associated with substance misuse, co-existing serious mental health problems, psychosocial interventions and the forensic population were used to retrieve studies (see Figure 1).

Following application of search terms to the databases, the total number of initial hits was 1281. Removal of duplicates left a remainder of 920 publications. Initial sifting by reviewing the title and abstract, or full text where required, resulted in the removal of a further 906 articles. Reasons for removal of studies included exclusively community samples, juvenile or adolescent samples, focus on dual diagnosis prevalence, focus on measurement tool evaluation, court diversion to community treatment, non-offending samples and focus on risk factors for offending or factors predicting treatment attendance or attrition.

In order to attempt to widen the search area and limit potential effects of publication bias the following additional searches were undertaken:

- Contacting three key experts in the field via email. Articles supplied resulted in one additional article being included in the current review. Details of experts contacted and copy of the email sent can be found in Appendix 2.
- Handsearching reference lists of relevant papers identified a further 8 studies as potentially suitable for inclusion in the review.
- Manually searching key journals resulted in identification of 2 publications for potential inclusion in the review.
- Conducting a search using the Google search engine. No additional articles were sourced using this search method.

Drug by itself or with any letters following, for example, drugs **OR**
Alcohol by itself or with any letters following, for example, alcoholic **OR**
Poly-drug by itself or with any letters following, for example, poly-drugs **OR**
Substance by itself or with any letters following, for example, substances **OR**
Narcotic by itself or with any letters following, for example, narcotics **OR**
Heroin **OR** Cocaine **OR** Crack **OR** Amphetamine **OR** Ecstasy **OR** Cannabis **OR** Benzodiazepines

AND

Abus with any letters following, for example, misuse **OR**
Misus with any letters following, for example, misusing **OR**
Disorder by itself or with any letters following, for example, disordered **OR**
Depend with any letters following, for example, dependent **OR** Use **OR**
Addict with any letters following, for example, addiction **OR**
Withdraw with any letters following, for example, withdrawal **OR**
Rehab with any letters following, for example, rehabilitate **OR**
Abstain with any letters following, for example, abstaining **OR**
Illegal with any letters following, for example, illegally **OR**
Habit with any letters following, for example, habits **OR**
Relapse prevent with any letters following, for example, relapse prevention

AND

Dual diagnos with any letters following, for example, dual diagnosis **OR**
Dual disorder with any letters following, for example, dual disordered **OR**
Co-morbid with any letters following, for example, co-morbidity **OR**
Co-occur with any letters following, for example, co-occurring **OR** Dual within 3 words of diagnosis

AND

Serious mental health problems **OR** Serious mental disorder with any letters following, for example, serious mental disorders **OR** Mentally ill offender with any letters following, for example, mentally ill offenders **OR** Mentally disordered offender with any letters following this, for example, mentally disordered offenders **OR**
Serious mental illness **OR** Psychiatric illness **OR** Bipolar disorder **OR** Schizophrenia **OR** Mental health **OR** Major mental illness

AND

Forensic inpatient with any letters following this, for example, forensic inpatients **OR**
Offend with any letters following this, for example, offenders **OR**
Crime with any letters following this, for example, crimes **OR**
Crimin with any letters following this, for example, criminal **OR**
High secur with any letters following this, for example, high secure **OR** Medium secur with any letters following this, for example, medium secure **OR** Low secur with any letters following this, for example, low secure **OR** Special hospital **OR** Forensic psychiatry **OR** Sentence with any letters following this, for example, sentenced **OR** Criminal justice **OR** Jail **OR** Incarcerated **OR** Prison with any letters following this, for example, prisoner **OR** Custod with any letters following this, for example, custodial **OR** Forensic service with any letters following this, for example, forensic services **OR** Forensic hospital with any letters following this, for example, forensic hospitals **OR** Special hospital with any letters following this, for example, special hospitals **OR** Secure within 3 words of hospital **OR**
Forensic within 5 words of patient

AND

Intervention **OR** Treatment **OR** CBT **OR**
Motivational interview with any letters following this, for example, motivational interviewing **OR**
Contingency manage with any letters following this, for example, contingency management **OR**
Therap with any letters following this, for example, therapy **OR**
Psychosocial **OR** Groupwork **OR** Skills training **OR** Relapse prevention **OR**
Behaviour with any letters following this, for example, behaviours **OR**
Behaviour with any letters following this, for example, behaviors **OR** Programme **OR**
Cognitive techniques **OR** Psychotherap with any letters following this, for example, psychotherapy **OR**
Rehabilitat with any letters following this, for example, rehabilitation **OR**
*therapy/ **OR** Cognitive behav* therapy **OR** Behaviour with any letters following or behaviour with any letters following or cognitive or psycho with any letters following this within 3 words of therapy

Figure 1. Search terms applied to electronic databases

Inclusion/exclusion criteria

Table 1 presents the inclusion/exclusion criteria based upon the PICO framework applied to the remaining 25 articles to provide a more detailed assessment of suitability of studies to be included in the review. Appendix 3 provides details for the full inclusion checklist. This process resulted in the removal of a further 12 articles, study details and reasons for exclusion can be found in Appendix 4. A total of 13 studies were assessed as meeting inclusion criteria. One researcher was responsible for this assessment process.

Table 1.

Inclusion/Exclusion criteria

| PICO | Inclusion Criteria | Exclusion Criteria |
|----------------------|--|--|
| Population | Dual diagnosis (substance misuse and co-existing serious mental health problems) All offence types Detained in the secure forensic environment due to risk to others and/or self Males and females Adults (aged 18 and over) Different ethnicities Different nationalities | No co-existing serious mental health problems and substance misuse Aged under 18 Not detained in secure environment Community based |
| Intervention | Exposure to psychosocial substance misuse treatment (drugs and/or alcohol) groupwork programmes | Pharmacological interventions Solely individual intervention Somatic interventions Therapeutic community |
| Comparator | No comparator necessary | |
| Outcome | Substance use Recidivism Psychological functioning Behavioural change | |
| Study design | Any study design with outcome measures | Editorials, book chapters, narrative reviews, commentaries, opinion papers |
| Other factors | Publication language English | |

Rationale for inclusion/exclusion criteria

The current review is focused upon the adult forensic population, therefore, studies with participants aged under eighteen at the time of commencing intervention were not included in the review. For the purposes of this review dual diagnosis refers to the co-existence of serious mental health problems and substance misuse problems. In order to be included in the current review, the presence of both serious mental health problems and substance misuse needed to be established. At the time of attending intervention participants were required to be detained in the secure forensic environment (secure hospital or prison).

Attending psychosocial substance misuse intervention was a key requirement of the current review. Psychosocial treatment encompassed a variety of different intervention approaches including cognitive behavioural therapy, motivational interviewing, psychoeducation, relapse prevention and behavioural therapies, to provide the widest approach to psychotherapy possible. Therapeutic community studies were excluded from the current review as the review focused upon structured psychosocial intervention programmes addressing dual diagnosis rather than the overall treatment environment provided by therapeutic communities.

No comparator was defined for the review due to the nature of the intervention and the setting. Those with co-existing mental health and substance misuse problems are a vulnerable population in a secure environment requiring rehabilitative treatment. To withhold treatment from this population in order to create a control condition would be highly unethical. The likelihood of the availability of a comparator group in the form of alternate treatment provision is unlikely in view of the reported limited treatment availability for this group (Scott et al., 2004).

Treatment efficacy was assessed through a number of different treatment outcomes: recidivism/readmission rates, continued substance use, change in attitude towards substance use, motivation to change, increased self-efficacy and self-reported change in quality of lifestyle. All outcomes measured have the potential to reduce risk in terms of changing attitude and/or behaviour and improve general functioning in participants.

Quality assessment

Formal assessment of the quality of included articles has been noted to impact positively on reliability of results and conclusions of literature reviews (Centre for Reviews and Dissemination, 2008). In order to appraise the quality of articles within the current review, research designs for each study were identified. One article was qualitative in design, three articles were mixed methodology design including both qualitative and observational designs and nine articles were observational design before-and-after studies. Observational studies without control/comparison groups were included in the current review due to the lack of published randomised control trials and controlled clinical trials in this area (Amato et al., 2007). Quality assessment criteria for the qualitative study designs were guided by the Critical Appraisal Skills Programme (CASP) checklist (Appendix 5). A total of fifteen items were included in the qualitative checklist. Individual items assessed within the checklist covered broader areas of sample selection bias, study design, data collection and analysis and study findings.

Checklists for the observational designs were developed by the author, guided by a variety of sources including the QUADAS tool (BioMed Central: Whiting, Rutjes, Reitsma, Bossuyt & Kleijnen, 2003) and the STROBE statement checklist

(2007), in the absence of a CASP checklist tool for this study design (see Appendix 6 for full checklist details). A total of twenty-three items were included in the quantitative quality checklist. Individual items assessed within the checklist covered broader areas of sample selection, study design, intervention delivery, outcome measures, data collection and analysis, attrition rates and study findings to incorporate the six major areas of potential research bias (Deeks et al., 2003). For the three mixed methods design studies, both quality assessment tools were applied to the relevant aspects of the articles.

In order to be included in the review, a study was required to satisfy minimum quality criteria. Criteria included addressing a clearly focused issue, appropriate methodology, clearly identifying outcomes and describing the study population. All articles included in the current review met the minimum criteria specification. Articles were then quality assessed against a number of items with a rating scale of two through to zero, with 'yes' scoring two, 'partial' scoring one and 'no' scoring zero. The maximum score achievable was 46 for quantitative studies or 30 for qualitative studies, with higher scores indicative of better quality. Once total quality scores had been calculated for each study, scores were converted into percentages. For mixed method studies, scores for both aspects were summed cumulatively and converted into percentages. In terms of inter-rater reliability, in order to try to minimise bias in quality assessment of studies, a random sample ($n = 2$) of the included studies were quality scored by a second assessor (Forensic Psychologist in Training qualified to a post graduate level). Results of double scoring were within 1 and 2 points of each other respectively which was considered acceptable to indicate reliability of scoring.

Data extraction

Data was extracted from all studies through the use of a data extraction form which can be found in Appendix 7. The data extraction form was constructed by the researcher and quality percentage scorings were recorded on the form. The following data was extracted for each study:

- General article details – author, title, journal, year, volume, page numbers and location
- Study design
- Participants – sample size, gender, age, recruitment method
- Intervention – approach, duration, frequency
- Measures – quantitative – measures used, validity of measures;
qualitative – data collection measures
- Outcomes - quantitative – statistical analysis used, findings;
qualitative – themes, findings
- Limitations
- Quality score

The same form was used to extract data from all studies included in the review with data extracted by one researcher.

Results

A total of 13 studies met the inclusion criteria and were included in the review. No studies were removed on the basis of quality due to very limited research available in the field. Figure 2 provides details of the study selection process followed within the current review. Table 2 presents a summary of individual article information as obtained from the quality assessment and data extraction process.

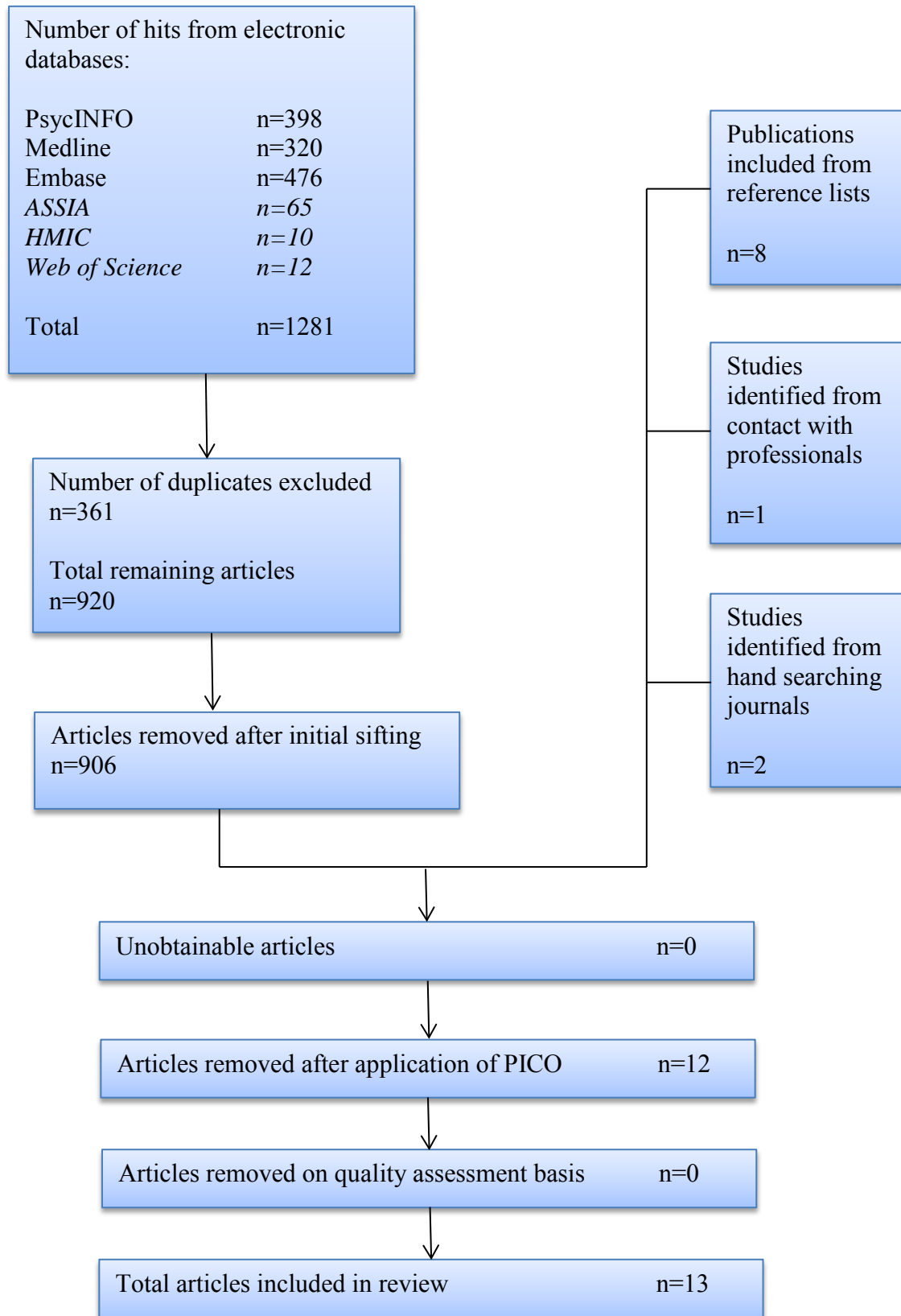


Figure 2. Study selection process

Table 2

Characteristics of publications included in the review

| <i>Authors, publication date, country and quality assessment</i> | <i>Study design</i> | <i>Population</i> | <i>Intervention</i> | <i>Outcome measures</i> | <i>Findings</i> | <i>Study strengths and weaknesses</i> |
|---|---|---|---|--|--|---|
| Ritchie, Billcliff, McMahon & Thomson (2004) UK study 52% quality score | Observational before-and-after study Prospective | 51 adult male participants Age range 20-53 years, with a mean age 34.5 years Detained in medium and high secure hospital providing care for patients with dangerous, violent and criminal behaviours Referred by clinical team | Drug and alcohol group awareness intervention Designed to increase knowledge, enhance internal control and increase motivation. 8 x sessions delivered on a weekly basis. Session structure outlined in article Minimum of 4 and maximum of 8 participants per | Drug knowledge questionnaire Alcohol knowledge questionnaire Stages of change questionnaire Multidimensional locus of control | Pre and post intervention measures Repeated measures ANOVA used on all measures Significant difference in alcohol knowledge ($p = .002$) and drug knowledge ($p = .017$) between pre and post measures. No significant difference pre and post treatment in locus of control or stage of change | Strengths – demographic, forensic and clinical information provided, measures adequately described; intervention clearly described; appropriate statistical analysis used; Limitations – 2 x measures developed locally lacking reliability and validity information; lack of comparison/control group; no follow up measures; ethical approval process not documented |

| | | | group | | | |
|--|--|---|---|---|---|---|
| Miles, Dutheil, Welsby & Haider (2007) | Observational before-and-after pilot study | 18 adult male participants | Substance Use Treatment Groupwork Programme adopting a CBT and relapse prevention approach | Weekly urine drug screens (UDS) – drug abstinence testing | Pre and post measures | Strength – demographic, forensic and clinical information provided, 6 month post intervention follow-up, range of outcome measures including physiological testing for drug use (objective measure), statistical testing for association between demographic, forensic and clinical factors and treatment outcome, ethical approval process discussed |
| UK study | Prospective | Details not provided for age range for participants | Designed to enhance engagement, increase motivation to change, treat and prevent relapse | 3 x locally designed measures: i)Beliefs have problems with substances ii)Need to change substance use iii)Confidence to make change | 13 (72%) negative on weekly UDS by end of pilot treatment (Dec 2005). Significant effect of treatment in becoming drug free by Dec 2005 ($p = .043$) but no significant effect by June 2006 (6 month follow up) | Limitations – limited sample size, treatment satisfaction questionnaire not administered for first cohort of treatment, focus upon Marijuana limits generalisibility of findings, absence of reliability and validity indications for some measures included, lack of statistical analysis |
| 65% quality score | | Detained in medium secure hospital for a variety of challenging aggressive behaviour and offences | Stage 1 -12 x weekly sessions Stage 2 – 12 x weekly sessions delivered on a weekly basis Session structures outlined in article | Beliefs about Substances questionnaire | Post treatment: i) Beliefs increased ii) Beliefs decreased iii) Confidence increased 6 months post: i)Beliefs decreased slightly ii)Beliefs increased iii)Confidence decreased slightly | |
| | | All admissions to the unit with history of substance use referred to intervention | | | Post treatment and 6 | |

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|---|--|--|--|--|---|--|
| | | | | <p>Marijuana Craving Questionnaire</p> <p>Locally designed satisfaction questionnaire</p> | <p>month follow-up: Beliefs more adaptive</p> <p>Post treatment and 6 month follow-up: Less craving reported</p> <p>Satisfaction reported in all those completing the measure</p> | <p>for attitudes towards substance use findings</p> |
| <p>Derry & Batson (2008)</p> <p>UK study</p> <p>48% quality score</p> | <p>Comparison group study</p> <p>Retrospective</p> | <p>Experimental group</p> <p>6 treatment completers – not specified male or female</p> <p>Comparison group</p> <p>19 treatment non-completers - not specified male or female</p> <p>Details not provided for age range</p> | <p>Cognitive Behavioural drug and alcohol treatment programme</p> <p>Designed to develop motivation to change, understand substance use, mental health and offending, relapse prevention and skills development.</p> | <p>Proportion of time spent in community following release</p> <p>Electronic patient notes and interviews with responsible medical officers to report on</p> | <p>Intervention completers were found to spend a significantly proportionally greater time in the community than those who had not completed the intervention ($p = 0.015$).</p> <p>Significantly lower known substance use following release in intervention completers (50%)</p> | <p>Strengths – comparison group, follow-up period length</p> <p>Limitations – control group included treatment dropouts – higher risk group; follow-up data only available for 6 participants completing substance misuse treatment compared with 19 who had not; limited details provided as to sources of reporting of substance use following release; ethical approval process not</p> |

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| | | Detained in medium secure hospital Participation in intervention voluntary | 24 sessions in 3 modules, brief intervention structure details provided | substance use following release | compared with those who had not completed intervention (74%) | documented; no demographic, forensic and clinical information provided |
| Morris & Moore (2009) UK study 59% quality score | Mixed methods (quantitative and qualitative) Prospective | 22 adult male participants (30 started 22 completed) Age range 27-58 years, mean age 37 years Detained in high secure hospital Patients referred to intervention | Substance misuse intervention taking a CBT approach 4 groups lasting between 9 and 14 months, weekly 2 hour sessions Programme structure and material covered in group outlined in article Minimum of 4 participants and maximum of 7 per group | <i>Quantitative</i> - Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) Psychological Inventory of Drug-Based Thinking Styles (PIDTS) Staff Incident Reports (urine drug screening) <i>Qualitative</i> – semi-structured | Pre and post measures: Wilcoxon’s matched pairs signed rank tests and reliable change index SOCRATES - significant reduction on the ambivalence scale ($p = 0.047$), no significant change on other subscales PIDTS – significance differences found for 4 scales: mollification ($p = 0.046$), cut-off ($p = 0.012$), entitlement | Strengths – demographic, forensic and clinical information provided; reliable change index calculated to indicate clinical change; measures established and valid; measures described in article; semi-structured interviews completed by independent researcher to minimise response bias; semi-structured interview piloted before use Limitations – limited sample size: only 10 participants completed pre and post measures – |

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| | | | | interview | <p>($p = 0.011$) and cognitive indolence ($p = 0.045$)</p> <p>No programme completers tested for urine drug screening</p> <p>Post qualitative: Informal thematic analysis 3 programme completers provided overall positive feedback, found group useful, 2 had abstinence goals, 1 did not want to change drug use Programme non-completer – fear of not being understood by other group members</p> | <p>additionally only 4 participants completed qualitative aspect of study; urine drug screening only carried out if staff incident reports indicated suspicion of substance possession or misuse; ethical approval process not documented</p> |
| Oddie & Davies (2009) UK study | Mixed methods (quantitative and | Quantitative - 23 male participants | Programme aimed to treat poly-substance misuse, mental health | <i>Quantitative</i> – Readiness to Change Questionnaire – | Pre and post measures: RCQ-TV - No significant differences | Strengths – demographic, forensic and clinical information provided; mixed design providing |

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|-------------------|-----------------------------|---|--|---|--|---|
| 56% quality score | qualitative) Prospective | Qualitative – 9 participants Age range 21-44 years, mean age 32 years Detained in medium secure hospital with forensic history or extremely challenging risk behaviour Patients referred to intervention | problems and offending behaviours Motivational interviewing, CBT and relapse prevention approach Aims to enhance readiness to change and increase understanding of relationship between substance misuse, mental health problems and offending Programme briefly described, no details for session structures 4 groups, weekly groupwork sessions, 1 hour duration and 5 | Treatment Version (RCQ-TV) Situational Confidence Questionnaire (SCQ-8) Concordance between self-report and facilitator report of stage of change <i>Qualitative</i> – semi structured interview | found in readiness to change between pre and post measures SCQ-8 – for drugs significant increase in confidence to resist over four out of eight situations over time ($p < 0.05$), for alcohol significant increase in confidence in one out of eight situations ($p < 0.05$) Concordance – no statistical reporting, 12 out of 17 self-reports on RCQ-TV for drugs in concordance with facilitator report (70.6%), 12 out of 15 for alcohol in concordance (80%) <i>Qualitative</i> Thematic analysis and descriptive statistics: eight themes | wider insight into treatment effects; established valid and reliable pre and post psychometric measures; ethical approval detailed Limitations – missing data for some pre/post measures; lack of control/comparison; limited sample size; potential bias – first author lead facilitator on the programme |
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| | | | individual sessions | | including overall experiences, benefits of group, factors impacting abstinence, service improvements and ongoing support | |
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| <p>Long, Fulton, Fitzgerald & Hollin (2010)</p> <p>UK study</p> <p>61% quality score</p> | <p>Observational before-and-after study</p> <p>Prospective</p> | <p>23 adult female participants, medium secure hospital</p> <p>Mean age 31.45 years</p> <p>Detained in medium secure hospital</p> <p>Offered a place on programme by clinical team</p> | <p>Understanding and Overcoming Substance Use Treatment Programme</p> <p>CBT approach</p> <p>Delivered as group intervention over a 16 week period, 11 x 75 minute sessions with one individual session at the end</p> <p>Details of programme structure in article</p> <p>Individual sessions run concurrently</p> | <p>Drug and Alcohol Taking Confidence Questionnaire (DTCQ: 8)</p> <p>Alcohol and Drug Taking Consequences Questionnaire (ADCQ)</p> <p>Camberwell Assessment of Need, Forensic Version (CANFOR)</p> <p>Brief Psychiatric Rating Scale Expanded (BPRS-E)</p> | <p>Pre to post measures:</p> <p>DTCQ – substance related self-efficacy significantly improved ($p < .01$)</p> <p>ADCQ – significant reduction in perceived costs at post treatment ($p < .01$) and greater benefits from change ($p < .05$)</p> <p>CANFOR – significantly fewer unmet needs ($p < .05$)</p> <p>BPRS-E – significantly reduced scores for anxiety ($p < .01$) and tension (p</p> | <p>Strengths – ethical approval detailed; assessment measures administered by trained staff independent of treatment administration; wide range of psychometric measures appropriate for use with the study sample; description provided for each measure; demographic, forensic and clinical information provided</p> <p>Limitations – individual sessions run concurrently potential impact on dependent variable measures adequately described; used non-</p> |

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| | | | | Generalised Self-Efficacy Scale (GSES) | <.01) GSES – significantly increased self-efficacy ($p < .01$) | completers as a comparison group; limited sample size |
| Edwards, Guy, Bartholomew & Buckland (2011) UK study 47% quality score | Qualitative–evaluating pilot study Prospective | 7 adult male participants, Detained in medium secure hospital Details of age not provided Referred by clinical team | Behavioural, motivational and relapse prevention approach incorporating contingency management and harm reduction for substance use 24 week programme, 2 hour sessions delivered twice weekly 8 participants per group Details of programme structure in article | Information collected via a feedback form | Summary of main themes: Repetitive nature of goal setting; Group found to be more enjoyable than useful; Contingency management ‘good idea’; Mixed perceptions of usefulness of role play; Education and skills training very useful; Sessions too long and too frequent; | Strengths – good detail provided for intervention; range of themes identified Limitations – no demographic, forensic and clinical information provided; no details of analysis used; copy of feedback form not included in study; data collection method may have limited breadth of response |
| Ritchie, | Observational | 83 adult male | Drug and Alcohol | Inventory of | Pre and post | Strengths – study aims and |

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| <p>Weldon, Freeman, MacPherson & Davies (2011)</p> <p>UK study</p> <p>46% quality score</p> | <p>before-and-after study</p> <p>Retrospective</p> | <p>programme completers</p> <p>Detained in high secure hospital</p> <p>Age range 22-58 years, average age 36.5 years</p> <p>Referred by responsible clinician team</p> | <p>Relapse prevention programme – cognitive behavioural approach</p> <p>Groupwork plus five individual meetings with facilitator to discuss progress and support provision</p> <p>Programme structure and aims described</p> <p>6 – 8 participants per group</p> | <p>Drug Taking Situations (IDTS)</p> <p>Drug Taking Confidence Questionnaire (DTCQ)</p> <p>Multidimensional Locus of Control (IPC LOC)</p> <p>Stages of Change Questionnaire (SOC)</p> <p>Rosenberg Self-Esteem (RSE)</p> | <p>measures: paired t-tests</p> <p>IDTS – 40 participants completed primary substance – most frequent alcohol, cannabis or heroin</p> <p>DTCQ – significant increase in confidence to refrain post programme ($p < .0005$)</p> <p>IPC LOC - complete data available for 60 participants internal and powerful others, 62 for chance – no significant differences found</p> <p>SOC – no significant differences found</p> <p>RSE – no significant differences found</p> | <p>hypotheses clearly stated; ethical approval detailed; consent procedure documented; good sample size; demographic, clinical and forensic information provided; discussed confounding factors e.g. participation in previous group intervention, findings discussed based upon data and explanations explored; recommendations made for future dual diagnosis programmes; implications for practice clearly described</p> <p>Limitations – no control group; missing data for a number of measures; no follow-up measures, previous experiences of intervention may have biased findings</p> |
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| <p>Kesten, Leavitt-Smith, Rau, Shelton, Zhang, Wagner & Trestman (2012)</p> <p>US study</p> <p>61% quality score</p> | <p>Comparison group study</p> <p>Retrospective</p> | <p>Male and female adult participants</p> <p>88 experimental group, 39 male, 49 female, age range 23 to 58 years, average age 39 years</p> <p>883 control group, 786 male, 97 female, age range 18 to 77 years, average age 35 years</p> <p>Prison based</p> <p>Participation voluntary</p> | <p>Experimental group: Connecticut Offender Reentry Program (CORP) adopting a Cognitive Behavioural approach</p> <p>8 programme modules, lasting 9-12 months, delivered twice weekly,</p> <p>Module structure detailed in article</p> <p>Control group: Department of Mental Health and Addiction Services (DMHAS) – treatment as usual</p> | <p>Recidivism (rearrest within 6 months following discharge)</p> | <p>Experimental group: – 9.1% rearrested within 3 months of discharge, additional 4.5% rearrested between 3-6 months – total 13.6% recidivism</p> <p>Control group: 15.6% rearrested within 3 months of discharge, additional 12.6% rearrested between 3-6 months – total 28.2% recidivism</p> | <p>Strengths – comparison group; good sample size; comprehensive programme description; demographic and forensic information provided; ethical approval detailed</p> <p>Limitations – comparison group imbalanced sample size; limited follow-up period to assess recidivism</p> |
| <p>Wolff, Frueh, Shi & Schumann</p> | <p>Mixed methods (quantitative)</p> | <p>74 adult female programme completers</p> | <p>Seeking Safety group therapy – Cognitive</p> | <p>Quantitative Brief Symptom Inventory (BSI)</p> | <p>Pre and post measures: Paired <i>t</i>-tests</p> | <p>Strengths - demographic, clinical and forensic information provided;</p> |

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| (2012) US study 63% quality score | and qualitative) Prospective | Mean age 36 years Prison based – maximum, medium or minimum security Participation voluntary | Behavioural approach to treating substance use disorder and mental illness 19 groups, 6 -12 participants per group, 28 sessions twice weekly for 90 minutes per session | PTSD Checklist (PCL) End-of-treatment questionnaire <i>Qualitative</i> Focus group feedback | BSI – significant decrease in mental health symptoms ($p < 0.01$) PCL – significant decrease in PTSD symptoms ($p < 0.01$) End-of-treatment questionnaire – overall helpfulness reported on 1-5 scale (mean=4.7, SD=0.54) <i>Qualitative</i> Themes – felt safe, supported and comfortable in groups | assessments conducted by researchers outside of programme delivery team; good sample size Limitations: no follow-up; no control group; high attrition rate |
| Baker, Harwood, Adams, Baker & Long (2014) UK study | Observational before-and-after study Prospective | 32 male adult participants Average age 35 years Detained in low | The Substance Misuse Group adopting a cognitive behavioural approach | Pre and post: Stages of Readiness and Treatment Eagerness (SOCRATES) | Repeated measures t -tests: SOCRATES - significant change found in Taking Steps subscale ($p < .05$) and Ambivalence subscale | Strengths – inclusion of follow up period; multi methods of assessment including self-report psychometrics, physiological and behavioural reporting; |

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|--|---|---|--|---|---|--|
| 67% quality score | | secure hospital Referred for groupwork | Individual sessions to support homework and consolidation of skills Programme structure and contact detailed in article 4 groups delivered over a 16 month period. A maximum of 8 participants per group | The Programme Evaluation Questionnaire Post treatment substance use – assessed through self-report, electronic notes and physiological testing | ($p = .05$) Enjoyment of the programme and benefits gained rated as 7/10 or above in 81% of participants 100% ($n = 32$) intent of abstinence expressed in self-report measures, follow-up at one year confirmed abstinence by case notes and physiological testing in 81% ($n = 26$) | provision of demographic information Limitations – no control/comparison group; limited sample size; individual sessions run concurrently potential impact on dependent variable |
| Downsforth & Jones (2014) UK study 42% quality score | Mixed methods (quantitative and qualitative) Prospective | 10 adult male participants Age range 25-49 Detained within medium and low secure hospital | The Addressing Substance Related Offending Treatment Programme (ASRO). CBT approach to substance misuse treatment adapted for use within | Stage of Change Questionnaire (SOC) Barratt Impulsivity Scale (BIS) Multidimensional | Paired samples t-tests comparing pre and post conditions: Significant increases found on the BIS Non-planning impulsivity subscale ($p = 0.32$) No significant change | Strengths: mixed-methods design; range of measures to assess treatment outcomes; high completion rate Limitations: no control/comparison group; small sample size; no follow-up measures; |

| | | | | | | |
|--|---|--|--|--|---|---|
| | | Referred by clinical team | secure hospitals 20 sessions delivered as a group intervention twice weekly, 2 hours per session Programme aims described, no details of session structures | Locus of Control (IPC LOC) Social Problem Solving Inventory (SPSI) Qualitative feedback relating to experience of the programme | found on the IPC LOC No significant change found on the SPSI Key themes arising: enjoyment of programme, support of peers and relevance of content | reliance on self-report data; no description of qualitative data analysis; no ethical considerations discussed |
| Tibber, Piek & Boulter (2015) UK study 63% quality score | Observational before-and-after study Retrospective | 80 adult male participants for stage 1 of treatment 37 adult male participants for stage 2 of treatment Age range 19-56 years with a mean age of 34.93 years Detained in medium and | Manual based group treatment to address substance use Takes a CBT and MI approach to increasing motivation to change substance use Delivered in 3 stages; stage 1 lasting 10 weeks, stage 2 lasting 16 weeks and stage 3 | Alcohol and Other Drugs Knowledge Questionnaire (KNOW) Stage of Change Readiness and Treatment Eagerness Scale (SOCRATES) Treatment Motivation Questionnaire (TMQ) | Pre and post intervention measures MANOVAS used where data was normally distributed (all measures with the exception of Change Ruler data) Wilcoxon Signed Ranks tests used for Change Ruler data Significant increase on scores on KNOW ($p < 0.001$) | Strengths – large sample size; multiple measures used to assess range of treatment outcomes; appropriate statistical analysis used; manualised treatment approach; intervention described clearly; established psychometric measures used; Limitations – no control condition; reliance on self-report data; lack of data from stage 3 of the treatment; high drop-out |

| | | | | | | |
|--|--|--|---|--|--|---|
| | | low secure hospital Referred by clinical team | lasting 6-8 weeks Between 6 and 8 participants in each group | Effectiveness of Coping Behaviours Inventory (ECBI) Change Ruler assessment | Significant increase in external motivation after stage 2 as indicated by the TMQ ($p = 0.02$) No significant effect of time in readiness to change found in SOCRATES subscales. Significant main effect of drug type ($p < 0.05$) No significant changes in ECBI or Change Ruler assessment | rates; retrospective design; reliance on self-report measures; no follow-up measures included |
|--|--|--|---|--|--|---|

Descriptive Data Synthesis

Data was synthesised taking a narrative account from the thirteen studies meeting the inclusion criteria for the review. Quality percentage scorings ranged from 42% to 67%. All studies included in the current review had research aims of exploring the effects of intervention for the dual diagnosis population in secure forensic settings.

Participants

A total of 1456 participants were included in the studies, 1188 of which were male (81.6%), 243 female (16.7%) and 25 gender not specified (1.7%). Study samples were predominantly exclusively male (Baker et al., 2014; Downsworth & Jones, 2014; Edwards et al., 2011; Miles et al., 2007; Morris & Moore, 2009; Oddie & Davies, 2009; Ritchie et al., 2004; Ritchie et al., 2011; Tibber et al., 2015), with two exclusively female samples (Long et al., 2010; Wolff et al., 2012), one mixed sample (Kesten et al., 2012) and one study where gender was not specified (Derry & Batson, 2008). Participant ages ranged from 18 years to 77 years, in the studies detailing age ranges. It was not possible to calculate an overall average age due to missing data (Miles et al., 2007; Derry & Batson, 2008; Edwards et al., 2011). Studies were predominantly conducted in the United Kingdom (84.61%), with the remainder conducted in the US (15.39%). Figure 3 illustrates the forensic setting where intervention was undertaken. Participation in intervention was either via referrals from professionals (76.92%) or through voluntary self-referral (23.08%).

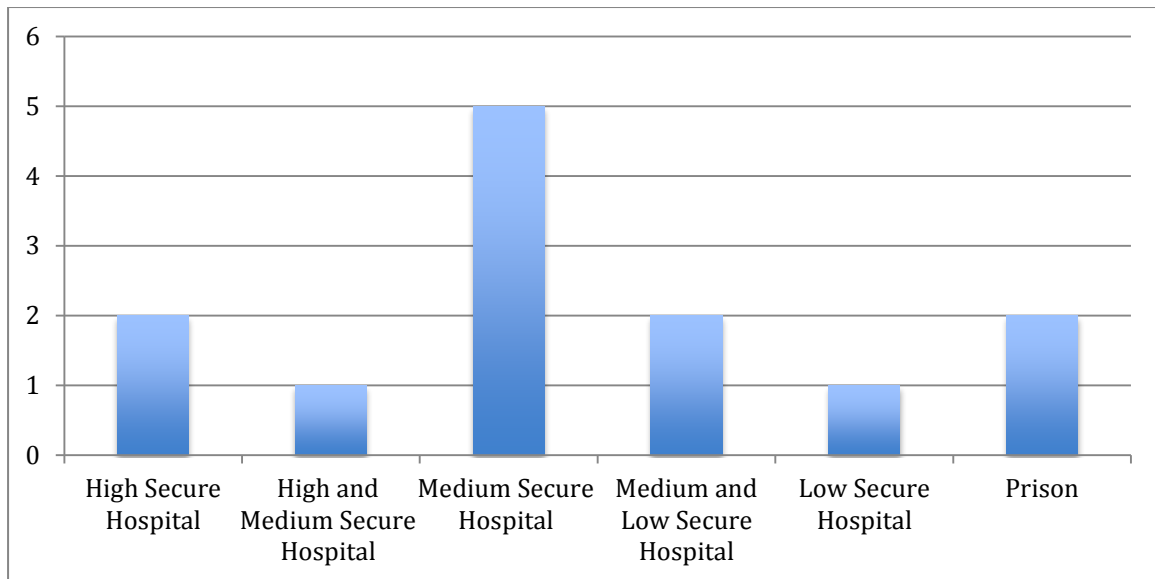


Figure 3. *Intervention setting*

Intervention approach, session frequency and overall duration

Intervention took a predominantly Cognitive Behavioural approach (69.2%) in included studies; 15.4% took an integrated CBT and Motivational Interviewing approach; 7.7% a Psychoeducational approach and 7.7% a Behavioural approach to treatment. All intervention assessed was delivered in groupwork format, with a group size ranging from 4 to 12 members, where information was available. Intervention length, where reported, ranged between 8 weeks to 14 months. Sessions were delivered on a weekly or twice weekly basis in all studies documenting session frequency, the most common mode of delivery being on a weekly basis.

Methodological design and outcome measurement

Table 3 presents the methodological designs for studies included in the review. Ten of the studies included were prospective in design (Downsworth & Jones, 2014; Ritchie et al., 2004; Miles et al., 2007; Morris & Moore, 2009; Oddie & Davies, 2009; Long et al., 2010; Edwards et al., 2011; Ritchie et al., 2011; Wolff et

al., 2012; Baker et al., 2014) and three retrospective (Derry & Batson, 2008; Kesten et al., 2012; Tibber et al., 2015).

Table 3

Methodological designs of included studies

| Design | Number of studies | Study details |
|-----------------------------------|--------------------------|--|
| Observational pre and post | 6 | Ritchie et al., 2004 Miles et al., 2007 Long et al., 2010 Ritchie et al., 2011 Baker et al., 2014 Tibber et al., 2015 |
| Mixed methods | 4 | Downsworth & Jones 2014 Morris & Moore, 2009 Oddie & Davis, 2009 Wolff et al., 2012 |
| Comparison group | 2 | Derry & Batson, 2008 Kesten et al., 2012 |
| Qualitative | 1 | Edwards et al., 2011 |

A variety of outcome measures were used to assess treatment outcomes. Assessment methods included self-report pre and post intervention psychometric measures, physiological testing methods, interviews, focus groups, feedback surveys, electronic patient records and criminal justice re-arrest data. Figure 4 presents a summary of measures used within included studies. Six of the thirteen included studies (46.2%) used single methods of outcome measurements as follows:

- pre and post intervention psychometric self report measures were used solely in four studies (Long et al., 2010; Ritchie et al., 2004; Ritchie et al., 2011; Tibber et al., 2015)

- the use of a feedback form in one study (Edwards et al., 2011)
- recidivism data in one study (Kesten et al., 2012).

All other studies incorporated more than one method of assessment for intervention assessment as follows:

- physiological testing measures were used in conjunction with pre and post psychometric measures (Miles et al., 2007)
- readmission rates, interview and electronic notes relating to drug use (Derry & Batson, 2008)
- pre and post intervention psychometric measures and semi-structured interview (Oddie & Davies, 2009)
- pre and post intervention psychometric measures, semi-structured interview and physiological testing measures (Morris & Moore, 2009)
- pre and post intervention psychometric measures and focus group (Wolff et al., 2012)
- pre and post intervention psychometric measures and feedback activity (Downsworth & Jones, 2014)
- pre and post intervention psychometric measures, electronic case notes and physiological testing measures (Baker et al., 2014)

A benefit of methodological triangulation, made possible with the use of more than one method of measurement to assess intervention, is the ability to compare outcomes between methods to strengthen the validity of findings.

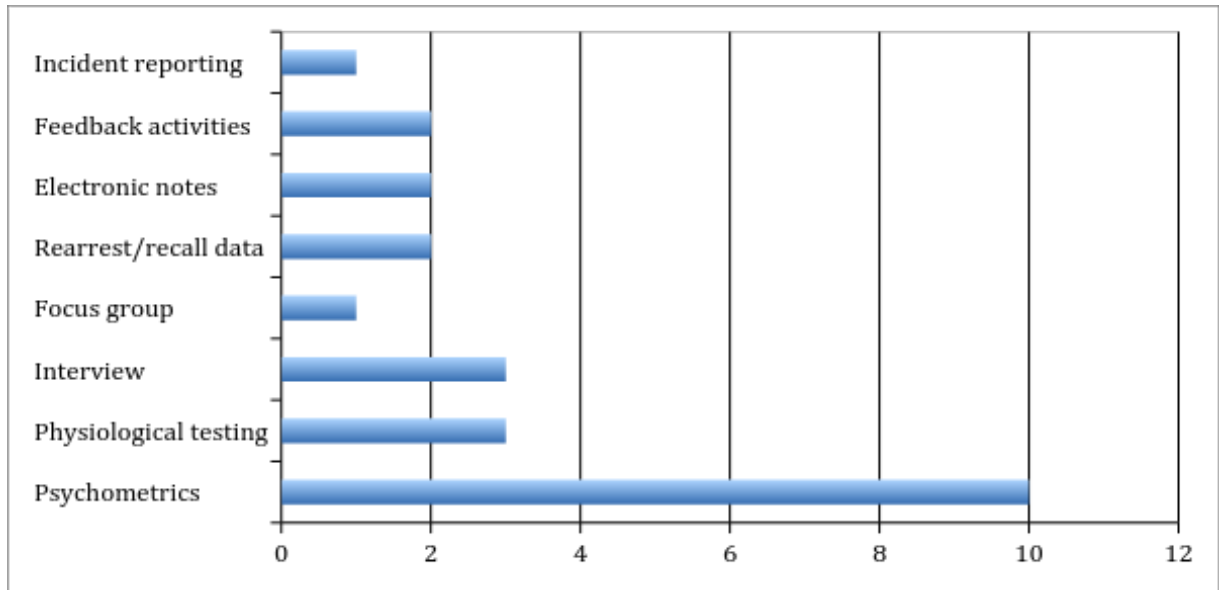


Figure 4. Summary of methods of measurement used in studies

Study Outcomes

All studies included in the current review indicated some measure of positive effect of substance misuse intervention for dual diagnosis in the secure environment. The following sections will present findings as suggested in the articles reviewed.

Attitudes towards substance use

Six studies measured attitudes towards substance use in pre and post programme conditions. Consistency was indicated in three studies in post intervention confidence to reduce substance use. Long et al. (2010) reported significant improvements in self-efficacy towards reduction in substance use ($p < .01$) after completing intervention as indicated by the Drug and Alcohol Taking Confidence Questionnaire (Sklar & Turner, 1999). Oddie & Davies (2009) found self-reported confidence to resist drugs significantly improved in four out of the eight situations measured ($p < .05$) in the Situational Confidence Questionnaire (Annis 1998) following completion of intervention. However, confidence to resist alcohol

only significantly increased in one situation out of eight ($p < .05$), indicating that intervention had more impact on attitudes towards drug use in comparison to alcohol. Ritchie et al., (2011) evidenced similar findings in the Drug and Alcohol Taking Confidence Questionnaire with a significant increase found in post programme confidence to refrain from substance use ($p < .0005$).

Long et al., (2010) reported a significant reduction ($p < .01$) in perceived costs of changing behaviour towards substance use and significantly greater ($p < .05$) perceived benefits of change post treatment in findings from the Alcohol and Drug Taking Consequences Questionnaire. Miles et al., (2007) reported an increase in beliefs of the need to change substance use indicated by a locally developed measure with more adaptive beliefs reported post intervention in the Beliefs About Substances Questionnaire, (Wright, Beck, Newman & Liese, 1993). In addition, a reduction in reported marijuana cravings was found in the Marijuana Craving Questionnaire (Heishman, Singleton & Liguori, 2001) following completion of intervention. The findings are reported descriptively as authors indicate that the small sample size ($n = 7$) at follow-up restricted the use of statistical analysis.

Qualitative findings from Oddie & Davies (2009), further support change in attitudes towards substance use following engagement in intervention. Using thematic analysis to identify common themes arising from data obtained from semi-structured interview, it was found that 67% ($n = 6$) of participants reported having a greater understanding of substance use impacting upon personal factors including mental health and offending. Furthermore, 56% of participants ($n = 5$) acknowledged changes in substance cravings during the group.

Morris & Moore (2009), using nonparametric Wilcoxon's matched pairs signed rank tests to account for a small sample size, found significant improvements

on four of the eight thinking styles considered to foster a drug lifestyle; mollification '*justification of substance use behaviour*' ($p = .046$), cut-off '*failed attempts to limit consumption*' ($p = .012$), entitlement '*personal rights to have what is deserved*' ($p = .011$) and cognitive indolence '*shortcut or easy way around something*' ($p = .045$) scales of the Psychological Inventory of Drug-Based Thinking Styles (Walters & Willoughby, 2000). No significant differences were found on the remaining four scales. In a thematic analysis of semi-structured interview information, 50% of the sample expressed confidence in changing substance use. Ritchie et al., (2004) found significant differences in drug ($p = .002$) and alcohol knowledge ($p = .017$) at post treatment in locally developed measures. Tibber et al., (2015) found a significant increase in Alcohol and Other Drugs Knowledge Questionnaire scores following completion of the psychoeducational phase of the programme ($p < 0.001$). In summary, all studies indicated some consistency in suggestions of attitudinal change towards substance use in post intervention measures.

Impact upon substance use

Substance use was measured in four of the thirteen included studies. Three studies provided consistency in findings towards indications of reduced substance use with one study not having any data in this respect to report. Two studies employed objective measurements of substance use through urine drug screening. One study tested abstinence through weekly urine drug testing, reporting 72% of programme completers testing as negative by the end of treatment ($p = .043$). However, these changes did not appear to be maintained, no significant effect of treatment was indicated in six-month follow-up measures (Miles et al., 2007).

Baker et al., (2014) assessed abstinence from substances through physiological testing including breathalyser readings, urinalysis and blood tests in conjunction with patient self-report and electronic note recordings. At one-year follow-up, twenty six out of thirty two participants (82%) who had expressed abstinence goals in intervention were self-reportedly abstinent, supported by physiological testing and electronic case notes. A further study included urine testing measures completed in circumstances where staff reported concerns about potential drug related behaviour (Morris & Moore, 2009). During the assessment period no programme completers were suspected by staff of accessing drugs, therefore, were not subject to urine testing.

Derry and Batson (2008) measured post release substance use through electronic patient records and interviews with responsible medical officers with findings presented descriptively. This study reported a lower incidence of substance use in the period following release in those who had completed treatment (50%) when compared with those who had not received treatment (74%).

Impact upon rates of recidivism/readmission

Two studies reported recidivism/readmission rates as outcome measures. The findings of both studies suggest a positive impact of intervention upon rates of recidivism. Derry and Batson (2008) using an independent sample *t*-test and Levene's Test for equality of variance, found that intervention completers spent a significantly proportionally greater time in the community than those who had not completed intervention ($p = .015$). Consistent with these findings, Kesten et al. (2012), found that in the six months following discharge from the secure environment, 13.6% of substance misuse intervention completers were rearrested,

compared with 28.2% who received treatment as normal. Logistic regression analysis completed on the data from both groups indicated that age was the only variable with a significant association with rearrest ($\beta = -.02$, Wald = 7.14, $df = 1$, $p < .01$).

Impact upon psychological functioning

Study findings provide some consistency in suggesting a positive impact of intervention upon psychological functioning. Long et al., (2010) when comparing mean pre-treatment scores with mean scores at six-month follow-up, found significantly fewer unmet needs in post treatment measures ($t(17) = 2.64$, $p < .05$) on the Camberwell Assessment of Need, Forensic version (Shaw, 2005). Significantly reduced scores were found for Anxiety ($t(18) = 2.94$, $p < .01$) and Tension ($t(18) = 2.97$, $p < .01$) on the Brief Psychiatric Rating Scale Expanded (Lukoff et al., 1986). Self-efficacy was found to significantly increase ($t(18) = -2.90$, $p < .01$) at follow-up as measured by the Generalised Self-Efficacy Scale (Jerusalem & Schwarzer, 1992). The research findings of Wolff et al., (2012) indicate further support for post treatment improvements in psychological functioning. Using paired t -tests to compare pre and post intervention scores, they found a significant decrease in mental health symptoms ($p < .01$) measured by the Global Severity Index (ES = 0.47) and in PTSD symptoms ($p < .01$) measured by the PTSD Checklist (ES = 0.56) in post intervention conditions.

However, Ritchie et al., (2011) found although self-esteem scores were slightly higher in post treatment measurement the differences were not statistically significant. The authors note that group average scores reported fell within the 'normal' range for this measure in both pre and post treatment conditions indicating that self-esteem was not a clinical concern in this group of participants. Consistent

findings were reported by Tibber et al., (2015) with no significant increases indicated in confidence in coping strategies following treatment as measured by the Effectiveness of Coping Behaviours Inventory (Litman et al., 1984).

Impact upon attitudes to change and locus of control

Seven studies within the current review assessed the impact of intervention upon intention to change. Three studies measured motivation to change using the Stages of Change Readiness and Treatment Eagerness Scale (Miller & Tonigan, 1996). Two studies reported similar findings on the ambivalence subscale. Morris & Moore (2009) found a significant reduction on the ambivalence subscale ($p < .047$), with consistency in the findings of Baker et al., (2014) with repeated measures t -tests indicating a significant difference ($p = .05$) in ambivalence towards change. Additionally, in this study a significant change was also found in the taking steps subscale ($p < .05$), whereas, no significant change in this scale was found by Morris & Moore (2009). However, using the reliable change index, a positive shift was indicated in post intervention scores across all three of the subscales, ambivalence ($n = 3$), recognition ($n = 4$) and taking steps ($n = 3$). When comparing pre and post intervention measures, Tibber et al., (2015) found no significant effect of time across any of the SOCRATES subscales, however, when comparing alcohol use with drug use, a significantly higher readiness to change was indicated in those using drugs ($p < 0.03$). In terms of motivation towards treatment, a significant effect of time was found in external motivation for treatment ($p = 0.02$) in the second phase of the intervention.

The other four studies measuring readiness to change found no significant differences in change between pre to post measures completed (Downsworth & Jones, 2014; Oddie & Davies, 2009; Ritchie et al., 2004; Ritchie et al., 2011).

In terms of the impact of intervention upon locus of control, an individual's expectation and willingness to take control over life events, three studies reported similar findings, with no significant differences in pre and post intervention scores (Downsworth & Jones, 2014; Ritchie et al, 2004; Ritchie et al, 2011) suggesting that intervention had little impact on locus of control. However, in two of the three studies, the authors note that in both studies locus of control was significantly higher on internal measures in both pre and post programme conditions ($p < .001$) indicating that participants already perceived having control over their own life and substance use prior to commencing intervention.

Intervention feedback and general satisfaction reporting

Qualitative aspects of studies reported a number of arising themes relating to the participants' experiences of intervention. In all five studies incorporating qualitative findings, the group experience is reported as predominantly positive (Edwards et al., 2011; Downsworth & Jones, 2014; Morris & Moore, 2009; Oddie & Davies, 2009; Wolff et al., 2012).

One study, using informal thematic analysis of semi-structured interview information ($n = 4$), found positive experiences of engaging in the group in treatment completers ($n = 3$). Two participants reported perceived benefits of engaging in intervention towards changing future substance, one participant reported no intentions to change substance use and one participant did not complete intervention due to feeling vulnerable in the group (Morris & Moore, 2009). In a second study ($n = 9$),

when asked to rate scores of how much the group had benefitted them on a scale of 0 (no benefit) to 10 (huge benefit), the average score was 8. Key benefits were identified as group formation and identification, the group atmosphere and learning from hearing about others' experiences. The most influential factor cited to be influencing current abstinence was incarceration. Suggestions were made for programme improvement including increased focus on individual substances, additional sessions to enable further opportunity to consolidate learning and more external speakers. 78% of participants indicated that that they did not want carers or relatives to be involved in their treatment (Oddie & Davies, 2009).

In the qualitative study reported by Edwards et al., (2011), five out of six participants reported finding the group enjoyable rather than useful with goal setting indicated as both the most enjoyable and least enjoyable aspect of the group experience. Feedback indicated perceptions that goal setting was too repetitive but also of some value. The contingency management aspect of the programme received positive or ambivalent feedback; education and skills training were rated the most useful elements of the programme; feedback towards facilitators was positive, as was group composition. Sessions were generally felt to be too long and too regular (twice weekly). Suggestions for future changes to the group included reduction of the emphasis on goal setting and increased emphasis on the implications of drug and alcohol use.

Positive effects of treatment were indicated in the qualitative findings of Wolff et al., (2012). In an end of treatment questionnaire, when asked to rate treatment feedback on a scale of 1 (not at all) to 5 (a whole lot), 75% or more participants reported intervention being *helpful overall* (mean = 4.7, SD = 0.54), *helping with*

trauma (mean = 4.4, SD = 0.78), *helping with substance use* (mean = 4.2, SD = 0.94), and *learning safe coping skills* (mean = 4.7, SD = 0.53).

Methodological considerations

Studies included within the current review achieved quality ratings ranging between 42% and 67%. A number of research limitations were identified both within individual studies and in the body of research as a whole. At the time of the current review, no randomised studies could be found assessing effects of dual diagnosis intervention in the secure forensic environment. As such, all studies included in the review were non-randomised in design. Furthermore, due to the limited availability of empirical research in this area, no studies were excluded from the current review on the basis of quality assessment. In view of the identified need for intervention evaluation all available applicable research in the area was included.

However, due to the inclusion of non-randomised studies the risk of systematic bias confounding findings is elevated. Non-randomised studies have a higher risk of selection bias, attrition bias, detection bias and performance bias (Deeks et al., 2003). Selection bias in non-randomised studies can arise as a result of participants being referred to intervention by clinical staff, therefore, the decision to treat is directly related to treatment outcomes which may in turn lead to bias in treatment effects. A review of randomisation in healthcare trials suggested that the effect of not using randomisation or concealing allocation can have a potential effect size as large as the anticipated effects of intervention (Kunz, Vist & Oxman, 2007).

Selection was not randomised for any of the studies included in the current review. All participants were either referred to intervention by their clinical team or volunteered to participate with associated implications for selection bias. In twelve

out of the thirteen included studies, participants were allocated to intervention with no comparison group treatment available. In one study (Wolff et al., 2012) participants were able to volunteer for intervention if they met selection criteria rather than treatment as normal. Randomisation or concealing allocation to a treatment group is challenging within secure settings and in the populations involved in the current review. As previously discussed, treatment availability is limited, along with barriers to accessing intervention due to programme selection requirements in some settings. Therefore, random allocation of participants to treatment and comparison conditions would be difficult to achieve and could result in the withholding of treatment for a vulnerable population with serious ethical implications.

Samples within included studies in the review were predominantly male (81.6% of participants), therefore, limiting generalisability of findings. Additionally, sample sizes were small in the majority of included studies with only five studies with a sample size greater than 50 (Kesten et al., 2012; Ritchie et al., 2004; Ritchie et al., 2011; Tibber et al., 2015; Wolff et al., 2012). In one comparison study (Derry & Batson, 2008) the sample size of the treatment completion group was very small ($n = 6$) limiting reliability of study findings (study quality rating 48%).

With regards to detection bias, a number of different outcome measures were used to assess similar constructs between studies. For example, to measure motivation to change the following measures were used; the Stages of Change Readiness and Treatment Eagerness Scale (Miller & Tonigan, 1996), the Stages of Change Questionnaire (McConaughy et al., 1989), the Treatment Motivation Questionnaire (Ryan et al., 1995) and the Readiness to Change Questionnaire – Treatment Version (Heather, Luce, Peck, Dubar & James, 1999). Although details are provided within studies regarding validity and reliability of scales measuring change in all studies,

different measures may have produced different results. A lack of standardised measures used within studies has been noted to create difficulties when comparing constructs across studies.

Furthermore, psychometric assessments used within two of the studies (Ritchie et al, 2004; Miles et al., 2007) included locally developed measures with no psychometric properties reported. Additionally, a lack of information relating to normative samples for measure development was evident in studies. Without the provision of this information, assessment of whether the measures used within studies are appropriate for the population in question is problematic. A further limitation is the limited detail relating to the administration of measures in pre and post treatment conditions. All included studies lack details as to whether measures were administered by researchers, programme facilitators or staff independent of intervention delivery and research. Neither were details provided regarding whether measures were administered individually or in a group environment and the time scale over which they were completed. This lack of clarification makes assessment of appropriateness of measure administration challenging, with potential implications of researcher bias.

Controlled trials provide the benefit of a comparison group against which intervention findings may be assessed. Only two of the included studies had control groups (Derry & Batson, 2008; Wolff et al., 2012) making assessment of confounding variables problematic. In the absence of comparison group findings assessment of the impact of intervention and impact of extraneous factors is difficult (Holloway, Bennett & Farrington, 2005). Furthermore, the control group condition reported in Derry and Batson (2008) included treatment dropouts with associated implications for validity of findings, as this group have been indicated to have a higher risk of re-

offending than those who have not been offered treatment (McMurrin & Theodosi, 2007).

A further methodological limitation in a number of studies included in the current review is the lack of follow-up data. An advantage of follow-up data is the opportunity to assess change over time, therefore, exploring longer-term effects of intervention. Only four of the included studies provided follow-up data (Miles et al., 2007; Derry & Batson, 2008; Kesten et al., 2011; Baker et al., 2014). One of these studies (Kesten et al., 2011) measured recidivism in the six months following release, however, in a large scale 20-year follow-up study of outcomes after discharge for medium secure care, the mean time from discharge to reconviction was found to be 3.2 years (Davies, Clarke, Hollin & Duggan, 2007). This would suggest a follow-up period of six months an insufficient time frame in which to effectively assess recidivism.

Incomplete data sets can increase the risk of attrition bias. Incomplete data sets were reported in some studies, for example, one measure was not administered to the first cohort in research completed by Miles et al. (2007) due to the questionnaire not being devised at the start of treatment. Furthermore, high attrition rates in some of the included studies may have confounded study findings. Performance bias relates to non-standardisation of intervention, assessments and the recording of data. Although all studies included in the review followed structured guidelines for delivery, continuity between session content is unclear. Some studies followed manualised guidelines, whereas, others followed a set structure for the delivery of intervention but without a manualised approach. As such, variance between facilitators and group dynamics may have biased treatment outcomes. Studies with consistent facilitation teams throughout the whole of programme delivery may have

been more influenced by the treatment style of the facilitation team than those with diverse facilitation teams.

Additional confounding factors potentially impacting upon study findings are the effects of previous related intervention completed and co-occurring individual intervention received alongside intervention being currently assessed. Oddie and Davies (2009), Long et al. (2010), Ritchie et al. (2011) and Baker et al., (2014) all report the facilitation of individual sessions to support group intervention, therefore, the provision of additional intervention in an alternate mode of delivery may again influence the outcome of group intervention completed. A complete absence in all included studies of specific details of previous associated treatment completed by study participants again potentially influences current study findings.

The impact of the secure environment, where all studies were based, should be considered when evaluating findings from studies. The secure environment typically restricts access to substances, especially in the medium and high secure settings where community leave is more limited and supervision levels are high. In the study completed by Oddie and Davies (2009), the most influential factor cited for abstaining from substance was being detained in the secure environment. The role of social desirability in responses (Saunders, 1991) may merit consideration, especially as a common goal in the secure environment is the desire to progress through detainment and work towards release into the community.

Discussion

The current review aimed to explore the effectiveness of substance misuse intervention in adults with co-existing serious mental health problems and substance misuse problems in the secure forensic environment. Thirteen studies were included in the review, six of which were observational in design, four used mixed method designs, two comparison group designs and one was based on a qualitative approach.

The findings of the review are in agreement with previous literature indicating a paucity of research investigating dual diagnosis interventions in the secure forensic environment. All available studies identified as a result of a variety of searching methods were included in the current review with no exclusion criteria based on experimental study design. Rationale for including all identified studies was to provide the most comprehensive representation of interventions available and to indicate initial treatment findings within this area.

The review presented mixed findings, with some provisional benefits indicated in substance misuse interventions in the secure environment for offenders with co-existing serious mental health problems. These included indications of changes in attitudes towards substance use, in motivation to change, in reduction of substance use and reduction of risk behaviours likely to result in re-detainment in the secure environment. Provisional benefits in psychological functioning were also indicated in several studies. However, study findings were not consistent or comprehensive. Findings of the included studies suggested that intervention did not change locus of control. The methodological limitations previously discussed should be considered in terms of generalisability of findings to the wider population.

Strengths of the current review

Despite the methodological limitations of the studies included, the current review has several strengths. Search methods were robust and comprehensive with a number of databases searched across relevant disciplines in the field including psychological, sociological and medical databases, providing breadth to searches employed. Search terms utilised were comprehensive, covering a diverse range of terms and spelling in order to capture any associated research that may have been appropriate to include in the review. A number of reference lists of related articles were reviewed, with further potentially relevant articles identified and sourced. Additionally, relevant journals were hand searched. Contact was made with experts in the field, providing further opportunity for inclusion of relevant studies. The current review has provided some insight into an under-researched area, highlighted as having significant need for evaluation and development. The range of studies in the current review included a variety of secure forensic environments; high, medium and low secure hospitals and prisons. Inclusion of this range of settings has provided a more representative view of the focus population for the review.

Limitations of the current review

Due to time and financial constraints the current review was limited to studies published in the English language. This limitation may have introduced bias in the selection of studies included in the review and impacted findings. Despite searching for unpublished research to include in the review, the author could not locate any studies outside of published literature. The inclusion of exclusively published studies may have introduced publication bias into the review. Furthermore, issues highlighted with methodological limitations and quality of included studies may have

impacted the findings of the current review. Limitations included gender imbalance in samples, small sample sizes, high attrition rates, lack of control/comparison groups, variability in assessment measures, limited follow-up data and non-standardisation of intervention. These factors have the potential to increase the risk of bias influencing study findings and negatively impact upon the ability to reliably generalise study results and findings to the wider population.

Conclusions and recommendations

Despite the limitations of the current review, findings appear to provide some insight into the impacts of substance misuse intervention for dual diagnosis in the secure environment. Findings suggest a reduction in distress levels and improved psychological functioning in individuals who have completed intervention although conclusions should be tentative at this early stage. Indications of changes in attitude towards substance use were suggested along with preliminary indications of reductions in both substance use and recidivism. In consideration of the significant impact of dual diagnosis for both the individual concerned and potential victims of associated harmful behaviour, further investigation to inform and support development of intervention is recommended. However, caution should be applied when considering generalisability of findings. The current review was limited by the quality of studies included due to the lack of availability of related research in the area. In order to effectively assess the impact of intervention and make recommendations for adaptations, follow-up data is required to investigate substance use once community exposure increases. Furthermore, studies benefitting from a comparison or control group would provide more reliable evidence of change arising from intervention.

Further research is required for the continued development and assessment of treatment targeting co-existing substance misuse and serious mental health problems in secure forensic environments. This is essential in working towards reducing risk, both in terms of potential harm to self and others and providing appropriate care required to work towards rehabilitation and improved life quality. The literature reviewed within this chapter appears to indicate the current limited availability of, and diverse approaches to, substance misuse interventions developed for offenders with serious mental health problems, with mixed findings indicated for treatment efficacy. This reflects previous concerns raised within the literature regarding treatment provision operating at local levels taking a fragmented approach to treatment and lacking evidence supporting efficacy of the intervention (Durand et al., 2006).

A more consistent approach underpinned by evidence based principles and empirical support is suggested as a more ethical and effective method to provide treatment to this vulnerable population. The use of standardised, established measures would facilitate more reliable comparison between interventions and help with understanding whether specific models of treatment are more effective in meeting the needs of this population than other approaches and if so how. As such, evaluations of the psychometric properties of measures used in assessment of problematic substance use and evaluation change are required to ensure that these psychometric tools are providing a comprehensive and reliable assessment of the concepts being measured. As such, Chapter Three provides a critique of a psychometric measure widely used within the field of substance misuse treatment and used within several studies within the current literature review, the Stage of Change Readiness and Treatment Eagerness Scale (Miller & Tonigan, 1996).

CHAPTER THREE:
CRITIQUE AND USE OF A PSYCHOMETRIC MEASURE: THE
STAGES OF CHANGE READINESS AND TREATMENT EAGERNESS
SCALE (SOCRATES 8A/D)

Introduction

Motivation to change has been the subject of much discussion and investigation in recent years, especially within the field of problematic substance use. Difficulties in engagement with treatment and treatment dropout have been associated with a number of adverse consequences including higher rates of reoffending (McMurrin & Theodosi, 2007), increased severity of substance use problems and poorer psychosocial functioning (Palmer, Murphy, Piselli & Ball, 2009). Particularly within the field of substance misuse treatment, poor treatment engagement and high attrition rates are suggested as a significant problem (Allen & Olson, 2015). Treatment attrition is further compounded in those with co-existing severe mental health problems and substance misuse (Tull & Gratz, 2012). Therefore, motivation to engage in treatment and a desire to change has been proposed to be a significant predictor of treatment outcomes (Miller & Rose, 2009).

A number of theories relating to the concept of change are suggested within the literature base. The Stages of Change transtheoretical model (Prochaska, Norcross & DiClemente, 1992) is arguably the most widely used in the field of substance misuse and behavioural change, underpinning much of the understanding of motivation to change problematic substance use (Prendergrast, Greenwell, Farabee & Hser, 2009). The original model identifies five discrete stages of change that an individual is proposed to sequentially progress through when modifying behaviour.

Each stage builds upon the previous in increasing commitment to change. The first stage of pre-contemplation is characterised by an absence of intention to make future changes to problematic behaviour. The next stage is contemplation, where it is suggested that an individual will be considering change but has yet to make a commitment. The third stage of preparation involves making a decision to change and plans to support decision making. The action stage suggests that an individual will be actively modifying problematic behaviour and, during the final stage of maintenance, an individual will consolidate change and work to prevent relapse. Guidance of time frames and specific criteria of each specific stage is provided (Prochaska et al., 1992).

The Stages of Change model initially proposed that individuals would progress discretely through each stage from initial stages through to final stages with no flexibility of movement between stages. However, this model was subsequently modified to incorporate potential of relapse. A spiral model was instead suggested, whereby, in the situation of relapse, an individual is proposed to revert to a previous stage rather than returning to an initial starting point. The model indicates that an individual can only be in one stage at any one time. This model is suggested as providing insight into an individual's motivation and potentially informing treatment provision to address problematic substance use (e.g. Diclemente & Prochaska, 1998; Velasquez, von Sternberg, Dodrill, Kan & Parsons, 2005).

However, the Stage of Change model has been subject to extensive debate in terms of utility and applicability in understanding change. Burrowes and Needs (2009) raise concerns that the model is oversimplified, suggesting that change is a continuous fluid concept rather than a progression through discrete stages and that individuals may be likely to be in a number of stages at any one time. A review of

Stage of Change model and problematic behaviours indicated that the data reviewed did not support exclusivity of stages and sequential movement through them (Littell & Girvin, 2002). Cutoff boundaries between stages have been subject to criticism and the validity of the allocation of an individual to a specific 'stage' category questioned (Sutton, 2001). Furthermore, this model is suggested as providing insufficient explanatory detail regarding readiness to change, with limited evidence to support the predictive power of the theory and under-emphasis of contextual factors in the role of change (Burrowes & Needs, 2009).

The Stage of Change model was subsequently revised by Freeman and Dolan (2001) to incorporate additional stages to reflect the complexities of change, the awareness of the need for change and the collaborative process between an individual and treatment. This revised model includes a noncontemplation stage to capture those who do not see a need for change and an anticontemplation stage to capture those who are actively aversive to changing behaviour and are being forced to seek treatment, for example, as part of a legal process. These stages are followed by precontemplation whereby an individual will be starting to consider the costs and benefits of changing behaviour and contemplation where decisions about change are being made and a readiness indicated for this. The action planning stage describes the collaborative process between an individual and treatment provider to plan for making change and the action stage refers to the active process of change being implemented.

The revised model then introduces a further three stages to the process of change; prelapse, lapse and relapse. Prelapse refers to the cognitions of the individual towards the changes introduced in the action stage and ambivalence towards the benefits of these changes when compared with the costs of changing behaviour. Lapse is suggested to occur when the dissonance between costs versus benefits

contributes to a brief return to the problematic behaviour. At this point, if a resolution can be reached with the support of the therapist an individual will return to the action stage. If the difference in cognitions towards change and behaviour cannot be resolved it is suggested that the individual will enter a relapse stage and will return to the problematic behaviour presented before treatment. This revised model is suggested as a more dynamic approach to the process of change with the inclusion of additional stages capturing the complexities of this concept and, thus, providing more clinical utility (Dolan, Seay & Vallela, 2006).

A number of measures have been developed to assess readiness to change including the Stages of Change Readiness and Treatment Eagerness Scale version 8 (SOCRATES 8A/D) (Miller & Tonigan, 1996), the University of Rhode Island Change Assessment Scale (URICA) (Prochaska & DiClemente, 1992), the Readiness to Change Questionnaire (RCQ) (Rollnick, Heather, Gold & Hall, 1992), the Treatment Motivation Questionnaire (TMQ) (Ryan, Plant & O'Malley, 1995) and the Treatment Readiness Tool (TReaT) (Freyer, Tonigan, Keller et al., 2004). Furthermore, a variety of measures are available to specifically assess motivation in addressing substance misuse problems. A critical review of measures assessing the concept of readiness to change including some of the above mentioned measures, indicated that no one measure was indicated as more effective in terms of clinical utility (Carey, Purnine, Maisto & Carey, 1999).

The SOCRATES 8A/D is reported as a widely cited measurement of readiness to change (Burrow-Sanchez, 2014; Brubaker, Amatea, Torres-Rivera, Miller & Nabors, 2013) and a commonly used, 'gold-standard' measure of motivation (Kelly & Greene, 2014). The current critique will review the Stages of Change Readiness and Treatment Eagerness Scale version 8 (SOCRATES 8A/D, Miller & Tonigan, 1996), a

measure specifically assessing attitudes towards changing alcohol and drug use. The review will incorporate consideration of the psychometric properties of the scale, the development of the scale and its applicability for use in both clinical and research settings.

Overview of the measure

The SOCRATES 8A/D is a 19-item self-report measure assessing readiness to change in those who misuse alcohol and drugs. Version 8 of the measure was developed in 1991 and is a short-form version based upon factor analysis conducted on previous versions. The scale is designed to assess motivation to change and, additionally, provide a pre and post intervention measure of change. There are two separate scales, one relating to alcohol use (SOCRATES 8A) and one to drug use (SOCRATES 8D). Both scales contain the same items, simply replacing the word 'drinking' with the words 'drug use' as applicable.

The measure assesses readiness to change alcohol/drug use across three individual factorially-derived subscales; Recognition, Ambivalence and Taking Steps. The SOCRATES (8A/D) is a measure of interval level data. The Recognition subscale has 7 items assessing acknowledgement that alcohol/drug use causes problems and a desire to change. Scores for this subscale range from 7 to 35. Higher scores on this subscale indicate higher problem recognition. The Ambivalence scale has 4 items measuring the extent to which people wonder whether they are in control of their alcohol/substance use. Scores for this subscale range from 4 to 20. Higher scores indicate more uncertainty towards substance use. The Taking Steps scale has 8 items measuring the extent to which people believe they are already doing things to manage their alcohol/drug use. Scores for this subscale range from 8 to 40. Higher scores indicate that change is already taking place. Each item is scored using a Likert scale ranging from 1 (No, strongly disagree) to 5 (Yes, strongly agree). Total scores are interpreted against normative data.

The measure was developed for use with those aged 19 years and over. The scale is an experimental scale with no published manual guidelines. Scoring and

normative data for interpretation of scores are available as online resources. The measure has been adapted for use and tested in a variety of contexts amongst different populations. A two-factor model of the SOCRATES has been validated for use with adolescents who misuse substances (e.g. Hall, Stewart, Arger, Athenour & Effinger, 2014; Maisto, Chung, Cornelius & Martin, 2003; Maisto et al., 2011). The SOCRATES has been translated into other languages and validated for use in non-English speaking populations (e.g. Chun, Cho & Shin, 2010; Demmel, Beck, Richter & Reker, 2004; Figlie, Dunn & Laranjeira, 2005; Yeh, 2009; Zullino et al., 2007). The measure has been used in offending populations (e.g. Brocato & Wagner, 2008; Prendergast et al., 2009) and within samples with co-existing substance misuse and serious mental illness (e.g. Zhang, Harmon, Werkner & McCormick, 2004).

Self-report measures

The measure is a self-report measure, requiring independent completion. Self-report measures have the advantage of encouraging honest responses due to the direct nature of assessment. The more complex interactions involved in an interview are suggested as having the potential to contribute to errors in measurement (Del Boca & Brown, 1996). However, conversely, self-report measures may be subject to response bias, whereby a respondee may attempt to present in a falsely positive or negative light, 'faking good' or 'faking bad' (Weiner, 2003). A further potential limitation of self-report measures is the reliance on one source of data.

Psychometric properties

Kline (2000) suggested that in order for a psychometric test to be considered robust it should meet a number of criteria. Criteria include having good reliability, validity and appropriate norms. The SOCRATES will be critiqued according to these criteria.

Appropriate Norms

The measure has been validated for use with an adult male and female clinical sample ($n = 1672$) (Project MATCH Research Group, 1993). From this validation work, decile rankings were established to identify high, medium and low scores. However, although the normative sample included both men and women, the majority of the sample was male (76%). Furthermore, 80% of the sample was Caucasian, raising concerns regarding generalisation. There is a lack of normative data for populations dually diagnosed with serious mental health and substance misuse problems or offending populations. The scale authors advise against scale norms being applied to non-clinical samples due to validation occurring within a purely clinical sample. Additionally, this sample comprised only those abusing alcohol and did not include people with drug misuse. This raises concerns regarding the utility of the tool with those misusing drugs.

Reliability

Internal Consistency

Internal consistency examines how consistent all items of the scale are with one another and whether they measure a common concept (Hammond, 1995). Internal consistency is measured through the extent to which scale factors and items correlate with one another. Internal reliability is often measured using Cronbach's alpha, with

higher alpha coefficients indicating that items are related to and consistent with one another.

In the early stages of development, the measure included 32 items spread across four subscales. Initial testing indicated mean alpha co-efficients of .72 for the overall scale, with the range for sub-scales between .67 and .90 (Miller & Tonigan, 1996). A short form 20-item scale was developed and administered as part of a pre-treatment assessment battery in a large-scale multi-site clinical trial ($n = 1672$) of psychosocial treatment of alcohol misuse (Project MATCH Research Group, 1993). Good internal reliability for the Recognition scale was indicated, with mean alpha coefficients of 0.85. Good reliability was also indicated for the Taking Steps scale with mean alpha coefficients of 0.83 reported. Moderate reliability ($\alpha = .60$) was indicated for the Ambivalence scale. It is recommended that alpha coefficients need to have a minimum value of 0.70 (Kline, 2000; Nunnally, 1978) in terms of indicating acceptable reliability, therefore, the Ambivalence subscale did not meet minimum reliability requirements. In a smaller second sample within the same clinical trial ($n = 82$), high internal consistencies were reported for all scales, 0.82 for Ambivalence, 0.94 for Recognition and 0.91 for Taking Steps (Miller & Tonigan, 1996).

Similar findings to the larger scale findings reported by the scale authors were reported in a study of 84 participants with co-occurring substance misuse and serious mental health problems. High internal consistencies were reported for the Recognition (alpha coefficient = 0.91) and Taking Steps (alpha coefficient = 0.90) scales, however, again moderate reliability was reported for the Ambivalence scale (alpha coefficient = 0.60) (Carey, Maisto, Carey & Purnine, 2001). Higher internal consistency was reported for the Ambivalence scale in a study of 390 patients with co-occurring severe mental illness and alcohol misuse issues (Zhang et al., 2004).

Findings indicated an alpha coefficient of 0.83 for the Ambivalence scale indicating increased support for reliability in this sample. Zullino et al., (2007) investigated the internal reliability of a French translation of the SOCRATES administered to a sample of Swiss substance users. Cronbach's alpha values were 0.90 for Recognition, 0.73 for Ambivalence and 0.91 for Taking Steps indicating good internal reliability for the measure.

The inter-correlations between SOCRATES subscales indicate a small relationship between the scales. The scale authors report that low positive correlations between the subscales indicate that scales are measuring distinct factors and that overlap is minimal. Ambivalence has a weak relationship with Recognition ($r = .03$) and with Taking Steps ($r = .03$). A modest relationship was identified between Recognition and Taking Steps ($r = .33$). However, inter-correlation findings are not consistent. Carey et al., (2001) report a higher positive correlation between the Recognition and Taking Steps subscales ($r = .60$). A positive correlation was found between the Ambivalence and Recognition subscales ($r = .49$) suggesting some overlap between subscales.

Test-retest reliability

Test-retest reliability refers to whether similar scores are obtained from the same individual over a period of time in traits where stability would be expected or in the absence of intervention provision. Kline (2000) highlights the importance of allowing a sufficient time lapse between tests to limit bias arising from subjects remembering previous responses and artificially inflating test retest reliability findings. As such, a minimum of a three-month gap between tests is generally recommended for assessment of this type of reliability (Kline, 2000, p. 8).

However, readiness and motivation to change is identified as a dynamic construct (Miller, 1999) and, as such, is likely to be transient over time. This can potentially result in difficulties in evaluating test retest reliability over longer periods of time as the opportunity for real change would need to be limited (Del Boca & Brown, 1996). This could create difficulties in allowing sufficient time to increase reliability of findings whilst limiting opportunity for real change in attitude to occur.

Test retest reliability was assessed during the Project MATCH trial in a second, smaller sample ($n = 82$). Good test retest reliability was reported with intraclass correlations ranging from .82 to .94 (Miller & Tonigan, 1996). However, due to the limited two-day time interval between test and retest conditions, potential recall effects are suggested as inflating results (Del Boca & Brown, 1996). Additionally, when considering these findings, it should be noted that the small sample size in this trial does not meet the recommended sample size of at least 100 in order to minimise opportunity for standard error (Kline, 2000).

Carey et al., (2001) reported good temporal stability over an interval ranging from two to seven days, with test retest intraclass correlations of 0.82 for Taking Steps, 0.90 for recognition and 0.79 for ambivalence. This would appear to suggest that the measure produces similar consistent results over a short-term period. As with the findings of Miller & Tonigan (1996), the small sample size ($n = 84$) and limited time interval should be noted when considering these findings.

Validity

Face validity

Face validity refers to the transparency of a test, whether the test actually appears to be measuring what it proposes to measure (Kline, 2000). Clarity of item wording and

lack of ambiguity contribute to face validity. However, whilst clarity of items is essential for this type of validity, the importance of not providing too much opportunity for impression management is also a key consideration.

In order to improve face validity, the scale authors removed one problematic item during the development stages of the measure. The removed item was ‘The only reason I’m here is that somebody made me come’. It was felt that this item would be confusing for those having already completed treatment or for those not actively accessing treatment. All items of the SOCRATES (8A/D) appear to correspond with the concept of readiness to change substance use. Items are not overly long and do not have complex sentence structures, strengthening face validity.

However, the context in which the measure is administered is not given consideration, potentially giving rise to confusion when using the measure within specific settings. For example, use of the measure with detained samples (secure hospitals or prison environments) in those with no current access to substances may give rise to confusion in responding to items such as ‘*My drinking/drug use is causing a lot of harm*’ and ‘*There are times when I wonder if I drink too much*’. It is suggested that temporal rewording of items or administration instructions could alleviate some of this confusion.

Conflicting findings are reported regarding face validity when translating the measure into other languages. A Brazilian study (Figlie, Dunne & Laranjeira, 2004) investigating the reliability and factor structure of the measure required translation of the measure into Portuguese. Following translation it was reported that a number of the items were ambiguous and difficult for participants to respond to. Conversely, when the measure was translated into French difficulties in terms of comprehending items were not reported (Zullino et al., 2007).

Concurrent validity

Concurrent validity considers the extent to which a test corresponds to other tests measuring the same/similar variables. The concurrent validity of the SOCRATES was investigated in a sample of military service members seeking treatment for substance misuse (Mitchell & Angelone, 2006). Support for concurrent validity is indicated by the findings, with correlations found between SOCRATES subscales and subscales from the Addiction Treatment Attitude Questionnaire (ATAQ) (Morgenstern, Frey, McCrady, Labouvie & Neighbors, 1996). The ATAQ is a self-report measure assessing attitudes towards substance misuse treatment. Effect sizes for correlations ranged from large to small (Pearson $r > 0.5$ to Pearson $r > 0.1$). Large effect sizes were reported for the Recognition subscale of the SOCRATES and Powerlessness ($r = 0.83$), Commitment to Abstinence ($r = 0.73$), and Disease Attribution ($r = 0.74$) subscales of the ATAQ (Mitchell & Angelone, 2006). However, the sample in this study is limited to active duty military personnel with implications for generalization to wider populations. An additional limitation of this study is the inclusion of only one other measure to assess concurrent validity.

Findings of a study investigating psychometric properties of self-report measures in a dually diagnosed population indicated some consistency in responses to different measures (Carey et al., 2001). Positive correlations were found between SOCRATES subscales and the Alcohol and Drug Consequences Questionnaire (ADCQ) (Cunningham, Sobell, Gavin, Sobell & Breslin, 1997). The ADCQ is a self-report measure assessing evaluation of the positive and negative outcomes of substance use. Positive relationships were found between the Taking Steps subscale and the cons of using subscale ($r = .47$) and the benefits of quitting subscale ($r = .64$). Negative correlations were found between Taking Steps and pros of using ($r = -.45$)

and costs of quitting ($r = -.28$). However, the relative weakness of these correlations should be noted. The Recognition subscale was found to have stronger relationships with cons of using ($r = .69$) and benefits of quitting ($r = .70$). A limitation associated with this study is reported as the oral administration of the measures used. In this respect, the measures were not administered according to standardised instructions, and, as such, may have influenced study findings.

Chun et al., (2010) found correlations between scores from the three SOCRATES subscales and the Alcohol Use Disorders Identification Test (AUDIT) (Saunders, Aasland, Babor, de la Fuente & Grant, 1993), a ten item test developed as a collaborative World Health Organisation project for identification of alcohol related problems. A positive correlation was found between Taking Steps and the AUDIT (.18, $p < .05$) and between Recognition and the AUDIT (.50, $p < .01$) and a negative relationship was found between the Ambivalence subscale and alcohol consumption measures (-.35, $p < .01$). However, as previously mentioned, the weak range of the correlations should be considered.

Predictive validity

Predictive validity relates to how well a test predicts future behaviour in terms of the construct being assessed. In secondary analysis of data investigating the effects of a harm reduction alcohol intervention in a homeless population, the predictive validity of the SOCRATES was indicated. Collins, Malone and Larimer (2012) found a positive association between higher scores on the Recognition scale and higher alcohol consumption over a two-year follow-up. A positive association was also found with Ambivalence scores and alcohol related experiences and symptoms indicative of alcohol dependence. It is highlighted that although these findings may

appear contrary to what may be expected, findings fit with previous research indicating that upon initial problem recognition substance use may be exacerbated. The Taking Steps scale was indicated as predictive of lower alcohol intake and reduction in alcohol related problems at two-year follow-up (Collins et al., 2012). Further support was indicated for the Taking Steps subscale and alcohol use outcomes in a one year follow-up from discharge from residential alcohol treatment. However, no other significant relationships were found between the other subscales and alcohol use outcomes (Bauer, Strik, & Moggi, 2014).

Similar findings were indicated in a sample of medical inpatients with unhealthy alcohol use three months following hospitalisation (Bertholet, Cheng, Palfai, Samet & Saitz, 2009). The highest scores of Taking Action were found to be predictive of a decrease in drinking IRR [95% CI] 0.42 [0.23, 0.78]. Higher levels of problem awareness and recognition (third quartile) were associated with higher levels of drinking at 3 months follow-up IRR [95% CI] 1.94 [1.02, 3.68]. However, an adapted two-factor structure of the measure was administered for this study; Perception of Problems and Taking Steps subscales (Bertholet et al., 2009).

Mitchell and Angelone (2006) found a positive correlation between scores on the Recognition and Ambivalence subscales and length of stay in treatment. Higher scores on both scales were associated with more days spent in treatment indicating that an awareness of substance related problems and consideration of the costs and benefits of addressing these issues are beneficial for retention in treatment. In a sample of 390 dually diagnosed participants, at 9-month follow-up from baseline, the Ambivalence scale of the SOCRATES significantly predicted alcohol use severity ($p < .01$) (Zhang et al., 2004).

In terms of predictive validity of the scale in relation to drug misuse, findings appear to be less consistent. Gossop, Stewart and Marsden (2006) investigated the associations between the SOCRATES 8D and drug use outcomes after receiving treatment ($n = 1075$). At one-year follow-up, no significant relationships were found between the SOCRATES and drug use outcomes. However, some support has been reported for the predictive validity of the Taking Steps subscale. In a study of adolescents ($n = 174$) presenting for alcohol and drug misuse treatment the Taking Steps scale was found to significantly predict percentage of days abstinent at six-month follow-up ($p = .054$) (Maisto et al., 2011). Again, in this study, an adapted two-factor approach of the measure was used, Recognition and Taking Steps.

Further support was indicated for the predictive validity of the Taking Steps subscale in substance misuse outcomes in an adolescent sample ($n = 225$). A significant relationship between the Taking Steps subscale and percentage of days abstinent at 4 months follow-up was reported (Hall et al., 2014). However, generalisation of these findings merit consideration, both being adolescent samples and, therefore, findings may not be representative of the adult population. Additionally, predictive validity was only found for the Taking Steps subscale, with no significant findings for the Recognition subscale.

Mixed findings are reported by Napper et al., (2008) when investigating predictive validity of the SOCRATES 8D and substance use outcomes in a sample of drug users not currently accessing treatment ($n = 377$). Length of time spent in treatment differed between the stages $F(4, 372) = 6.24, p < .001.$, with those in the determination stage spending longer in treatment than those in other stages. A difference was also found in general drug use over the previous 30 days $F(4, 348) = 5.32, p < .001.$, with those in the Action stage using less drugs than those in other

stages. However, small effect sizes for differences in behaviour predicted by stage of change are reported ($\eta = .06$). Furthermore, no significant differences were found between different stages of change and incidence of injecting drugs, or use of crack within the previous 48 hours.

Use of the assessment within the forensic population has indicated some support in terms of predictive validity. In a US study of 1708 records of offenders receiving community based treatment, during a twelve-month follow-up of commencement of treatment, higher scorers on the Recognition scale were reported as more likely to be re-arrested. Those who scored highly on the Ambivalence scale were more likely to be arrested for a drug related crime, with those scoring higher on the Taking Steps scales being less likely to be arrested for a drug related crime (Prendergast et al., 2009).

SOCRATES scores were found to be predictive of the amount of time spent in treatment in longitudinal research of 141 male offenders with substance misuse (Brocato & Wagner, 2008). Higher total scores for the scale were associated with more days spent in treatment. A significant relationship was found between Recognition subscale scores at treatment entry and retention in treatment, indicating that raised awareness and acknowledgement of a substance misuse may be predictive of engagement in treatment. However, no significant relationship was found between the Ambivalence or Taking Steps subscales and length of time spent in treatment.

Construct validity

Dancey and Reidy (2007) highlight the relevance of factor analysis when evaluating the construct validity of a measure, emphasising the relationship between constructs and factors (p. 459). Early stages of measure development incorporated four

subscales, each containing eight items. This was tested in a sample of 224 participants receiving treatment for substance misuse. Factor analysis using alpha extraction with varimax rotation yielded 4 factors with several items loading significantly on two factors. As such, it was identified that precontemplation and determination items loaded onto one factor, problem recognition.

The SOCRATES version 3.0 was developed revising items loading onto two factors and further factor analysis completed with a clinical sample. This yielded a clearer factor structure, with six items being amended. Subsequent factor analysis ($n = 125$) identified two items requiring rewording to improve consistency, resulting in Version 5.0 of the measure. From this, a short form 20-item scale was developed comprising the four strongest loading factor items from each scale. This short form scale was tested in a large-scale multi-site clinical trial ($n=1672$) of psychosocial treatment of alcohol misuse. Factor analysis using both orthogonal and nonorthogonal rotations revealed one item with low factor loadings. This item was removed from the scale resulting in the current 19-item version of the measure.

Support for the internal reliability of the three-factor model has been indicated amongst forensic populations. Brocato and Wagner (2008) administered the SOCRATES in a longitudinal American study investigating treatment retention in 141 substance-misusing offenders. Findings provided support for the internal consistency of the three-factor model with alpha coefficients ranging from .79 to .90 (Nochajski & Stasiewicz, 2005). A number of further studies have indicated support for a three-factor model including in dually diagnosed samples (e.g. Zhang et al., 2004), in forensic samples (e.g. Brocato & Wagner, 2008) and in clinical inpatient samples (e.g. Demmel et al., 2004).

Whilst some research supports a three-factor model, a two-factor solution has also been suggested. A two-factor structure is suggested as a better fit for data in some populations, with the first factor combining the ambivalence and recognition scales and the second taking steps (e.g. Burrow-Sanchez & Lundberg, 2007; Figlie et al., 2005; Maisto et al., 1999). As such, this adapted two-factor model has been tested and used in some studies of readiness to change (e.g. Bertholet et al., 2009a; Maisto et al., 2011). It has been suggested that differences in factor structure may arise from difficulties in differentiating between Recognition and Ambivalence due to confusion arising from item content or due to overlap between the two concepts. Furthermore, varying statistical analysis procedures used between studies may account for some differences in findings (Figlie et al., 2005).

In terms of the most appropriate factor structure for the measure, it has been suggested that this may be dependent upon the type of population and the setting in which the scale is administered. A three-factor model is suggested as more appropriate for populations seeking treatment in specialised substance misuse and psychiatric settings, whereas, a two-factor model may be more suited to those in more generalised settings not actively seeking treatment (Bertholet et al., 2009b).

Content validity

Content validation involves assessing whether a test is a comprehensive measure of the domain, whether it includes all facets of the construct that it proposes to assess (Hammond, 1995). The SOCRATES was developed as a parallel measure to the URICA, based upon the Stage of Change transtheoretical model. Miller (1987) identified a set of initial items for the scale which were reviewed by a number of professionals working in the substance misuse research field, for which feedback was

provided and adjustments made. Each subscale was initially designed to correspond with four of the five separate stages of change as proposed within the Transtheoretical Model; precontemplation, contemplation, determination and action. The maintenance stage was not represented in the scale at this point as the measure was initially designed for use only with those in early stages of presenting for treatment. Version 3 of the measure was revised to include the maintenance stage, therefore, incorporating all stages of the construct.

However, factor analysis revealed a three-factor model with different stages of change combined within sub-scales of the SOCRATES. As such, the scale authors acknowledge that the scale does not seem to measure the distinct, sequential stages of change as proposed by Prochaska and DiClemente (1992) and advised against using the original stage names. Instead, it is suggested that the scale provides insight into understanding motivational processes underpinning change. In a review of measures assessing readiness to change, Carey et al., (1999) reiterate that the scale does not directly replicate the original distinct stages identified within the Stages of Change model, rather just three scales incorporating items from the original five stages. It would appear that content validity issues correspond with the previously mentioned criticisms of the model. This may support a more fluid view of change (Burrowes & Needs, 2009), that an individual may sit within a number of stages at any one time rather than be categorised into an exclusive clearly defined stage at any one time.

Discussion and Conclusions

In summary, the SOCRATES (8A/D) is a widely used, well-established scale. Benefits include being relatively quick and easy to administer, as such, does not incur significant time or financial implications, lending itself well to both clinical and research settings. It is used within a range of settings including psychiatric and forensic environments to help to further explore and understand a client's readiness to make changes to alcohol and/or drug use. It is an interval level data scale and normative data is available for interpretation of scores, albeit limited. However, there is no published manual to guide administration, scoring and interpretation of the measure. Additionally, the scale is described as an experimental measure and findings should be interpreted accordingly.

Based upon the findings of this critique, research would appear to indicate moderate to good internal reliability for the measure. Reliability findings for the Ambivalence subscale are not as consistent as those for the Recognition and Taking Steps subscales. Some indications of test retest reliability for the measure are reported. However, findings are limited by small sample sizes and very short time intervals between testing. In terms of validity, mixed findings are reported. Some support is indicated in the literature for the concurrent validity of the measure, with correlations found between the SOCRATES and other measures specifically assessing attitudes to changing substance use. The weak strength of some of these associations should be noted when assessing concurrent validity.

Predictive validity assessment of the measure has shown some promising findings, particularly in relation to alcohol use. Information on face and content validity is limited resulting in difficulties in assessment of these areas. In terms of construct validity, it would appear that there is some dispute in the literature as to

whether a three-factor or two-factor model is the most appropriate, with suggestions that this may be dependent upon the context in which the measure is administered. It would appear that the measure does not completely correspond with the Stages of Change model from which it was developed, with distinct stages not represented by associated subscales. In consideration of the criticisms levied against the notion of an individual being in a unique category (stage) at any one time, the measure would appear to challenge this notion too.

The research base for the measure is varied both in terms of context and populations. Contexts include clinical, non-clinical and secure settings. Samples represented in the research include males and females, adults and adolescents, those with comorbid serious mental illness and substance use problems, alcohol users, drug users and multi-substance users. The scale has been translated into a number of other languages, validated and used in several different countries. The three-factor 19-item scale has been indicated to be more appropriate for use in psychiatric settings with people seeking substance misuse treatment.

Research has indicated mixed findings, particularly in terms of validity. However, the scale has been identified as providing useful insight into client's motivation and beliefs pre-intervention, during and following intervention. This insight into attitudes towards substance misuse problems and views on need for change may be beneficial for treatment providers to better understand clients and select appropriate treatment approaches (Carey, 2002). Understanding readiness to change may be beneficial in working to build motivation both prior to engagement in treatment and continuing to develop this throughout treatment. Whilst caution should be applied when interpreting findings of the measure considering the issues identified

within the literature relating to validity and reliability of the measure, the insight provided may be a very useful tool to support and enhance treatment.

CHAPTER FOUR:
EFFECTIVENESS OF THE BEHAVIOURAL TREATMENT FOR
SUBSTANCE MISUSE PROGRAMME IN A FORENSIC PSYCHIATRIC
POPULATION: A MIXED METHODS EVALUATION

Abstract

The link between serious mental health problems, comorbid substance use and a range of adverse consequences has been established. Comorbid serious mental health problems and substance use lead to a range of negative impacts for a significant number of people. There is a lack of treatment provision for this population within the forensic environment and the treatment available often lacks empirical support for effectiveness. This mixed methods study aimed to evaluate a group treatment programme designed to reduce substance use in participants with a history of offending behaviour, serious mental health problems and/or personality disorder. Participants were residing in low secure, rehabilitation or community settings.

Four self-report measures were used to assess change in a range of factors: the Stage of Change Readiness and Treatment Eagerness Scale (SOCRATES - 8A & 8D), the Drug-Taking Confidence Questionnaire for Drugs and Alcohol (Shortened Version) (DTCQ-8), the Internal, Powerful Others, and Chance Locus of Control Scale (IPC LOC) and the General Self-Efficacy Scale (GSES). Measures were completed pre and post group intervention and further at six-month follow-up. Substance use was measured by urinary drug screening (UDS) results and self-report. A sample of participants engaged in semi-structured interview exploring their experiences of the programme.

Data meeting assumptions of normality was analysed using One-Way Repeated Measures Analysis of Variance comparing mean differences in pre, post and follow-up psychometric measures scores. Data not meeting these assumptions was analysed using Friedman Page's L and post hoc testing where appropriate. Substance use was reported descriptively. Results indicated a significant change in 'taking steps' towards reducing substance use after completion of the intervention, however, no other significant effects were found. Qualitative data from semi-structured interviews was analysed using a thematic approach to establish emerging themes. Potential reasons for the results are considered as well as study limitations and directions for future research.

Introduction

The significant consequences associated with comorbid serious mental health and substance misuse problems are well documented within the research literature (Barrowclough et al., 2013; Daff & Thomas, 2014; Elbogen & Johnson, 2009; Morgan et al., 2013). Given the implications on the individual, on service provision and on society in terms of risk of harm, distress and financial consequences, the need for a response to this significant problem has been emphasised (Graham et al., 2001; McKeown, 2010). Recent government best practice guidelines for improving mental health treatment responses incorporate supporting those with co-morbid substance misuse and mental health problems, in order to improve outcomes and reduce financial costs (Department of Health, 2012). However, the complex and diverse needs of this population have led to challenges for treatment providers (Turning Point, 2011).

Three main approaches to the treatment of co-existing substance use and serious mental health problems in clinical populations have been identified within service providers; sequential, parallel and integrated treatment (Kavanagh & Connelly, 2009). The sequential approach targets each problem consecutively, providing treatment for one disorder prior to providing treatment for another. This type of treatment is suggested as more beneficial when the relationship between the disorders is clear. However, as outlined further in Chapter one, identification of causal and temporal relationships is often unclear and complex within comorbidity (Gregg et al., 2007), and is, therefore, problematic for a sequential approach. Parallel treatment targets both disorders concurrently, with intervention generally provided by different services.

A number of challenges have been suggested within the literature relating to both a sequential and parallel approach to treatment, including problems with treatment availability, treatment efficacy, service user experience and financial implications. Barriers to accessing intervention have been identified, with assessment of moderate severity in one or both areas potentially excluding eligibility for treatment (Kavanagh & Connelly, 2009). Additionally, treatment efficacy has been suggested as limited by differing goals and policies between agencies, along with ineffective communication and information sharing. In the situation of treatment being provided by separate services and/or clinicians, the responsibility of integrating treatment has been noted to be placed on the service user, frequently described as already 'struggling' to manage complex difficulties (Mueser, Noordsy, Drake & Fox, 2003). Limited or ineffective linkage between service providers has been suggested as negatively impacting treatment provision (Havassy, Alvidrez & Mericle, 2009). Furthermore, a comorbid diagnosis has been noted as having excluded clients from treatment in some situations, creating the potential for an individual to fall outside of treatment criteria for both mental health and substance misuse services (Todd et al., 2004). In terms of financial implications, Baker et al., (2007) have suggested that a fragmented rather than an integrated approach to treatment elevates treatment costs, in addition to increasing stress for the service user. A disjointed approach to treatment provision resulting in conflicting messages to those accessing intervention, has been identified as contributing to reduced motivation and disengagement from services (Barrett, 2009).

Consequentially, an integrated approach to treatment is recommended, incorporating both substance misuse and mental health difficulties (Department of Health, 2008; Kavanagh & Connelly, 2009; Morisano, Babor & Robaina, 2014), with

the need to provide evidence-based interventions for the treatment of dual diagnosis emphasised (Department of Health, 2002). Drake and Mueser (2000) note that in order for comorbid mental disorder and substance misuse treatment to be fully integrated, significant emphasis should be placed on the outpatient environment, as this is the context in which relapse is most likely to occur. They suggest that a fully integrated approach to treatment should incorporate a range of factors including substance misuse and mental illness intervention combined with case management, close monitoring, community-based rehabilitation activities, secure and stable housing and medication.

Whilst the evidence base for an integrated approach to the treatment of dual diagnosis in generic services is growing, the need for further empirical evaluation of both specific interventions and within integrated models of care is recommended (Sterling, Chi & Hinman, 2011). As discussed in Chapter Two, evaluation of intervention addressing comorbid substance misuse and serious mental health problems in the general population has shown inconclusive findings. Barrowclough et al., (2010) compared 164 patients attending an integrated dual diagnosis intervention incorporating cognitive-behavioural and motivational interviewing therapy with 163 patients receiving treatment as normal. No significant differences were found at follow-up in a number of outcomes including hospitalisation, frequency of substance use or perceptions of associated negative consequences. Increased readiness to change substance use was indicated upon completion of integrated therapy in comparison to treatment as normal, however, the difference was not significant or maintained at follow-up. A significant reduction was found in the amount of substances used when consumed in the experimental condition suggesting some positive treatment outcome of this intervention.

Support has been indicated in community samples for more integrated approaches to the treatment of comorbid serious mental health and substance misuse diagnoses. The Cognitive-Behavioural Integrated Treatment (C-BIT) programme (Graham, 2004) takes an integrated harm reduction approach to safer management of both serious mental health problems and substance misuse. Significant improvements in treatment engagement were reported along with reductions in alcohol consumption and change in positive alcohol related beliefs over an eighteen-month period for clients attending this programme (Graham et al., 2006). In systematic reviews of community non-forensic psychosocial treatments for comorbidity, mixed findings of treatment efficacy have been reported (Cleary et al., 2008; Hunt et al., 2014). No single approach was identified as producing more effective treatment outcomes in terms of substance use or mental health. However, a number of factors have been identified that potentially limit findings of these reviews, including differences in outcome measures used between studies, a lack of standardised approaches, poorly reported methodology and limited sample sizes.

Treatment for forensic clients

Treatment addressing comorbid serious mental health problems and substance misuse developed for the forensic population remains limited, both in terms of availability and empirical assessment. The importance of effective treatment in reducing the risk of violent behaviour in individuals with co-existing mental health problems and substance misuse has been emphasised (Volavka, 2013). Given the problems with treatment engagement experienced in this population as noted in Chapter One, this raises concerns. Research has suggested that non-completion of treatment can increase risk factors for offending, with treatment attrition associated with heightened

risk of recidivism, especially when the treatment is community based (McMurrin & Theodosi, 2007). Poor levels of motivation to address risk factors and engage with treatment in turn have been found to be associated with non-completion of treatment, with potential to exacerbate risk. Furthermore, even for those completing intervention, treatment outcomes may be negatively impacted by motivational problems, with learning less likely to be internalised along with limited recognition of the benefits of change (McMurrin & Theodosi, 2007).

The lack of treatment provision for substance misuse problems in forensic populations with serious mental health problems is highlighted within the literature (Derry, 2008). An independent review of mental health provisions in the criminal justice system commissioned by the Department of Health (The Bradley Report, 2009), found disconnected mental health and substance misuse services within the prison environment, with a dual diagnosis restricting access to services. This report made recommendations for the urgent development of improved services for prisoners with dual diagnosis of mental health and substance misuse problems. Furthermore, limited availability of ongoing substance misuse and mental health treatment in the community, along with the fragmented nature of the treatment, can make the transition from the secure forensic environment to the community even more challenging.

Derry (2008) emphasised the need for development and evaluation of dual diagnosis treatment within the forensic environment. The results of a national survey of treatment for substance misuse in medium secure psychiatric care raised concerns regarding diverse and inconsistent approaches to intervention being used in situations outside of evidence from trials resulting in inadequate treatment (Durand et al., 2006).

A recent forensic mental health services report highlighted the lack of empirical research in this area and the need for development of the evidence base for dual diagnosis treatment in secure settings (Clark & Sandbrook, 2013).

Several factors have been suggested as contributing to the limited provision of and paucity of empirical evaluation of comorbidity treatment in secure forensic settings. It has been suggested that limited treatment provision may arise from service providers placing reduced emphasis on dual diagnosis as a treatment need for people detained in the secure environment, due to the more limited availability of substances and associated reduction in problematic behaviour within this environment (McMurrin, 2002). Consequently, treatment of co-occurring substance use with mental illness is not identified as a priority by secure services, with more focus placed upon other treatment needs. Challenges to empirical assessment of interventions that are available, have been suggested to include difficulties in assessing treatment efficacy, with intervention outcomes measured prior to patients having unrestricted access to drugs and/or alcohol (Long & Hollin, 2009). As such, it has been recommended that treatment outcomes in the forensic environment include assessments of motivation, confidence, readiness to change and coping strategies, in order to ensure that measures are relevant to the environment (Swain, Boulter & Piek, 2010).

Behavioural Treatment for Substance Misuse (BTSA) (Bellack, Bennett & Gearon, 2007)

Behavioural Treatment for Substance Misuse (BTSA) is a structured, integrated treatment programme addressing substance misuse in individuals with serious mental

health problems. The BTSA programme was developed to address the significant problems posed to the mental health system by substance misuse in the absence of substance misuse interventions for the severely mentally ill population (Bellack et al., 2006). The programme was designed to be part of an integrated treatment system for those with serious mental health problems and substance use (Bellack et al., 2006). Strategies which had been indicated as effective in substance users without mental health problems were tailored and integrated with strategies that had support of being effective when working with individuals with these problems.

The programme employs a harm reduction approach to treatment rather than promoting total abstinence, in recognition of the difficulties people with serious mental health problems encounter when trying to achieve abstinence (Bellack et al., 2006). The effectiveness of a harm reduction approach to substance misuse treatment has been suggested in the literature (e.g. Graham et al., 2006; NICE, 2011). It is suggested that this approach is also beneficial when treating dual diagnosis (Cleary et al., 2008), specifically in increasing engagement in treatment and limiting risk of treatment attrition through increased individualisation of treatment planning (Phillips, 2010).

A contingency management component of BTSA

A key difference between BTSA and other substance misuse interventions offered within the forensic population is the contingency management approach of BTSA. This is a major component of the programme incorporated as both a treatment approach and as motivational reinforcement. Best practice guidelines endorse the introduction of contingency management to the treatment of co-existing substance misuse and serious mental illness (NICE, 2011). Kavanagh and Connelly (2009)

emphasised the importance of building and maintaining engagement in those seeking treatment for co-existing mental health and substance misuse problems. The provision of external rewards, for example, contingencies including small monetary payments have been suggested as useful in building and maintaining engagement. However, the significance of the development of intrinsic motivation to change is highlighted in order for sustained maintenance of motivation.

Some support is indicated within the literature for a contingency management approach to treatment of comorbidity. In a study comparing contingency management in addition to treatment as usual in outpatients with comorbid serious mental illness and substance misuse, positive effects of the contingency management approach were indicated both during treatment and in the follow-up period (McDonnell et al., 2013). Participants within the contingency management aspect of the study were 2.4 (CI=1.9-3.0) times more likely to return a negative drug screen during the treatment period than those within the control condition. Additionally, significantly fewer days of substance and/or alcohol use were self-reported in the contingency management condition following completion of the intervention.

A randomised community control trial in the USA comparing BTSA with a psychoeducational group indicated that participants who had engaged in BTSA were significantly more likely to return negative drug screens, to complete treatment, have less subsequent inpatient admissions and reported increased life satisfaction (Bellack et al., 2006). Meta-analysis of psychosocial interventions addressing substance misuse provided further support for a contingency management approach to intervention. Within this review, Dutra et al., (2008) found highest effect sizes for a contingent approach to treatment. Particularly high effect sizes were found for a combination of contingency management and cognitive behavioural therapy.

However, the very small number of studies included in the review taking this approach ($n = 2$) may limit generalisability of findings.

Key underlying principles of the BTSA programme have been identified as:

- the provision of a supportive and reinforcing treatment environment to help participants to manage any barriers to treatment
- a motivational approach to managing substance misuse problems
- a broad based treatment approach
- integrated with other mental health services (Bellack et al., 2006)

The BTSA programme includes six core components. The first, a *motivational interviewing* approach aims to promote and increase readiness to address substance use. *Contingency management* provides immediate behavioural reinforcement through rewarding attendance and negative drug and alcohol screening to encourage maintenance of this behaviour. Structured *goal setting* enables identification of short-term, realistic goals to promote reduced substance use. *Social skills training* is introduced to support group members in developing effective drug refusal skills and help to manage situations of stress and pressure. *Education* about the implications of substance use, particularly when combined with mental health problems, aims to increase motivation to change. *Relapse prevention training* promotes self-efficacy in helping clients to manage high-risk situations. This combined approach to treatment is identified as producing significantly better outcomes than more standardised, limited approaches to treatment (Callaghan & Jones, 2010). A repetitive, structured approach is used to facilitate the programme in order to accommodate the cognitive difficulties often experienced by those with

serious mental health problems (Bellack et al, 2006).

Edwards et al., (2011) evaluated a treatment programme based upon the BTSA model delivered within a medium secure unit. A qualitative approach was taken to this study to explore the perceptions of group attendees ($n = 6$) and facilitator's reflections on the experience of the group. A number of themes emerged including the significance of raising awareness of comorbid substance use problems within forensic psychiatric services, the challenges faced by staff in providing intervention, the strengths and weaknesses of the BTSA programme and the significance of the context in which intervention is provided. The contingency management approach is noted to have been the source of some contention amongst staff, arising with concerns towards the perceptions of other service users not involved in the BTSA programme and the potential that token monetary rewards would be perceived as patronising by attendees. This study concluded that a programme taking this approach to reduction of harm through substance use might not be completely suited for delivery within secure inpatient settings.

The current research

As discussed, despite the significance of the problem of dual diagnosis, both in terms of prevalence and associated consequences, a paucity of research investigating treatment effectiveness, especially within the forensic population is evident. A recent meta-analysis reported the lack of primary research into the role of dynamic risk factors including substance misuse in therapies aimed at reducing risk of violent behaviour in adults with psychosis (Witt et al., 2013). A limited evidence base assessing effectiveness of treatment of dual diagnosis is reported (Department of Health, 2009) with implications for clinical utility and cost effectiveness of treatment

being provided to service users. Additionally, NICE guidelines recommend that treatment offered to young people and adults with comorbid serious mental illness and substance misuse problems should be evidence-based and designed to encompass both treatment needs (NICE, 2011).

Within the forensic population evaluation of treatment provision is identified as lacking an evidence base and, consequently, ineffective and inconsistent treatment may be provided to vulnerable clients. These concerns, in conjunction with the association between recidivism, combined mental illness and substance misuse, makes evaluation of substance misuse treatment provided for the forensic population with serious mental disorder a priority.

A behavioural intervention was chosen for the current research as this treatment had been specifically developed for those with co-existing mental health and substance misuse problems. The contingency management approach to treatment is not commonly used when working with those with additional difficulties of offending behaviour but has been indicated to have clinical utility when working with those with comorbid serious mental health problems and substance misuse (NICE, 2011). Behavioural outcomes of intervention were assessed through indications of substance use over the duration of the programme, through data gathered from UDS testing and self-report. As such, the impact of intervention on substance use behaviour was evaluated within the research. Whilst the programme takes a behavioural approach to changing problematic behaviour, building and maintaining motivation to change is identified as a core component of the intervention. Assessment of motivation to change behaviour, prior to undertaking intervention, immediately after completing intervention and after a follow-up period was incorporated into the study design to provide insight into the impact of intervention on

building motivation to change and whether any changes in motivation were sustained after completion of intervention. As motivation to change is indicated as a key predictor of future substance use (e.g. Zhang et al., 2004) the inclusion of this assessment was considered relevant to the current research.

To date, to the author's knowledge, there is no published research available taking a mixed methods approach to evaluating the BTSA programme delivered for offenders with co-existing mental health disorder detained in inpatient secure settings and residing in community settings.

Research Aims and Objectives

Considering the limited existing evidence available for treatment for individuals with co-existing serious mental health and substance misuse problems detained within forensic environments, the main aim of the present study was to evaluate using mixed methods the effectiveness of the BTSA programme in helping participants to minimise harm through reduction and safe management of substance use. The programme aims of increasing self-efficacy and developing confidence in managing high risk situations were explored using validated psychometric measures administered at baseline, end of intervention and at six-month follow-up. The empirical measurement of change was related to the programme goals and aimed to establish the efficacy of the programme in achieving the aims of changing motivation, attitudes and behaviour of participants towards substance use and increasing confidence to improve general functioning. The research study therefore aimed to contribute to the evidence base informing future dual diagnosis treatment for the forensic population.

Hypotheses

In order to achieve the study aims, five quantitative hypotheses were tested:

H₁ It was predicted that there would be a significant difference in readiness to change following the intervention as measured by the Stage Of Change Readiness and Treatment Eagerness Scale shown by an increase in ‘recognition’ and ‘taking steps’ scores and a decrease in ‘ambivalence’ scores between baseline, end of treatment and follow-up score

H₂ It was predicted that there would be a significant difference following the intervention in confidence towards controlling substance use as measured by the

Drug Taking Confidence Questionnaire shown by an increase in confidence scores between baseline, end of treatment and follow-up scores

H₃ It was predicted that there would be a significant difference following the intervention in levels of general self-efficacy as measured by the General Self-Efficacy Scale shown by an increase in scores between baseline, end of treatment and follow-up scores

H₄ It was predicted that there would be a significant difference in locus of control following the intervention as measured by the IPC Locus of Control scale shown by an increase in internal scores and a decrease in external scores between baseline and post and follow-up measures

H₅ It was predicted that there would be a significant difference in substance use shown by a decrease in positive Urinary Drug Screens, breathalyser results and self-reported substance use

In addition, semi-structured interviews were conducted in order to explore participants' experience of the programme including what they had enjoyed, what they had found useful, perceptions of the therapists and suggestions for improvements for the programme.

Study Methods

The study was submitted for NHS ethical review and approval was received in March 2015 from NRES Committee East Midlands – Northampton reference 15/EM/0051 (see Appendix 8). NHS R&D approval was received from both clinical locations for the study.

Design

The study used mixed methods (quantitative and qualitative) in order to explore the hypotheses and questions outlined above. A mixed methods approach has been suggested to provide a richer, more in-depth understanding of the subject of the research (Venkatesh, Brown & Bala, 2013). Additionally, a triangulation approach to data collection has been recommended for increasing validity of research findings (Mathison, 1988). Therefore, outcome assessments for the current study incorporated multiple measures including self-report measures, urinary drug testing and interviews. A mixed methods repeated measures programme evaluation design was adopted. Quantitative data was collected through administration of measures at three points from research participants, at baseline prior to commencement of the intervention, immediately at end of treatment and at six-month follow-up from baseline assessment. Urinary drug screens were completed for each participant for every BTSA session attended where the participant was willing to provide a urine sample. Alcohol use was assessed during each session through the use of breathalysers where these were available; where breathalysing equipment was not available alcohol use was measured using self-report.

The research study adopted a quantitative methodology to investigate attitudinal change following completion of the BTSA intervention and at follow-up.

Behavioural change as indicated by substance use was assessed throughout the intervention. There was also a qualitative aspect to the research exploring themes arising from interview relating to participants' experience of the programme. A prospective approach to dual diagnosis treatment evaluation using appropriate longitudinal methodology has been recommended (McMurrin, 2002). As such, follow-up measures were included for attitudinal measures in the design of the current research. However, due to the time constraints of the research project, collection of long-term outcome data beyond 6 months after treatment was not possible.

A control condition for the research was considered as part of the design but deemed impractical as potential comparable participants (service users with serious mental health problems and substance misuse problems) were either receiving intervention or about to receive an intervention. BTSA was the only structured substance misuse intervention available in the two locations being assessed, and, therefore, service users with substance misuse treatment needs assessed as having sufficient capacity to consent were referred to this programme. As such, even if those delayed treatment entry were used as controls, it was likely that participants in a control condition would cross over into the experimental condition during the time period of the study, potentially invalidating the control condition and contaminating findings.

Recruitment

A sample size of 40 was planned for recruitment for the research. *A priori* power analysis indicated with $\alpha = 0.05$, power = 0.80 and a repeat measures ANOVA with 40 participants would be able to reliably detect an effect size of $f = 0.291$ (equivalent to a Cohen's $d = 0.6$). Participants were adult males (aged 18 years or

over) accessing low secure, rehabilitation and community forensic services. All participants had a history of offending and aggressive behaviour. Participants had co-existing serious mental disorder and problematic substance use. Referrals were made to the BTSA programme by the clinical or community team as part of a wider treatment plan and participation in the programme was voluntary. Where participants experienced difficulties in understanding English, translation support was provided. Potential participants were assessed regarding capacity to consent to treatment prior to referrals being made by their clinical team. All those referred to the programme were eligible to participate in the research and were given the opportunity to do so providing they were considered to have capacity to understand research requirements and provide informed consent to participate.

The treatment intervention

The intervention was delivered based upon a detailed procedure manual developed by Bellack et al., (2006). Adopting a skills training approach to learning grounded in social learning theory principles, BTSA aims to increase motivation and confidence in participants to reduce future substance use. The general approach to treatment is a skills training approach based upon behavioural rehearsal. Each session follows a similar format and is highly structured. A repetitive approach is taken to learning in response to the difficulties in cognition commonly experienced within this population. The treatment was designed to be integrated into a person's overall care system and promotes joint working with other care providers/professionals. The role of the therapist in treatment and the ways in which treatment can be tailored in response to individual clients' needs are documented within the treatment manual. Treatment is

delivered on a modular basis, with three individual modules defined, each of which is briefly summarised below.

The social skills and drug refusal skills training module incorporates general social skills training and more specific drug refusal skills training with the main focus on developing effective drug refusal skills. This module aims to increase participants' abilities to interact with others and develop skills to make new social contacts. It is anticipated that development of these skills will help in building a social support network that is drug-free and develop confidence to try new activities that do not involve drugs. The second module, education about substance use and coping skills training, incorporates both didactic and interactive elements relating to consequences of substance use, biological theories of serious mental illness, the impact of substance on mental health symptoms and the impact of substance use on physical health. Within this module participants are encouraged to consider high-risk situations and triggers to substance use and develop strategies to escape or safely manage these situations. The final module, relapse prevention and problem solving, introduces high-risk situations that clients are likely to face in the future and application of refusal, escape or avoidance coping skills or developing new coping skills to manage these situations. Problem solving is actively encouraged to support the identification of safe options to manage high-risk situations.

Training and support

Treatment delivery was robustly monitored and supervised. Staff delivering the treatment were experienced with working with clients with serious mental health problems and trained in delivery of the programme. Each session was facilitated by a minimum of two and maximum of four members of staff. Facilitators included a

forensic psychologist, a clinical and forensic psychologist, trainee forensic psychologists, assistant psychologists, nursing staff, Community Forensic Team staff and a peer facilitator. All staff were supervised by a Senior Psychologist during the delivery of the programmes. Planning sessions were completed in advance of each session delivery in order to ensure familiarity with session content, consider group dynamics and individual needs and allocate facilitation responsibilities. Facilitators participated in debrief meetings following each session, spending time reflecting upon session delivery, group interaction and dynamics and development of facilitation skills.

Sessions ran on average twice weekly for 90 minutes each, with programmes lasting between four and five months. Programmes evaluated within the current research study had a minimum of 26 sessions and a maximum of 35 sessions. Sessions took place outside of the secure hospital units, with inpatients utilising approved leave in order to attend sessions. This served to increase community contact and, as such, provided more realistic exposure to substances rather than being completely limited to the more artificial secure environment.

Study hypotheses, design and methodology were informed by previous research findings (Bellack et al., 2006).

Outcome Measures

Self-report measures

Self-report measures were administered to research participants at baseline, end of treatment and at six-month follow-up to baseline assessment. Standardised validated measures were used. Measures were chosen to assess a range of attitudes and views to assess treatment outcomes related to key programme targets (e.g. confidence in coping, readiness and motivation to change, locus of control) and indicated as more amenable to change for participants detained within secure settings (Swain et al., 2010). Additionally, these measures assessed key theoretical conceptual factors related to predicting future substance use. Considerable evidence has been reported supporting the predictive value of self-efficacy in substance misuse treatment outcomes (Kadden & Litt, 2011). Research has suggested that self-efficacy towards managing future high risk situations is the strongest predictor of reduction in alcohol use (e.g. Ilgen, McKellor & Tiet, 2005; Moos & Moos, 2006) following treatment and a significant factor in the reduction of drug use post treatment (e.g. Hayaki et al., 2007; Worley et al., 2014). Meta-analyses of more general self-efficacy beliefs (Bandura and Locke, 2003) have indicated the predictive power of resilient self-efficacy coping with stress and perseverance in managing difficulties. Considering the indicated contribution of stress and difficulties in coping to the onset of co-existing mental health and substance misuse problems as discussed in Chapter One, higher levels of broader self-efficacy would appear to be protective in managing future problems potentially contributing to substance use, in addition to specific self-efficacy towards substance use.

Motivation and readiness to change has been indicated as a key treatment outcome predictor of substance misuse treatment within the theoretical literature base (e.g. Miller & Tonigan, 1996; Sobell et al., 1996; Zhang et al., 2004). A high external locus of control has been indicated within the literature to have significant associations with continued substance use (e.g. Haynes & Ayliffe, 1991), with more internalised locus of control predicting better treatment outcomes for both drug use (e.g. Dekel, Benbenishty & Amram, 2004; Hall, 2001) and alcohol use (e.g. Blagojevic-Damasek, Frencl, Perekovic, Cavajda & Kovacek, 2012; Huckstadt, 1987; Soravia, Schlafli, Stutz, Rosner & Moggi, 2015).

The measures used and psychometric properties were:

1. The Stage of Change Readiness and Treatment Eagerness Scale (SOCRATES - 8A & 8D) (Miller & Tonigan, 1996)

The SOCRATES is designed to assess an individual's motivation to enter substance misuse treatment and can be used as a post programme measure to evaluate progress. Two separate questionnaires, one for alcohol (8A) and one for drugs (8D) assess motivation to change across three subscales; Recognition, Ambivalence and Taking Steps. Table 4 presented below describes concepts assessed within each of these scales. The SOCRATES (8A/D) comprises 19 items and is a shortened version of the original Stage of Change Readiness and Treatment Eagerness Scale. The SOCRATES was developed for use with the adult population, established within a sample of outpatients. The SOCRATES (8A/D) is reported as having satisfactory internal consistency and reliability. Table 4 presents subscale information and internal reliability scores. (A full critique of this measure is provided in Chapter Three of the present thesis). Participants were asked to complete the drug or alcohol

scale for their identified primary substance. A positive treatment effect would be shown by an increased score on the recognition and taking steps subscales and a decreased score on the ambivalence subscale. A copy of the SOCRATES 8A/D can be found in Appendix 9.

Table 4

SOCRATES subscale descriptions and psychometric properties (from Miller & Tonigan, 1996)

| Subscale | Number of items | Score range | Internal consistency (Alpha) | Description |
|-----------------|------------------------|--------------------|-------------------------------------|--|
| Recognition | 7 | 7 - 35 | .85 | Higher scorers acknowledge problems relating to drug/alcohol use |
| Ambivalence | 4 | 4 – 20 | .60 | A higher score indicates uncertainty towards drug/alcohol use |
| Taking Steps | 8 | 8 - 40 | .83 | High scorers indicate that positive changes are already being made in drug/alcohol use |

2. The Drug-Taking Confidence Questionnaire for Drugs and Alcohol (Shortened Version) (DTCQ-8) (Sklar & Turner, 1999)

The DTCQ-8 is a shorted version of the original 50-item Drug-Taking Confidence Questionnaire incorporating the Situational Confidence Questionnaire (Graham, 1988). Research supports the reliability and validity of this measure in assessing self-efficacy towards controlling substance use (Sklar, Annis & Turner, 1997). The shortened version DTCQ-8 assessing coping self-efficacy in 8 high-risk situations for

drug and alcohol users, is recommended for use in clinical samples for practicality of administration (Sklar & Turner, 1999). The DTCQ-8 has been developed for the adult population with drug and alcohol problems. Good internal consistency reliability (alpha coefficient .89) and a high correlation between total scores of the DTCQ and DTCQ-8 (.97) indicated that the short-version is a reliable substitute for the full version (Sklar & Turner, 1999). The DTCQ has two separate questionnaires, one for drug use and one for alcohol use (see Appendix 10). A positive treatment effect would be suggested by increased scores on this scale indicating increased confidence in managing high risk situations for substance use. Participants were asked to complete the drug or alcohol scale for their identified primary substance.

3. The General Self-Efficacy Scale (GSES) (Schwarzer & Jerusalem, 1995)

The GSES assesses an individual's beliefs in their ability to cope with a variety of challenging situations (see Appendix 11). High scores indicate high levels of self-efficacy. The GSES is an established, widely used scale, suitable for use with the adolescent and adult population. The scale is suitable for use in clinical populations and appropriate for assessment of rehabilitation programmes (Schwarzer, 1995). Good scale validity and reliability is reported (Cronbach's alpha ranging from .76 to .90) (Schwarzer, 1995). The findings of a large-scale assessment ($n = 19\ 120$) of the scale's psychometric properties across 25 countries supported reliability, internal consistency for the whole sample was $\alpha .86$ (Scholz, Gutiérrez-Doña, Sud, & Schwarzer, 2002). A positive treatment effect would be suggested by an increased score on the GSES.

4. The Internal, Powerful Others, and Chance Locus of Control Scale (IPC LOC)

(Levenson, 1973)

The Internal, Powerful Others, and Chance Locus of Control scale takes a multidimensional approach to measuring the construct of locus of control, indicating whether this is more internalised or attributed to chance or to powerful others (see Appendix 12). Higher perceived control of one's own behaviour indicates a more internalised locus of control, whereas, beliefs that behaviour is beyond personal control indicate a more externalised locus of control. Locus of control is assessed across three subscales; internal, chance and powerful others. Higher scores on the internal subscale indicate more perceived control over one's own behaviour, with higher scores on the chance and powerful others subscales indicating a perceived lack of personal control over own behaviour. The IPC LOC Scale is a well-established scale reported to be suitable for use among psychiatric patients. The combined scale is reported to have acceptable validity and reliability (Levenson, 1973). Table 5 presents further scale details and psychometric properties.

Table 5

IPC LOC subscale descriptions and psychometric properties (from Levenson, 1973)

| Subscale | Number of items | Score range | Internal consistency (Alpha) | Description |
|-----------------|------------------------|--------------------|-------------------------------------|--|
| Internal | 8 | 0 - 48 | .67 | Higher scores indicate more perceived personal control over events and behaviour |
| Powerful Others | 8 | 0 - 48 | .82 | Higher scores indicate more perceived influence by |

| | | | | |
|--------|---|--------|-----|---|
| | | | | others over events and behaviour |
| Chance | 8 | 0 - 48 | .79 | Higher scores indicate a higher perception of chance influencing events and behaviour |

Semi-structured interviews

At six-month follow-up to baseline assessment, research participants were invited to take part in a semi-structured interview exploring their experience of the group.

Participation in this interview was optional. All interviews were conducted by the author. Questions focused upon participant perceptions of what they had found useful during the programme, aspects that they had particularly enjoyed, what could be done differently and perceived benefits of attending (see Appendix 13 for interview schedule).

Behavioural data collection

Behavioural data was collected from urinary drug screening results and breathalyser testing results, where equipment was available. Due to lack of availability of breathalyser equipment, self-reported use of alcohol was recorded for four of the five programmes being evaluated. This data was collected for all participants for the time period encompassing baseline data collection to programme completion.

Attempts to Limit Potential Bias

The researcher was not involved in programme delivery thus reducing potential for researcher opportunity and bias.

Procedure

Recruitment and consent

Potential participants were first approached by their clinical team to discuss programme details and obtain consent to participate in the programme. Following this, the researcher along with a member of the clinical team approached programme participants to explain the purposes and requirements of the research. The researcher assessed participants' ability to provide informed consent and where concerns were noted in this area in terms of impairment of understanding, these participants were excluded from the study. Participant information sheets were provided to potential participants and the consent process explained (see Appendix 14). It was clarified with potential participants that participation in the research was voluntary and that there were no penalties for deciding not to participate in the research. The right to withdraw from the research to the point where data was anonymised was explained, along with clarification that there would be no consequences for participants who chose to withdraw from the study. Participants were informed of their right to withdraw by the researcher both verbally and in writing. Participants were informed that withdrawal from the research study would not influence treatment and would not have negative consequences for participants. Written consent was obtained from all research participants prior to taking part (see Appendix 15).

Administration of measures

Initial self-report measures were administered to research participants during their first session of the BTSA programme and prior to any exposure to treatment. Participants were requested to identify their primary substance and complete the self-report measures accordingly. This information was verified with the clinical team. Each participant completed four measures at each time point: the Stage of Change

Readiness and Treatment Eagerness Scale (SOCRATES), the Drug Taking Confidence Questionnaire (DTCQ), the General Self-Efficacy Scale (GSES) and the IPC Locus of Control Scale (IPC LOC). The measures were administered to participants by the researcher or by the clinical team in a group environment and support was provided for literacy difficulties. The same measures were administered to participants in the final session of the programme, again in a group environment and at six-month follow-up on an individual basis. All measures were administered in a battery in counterbalanced order to limit fatigue, boredom effects and minimise bias. Substance use data was collected during every session of attendance with the facilitation team completing a urinary drug screening for each participant, administering breathalyser testing where breathalysing equipment was available and collecting self-reported data. At six-month follow-up from baseline, participants' were invited to take part in a short semi-structured interview with the researcher to explore their experience of the treatment. All interviews were completed at the corresponding clinical location by the researcher on an individual basis. Participants were asked a series of questions relating to what had been enjoyable and useful during the programme, what they had not enjoyed, their interactions with the therapists and what could be improved about the programme.

Quantitative and Qualitative Data Analysis Plan

Quantitative data analysis

Quantitative data analysis of information collected at baseline, end of treatment and follow-up was completed by the author of the current research using SPSS Version 21 software (IBM Corp, 2012). The independent variable was time tested at three stages; baseline, end of treatment and six-month follow-up. The within subject factors were programme participants with repeated measures across the three time points. Data

meeting normal distribution assumptions for parametric testing were analysed using six One-Way Repeated Measures Analyses of Variance evaluating the impact of the treatment on outcome measures (recognition of a need to change, ambivalence towards change, general self-efficacy and locus of control). Non-parametric tests (Friedman Page's L) were completed for two scales violating assumptions of normal distribution (taking steps towards change and self-efficacy towards substance use). A significance level of .05 was used for all statistical tests. In consideration of the mixed distribution of the data and limited power due to the small sample size, with the associated increased likelihood that individual differences would significantly impact on results, a more idiographic approach exploring individual trends within the data was then taken. This multiple method approach to treatment evaluation has been recommended in previous research with similar populations (Oddie & Davies, 2009).

Qualitative data analysis

Brief, semi-structured interviews were conducted by the author at six-month follow-up ($n = 16$). Data collected from interviews was systematically analysed using a thematic approach. Each transcript was analysed and arising themes identified through the recording of individual codes in the index to enable assessment of concepts and categories (Corbin & Strauss, 1990). Once this procedure had been repeated for all transcripts, codes were then matched to identify main themes within the data. Due to time constraints it was not possible to have the codes independently reviewed. However, the thematic methods promoted by Braun and Clark (2006) were followed to in order to ensure robust analysis of data. Any theme arising four or more times within interviews was presented in a table of findings using 'In Vivo'

coding, i.e. recording direct quotes from interviews in participants own terminology (Strauss, 1987).

Ethical considerations

The research was designed in a way to minimise potential risks to participants, with participants engaging in treatment regardless of their participation in the research study. Measures used to collect data were not emotional in content and, therefore, were deemed unlikely to cause distress. Diversity issues were identified and addressed with additional support provided where required. For example, for one participant with English not his first language, translation support was provided for him whilst completing pre, post and follow-up measures and during the interview. In order to minimise potential risk to the researcher, data was gathered in accordance with site safety procedures and debriefs were completed with clinical staff before and after collecting data. Participation in the current research did not result in the provision of additional treatment or refusal to participate in the research did not result in the withholding of any treatment. In order to maintain participant confidentiality data was stored securely at both clinical locations and once data had been collected documents linking individual data sets with participants names were destroyed in order to make data anonymous. No identifiable information for any participant was included in the writing up of the research report.

Results

Sample

Only participants completing measures at all three time points (baseline, end of treatment and follow-up) were included in the current research as the purpose of the research was to assess the impact of treatment. The final sample consisted of twenty participants completing measures at all three time points. However, one of these participants only completed two of the four follow-up measures (DTCQ and GSES). A total of sixteen participants took part in semi-structured interviews. Figure 5 provides participants throughout all stages of the study.

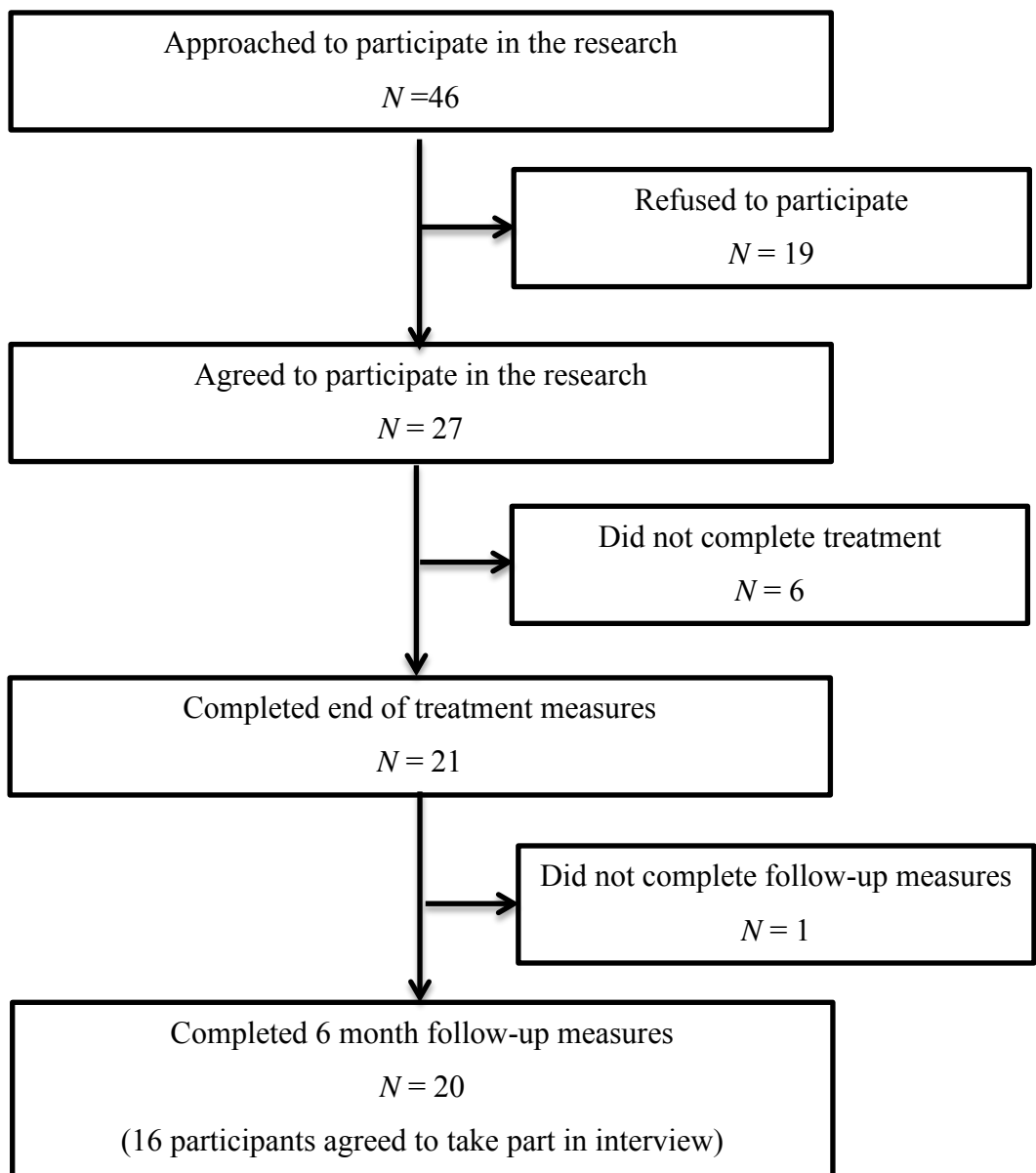


Figure 5. Consort flowchart to illustrate participants' flow throughout the stages of the study

In terms of exposure to treatment for each participant, this varied between participants and programmes. Overall participant attendance was high, on average, participants attended 87.95% (SD = 12.65) of available sessions, with only two participants attending less than 70% of sessions (see Appendix 16 for full details of exposure to treatment).

Demographic Information

All participants had a forensic history. Index offences were predominantly violent offences (70%) including murder, attempted murder and manslaughter. Other offence types included sexual offences (20%), possession of a weapon (5%) and arson (5%). Further details of index offences can be found in Appendix 17. Participants were either currently detained under sections of the Mental Health Act (1983 updated 2007) or had been previously detained. All participants had a diagnosis of mental disorder and co-existing substance misuse problems, either alcohol, drugs or both. At point of entry into the intervention and research, the primary substance for each participant was defined with both the participant and with the clinical team. At the time of commencement of participation in the research, participants' ages ranged between 21 and 59 years (Mean = 41 years, SD = 10.8 years).

Participants were residing in low secure conditions (50%), rehabilitation conditions (30%) or in community settings (20%). Whilst attending the programme and during the follow-up period, all participants had access to community leave and, therefore, potential opportunity to access substances. Participants attended the BTSA programme at one of two clinical sites, Northamptonshire or South London. The current research evaluated five groups, three in London and two in Northamptonshire. Further participant demographic information can be found in Table 6 detailed below.

Table 6

Participant Demographic Information

| | n | Percentage % |
|-------------------------------------|----------|---------------------|
| <i>Psychiatric diagnosis</i> | | |
| Schizophrenia | 12 | 60% |
| Schizoaffective disorder | 1 | 5% |
| Bipolar affective disorder | 1 | 5% |
| Personality disorder | 3 | 15% |
| Dual mental health diagnosis | 3 | 15% |
| <i>Primary substance</i> | | |
| Alcohol | 7 | 35% |
| Cannabis | 7 | 35% |
| Cocaine | 5 | 25% |
| Crack cocaine | 1 | 5% |
| <i>Ethnicity</i> | | |
| White British | 9 | 45% |
| White Other | 2 | 10% |
| Black Caribbean | 1 | 5% |
| Black British | 3 | 15% |
| Mixed White British/Black Caribbean | 4 | 20% |
| Mixed White British/Black African | 1 | 5% |

Exploratory data analysis

Comparison of baseline data for programme completers and non-completers

Initially, mean differences in baseline measures for programme completers and programme non-completers were compared to identify any significant differences between the two groups. Baseline data was tested using Kolmogorov-Smirnov (K-S) tests to identify whether the data met assumption of normality. All baseline datasets were found to have normal distribution with the exception of the ‘taking steps’ subscale. Therefore, all baseline scores for the two groups with the exception of the ‘taking steps’ subscale were compared using Independent t tests. No significant differences were found between the two groups as presented in Table 7. As the data for the ‘taking steps’ subscale did not meet parametric assumptions, a Mann Whitney test was used to test data (see Table 7). Mean baseline scores were higher for completers than non-completers, however, this difference was not significant ($p = .604$). Therefore, all tests indicated that baseline data was not significantly different for those who completed intervention when compared with those who did not complete intervention.

Distribution of treatment sample data

Following completion of comparison of baseline data, prior to conducting statistical analysis, all pre, post and follow-up data for programme completers were tested using Kolmogorov-Smirnov (K-S) tests to identify whether the data was normally distributed (see Table 8). The Stage of Change Readiness and Treatment Eagerness ‘recognition’ and ‘ambivalence’ subscales, all IPC Locus of Control subscales and the General Self-Efficacy scale were found to have normal data distribution, facilitating the use of parametric testing. The Drug Taking Confidence Questionnaire and the

Stage of Change Readiness and Treatment Eagerness ‘taking steps’ subscale were found to be significantly different to a normal population and, therefore, non-parametric tests were used for these measures. Table 8 provides a summary of findings from data analysis.

Table 7

Mean baseline scores for programme completers and programme non-completers

| Measure | Completers Mean score (SD) (N = 19) | Non-completers Mean score (SD) (N = 6) | p-value |
|-------------------------|---|--|---------|
| SOCRATES Recognition | 18.79 (6.696) | 24.83 (7.731) | .076 |
| SOCRATES Ambivalence | 11.53 (4.087) | 14.50 (5.167) | .157 |
| SOCRATES Taking Steps | 13.42 | 11.67 | .604 |
| DTCQ | 69.25 (22.226) (n=20) | 53.75 (27.917) | .17 |
| GSES | 32.05 (4.936) (n=20) | 30.33 (9.004) | .546 |
| IPC LOC Internal | 34.68 (9.034) | 35.83 (6.585) | .782 |
| IPC LOC Powerful Others | 23.37 (9.02) | 23.00 (12.391) | .938 |
| IPC LOC Chance | 19.58 (9.436) | 26.17 (12.844) | .184 |

Table 8

Kolmogorov Smirnov Test Results

| Measure -Subscales | Kolmogorov Smirnov Z | | |
|---|-----------------------|-------|-----------|
| | Pre | Post | Follow-up |
| SOCRATES (Motivation to change substance use) | | | |
| Recognition | .051 (<i>n</i> =19) | .200 | .200 |
| Ambivalence | .171 (<i>n</i> =19) | .200 | .185 |
| Taking steps | .042* (<i>n</i> =19) | .200 | .027* |
| DTCQ (Confidence in controlling substance use) | | | |
| | .200 (<i>n</i> =20) | .017* | .011* |
| GSES (General self-efficacy) | | | |
| | .111 (<i>n</i> =20) | .200 | .200 |
| IPC LOC (Locus of control) | | | |
| Internal | .182 (<i>n</i> =19) | .076 | .171 |
| Powerful Others | .070 (<i>n</i> =19) | .200 | .200 |
| Chance | .200 (<i>n</i> =19) | .200 | .200 |

* **p < 0.05**

Table 9

Mean scores, standard deviations and results for all measures pre, post and follow-up intervention

| Measure | <i>n</i> | Baseline Mean SD | Post Programme Mean SD | Follow-up Mean SD | Results | p-value |
|--|----------|---------------------|---------------------------|----------------------|------------------|---------|
| SOCRATES -Stage of Change Readiness and Treatment Eagerness Scale | | | | | | |
| Recognition of problems | 19 | 18.79 (6.70) | 16.89 (6.38) | 17.32 (6.27) | $F = 1.026$ | .369 |
| Ambivalence towards substance use | 19 | 11.53 (4.09) | 10.21 (3.91) | 9.95 (4.60) | $F = 1.642$ | .208 |
| Taking Steps towards change | 19 | 32.84 (8.54) | 30.95 (8.07) | 35.37 (5.47) | $\chi^2 = 8.806$ | .012* |
| DTCQ - Drug Taking Confidence Questionnaire | 20 | 69.25 (22.23) | 76 (25.88) | 78.81 (27.68) | $\chi^2 = 5.200$ | .074 |
| GSES -General Self-Efficacy Scale | 20 | 32.05 (4.94) | 32.05 (5.84) | 33.50 (4.81) | $F = .786$ | .463 |
| IPC LOC – Internal, Powerful Others, Chance Locus of Control | | | | | | |
| Internal | 19 | 34.68 (9.30) | 35.95 (8.44) | 37.05 (8.59) | $F = .565$ | .573 |
| Powerful Others | 19 | 23.37 (9.02) | 21.47 (10.29) | 19.11 (11.69) | $F = 1.671$ | .202 |
| Chance | 19 | 19.58 (9.44) | 18.37 (10.92) | 17.37 (10.19) | $F = .463$ | .633 |

* $p < 0.05$

Below, the results are reported and examined in relation to each of the five hypotheses tested. In order to aid clarity the five hypotheses are re-stated prior to reporting results for each.

Hypothesis 1

It was predicted that treatment would increase participants' readiness to change as measured by the Stage of Change Readiness and Treatment Eagerness Scale. More specifically a statistically significant increase was predicted between baseline, post and follow-up Recognition and Taking steps subscale scores. A statistically significant decrease was predicted between baseline, post and follow-up Ambivalence subscale scores.

Recognition of problems associated with substance use subscale

The results of the Kolmogorov-Smirnov (K-S) test showed that the data for the 'recognition' subscale met assumptions for parametric testing (see Table 8). A one-way repeated-measures ANOVA was used to test differences in participants' scores on the 'recognition' subscale between baseline, end of treatment and follow-up. Overall, no significant differences were found in 'recognition' scores $F(2, 36) = 1.026, p = .369$. It was predicted that scores on the 'recognition' scale would increase between baseline and end of treatment measures indicating increased recognition of problems associated with substance use. However, mean scores decreased between baseline and end of treatment measurement with scores at follow-up remaining lower than baseline assessments (baseline mean scores =18.79, end of treatment mean scores =16.89 and follow-up mean scores =17.32) contrary to hypothesis predictions.

Ambivalence towards substance use subscale

The results of the Kolmogorov-Smirnov (K-S) test showed that the data for the ‘ambivalence’ subscale met assumptions for parametric testing (see Table 8). A one-way repeated-measures ANOVA was used to test differences in participants’ scores on the ‘ambivalence’ subscale between baseline, end of treatment and follow-up. Overall, no significant differences were found in ‘ambivalence’ scores $F(2, 36) = 1.642, p = .208$. It was predicted that scores on the ‘ambivalence’ subscale would decrease between baseline and end of treatment measures indicating reduced ambivalence towards substance use. Mean scores decreased between baseline and post programme measurement and decreased again at follow-up (baseline mean score = 11.53, post programme mean score = 10.21 and follow-up mean score = 9.95) in line with the hypothesis predictions even though not statistically significant.

Taking steps towards changing substance use subscale

The results of the Kolmogorov-Smirnov (K-S) test indicated that the data for the ‘taking steps’ subscale did not meet assumptions for parametric testing (see Table 8). Therefore, Friedman Page’s L test was used to test differences in participants’ scores on the ‘taking steps’ subscale between baseline, end of treatment and follow-up. A statistically significant difference was found in ‘taking steps’ scores $\chi^2(2) = 8.806, p = 0.012$. Post hoc analysis with Wilcoxon signed-rank tests was conducted with a Bonferroni correction applied, resulting in a significance level set at $p < 0.017$. Median (IQR) scores for pre, post and follow-up treatment conditions were 36 (28 to 40), 31 (28 to 38) and 37 (32 to 40), respectively. There were no significant differences found between the baseline and end of treatment measures ($Z = -1.479, p = 0.139$) or between the baseline and follow-up measures ($Z = -1.825, p = 0.068$). A

statistically significant increase in taking steps scores was found between the end of treatment and follow-up measure scores ($Z = -2.589, p = 0.01$) providing support for hypothesis predictions.

Exploring individual case indications of clinical change

Normative data is available for the SOCRATES based upon a sample of adults ($n = 1726$) presenting for treatment for alcohol problems (Project MATCH) to enable interpretation of scores as high, medium or low relative to this sample (see Appendix 18 for details). Individual scores for participants completing all SOCRATES subscales ($n = 19$) were examined to identify clinical change within participants. Findings are presented below.

Recognition of problems associated with substance use

In comparison with the normative data, only one participant indicated clinical change from baseline to end of treatment scores, moving from *very low* range of problem recognition to the *low* range of recognition in line with hypothesis predictions. All other participants remained consistently in the *very low* range across all time conditions. Individual participant changes in scores from baseline to follow-up can be seen in Figure 6. Figure 6 illustrates and confirms that for the majority of participants there was little change in recognition scores over the study period. Very few cases showed more change e.g. 6; 7; 11 and 12, however, change was insufficient to move participants into different clinical ranges of problem recognition.

Ambivalence towards substance use

In comparison with the normative data, only four participants (21.05%) showed

clinical increases in indications of ambivalence towards substance use after completion of the programme and at follow-up. The low levels of ambivalence indicated in baseline assessment for a significant number of participants (73.68%) provided little opportunity for clinical change in scores in the anticipated direction at end of treatment and in follow-up measures. Eight participants (42.11%) indicated no clinical change in comparison with the normative data, remaining in the *low* or *very low* ranges of ambivalence over all three time points. The remaining participants (36.84%) indicated clinical change in the anticipated direction, moving from higher clinical ranges in baseline assessments to lower ranges in post programme measures. Figure 3 provides an illustration of individual change on the ambivalence subscale.

Taking steps towards changing substance use

In comparison with the normative data, only three participants (15.79%) moved into a lower clinical range of taking steps towards addressing substance immediately after completing the programme. A ceiling effect was observed for four participants (21.05%), scoring maximum points at baseline assessment. For three of these four cases (5; 8; and 17), maximum scores were maintained immediately post-programme, at follow-up or consistently over both time periods. For the fourth case (13), scores remained in the *high* clinical range of taking steps towards changing substance use. Two further participants did not demonstrate any clinically significant change in comparison with the normative data over any of the assessed time points. The remainder of participants either indicated positive clinical change immediately following the programme, at follow-up or consistently over both time periods. Figure 6 provides an illustration of individual change on the taking steps subscale.

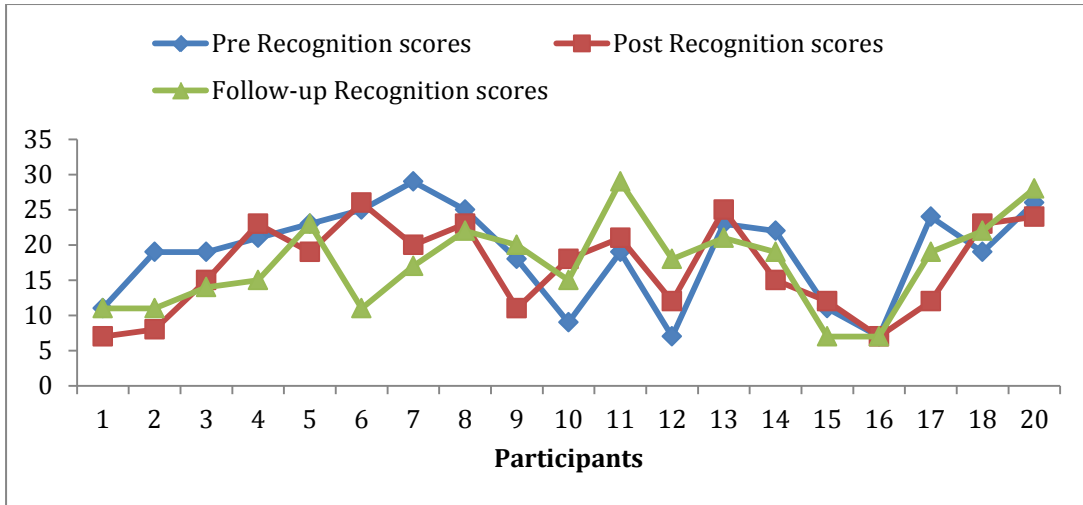


Figure 6. Individual scores at pre, post and follow-up for problem 'recognition'

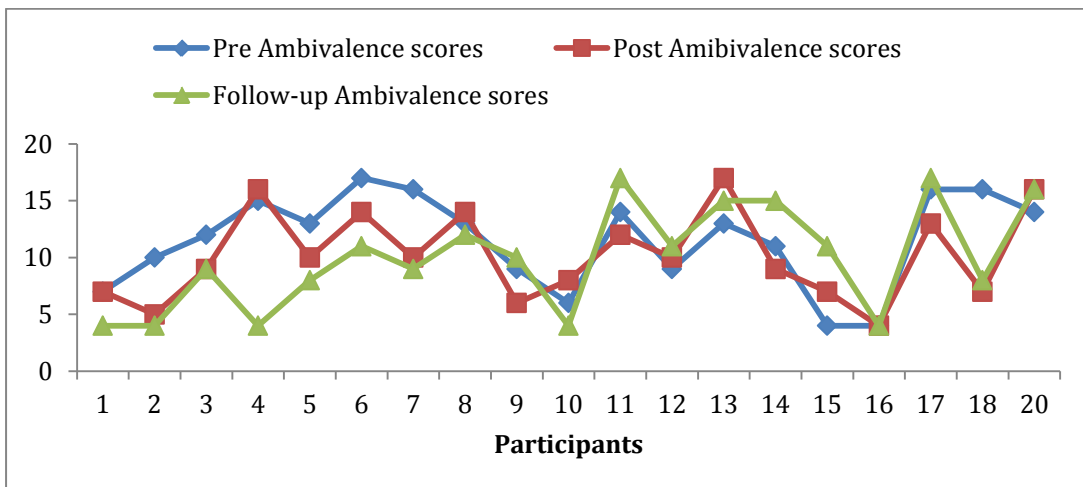


Figure 7. Individual scores at pre, post and follow-up for 'ambivalence'

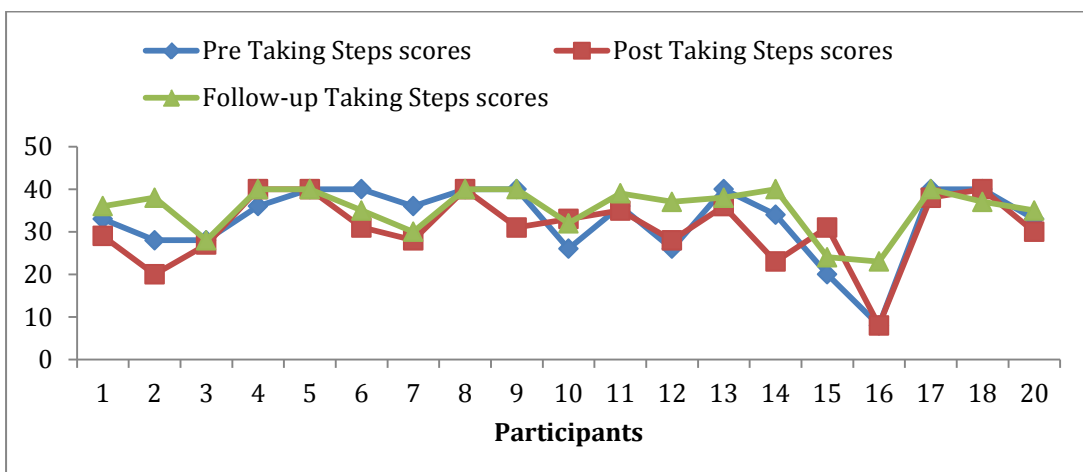


Figure 8. Individual scores at pre, post and follow-up for 'taking steps'

Hypothesis 2

It was predicted that treatment would increase participants' confidence towards controlling substance use as measured by the DTCQ. More specifically a statistically significant increase was predicted between baseline, post and follow-up confidence measure scores.

The results of the Kolmogorov-Smirnov (K-S) test indicated that the data for the DTCQ did not meet assumptions for parametric testing (see Table 8). Therefore, Friedman Page's L test was used to test differences in participants' scores on the DTCQ between baseline, end of treatment and follow-up. Overall, no significant differences were found in DTCQ scores $\chi^2(2) = 5.200, p = 0.074$. It was predicted that scores on the DTCQ would increase between baseline and immediately post group programme measures indicating increased confidence in self-ability to manage substance use. Mean scores increased between baseline and post programme measurement and increased again at follow-up (baseline mean score = 69.25%, post programme mean score = 76% and follow-up mean score = 78.18%) in line with the hypothesis predictions even though not statistically significant.

Exploring individual case indications of clinical change

There are no normative data available or clinical cut-off guidelines for the DTCQ. Therefore, individual scores for all participants completing the DTCQ ($n = 20$) were examined on a case-by-case basis to observe any trends in scores increasing or decreasing between pre and post programme conditions.

A case-by-case examination of the data revealed that only 3 participants (15%) decreased in indications of self-efficacy towards controlling substance use immediately after completion of the programme and again at six-month follow-up. A

ceiling effect was observed for 3 participants, scoring 100% confident during baseline assessment. Given that high levels of self-efficacy were consistent for these participants over all three time points there was no opportunity for increases in scores in post programme and follow-up measures. The remaining participants were observed to increase in confidence towards controlling substance use either post-programme, at follow-up or consistently over both time periods. Individual participant changes in scores from baseline to follow-up can be seen in Figure 9.

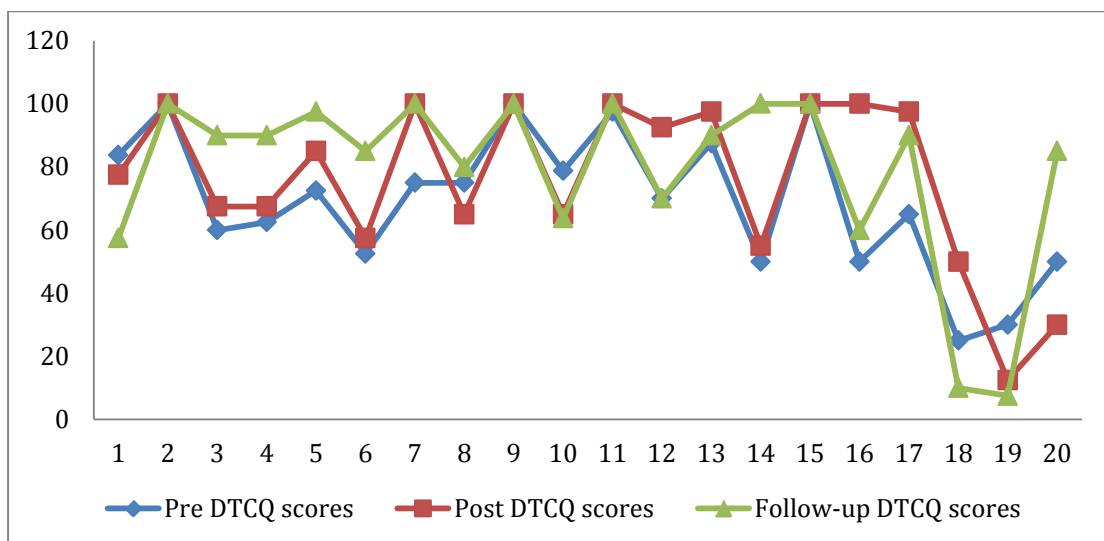


Figure 9. Individual participant scores on the DTCQ at pre, post and follow-up assessments

Figure 9 illustrates and confirms that for most participants; the confidence scores were relatively high to start with (as mentioned some had maximum scores) and showed little change over the study period. Only a few cases showed more change e.g. 14; 16; 18 and 20 and where changes were evident the pattern of change was mixed, however, in all cases of more change confidence towards controlling substance use was higher in post intervention assessment than in baseline assessment.

Hypothesis 3

It was predicted that treatment would increase participants' beliefs in their own abilities as measured by the General Self-Efficacy Scale. Specifically a statistically significant increase was predicted between baseline, end of treatment and follow-up self-efficacy scores.

The results of the Kolmogorov-Smirnov (K-S) test indicated that the data for the GSES met assumptions for parametric testing (see Table 8). Therefore, a one-way repeated-measures ANOVA was used to test differences in participants' scores on the GSES between baseline, end of treatment and follow-up. Overall, no significant differences found were in GSES scores $F(2, 38) = .786, p = .463$. It was predicated that scores on the GSES would increase between baseline and post programme measures indicating increases in participants' self-confidence in their ability to manage a variety of different situations. Mean scores remained consistent between baseline and immediately post programme measurements and increased at follow-up (baseline mean score = 32.05, post programme mean score = 32.05 and follow-up mean score = 33.50).

Exploring individual case indications of clinical change

There are no normative data available or clinical cut-off guidelines for the GSES. Therefore, individual scores for all participants completing the GSES ($n = 20$) were examined on a case-by-case basis to observe any trends in scores increasing or decreasing between pre and post programme conditions.

A case-by-case examination of the data revealed that only four participants (20%) decreased in indications of general self-efficacy immediately at the end of

treatment and again at follow-up. The remaining participants (80%) were observed to increase in confidence in their abilities to manage a variety of challenging situations either post-programme, at follow-up or consistently over both time periods. Individual participant changes in scores from baseline measures to follow-up measures can be seen in Figure 10.

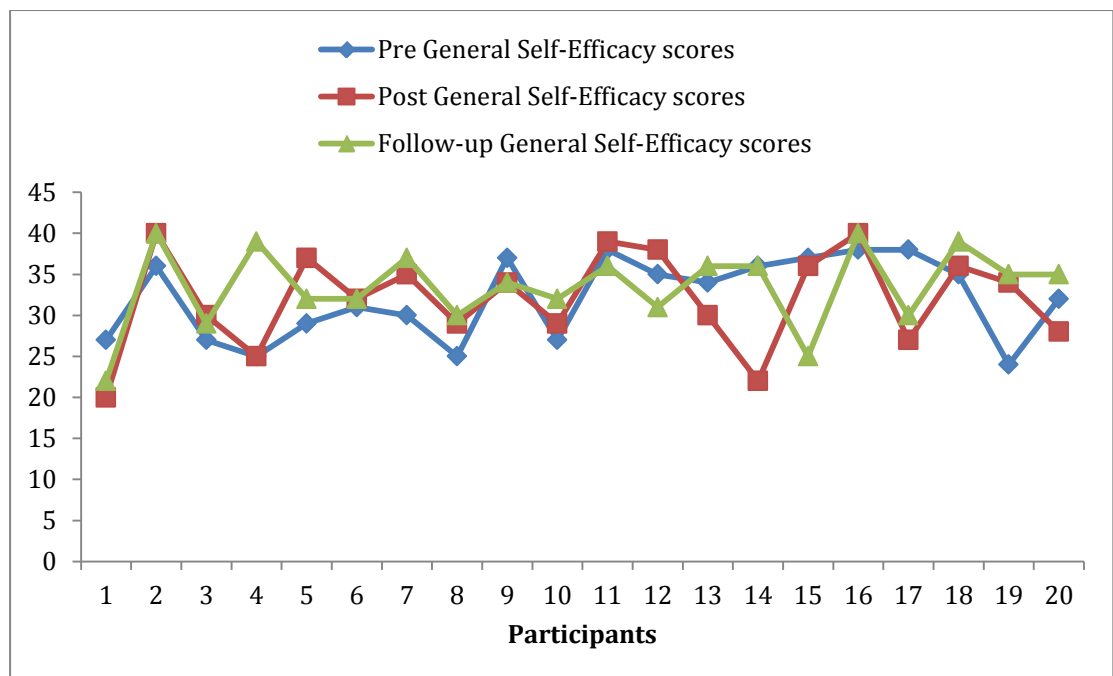


Figure 10. Individual participant scores on the GSES at pre, post and follow-up assessments

Figure 10 illustrates and confirms that for the majority of participants; change over the study period was limited with baseline assessment scores relatively high. The majority of individual case change indicated increases in self-efficacy and in the cases where decreases were indicated e.g. 1; 9; 15 and 17, reductions were limited.

Hypothesis 4

It was predicted that treatment would increase participants' internal locus of control and decrease external locus of control as measured by the IPC LOC scale. More

specifically a statistically significant increase was predicted between baseline, post and follow-up internal subscale scores. A statistically significant decrease was predicted between baseline, post and follow-up powerful others and chance subscale scores.

The results of the Kolmogorov-Smirnov (K-S) test showed that the data for all IPC LOC subscales met assumptions for parametric testing (see Table 8). Therefore, a series of one-way repeated-measures ANOVAs were used to test differences in participants' scores on the IPC LOC internal, powerful others and chance subscales between baseline, end of treatment and follow-up. Results are presented below for each IPC LOC subscale.

Internal locus of control

No significant differences were found in *internal* locus of control subscale scores $F(2, 36) = .565, p = .573$. It was predicated that scores on the internal subscale would increase between baseline and immediately post programme measures indicating a more internalised locus of control. Whilst findings were not statistically significant, mean scores increased between baseline and post programme measures and increased again at follow-up (baseline mean score = 34.68, post mean score = 35.95 and follow-up mean score = 37.05) in line with hypothesis predictions.

Powerful others

No significant differences were found in powerful others scores $F(2, 36) = 1.671, p = .202$. It was predicated that scores on the *powerful others* subscale would decrease between baseline and immediately post programme measures indicating a reduction in participants' perceptions of the influence of others over their behaviour. Whilst

findings were not statistically significant, mean scores decreased between baseline and post programme measures and decreased further at follow-up (baseline mean score = 23.37, post programme mean score = 21.47 and follow-up mean score = 19.11) in line with hypothesis predictions.

Chance

No significant differences were found in chance scores $F(2, 36) = .463, p = .633$. It was predicated that scores on the chance subscale would decrease between baseline and immediately post programme measures indicating a reduction in participants' perceptions of the influence of chance on their behaviour. Whilst findings were not statistically significant, mean scores decreased between baseline and post programme measures and decreased again at follow-up (baseline mean score = 19.58, post programme mean score = 18.37 and follow-up mean score = 17.37) in line with hypothesis predictions.

Exploring individual case indications of clinical change

There are no normative data available or clinical cut-off guidelines for the IPC LOC. Therefore, individual scores for all participants completing the IPC LOC subscales ($n = 19$) were examined on a case-by-case basis to observe any trends in scores increasing or decreasing in post programme measurements.

Internal subscale

A case-by-case examination of the data revealed that only three participants (15.79%) decreased in indications of internalised locus of control immediately following treatment and again at six-month follow-up. One participant remained consistent in scores over all three time periods. The remaining participants increased in indications

of more internalised locus of control either post programme, at follow-up or consistently over both time periods. Individual participant changes in scores from baseline to follow-up can be seen in Figure 11. In comparison with baseline measures for indications of more external locus of control on the powerful others subscale (see Figure 12) and chance subscale (see Figure 13), internal locus of control subscale scores were higher for sixteen participants (84.21%) prior to commencing treatment.

Powerful others subscale

Only four participants (21.05%) increased in indications of perceptions of others influencing behaviour immediately following treatment and again at six-month follow-up. The remaining participants (78.95%) decreased in powerful others scores post intervention or at follow-up or consistently over both time periods. Individual participant changes in scores from baseline to follow-up can be seen in Figure 12.

Chance subscale

Individual case examination of the data revealed mixed findings for perceptions of influence of chance on programme participants. Eight participants (42.1%) had decreased in scores on the chance subscale immediately following programme completion with reductions maintained at follow-up. A further two participants (10.5%) decreased in scores immediately post programme but reductions were not maintained at follow-up. The remaining participants (47.4%) increased in scores either immediately upon programme completion or at follow-up. Figure 13 illustrates individual change on the IPC LOC chance scale.

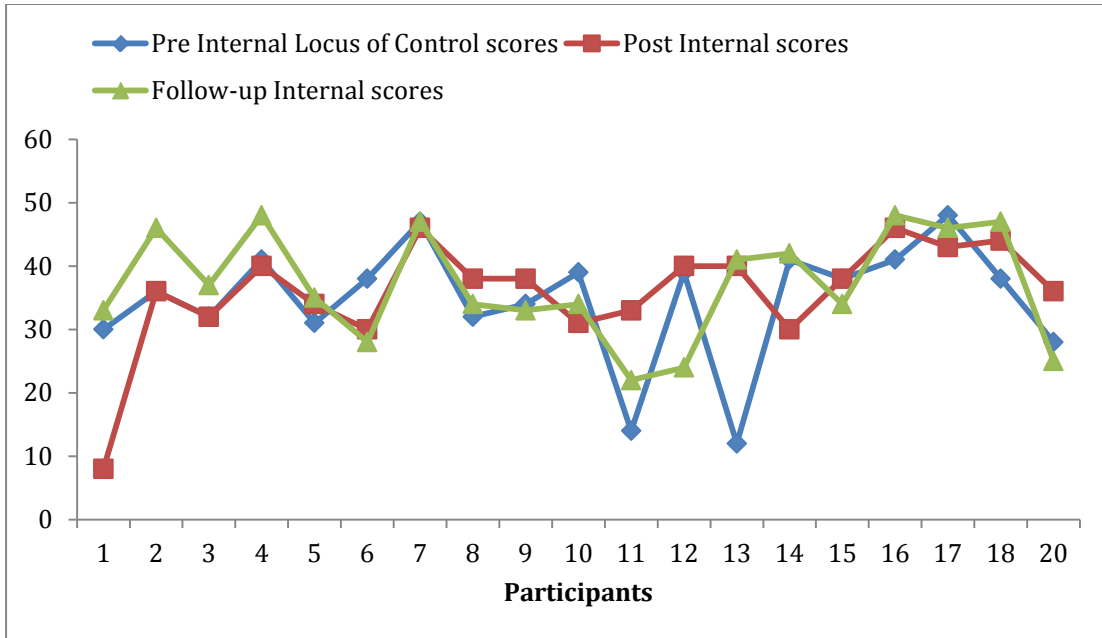


Figure 11. Individual scores at pre, post and follow-up for internal locus of control

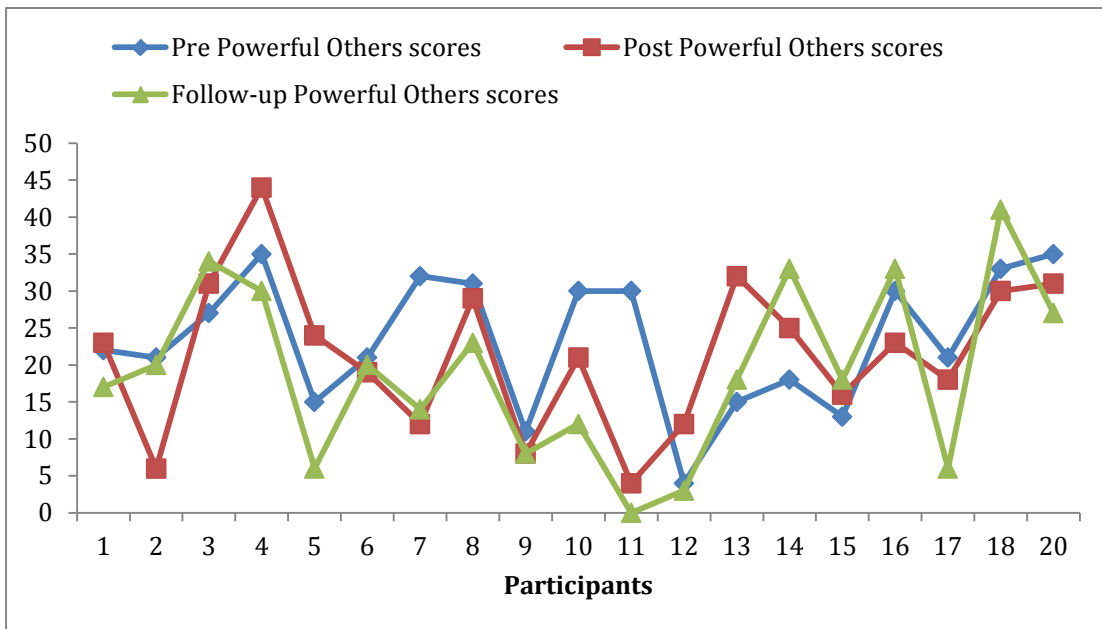


Figure 12. Individual scores at pre, post and follow-up for powerful others

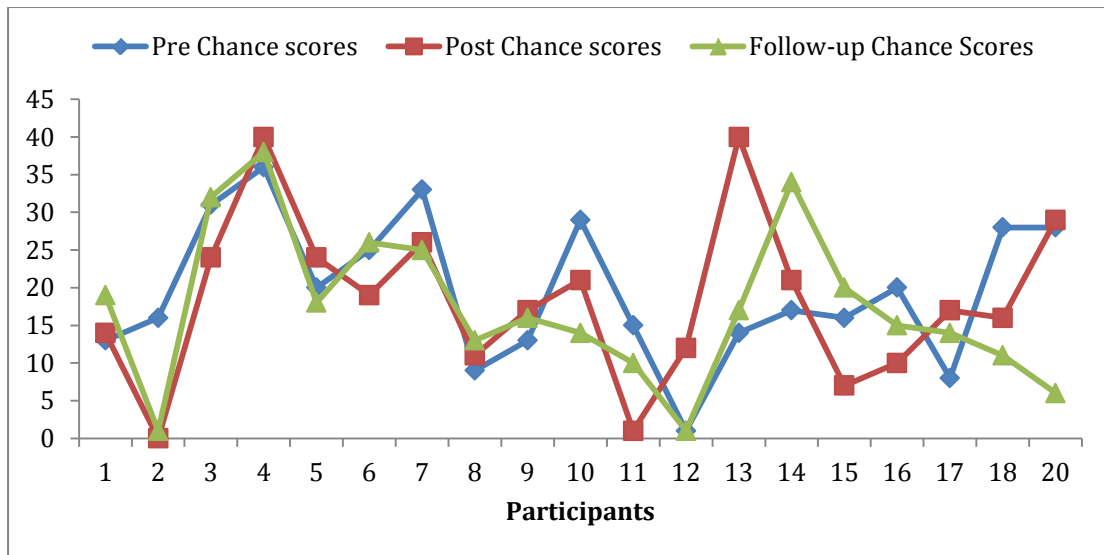


Figure 13. Individual scores at pre, post and follow-up for chance

Hypothesis 5

It was predicted that there would be a significant difference in substance use shown by a decrease in positive Urinary Drug Screens, breathalyser results and self-reported substance use

Participant's alcohol and drug use throughout the duration of treatment was assessed through frequent urine drug screens (UDS), breathalyser testing and participant self-report. Urine drug testing was completed at the commencement of each session and breathalyser testing was administered at the same time where equipment was available. However, due to the limited number of breathalysing equipment in good working order, consistent testing was limited to one programme only. Of a total of 308 breathalyser tests, all results were negative (100%). Data gathered from urine drug screens and self-reported drug and alcohol use indicated that a large number of participants (75%) remained drug and alcohol free for the duration of the programme. Of the total urine drug screens completed for all of the programmes, only 0.91%

tested positive suggesting a positive effect of intervention on substance use.

Appendix 24 presents details of substance use for the periods of the BTSA programmes. However, there is no urine drug screen data available for participants' substance use prior to starting treatment or in the period following treatment completion. Therefore, it has not been possible to compare substance use during treatment to substance use prior to treatment or to assess whether any changes have been maintained.

All participants in the current research returned negative urine drug screens on their first screening. Of the participants who self-reported alcohol and/or drug use ($n = 4$) during the programme, reasons provided for this were; celebrating at Christmas ($n = 3$), feeling angry in response to perceptions of being attacked and belittled by others ($n = 1$), feeling angry ($n = 1$), in the company of peers drinking alcohol ($n = 1$) and feeling frustrated ($n = 1$). In terms of the stage of treatment where drug or alcohol use occurred, this was varied. Identifying trends in substance use in terms of stage of intervention is further complicated by inconsistencies in the duration of individual programmes, with treatment ranging between 26 and 35 sessions in length.

In summary, it would appear that some support is provided for hypothesis five, however, findings are limited by the lack of breathalyser results and reliance on self-report and a lack of comparison data to identify change from pre to post treatment.

Qualitative results

The qualitative interviews were analysed by the author using thematic analysis methods (Harding, 2013). A thematic approach was taken to qualitative data analysis, using ‘In Vivo’ coding, participants own terminology (Strauss, 1987), to analyse data collected from interviews. The main themes arising from analysis of interview data are presented in Table 10. Themes were identified in terms of frequency of recurrence with those mentioned by four or more participants included as main themes.

Table 10

Main themes arising from semi-structured interviews (N =16)

| Themes | ‘verbatim quotes’ |
|---|--|
| ‘...liked getting out of the hospital’ | P ₁ ‘it was off the ward, that was a good thing’ P ₄ ‘Got off the ward, out of the grounds’ P ₆ ‘I liked getting out of the hospital’ P ₁₈ ‘I liked going out obviously, going to town on the bus’ |
| ‘...enjoyed learning’ | P ₂ ‘It was informative, helped me to learn’ P ₄ ‘you got paid and you learnt – it was really good’ P ₆ ‘learnt a lot and enjoyed learning’ P ₁₇ ‘helped me to learn lots of new things’ |
| ‘enjoyed being paid’ | P ₃ ‘enjoyed being paid’ P ₄ ‘you got paid and you learnt – it was really good’ P ₅ ‘It was good to get the money for attending’ P ₁₆ ‘they were really encouraging us to come to group by paying us’ |
| ‘...liked being in a group’ | P ₁₀ ‘enjoyed the group comradeship, other group members’ |

| | |
|---|--|
| | <p>P₃ <i>'enjoyed meeting new people'</i></p> <p>P₁₇ <i>'I liked being in a group'</i></p> <p>P₁₆ <i>'being able to participate and integrate with others'</i></p> |
| <i>'learning to say no'</i> | <p>P₂ <i>'learning to say no'</i></p> <p>P₅ <i>'refusal skills, the whole process will be useful, for example, I might have found it hard to say no if someone wanted to come round and smoke weed. More confident now I would be able to refuse'</i></p> <p>P₁₇ <i>'role play will help me to say no and walk away'</i></p> <p>P₁₄ <i>'specific things like refusal skills helps me to refuse offers of illicit substances or alcohol in situations I'm in. Had the opportunity to use my refusal skills, sometimes there are temptations but I refuse it firmly. Been really successful.'</i></p> <p>P₁₈ <i>'just getting used to refusal skills – this will work for a lot of things in life. It was more to get used to doing that....I realised that a lot of my refusal skills were quite basic so good to practice them a bit more.'</i></p> |
| <i>'useful learning from each other'</i> | <p>P₄ <i>'useful learning from each other in the group'</i></p> <p>P₉ <i>'good to listen to other people talk and share their experiences'</i></p> <p>P₁₀ <i>'learning off other people, learning how you can beat addiction and have a normal life'</i></p> <p>P₁₆ <i>'talking about each other's lifestyles, what we are going to do in the future and we have done in the past'</i></p> |
| <i>'...boost my confidence'</i> | <p>P₁ <i>'having the confidence to say to friends that I'm not going to smoke'</i></p> <p>P₂ <i>'helped to boost my confidence'</i></p> <p>P₄ <i>'my confidence in groups has increased and my socialisation skills have got better'</i></p> <p>P₅ <i>'helped me to develop a relapse prevention plan for the community with realistic coping strategies –makes me feel fairly secure'</i></p> |

| | |
|---|---|
| | <p>P₈ <i>'feel more confident about the future after doing this course'</i></p> <p>P₁₄ <i>'I feel more confident now in managing difficulties'</i></p> <p>P₁₅ <i>'the group has made me more confident'</i></p> <p>P₁₇ <i>'I feel like I can do it'</i></p> |
| <i>'therapists...make it easy to understand'</i> | <p>P₁ <i>'therapists broke it down to make it easy to understand. If you were struggling with understanding something they would take time to explain it to you'</i></p> <p>P₈ <i>'therapists explained things well, clearly'</i></p> <p>P₃ <i>'clearly presented'</i></p> <p>P₁₅ <i>'very clear, lucid....they were very thorough in what they were doing'</i></p> <p>P₁₄ <i>'able to explain things properly and make things clear to people who do not understand'</i></p> <p>P₁₈ <i>'they were clear – gave instructions'</i></p> |
| <i>'therapists supported us well'</i> | <p>P₅ <i>'They weren't judgmental, I felt like I could speak freely and honestly'</i></p> <p>P₆ <i>'the way they presented, confident, always listened to what people had to say'</i></p> <p>P₈ <i>'they weren't too serious or formal, made me feel quite at ease'</i></p> <p>P₉ <i>'they tried to encourage people to talk about their experiences, they were supportive and offered support after the groups'</i></p> <p>P₁₀ <i>'therapists supported us well'</i></p> <p>P₁₅ <i>'therapists were very understanding'</i></p> <p>P₁₆ <i>'therapists were very hospitable'</i></p> <p>P₁₇ <i>'made me feel comfortable and looked after'</i></p> <p>P₁₈ <i>'they encouraged people to take part and supported people'</i></p> <p>P₁₉ <i>'they handled everyone differently, they were kind, polite, smiled'</i></p> |

As illustrated in Table 10, within interviews the large majority of participants indicated that they had had a positive experience of BTSA and found it to be useful. It appeared that a number of varying factors had contributed to participants' enjoyment of the group including leaving the hospital environment; being in a group situation with others with similar experiences and being paid. Key themes arising regarding the most useful components of the treatment included developing refusal skills; learning from the experience of others and increasing self-confidence. Only one participant indicated that he had not found the programme useful but attributed this to having recently completed a different substance misuse intervention at a previous hospital which he felt was more relevant to his individual needs. A further key theme noted related to the responsiveness of therapists to group members. A number of participants suggested that they had found therapists responsive to their needs and supportive towards them.

Discussion

The aim of the current study was to explore, using mixed methods, the efficacy of a specifically designed substance misuse treatment (BTSA) for offenders with serious mental health problems. The need for further empirical research in this field has been emphasised within the literature, as discussed within Chapter Two and in the introduction to this empirical study. Therefore, the current study aimed to contribute towards the research base informing future treatment within forensic environments for individuals with co-existing serious mental health and substance misuse problems. The main aim was to evaluate a structured substance misuse treatment through exploration of treatment outcomes relating to programme aims and key conceptual factors identified within the literature as relevant in predicting future substance use including motivation and readiness for change, self-efficacy (general confidence to deal with difficulties and confidence specifically relating to substance use), locus of control and substance use. Treatment outcomes were assessed investigating within group changes using self-report measures, drug and alcohol use and information gathered from semi-structured interviews.

Summary of findings

The systematic literature review presented in Chapter Two indicated mixed findings in terms of treatment outcomes for identified studies assessing effectiveness of substance misuse intervention for offenders with serious mental health problems. These mixed findings are reflected within the current research study, with limited change indicated by quantitative evaluation although some suggestion of change from participant reports within qualitative findings overall.

Current research study findings and comparisons with previous research findings are discussed below in relation to each key concept measured.

Readiness for change

Hypothesis one predicted that treatment completion would increase readiness to change in programme participants as measured by the SOCRATES. There was one significant change found in readiness to change in the present study; a significant increase ($p < .05$) was found in indications of ‘taking steps’ towards managing substance use in post programme assessments. This outcome indicated a positive effect of treatment on making active changes in substance use. These findings are in accord with previous research of Baker et al., (2014) who also found significant increases ($p < .05$) for the ‘taking steps’ subscale following substance misuse treatment. The positive treatment effects of increased scores in taking steps towards managing substance is supported by previous research which has indicated higher scores on the ‘taking steps’ subscale to be predictive of making effective changes to substance misuse (Bauer et al., 2014; Collins et al., 2012).

Previous research has suggested that, due to the confines of the secure environment, difficulties in completing methodologically robust research within these parameters and the complexities of both the environment and the individuals detained, individual case indication of change may be beneficial when assessing treatment outcomes (Long, Fulton & Hollin, 2008). In terms of individual clinical change for taking steps towards changing substance use, indications were positive in movements on this scale with the majority of participants either remaining within a consistent clinical range over all three time points or moving into a higher range in post programme conditions. Only three participants indicated change in a negative

direction, moving to lower clinical ranges after treatment completion. This again suggests a positive effect of treatment on participants' readiness to make changes to their substance use.

Baseline assessment scoring was relatively high, with almost half of the sample (47.37%) scoring within the *high* or *very high* clinical range for 'taking steps' towards changing substance use. This would appear to suggest that motivation within the current sample was high and that a number of participants considered themselves to already be taking active steps to address substance use difficulties prior to commencing treatment. In view of the voluntary nature of participation in the treatment programme and the current research, it could be hypothesised that group members with lower motivation and confidence towards reducing substance use elected not to engage in treatment or to participate in the research. Those who volunteered to participate presented with relatively high levels of motivation and confidence prior to engaging in treatment.

No significant differences were found in post programme recognition of problems associated with substance use or ambivalence towards substance use scores. Problem recognition scores decreased immediately following programme completion and again at follow-up, potentially indicating a negative effect of treatment on participants' ability to recognise the negative impact of substance misuse. Individual examination of the data revealed that only one participant demonstrated clinically significant change, with all other participants remaining within the *very low* clinical range of problem recognition. Similar findings to those of the current research study are reported by Rice, Hagler and Tonigan (2014). Problem recognition as indicated by the SOCRATES decreased once participants had made changes to reduce problematic drinking, suggesting that responses to these items were influenced by

personal views. For example, whether someone still considered themselves to be classified as ‘alcoholic’ once they were abstinent was suggested to be influenced by individual beliefs. Item level analysis of measurement properties was recommended for future research in order to evaluate wording and interpretation of individual items in the measure (Rice et al., 2014).

Several factors may explain the findings for problem recognition within the current study. Firstly, it may be that treatment had no effect or a negative effect on participant’s motivation or abilities to recognise problems associated with substance use. An alternate explanation may be that, for participants detained within secure settings, identification of current problems could be perceived as detrimental for progress, as discharge to community settings is contingent on progress in treatment. Therefore, this demand characteristic may have influenced participant responses in terms of minimising the experience of current problems.

Furthermore, the normative population for the SOCRATES may have restricted opportunity for clinical change in the current sample. Normative data for the measure was developed from a clinical sample, however, the population within the current study had a range of co-occurring clinical problems. All participants within the current research study had substance misuse problems and mental health problems, some dually diagnosed mental health problems, in addition to forensic difficulties. Therefore, in view of the significant difficulties experienced within the sample of the current research, clinical ranges provided by the normative sample may not have been representative of this particularly troubled population. Previous research has suggested that interpretation of clinical change in functioning through comparison to normative data may not be appropriate or representative for all psychiatric disorders (Jacobson & Truax, 1991).

A further possible explanation of these findings may be the psychometric property limitations of the 'recognition' subscale as discussed in Chapter Three. It is suggested that problems with face validity of specific items within this subscale may have contributed to these findings. Temporal wording of a number of items, for example, '*If I don't change my drinking/drug use soon, my problems are going to get worse*' and '*My drinking/drug use is causing a lot of harm*' appeared to be confusing for participants already receiving treatment with a number seeking clarification for several items within this subscale when completing the measure. This is supported by previous research findings of Figlie et al., (2004) who reported items within the 'recognition' scale as having low reliability and participants experiencing difficulties in understanding some items.

In terms of ambivalence towards substance use, whilst levels reduced in post programme measures, changes were not statistically significant. One interpretation of these findings may be no positive effect of treatment on reducing levels of uncertainty towards continued substance use. However, individual examination of the data revealed low levels of ambivalence at baseline assessment, with the majority of participants (73.68%) scoring within the *low* or *very low* clinical ranges of ambivalence. As such a large proportion of the sample were scoring low on levels of ambivalence towards substance use prior to treatment it was unlikely that, within the current sample, a significant effect of treatment would be found relating to this concept. This may suggest that the current sample were high in motivation to change and low in ambivalence towards change prior to selection for the group and were, therefore, ready to engage in treatment. Due to the voluntary nature of the programme and the research, it is more likely that those electing to attend the treatment and

participate in the current research would have higher levels of motivation and less ambivalence towards change than those who would elect not to attend.

Inconsistent findings towards effects of treatment on ambivalence towards substance use have been reported in previous research within forensic settings. Some significant positive effects of substance misuse treatment on levels of ambivalence are reported within the review in Chapter Two. Morris and Moore (2009) found significant reductions ($p < .05$) in indications of ambivalence towards change following completion of treatment. It is worth noting that, within this sample, mean baseline scores for ambivalence were higher than in the current research sample indicating higher levels of ambivalence towards substance use prior to engaging in treatment and increased opportunity for change. In contrast, Baker et al., (2014) found a significant increase ($p = .05$) in ambivalence in post intervention measures indicating that uncertainty towards substance use had increased after completing treatment.

Self-efficacy (towards future substance use and general coping abilities)

In relation to hypothesis two and hypothesis three, no significant differences were found in self-efficacy, either in confidence towards managing substance use as measured by the DTCQ or towards managing a range of difficult situations as measured by the GSES. Results on both measures of self-efficacy indicated that confidence towards managing future substance use and confidence towards managing situations of potential stress had increased after completing the intervention, however, this was not to a statistically significant extent. Individual exploration of clinical change in confidence towards controlling future substance use indicated high levels of self-efficacy already present in baseline assessments, with fourteen participants (70%)

scoring 60% or higher in confidence towards controlling substance use. This suggested good levels of self-belief in participants' own abilities to manage substance use prior to commencing the treatment. As such, the opportunity for statistically significant increases in scores following completion of treatment was more limited. Furthermore, three participants (15%) scored maximum points at each assessment stage providing no opportunity at all for increases in indications of confidence following treatment.

In terms of more general self-efficacy, again high scores were indicated in levels of general self-efficacy prior to treatment. Almost two-thirds of the sample (65%) of the sample scored 75% or higher confidence in their ability to deal with a variety of challenging situations in baseline assessment, limiting opportunity for statistically or clinically significant change. However, despite this limited opportunity for change, individual case examination of the data suggested a positive treatment effect in increasing self-confidence, with a large proportion of the sample (80%) increasing in indicated self-efficacy in post programme conditions. In a population noted to have pervasive and enduring problems (Mueser et al., 1997), with poorer responses to substance misuse treatment (Sacks & Pearson, 2003) this high proportion of the sample indicating increases in general self-confidence would appear to suggest a positive effect of the current treatment.

Further indications of the positive effect of treatment on increased confidence were indicated within the qualitative element of the current research. Emerging key themes from interview data suggested both increased general self-confidence (*'boost my confidence'*) and increased confidence in using refusal skills (*'learning to say no'*). This is supported by the previous research findings of Morris & Moore (2009)

as reported in Chapter Two, also indicating increased confidence in changing future substance use following completion of structured substance misuse group treatment.

When considering the indications of increased general levels of confidence and more specifically towards managing future substance use, there are several factors which may have influenced findings. Firstly, the secure environment in which the majority of participants (80%) were detained may have artificially inflated confidence levels, with associated limited exposure to high-risk situations and limited access to substances (Swain et al., 2010). However, the availability of illicit substances within secure forensic hospitals is widely acknowledged (Bowers & Jeffery, 2008; Derry, 2008; Dolan & Kirwan, 2001; Phillips et al., 2003), in conjunction with all participants within the current research having access to community leave and, therefore, the potential to use substances should they elect to do so. As such, the impact of the secure environment on research findings may be more limited.

Furthermore, '*Faking good*' or presenting oneself in a socially desirable light, and the arising potential contamination of validity of data from self-report measures through response bias has been highlighted as confounding clinical research findings (Saunders, 1991). When considering the findings relating to self-efficacy, the transparent nature of the DTCQ and the GSES and the associated opportunity for social desirability response bias should be considered. Despite data within the current research being anonymous, influence of response bias may still be a useful consideration when interpreting findings potentially arising from participants' potential limited insight and realistic recognition of own risk or due to a learnt pattern of responding to self-report measures due to the associated anticipated consequences.

Locus of control

In relation to hypothesis four, no significant changes were found for differences in locus of control following completion of treatment. Whilst scores moved in line with hypothesis predictions, increasing for internal locus of control and decreasing for the influence of powerful others and chance in post programme conditions, changes were not statistically significant.

A case-by-case exploration of the data provided more insight into individual change. High levels of internalised locus of control were indicated in baseline assessments with all participants (100%) indicating higher internal locus of control in comparison with external locus of control (powerful others and chance). This would appear to indicate that locus of control was already more internalised for a large proportion of the sample prior to commencing treatment, again limiting opportunity for statistically significant increases. High levels of internal locus of control were indicated to be maintained throughout treatment and during the follow-up period suggesting that treatment may have been beneficial in supporting participants in feeling in control of their own autonomy in decision-making and behavioural choices. High internal locus of control has been suggested as protective factor in terms of recovery and risk reduction (Soravia et al., 2015). Within the forensic population a key element of recovery has been suggested as the ability of the individual to attribute blame internally and take increased ownership and responsibility for their own behaviour (Drennan, 2012). Therefore, the high levels of internal control indicated within the present sample would appear to be positive in terms of risk reduction and may be indicative of their current stage of treatment and recovery.

Similar findings in relation to internal locus of control have been reported in the literature previously. As described in the systematic review of literature in

Chapter Two, Ritchie et al., (2004; 2011) found no significant effect of treatment in locus of control scores with participants noted to have consistently higher scores on internal locus of control throughout the study period. After completing treatment, a significant proportion of the current sample (78.95%) indicated feeling less controlled by other people and more in control of their own decision-making and actions. This would appear to suggest a positive effect of intervention on participants' feeling able to take more control of their own lives.

Substance use

The fifth hypothesis related to the behavioural component of the research, predicting that there would be a significant difference in substance use whilst engaging in the treatment. Findings indicated consistently low levels of substance use throughout treatment. All baseline screenings for substance use were negative, suggesting that participants' may have already reduced their substance use prior to attending the programme. Previous research has indicated that pre-treatment reductions in substance misuse have been found to have significant effects on continued reductions in substance use following treatment (Zhang et al., 2004). However, due to the lack of follow-up data relating to substance use in the current study, it is not possible to compare findings following treatment. Positive changes in substance use were indicated as consistent throughout treatment with 75% of participants remaining drug and alcohol free throughout treatment and all participants testing negatively for substances at the end of treatment. This may be indicative of the positive effect of treatment on substance use. This is supported by previous research as described in Chapter Two whereby reduced substance use was indicated immediately post treatment, with 72% of participants testing negative by the end of treatment (Miles et

al., 2007). However, the absence of data measuring substance use in the follow-up period of the current research makes further comparisons not possible.

These behavioural findings would appear to be consistent with the high levels of motivation and confidence in addressing substance misuse indicated in a large proportion of participants in baseline measures and indications that participants had already taken steps towards addressing substance use. Furthermore, as attendance in the intervention was voluntary, it may be that only those who were already making changes to substance use elected to attend, with those still using substances choosing not to engage in the intervention.

Arising themes from qualitative interviews

Themes arising from interviews indicated that participants had predominantly enjoyed engaging in the programme and perceived it as useful for them in some way. A key theme arising was the good support that participants perceived from the programme facilitators. A considerable body of research indicates the importance of therapeutic alliance in treatment outcomes (e.g. Elkin et al., 1990; Norcross & Hill, 2004; Serran & Marshall, 2010) with the indications of good therapist/client relationships within the current research potentially suggesting a positive impact on treatment outcomes. Furthermore, specifically within the field of substance misuse treatment, early therapeutic alliance has been suggested as a predictor of engagement and retention in treatment (Meier, Barrowclough & Donmall, 2005).

Further key themes arising related to enjoyment in learning, the positive effect of the contingency management approach, group cohesiveness, developing refusal skills, learning from others, general developments in self-confidence and the benefits of clear facilitation styles. Only one participant interviewed indicated that he felt that

he had taken nothing from the programme, citing the reason for this as having recently completed a substance misuse programme that he felt was more relevant to him. Motivation and enjoyment of the programme indicated by the qualitative findings of the current research are consistent with the average attendance rate of 87.95% within the programmes being assessed, suggestive of good levels of motivation to engage in the programme. The good levels of motivation and enjoyment suggested within interviews are also consistent with the levels of motivation indicated in baseline assessments. As presented within the systematic literature review in Chapter Two, Edwards et al., (2011) completed a qualitative evaluation of BTSA, with findings from this study including enjoying the group experience, the benefits of a contingency management approach, the usefulness of skills training and positive feedback regarding programme facilitators. Some similarities can be noted in findings from the current study and findings from this previous study. Downsworth & Jones (2014) found key arising themes of enjoyment of the programme and support of peers in the qualitative aspect of their research evaluating a structured substance misuse programme in a medium and low secure setting, also reflecting some of the positive indications of qualitative findings of the current research.

Strengths of the current study

The current research provides an initial, mixed methods evaluation of an integrative intervention in a real life setting addressing substance misuse specifically developed for those with mental health problems. Furthermore, the programme was delivered with forensic clients in low secure, rehabilitation and community settings. A lack of empirical research evaluating treatment interventions for this population in secure

settings has been identified (Tibber et al., 2015) with the existing research base in a wider range of settings limited to a small number of studies (Clark et al., 2013). Therefore, the current research is valuable in providing insight into an area with significant clinical and forensic implications. A prospective approach was taken to the research as recommended within the literature incorporating a follow-up period in order to assess maintenance of any change indicated in treatment outcomes.

Careful consideration was given to the measures included in the current research, incorporating measures capturing programme aims and key conceptual areas within the field of substance misuse. Measures selected were not long or complex in nature, in response to participants and their likely associated difficulties. A limited number of measures were included whilst still attempting to capture the range of treatment aims in order to provide an effective evaluation of outcomes. Measures were selected based upon factors indicated within literature as more likely to change within secure forensic settings (Swain et al., 2010; Tibber et al., 2015). Measures included in the research had adequate reliability and validity and had been identified as suitable for use within adult, clinical populations. All participants, with the exception of one, who consented to engage in the research and completed the programme, were retained in the study at follow-up. This high level of follow-up is a strength of the current study. As this population is noted as being particularly vulnerable and difficult to engage, the retention of this high level of participants for follow-up data collection would appear to suggest that the experience of completing the self-report measures at the earlier stages of the research was tolerable.

A number of strengths were evident in the treatment model. The treatment was highly structured and developed from empirically established risk factors for this population. A manualised approach to treatment has been suggested as important in

maintaining treatment integrity, minimising therapist drift and allowing comparison with other treatments and replication in order to evaluate treatment effectiveness (Mann, 2009). Furthermore, this highly structured approach to treatment has the benefit of providing opportunity for comparison with future research, in order to continue to build upon and develop insight into this field. The treatment approach was integrative, embedded within participants' wider treatment plans with consistent support available from clinical and community teams. As noted previously, this integrative approach to treatment is identified as the most effective when working with this population and recommended within Department of Health guidelines (DoH, 2008).

The intervention was developed specifically for individuals with co-existing serious mental health and substance misuse problems, increasing the likelihood of being responsive and adaptive to difficulties within this complex group. A further strength of this particular approach to treatment is the availability to both inpatient and outpatient forensic clients. The outpatient environment has been identified as having high risk potential for relapse in substance use (Drake et al., 2000), and, therefore, provision of treatment is essential within community settings in addition to inpatient settings.

The current study evaluated a harm reduction and contingency management approach to substance misuse treatment, that whilst supported by existing evidence, is rarely advocated for those within secure settings, thus providing the opportunity for original and valuable research. As previously discussed, a harm reduction and contingency management approach to treatment has empirical support within the general population and is recommended as treatment approach within NICE guidelines (2011) when working with individuals with co-existing serious mental

health and substance misuse problems. Some substance use was self-reported during the programme, with participants being willing to share this information. This self-reported information may be attributable to the less judgmental, harm reduction approach in comparison with an approach advocating abstinence. However, it is interesting to note that self-reported substance use predominantly arose within community-based participants. This may have arisen as a result of increased accessibility of substances within community settings or may be associated with participants' anticipation of potential adverse consequences of reporting substance use whilst detained in secure settings.

Limitations of the current study

There are a number of limitations within the current study. The first limitation is the absence of a control condition against which to compare findings. The current research adopted a mixed methods programme evaluation design rather than randomly assigning participants to treatment or a control condition. Although randomised assignment of participants is recommended to increase internal validity of research findings, due to the ethical implications of withholding treatment for those in need of intervention this design was not possible in the current study. The lack of a comparison group to compare findings against makes assessment of the impact of intervention and the influence of extraneous factors difficult (Holloway et al., 2005). However, difficulties associated with randomising allocation for research purposes in the complex secure environment has been noted, with the need to evaluate treatment in usual conditions in real-world settings argued in the literature (Long et al., 2008).

As discussed previously within this chapter, a 'waiting list' control condition was considered for the research. However, all service users with comorbid serious

mental health and substance misuse problems were referred to this intervention and about to receive the treatment. Therefore, the majority of those within the waiting list control condition would have crossed into the experimental condition during the study and potentially contaminated findings. Additionally, a matched case-control approach to the research was considered when designing the study. This approach involves matching cases to compare effectiveness of treatment. However, as the only treatment available for substance use problems in the two locations being assessed was the BTSA programme there were no other groups to match against. Furthermore, whilst attendance for the BTSA programme is voluntary, as this is the only structured dual diagnosis treatment available, the majority of those who are offered this treatment elect to participate in the programme. This would make opportunities for a control group of those who had not attended intervention very limited.

A further study limitation is the small sample size. Prior to the commencement of the study, *a priori* power analysis indicated a target sample size of 40. However, difficulties were encountered in recruiting participants for the study. A high proportion of individuals (41.3%) commencing treatment indicated that they were unwilling to participate in the research. Reasons for not participating in the research, where provided, included lack of motivation “*can't be bothered*”, dislike of psychometric measures “*don't like questionnaires*” or mistrust in the motivation of the researcher and/or research “*can't trust what you are going to do with my answers*”. Several participants ($n = 6$) who commenced the programme and completed pre-programme measures did not complete the programme. As these data sets were incomplete they were not included in data analysis in order to limit opportunity for attrition bias. Small sample sizes have been suggested as a challenge characterising treatment outcome evaluation in secure settings (Tibber et al., 2015).

Small sample sizes have been found to increase the degree of sampling error (Dancey & Reidy, 2007) and limit generalisability of research findings. Due to the reduced sample size it was not possible to complete some of the planned analysis and a lack of power may have influenced current research findings. The opportunity of type 2 error is significantly increased in limited sample sizes. In view of the problems associated with a very limited sample size, multiple methods were used to evaluate change including exploration at an individual level as recommended in previous research (Oddie & Davies, 2009). Due to the time limitations of the research it was not possible to include additional groups in the current study in order to increase the sample size. However, considering the pilot feasibility nature of the current study, this may be useful in directing future larger scale studies in a similar area.

A further potential limiting factor for the current research is the lack of inclusion of assessment of socially desirable responding (Paulhus, 1998) and increased opportunity for response bias (Saunders, 1991), as previously discussed. In view of the very high levels of motivation to change and self-efficacy, indicated in both general self-confidence and confidence towards managing future substance use at all stages of assessment; pre, post and follow-up, it is suggested that socially desirable responding may have influenced research findings. The inclusion of a measure to assess social desirability, for example, the Balanced Inventory of Desirable Responding (BIDR) (Paulhus, 1998) may have been useful in assessing the participants' willingness to respond to self-report measures in an honest and open manner, providing insight into the validity of responses and research findings. The current research may have benefitted from the inclusion of assessment of participant's tendency to provide socially desirable responses, and, therefore, increase insight into the validity and reliability of findings. Considering the difficulties indicated in this

population with concentration and motivation (McMurrin, 2002), the researcher felt that the inclusion of an additional measure may have been detrimental to participant well-being and also served as a potential barrier to participants' willingness to engage in the research. However, in view of findings of previous related research and the limited findings in the current research relating to the impact of intervention on locus of control, the inclusion of a measure of social desirability rather than an assessment of locus of control may have provided more insight.

Whilst the current study included the collection of follow-up data, the limited follow-up time period may have influenced research findings. Longitudinal studies are recommended when assessing intervention efficacy (Ritchie et al., 2011), however, due to time limitations of the current research it was not feasible to incorporate a longer follow-up period. Additionally, the absence of follow-up data for substance use may have been a further limitation to the research.

Additional confounding variables may require consideration in view of the results found in the current research. Participants were requested to identify their primary substance within treatment and respond to measures accordingly. This may have caused confusion and influenced responses from poly-substance users. Additionally, severity and frequency of use were not controlled for in the research. The data was analysed for substance use as a whole rather than differentiating between drugs and alcohol, polysubstance use, or exploring differences between different types of drugs, potentially limiting findings. Cohn and Mueser (2013) suggest that increased differentiation between drug use and alcohol use in those with co-occurring serious mental illness may be beneficial when exploring the efficacy of treatment provided.

The influence of the relationship of the researcher with the sites included in the research and with research participants should be given consideration when interpreting research findings. Whilst the researcher was not involved in any BTSA programme delivery in order to limit the potential of researcher bias, the researcher was a part of the clinical team at one of the locations (Northamptonshire) for the duration of one programme delivery. Whilst the researcher was not working in a direct therapeutic capacity with any of the research participants, she was familiar to the participants and this may have influenced the high recruitment rate for this programme (10 participants recruited for this programme). This may have also served to increase social desirability in participants responses for this group, wishing to present themselves in a positive light to someone that they have perceived was in some way responsible and influential in decision making about future treatment and progress.

The BTSA programme was developed specifically to treat individuals with a diagnosis of serious mental illness and substance misuse problems (Bellack et al., 2006). Therefore, the inclusion of personality disordered offenders who fall outside of the diagnostic category of serious mental illness within the treatment programmes being currently assessed may have influenced treatment outcomes.

The representativeness of the current sample merits consideration. Not all participants within the programmes evaluated within the current study consented to participate in the research. It is suggested that a more representative sample would have included all programme participants, in view of the possibility that participants with higher levels of motivation volunteered to participate in the study influencing findings, whereas, those with increased difficulties or lower levels of motivation were more likely to decline to participate (Gudjonsson, Young & Yates, 2007).

Furthermore, as the treatment itself was voluntary, the nature of a self-selecting group presenting with high levels of motivation and internalised locus of control may limit generalisability of findings to wider populations (Farren & McElroy, 2010). Payment for participants to take part in the research may have provided a larger and more representative sample for the current study. In view of the payments received for attending the intervention, the research could have adopted a similar approach, and provided limited payments to reward participants for their time in completing the additional measures required for the research. A potential benefit of this approach may have been a larger sample size including participants with lower levels of motivation and/or confidence in ability to change. As such, this may have increased reliability of findings and also generalisability to a wider population. Whilst ethical concerns regarding paying vulnerable participants for taking part in research are widely discussed, recent Health Research Authority guidelines include a number of potential benefits of research payments. These include reducing the power imbalance between the researcher/healthcare provider and the patient by payment for time rather than being asked to do a favour, providing clearer differentiation between the research and clinical intervention and providing more equal opportunities for vulnerable research participants when compared with those less vulnerable who are more likely to receive payment for research participation (Health Research Authority Guidance, 2014). A negative consequence of payment for participants would be the potential cost implications, particularly should the research attract a significant number of participants. Finances for the current project were very limited, however, should future projects with less financial constraints take this approach, this may address some of the challenges experienced in the current project regarding sample size.

Implications for practice

The findings from the current research provide some tentative, initial indications of the efficacy of a structured harm reduction, contingency management approach to substance misuse in a forensic population with mental health problems. In particular, semi-structured interviews highlighted key areas that participants found beneficial and indicated that the majority of participants had found the experience of the intervention enjoyable. Only one participant reported not enjoying the programme due to his perceptions of a lack of relevance to his stage of treatment or current needs. This highlights the need for rigorous assessment for programme selection and consideration of suitability of potential intervention for individual service users. Careful consideration of treatment needs and sequencing of intervention (Stephenson, Harkins & Woodhams, 2013) along with a clear rationale developed collaboratively with the service user could potentially alleviate problems with engaging with treatment and improve treatment outcomes.

The current study encountered similar difficulties to those identified in previous research within this population and challenges to empirical evaluation of intervention in this area, in terms of sample size, recruitment of research participants and the lack of a control condition. Further replication research on a larger scale with a longer follow-up period is recommended in order to ensure that intervention provided is empirically supported. Furthermore, controls for confounding variables including type of substance, classification of diagnosis, stage of treatment and context of detainment would provide further insight into what is working for whom.

In view of the complexities of this population, reported within the literature and indicated within the current research study, exploration of attitudinal and behavioural change at an individual level may be a more informative approach to

analysing treatment outcomes. Individual case examination and formulation may provide an understanding of an individual's presenting problems, level of insight, expectations and attitude towards treatment. This would enable more individualised and personally relevant identification of treatment goals to increase opportunity for risk reduction. As such, progress could be measured against these goals and treatment efficacy assessed against meaningful and relevant outcomes for each individual.

Summary and conclusions

The aim of the current research was to evaluate the effectiveness of a programme taking a specific behavioural approach to the treatment of substance misuse in a forensic population with comorbid serious mental health problems. The current study suggests that a structured approach to substance misuse treatment can effect positive treatment change in terms of taking steps to actively manage substance use.

Qualitative findings suggest perceived benefits of intervention from the participants' viewpoint including increased coping skills, confidence and the supportive group experience. Furthermore, individual exploration of clinical change provides some tentative support for treatment outcomes. Therefore, the current research provides some tentative suggestion that the BTSA intervention is helping people with co-existing mental health and substance use problems and a history of offending behaviour, however, findings are not conclusive.

The lack of statistically significant quantitative findings may be explained by a range of reasons including limited treatment effect; the small sample size and associated lack of power; pre-treatment high levels of motivation, self-efficacy and internalised locus of control and the mixed assessments used within the current research study. In view of the limitations of the current study, future replication

research is advocated using larger scale studies or taking a more individual approach to analysing outcomes. This further research is necessary to inform treatment for this vulnerable population facing the significant challenges of managing co-existing difficulties of serious mental health problems, substance misuse and offending behaviour.

CHAPTER FIVE:

DISCUSSION

Overall aims of the thesis

This thesis aimed to consider the impact and treatment of co-existing serious mental health and substance misuse problems in the context of the forensic population. More specifically, the links between co-existing mental health problems, substance misuse and offending behaviour were explored through evaluation of existing literature with particular emphasis on psychological interventions. The literature suggested a significant impact of co-existing serious mental health problems and substance misuse upon both general life quality (Bahorick et al., 2013; Barrowclough et al., 2014) and increased likelihood of offending behaviour (Soyka, 2000; Swanson et al., 1990; Volavka, 2013). The evidence base for evaluation of treatment for co-existing mental health and substance misuse problems for the general population has been suggested to be considerable (McKeown, 2001), however, research exploring treatment within forensic populations has been identified as limited in terms of availability and empirical support (Clark et al., 2013; Derry, 2008; Durand et al., 2006). Given the considerable forensic (Daff & Thomas, 2014; Fazel et al., 2010; Morgan et al., 2013) and clinical difficulties (Walsh & Copello, 2014) noted within this population this limited availability of treatment is particularly concerning. Furthermore, the implications of treatment provision to a vulnerable population not based on empirical support raises additional ethical concerns. Therefore, a systematic literature review was conducted to explore the effectiveness of current provision of substance misuse treatment for offenders with serious mental health problems detained within secure settings. Further to the findings of this review, an empirical research study was undertaken to explore, in real world settings, the effectiveness of a structured

substance misuse intervention in an offending inpatient and community population with serious mental health problems. The purpose of the research was to provide insight into an identified gap in the literature and to contribute to the evidence base for treatment for offenders with these additional complex difficulties.

Summary of main findings

Chapter One – Introduction to the thesis

The consequences associated with, and difficulties arising from, co-existing substance misuse and serious mental health problems reviewed in Chapter One have been shown to be serious and pervasive. The extent of this problem has been difficult to accurately estimate due to inconsistencies including variations in diagnostic criteria, data reporting and reluctance of the client group to seek help (Gregg et al., 2007). However, the available data relating to prevalence indicates the significant extent of the problem, suggested to be higher in the forensic population than in general community samples (DoH, 2009), with comorbidity associated with a range of offending behaviour. Research has suggested that over half of people experiencing mental health difficulties also experience difficulties with substance misuse (Hunt et al., 2014) and that lifetime prevalence within this population is suggested to be as high as 50% (Mueser et al., 1997). The links between serious mental health problems, substance misuse and violence are discussed within the literature, with research indicating increased likelihood of violent and aggressive behaviour in this population (e.g. Elbogen et al., 2009; Mericle et al., 2008; Swanson et al., 1990;). In addition to violent offending, increased risk of general offending has been suggested for individuals experiencing serious mental health problems and substance misuse

(Short et al., 2013) and a higher likelihood of recidivism (Baillargeon et al., 2010; Bonta et al., 2014).

Chapter Two – Systematic review of the literature

Chapter two presented a systematic review of studies exploring a variety of treatment outcomes in substance misuse interventions available for individuals with co-existing serious mental illness detained within secure forensic environments. All studies meeting the inclusion criteria were included in the review due to the limited number of studies available, providing support for the limited empirical research base for this type of intervention. Thirteen studies using a variety of methodological designs to assess treatment efficacy were included in the review. Reviewed studies included observational, mixed methods, comparison group and qualitative designs.

Empirical support for effectiveness of treatment programmes in the thirteen included studies was mixed. Findings indicated some benefits of treatment in terms of changes in attitudes towards substance use, reductions of risk behaviours and indications of improvements in psychological functioning. Furthermore, initial suggestions of reduction in substance use and rates of recidivism were indicated. However, findings were not consistent throughout studies with a number of methodological limitations observed. In view of these limitations, implications for the reliability of research findings and generalisability to the wider field of treatment of co-existing mental health and substance misuse problems should be guarded and requires further consideration.

Chapter Three – Critique of the SOCRATES (8A/D)

Chapter three examined the psychometric properties of the Stage of Change Readiness and Treatment Eagerness Scale (8A/D) (Miller & Tonigan, 1996). This self-report measure was selected for critical review due to its wide use within the field of substance misuse treatment and ease of administration. In addition the measure provides insight into a range of aspects associated with readiness to change; problem recognition, ambivalence towards change and active change. A number of psychometric property limitations were identified despite the measure being well-established and widely used in clinical settings, with potential implications for the findings of the current thesis. Mixed findings were reported for the validity and reliability of the measure, with limited information reported relating to face and content reliability. However, despite these limitations, the scale has been shown to provide useful insight into attitudes towards substance use and views towards change beneficial in clinical settings (Carey 2002). Furthermore, critical review of a wide range of psychometric measures assessing motivation to change suggested that no one single measure had higher clinical utility than any other (Carey et al., 1999).

Chapter Four – Empirical research study

The empirical research study presented in Chapter Four explored the effectiveness of structured group treatment (BTSA) for offenders with serious mental health problems using a mixed methods design. The intervention was developed from a social learning perspective, taking a highly structured skills based training approach to treatment (Bellack, 2006). The intervention has been adapted for use with an adult population with a history of offending behaviour and detainment with secure settings. The research evaluated five programmes across two clinical locations, with

participants presenting with a range of psychiatric diagnoses and offending behaviours. The research evaluated the first two BTSA programmes delivered for forensic NHS clients in Northamptonshire, prior to this there was no dual diagnosis treatment available for offenders within this clinical location. The BTSA intervention had been available in the South London clinical location for several years, however, no previous prospective research had been undertaken within this location to evaluate treatment outcomes. Furthermore, the current research assessed intervention provided jointly to inpatient and community forensic clients, as far as the author is aware, there is no published research assessing this type of intervention within this mixed sample.

The intervention aimed to increase motivation and confidence in participants in order to reduce future problematic substance use. A skills based training approach was taken to support participants in the development of skills to aid substance refusal, engagement in alternate social activities and association with other non-substance using individuals. Within the research study, empirical measurement of change was related to the programme goals and key theoretical conceptual factors related to predicting future substance use; changing motivation, attitudes and behaviour of participants towards substance use and increasing confidence to improve general functioning. Participants' experiences of the programme were explored through semi-structured interviews.

Measures evaluating attitudinal change showed a statistically significant difference in taking steps towards changing substance use. A significant improvement was found between the end of treatment and follow-up. Scores had increased from baseline measures to post programme and significantly increased from post programme to follow-up. This would appear to indicate that the positive changes indicated in substance use immediately post treatment had continued within the

follow-up period and participants' confidence had continued to grow in the self-management strategies being used to control substance use.

All other attitudinal measures moved in the direction of hypothesis predictions with the exception of the SOCRATES recognition of problems associated with substance use subscale. All other measures indicated positive effects of treatment, however, not to a statistically significant extent. High scores within baseline measures indicating good self-confidence, motivation and readiness to change, confidence towards controlling substance use and internal locus of control suggested that participants may have already made decisions and begun to take action to reduce substance use prior to starting intervention. Furthermore, the predominantly high baseline scores limited opportunity for statistically or clinically significant change following treatment. Findings from attitudinal measures were supported by substance use data. All participants tested negative for substance use at the start and at the end of treatment, with substance use remaining low throughout treatment for the majority of participants.

In terms of the qualitative findings of the research, emerging themes suggested that participants had enjoyed their experience of the programme and felt that the skills training had been beneficial, in particular, drug refusal skills training. The therapeutic relationship emerged as another key theme arising from the data, indicating that participants had felt supported by therapists. Further key themes included group cohesiveness, benefits of the contingency management approach and general developments in self-confidence.

Future research recommendations

This thesis explored the effectiveness of treatment in a real life setting for a vulnerable population with severe and enduring difficulties including a history of offending. A gap was identified in the literature relating to both the provision of treatment (Derry, 2008) and empirical investigation (Clark & Sandbrook, 2013) of intervention provided for offenders with substance misuse and mental health problems. Considering the serious risks and consequences associated with co-existing serious mental health problems and substance misuse, further empirical research in this area is essential for reducing financial and social implications for society and managing risk and improving life quality in those with co-existing substance misuse issues and significant mental health difficulties.

Further research would benefit from considerations of the methodological limitations encountered both within the current thesis and indicated in previous research. Reliable and rigorous empirical evaluation may help to clearly establish more clearly effective principles and models of treatment, along with delivery approaches in order to optimise future treatment development and provision. Randomised controlled trials with sufficient power to limit confounding variables and compare treatment approaches would be beneficial providing research to help to implement new programmes and adapt existing programmes in order to ensure that treatment is cost-effective, evidence based and responsive to the risks and needs of the population receiving treatment. Longer follow-up periods, incorporating periods of discharge to community living would provide indications on the more enduring effects of the treatment, particularly, when substances became more available and exposure more frequent. It is suggested that future research may benefit from

consideration of payment for research participation with potential benefits of increasing sample size and providing a more representative sample.

In light of the recommended integrated approach to treatment, research evaluating holistic treatment programmes and pathways as a whole rather than exclusively focusing upon the provision of individual intervention may be of further benefit. A more individualised approach to treatment evaluation (Long et al., 2008) integrating the wider treatment pathway (Department of Health, 2008; Kavanagh & Connelly, 2009; Morisano et al., 2014), may provide additional insight into effective ways of working with this complex population to reduce future risk. In view of the reluctance of some participants to volunteer to take part in the current research, investigation of barriers to participation in research may provide valuable insight into the difficulties within this group and make recommendations to ensure that future samples are more representative of the whole population. However, in consideration of the current limited treatment provision for this population (Durand et al., 2006; The Bradley Report, 2009; Witt et al., 2013), psychometric property limitations in assessment measures (Carey et al., 1999) and indicated problems with motivation and engagement in treatment (Banerjee et al., 2002; Bellack, 2007; Drake et al., 2001), opportunity for longitudinal gold-standard research may be more limited.

Thesis strengths and limitations

The current thesis provides original contributions to an area identified as under-researched and under-resourced, with serious implications for offending. It provides a mixed-methods evaluation for a structured intervention addressing substance use in offenders with co-existing mental health problems. This evaluation has the benefit of providing original, real life research with a mixed sample detained in secure settings

and living in community settings. A mixed methods approach was used for the research study, suggested to provide a richer, more in-depth understanding of the subject of the research (Venkatesh et al., 2013). A prospective approach was taken to evaluation incorporating a follow-up period to assess continuity of change beyond the period of engagement in treatment (McMurrin, 2002). Data collection incorporated some behavioural measures, assessing substance use, recommended for increasing validity of research findings (Mathison, 1988).

There are a number of limitations to the current thesis requiring consideration. The systematic review presented in chapter two was potentially limited by publication and language bias as all research studies included in the review were published studies written in English language. Treatment outcomes within the studies included a range of assessments including attitudes towards substance use, recidivism and/or readmission, substance use, psychological functioning, attitudes towards change and general satisfaction. Due to the lack of standardised measures within the studies it was not possible to compare all study findings directly. An additional weakness of the review was the inclusion of all the studies found, with none excluded on a quality basis due to the limited research in the area. Inclusion of studies of varying quality may limit reliability and generalisability of findings to the wider population although reflect to some extent the stage of evidence development in the area.

In terms of the empirical study, although data collection included measurement of drug/alcohol use, inclusion of additional behavioural measures may have strengthened the study design, providing more comprehensive data triangulation. Assessment of violent and/or aggressive behaviour during the study period or progress or deterioration in mental health may have provided insight into the effects of intervention on some of the wider problematic consequences indicated in the

literature to be associated with serious mental health problems and substance misuse. The quantitative aspect of the empirical research study was limited by the lack of power within the sample. The sample size was small, with not all participants in the intervention willing to take part in the research. It could be hypothesised that participants' consenting to take part in the current research presented with high levels of motivation prior to commencing treatment further suggesting that those with lower motivation were reluctant to make additional commitments. This may have been associated with the additional work involved in completing psychometric assessments or may have been influenced by ambivalence towards change and limited confidence in their own abilities. For the majority of participants' taking part in the research, scores moved in the predicted direction in end of treatment measures with changes maintained at follow-up, however, only the taking steps towards changing substance use reached a level of statistical significance. It is suggested that high baseline scores were a factor limiting opportunity for statistical significant change following completing treatment.

Additionally, a further limiting factor of the current research is the absence of a control condition due to the lack of a comparable group engaging in alternate intervention. All potentially comparable participants (service users with serious mental health problems and substance misuse problems) were either receiving intervention or about to receive an intervention. However, the lack of a comparison group makes assessment of confounding variables difficult and limits reliability of research findings.

When considering the findings of this thesis, the results may be open to interpretation in different ways. Firstly, it could be interpreted that, due to a lack of significant findings from the majority of the outcome measures used, the research

suggests that the intervention is not having a positive effect on those completing it. However, to accept this interpretation would be largely ignoring that, for the majority of participants taking part in the research, scores moved in the predicted direction in end of treatment measures with changes maintained at follow-up. More individual analysis of the data on a case-by-case basis, suggested either predominantly positive clinical change or maintenance of good levels of motivation, confidence and internal locus of control. Furthermore, themes arising from the qualitative aspect of the current study indicated positive treatment experience and effects of the intervention.

A second interpretation of the findings could be that participants electing to participate in the current research were already working through a treatment pathway and process of change, internally motivated to engage and making changes to their substance use prior to commencing the programme. It could be hypothesised that participants' consenting to take part in the current research presented with high levels of motivation prior to commencing treatment further suggesting that those with lower motivation were reluctant to make additional commitments. Potential implications of socially desirable responding, presenting oneself in the best way in order to aid progress through a secure care pathway, should also be considered when interpreting findings.

Conclusion

This thesis supports and highlights the need for effective intervention for offenders with additional difficulties, co-existing substance use and serious mental health problems. Some of the challenges to evaluation of programs such as BTSA in routine clinical settings have also been highlighted. The findings provide some promising initial indications of the benefits that a structured, harm reduction approach that

treatment can provide, particularly in terms of indications of qualitative findings and hence participants' views. The need for further empirical investigation is recommended with consideration of the methodological limitations of the current research including representativeness of the sample, sample size and limited follow-up schedules.

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APPENDICES

Appendix 1: Details of electronic databases searched, search terms and syntax used

2.1 OVID PsycINFO - 1987 to June Week 4 2016

1. (drug* or alcohol* or polydrug* or substance* or narcotic* or heroin or cocaine or crack or amphetamine or ecstasy or cannabis or benzodiazepines).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
2. (abus* or misus* or disorder* or "use" or depend* or addict* or withdraw* or rehabilitat* or abstain* or illegal* or habit* or "relapse prevent*").mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
3. exp Drug Misuse/
4. exp Alcohol Misuse/
5. 1 and 2
6. 3 or 4 or 5
7. ("dual diagnosis" or "dual disorder" or co-morbid* or co-occur*).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
8. (dual adj3 diagnosis).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
9. 7 or 8
10. ("serious mental illness" or "psychiatric illness" or "serious mental disorder*" or "mentally ill offender*" or "mentally disordered offender*" or "bipolar disorder" or schizophrenia or "anxiety disorder*" or "major depressive disorder*" or "mental health" or "major mental illness").mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
11. exp Comorbidity/
12. 9 or 11
13. ("forensic psychiatr*" or "forensic inpatient*" or offend* or crime* or crimin* or "high secur*" or "medium secur*" or "low secur*" or "special hospital" or sentenc* or "criminal justice" or jail or incarcerated or prison* or custod* or "forensic service*" or "forensic hospital*" or "special hospital*").mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
14. (secure adj3 hospital).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
15. (forensic adj5 patient).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
16. 13 or 14 or 15
17. exp Intervention/
18. exp Treatment/
19. (CBT or "motivational interview*" or "contingency manageme*" or psychosocial or therap* or groupwork or "skills training" or "relapse prevention" or behaviour* or behavior* or programme or "cognitive techniques" or psychotherap* or rehabilitat*).mp. or *therapy/ or "cognitive behav* therapy".mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
20. ((behaviour* or behavior* or cognitive or psycho*) adj3 therapy).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
21. 17 or 18 or 19 or 20

22. 6 and 10 and 12 and 16 and 21

398 results

2.2 OVID EMBASE - 1988 to June Week 4 2016

1. (drug* or alcohol* or polydrug* or substance* or narcotic* or heroin or cocaine or crack or amphetamine or ecstasy or cannabis or benzodiazepines).mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]
2. (abus* or misus* or disorder* or "use" or depend* or addict* or withdraw* or rehabilitat* or abstain* or illegal* or habit* or "relapse prevent*").mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]
3. exp Drug Misuse/
4. exp Alcohol Misuse/
5. 1 and 2
6. 3 or 4 or 5
7. ("dual diagnosis" or "dual disorder" or co-morbid* or co-occur*).mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]
8. (dual adj3 diagnosis).mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]
9. 7 or 8
10. ("serious mental illness" or "psychiatric illness" or "serious mental disorder*" or "mentally ill offender*" or "mentally disordered offender*" or "bipolar disorder" or schizophrenia" or "mental health" or "major mental illness").mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]
11. exp Comorbidity/
12. 9 or 11
13. ("forensic psychiatr*" or "forensic inpatient*" or offend* or crime* or crimin* or "high secur*" or "medium secur*" or "low secur*" or "special hospital" or sentenc* or "criminal justice" or jail or incarcerated or prison* or custod* or "forensic service*" or "forensic hospital*" or "special hospital*").mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]
14. (secure adj3 hospital).mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]
15. (forensic adj5 patient).mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]
16. 13 or 14 or 15
17. (CBT or "motivational interview*" or "contingency manageme*" or psychosocial or therap* or groupwork or "skills training" or "relapse prevention" or behaviour* or behavior* or programme or "cognitive techniques" or psychotherap* or rehabilitat*).mp. or *therapy/ or "cognitive behav* therapy".mp. [mp=title, abstract,

subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]

18. ((behaviour* or behavior* or cognitive or psycho*) adj3 therapy).mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]

21. 17 or 18

22. 6 and 10 and 12 and 16 and 19

476 results

2.3 OVID MEDLINE - 1946 to June Week 4 2016

1. (drug* or alcohol* or polydrug* or substance* or narcotic* or heroin or cocaine or crack or amphetamine or ecstasy or cannabis or benzodiazepines).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]

2. (abus* or misus* or disorder* or "use" or depend* or addict* or withdraw* or rehabilitat* or abstain* or illegal* or habit* or "relapse prevent*").mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]

3. exp Drug Misuse/

4. exp Alcohol Misuse/

5. 1 and 2

6. 3 or 4 or 5

7. ("dual diagnosis" or "dual disorder" or co-morbid* or co-occur*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]

8. (dual adj3 diagnosis).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]

9. 7 or 8

10. ("serious mental illness" or "psychiatric illness" or "serious mental disorder*" or "mentally ill offender*" or "mentally disordered offender*" or "bipolar disorder" or schizophrenia" or "mental health" or "major mental illness").mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]

11. exp Comorbidity/

12. 9 or 11

13. ("forensic psychiatr*" or "forensic inpatient*" or offend* or crime* or crimin* or "high secur*" or "medium secur*" or "low secur*" or "special hospital" or sentenc* or "criminal justice" or jail or incarcerated or prison* or custod* or "forensic service*" or "forensic hospital*" or "special hospital*").mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]

14. (secure adj3 hospital).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]
15. (forensic adj5 patient).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]
16. 13 or 14 or 15
17. exp Intervention/
18. exp Treatment/
19. (CBT or "motivational interview*" or "contingency manageme*" or psychosocial or therap* or groupwork or "skills training" or "relapse prevention" or behaviour* or behavior* or programme or "cognitive techniques" or psychotherap* or rehabilitat*).mp. or *therapy/ or "cognitive behav* therapy".mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]
20. ((behaviour* or behavior* or cognitive or psycho*) adj3 therapy).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]
21. 17 or 18 or 19 or 20
22. 6 and 10 and 12 and 16 and 21

320 results

2.4 Health Management Information Consortium (HMIC) - 1979 to June 2016

1. (drug* or alcohol* or polydrug* or substance* or narcotic* or heroin or cocaine or crack or amphetamine or ecstasy or cannabis or benzodiazepines).mp. [mp=title, other title, abstract, heading words]
2. (abus* or misus* or disorder* or "use" or depend* or addict* or withdraw* or rehabilitat* or abstain* or illegal* or habit* or "relapse prevent*").mp. [mp=title, other title, abstract, heading words]
3. exp Drug Misuse/
4. exp Alcohol Misuse/
5. 1 and 2
6. 3 or 4 or 5
7. ("dual diagnosis" or "dual disorder" or co-morbid* or co-occur*).mp. [mp=title, other title, abstract, heading words]
8. (dual adj3 diagnosis).mp. [mp=title, other title, abstract, heading words]
9. 7 or 8
10. ("serious mental illness" or "psychiatric illness" or "serious mental disorder*" or "mentally ill offender*" or "mentally disordered offender*" or "bipolar disorder" or schizophrenia" or "mental health" or "major mental illness").mp. [mp=title, other title, abstract, heading words]
11. ("forensic psychiatr*" or "forensic inpatient*" or offend* or crime* or crimin* or "high secur*" or "medium secur*" or "low secur*" or "special hospital" or sentenc* or "criminal justice" or jail or incarcerated or prison* or custod* or "forensic service*" or "forensic hospital*" or "special hospital*").mp. [mp=title, other title, abstract, heading words]

12. (secure adj3 hospital).mp. [mp=title, other title, abstract, heading words]
13. (forensic adj5 patient).mp. [mp=title, other title, abstract, heading words]
14. 11 or 12 or 13
15. exp Treatment/
16. (CBT or "motivational interview*" or "contingency manageme*" or psychosocial or therap* or groupwork or "skills training" or "relapse prevention" or behaviour* or behavior* or programme or "cognitive techniques" or psychotherap* or rehabilitat*).mp. or *therapy/ or "cognitive behav* therapy".mp. [mp=title, other title, abstract, heading words]
17. ((behaviour* or behavior* or cognitive or psycho*) adj3 therapy).mp. [mp=title, other title, abstract, heading words]
18. 15 or 16 or 17
19. 14 and 18
20. exp Psychoanalytic therapy/ or exp behaviour therapy/ or exp Cognitive behaviour therapy/ or exp Family therapy/ or exp Group therapy/ or exp Psychiatric drug therapy/
21. 15 or 16 or 17 or 20
22. 10 and 9 and 14 and 21

10 results

2.5 Applied Social Sciences Index and Abstracts (ASSIA)

(all (comorbid) OR all (dual diagnosis)) AND (all (offend) OR all (crim*)) AND (all (intervention) OR all (treatment))*

65 results

2.6 Web of Science (ISI)

Topic: (treatment) AND Topic: (secure) AND Topic (dual diagnosis)

Timespan: All years. Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH.

12 results

Appendix 2: Experts contacted by email

The following professionals were contacted by email to request any further research details in addition to those already obtained:

- Clive Long, St Andrew's Healthcare and King's College London, research interest women in secure psychiatric settings
- Gordon Ritchie, The State Hospital, Carstairs, research interest treatment of dual diagnosis in mentally disordered offenders
- Andrew Derry,

Please find detailed below a template of the emails sent:

To

I am currently studying for a Doctorate in Forensic Psychology at the University of Birmingham and as part of my thesis I am required to complete a systematic literature review on substance misuse interventions for dually diagnosed individuals in secure forensic settings. Whilst searching for literature I have come across several of your articles and I am now emailing you as I wondered whether you may have any related articles or studies either published or unpublished that you may be kind enough to forward to me.

I am hoping to include all relevant research in my review and as such, would be very grateful if you were able to send me any studies that you may have.

Many thanks for your time

Appendix 3: Inclusion/exclusion criteria checklist

| Inclusion criteria | Criteria met | Comment |
|--|-------------------------------|----------------|
| <p>Population Adults aged 18+ with a co-existing mental disorder and substance misuse problems</p> <p>Residing in a secure forensic setting</p> | <p>Yes Unclear No</p> | |
| <p>Intervention Exposure to psychosocial groupwork structured intervention addressing substance misuse</p> | <p>Yes Unclear No</p> | |
| <p>Outcome Substance use <i>and/or</i> Recidivism <i>and/or</i> Psychological functioning <i>and/or</i> Behaviour change</p> | <p>Yes Unclear No</p> | |
| <p>Study design: Any with outcome measures</p> | <p>Yes Unclear No</p> | |

If the answers to all questions are yes the study can be included in the review

Appendix 4: Full articles obtained and excluded following the application of inclusion/exclusion criteria

| Authors and date | Title | Reason for exclusion | Search source |
|--|---|--|-------------------------|
| Iowa Department of Human Rights (2011) | Process and Outcome Evaluation of the Iowa First Judicial District Department of Correctional Services Dual Diagnosis Offender Program (DDOP) | Did not fit population inclusion criteria, under supervision for an offence rather than detained in the secure forensic environment | Search of databases |
| Ritchie, Weldon, Macpherson & Laithwaite (2010) | Evaluation of a drug and alcohol relapse prevention programme in a special hospital: an interpretative phenomenological analysis | Research used the same sample as included in a subsequent study which is included in the current review (Ritchie, Weldon, Macpherson & Laithwaite, 2011) | Search of databases |
| Long, Fulton, Dolley & Hollin (2010) | Dealing with Feelings: The Effectiveness of Cognitive Behavioural Group Treatment for Women in Secure Settings | Did not fit population criteria, co-morbid mental health problems rather than substance use | Search of databases |
| Easton, Oberleitner, Scott, Crowley, Babuscio & Carroll (2012) | Differences in Treatment Outcome among Marijuana-Dependent Young Adults with and without Antisocial Personality Disorder | Did not fit population criteria, outpatients not resident in secure forensic environment | Search of databases |
| Osher (2006) | Integrating Mental Health and Substance Misuse Services for Justice-Involved Persons with Co-Occurring Disorders | Did not fit inclusion criteria, summarises findings of studies | Search of databases |
| Long (2013) | Delivering effective cognitive behavioural group treatment for women in secure psychiatric settings | Did not fit intervention criteria, more generalized approach for assessing treatment | Hand searching journals |

| | | | |
|---|---|--|---------------------------------|
| | | | |
| Long, Dolley & Hollin (2011) | Social problem-solving interventions in medium secure settings for women | Population did not fit criteria, dual diagnosis mental disorder rather than co-existing substance misuse and mental disorder | Hand searching reference lists |
| Hien, Wells, Jiang, Suarez-Morales, Campbell, Cohen, Miele, Killeen, Brigham & Zhang (2009) | Multi-site randomized trial of behavioural interventions for women with co-occurring PTSD and substance use disorders | Population did not fit criteria, community sample | Hand searching reference lists |
| Chandler & Spicer (2006) | Integrated treatment for jail recidivists with co-occurring psychiatric and substance use disorders | Population did not fit criteria, community sample | Hand searching reference lists |
| Newton, Coles & Quayle (2005) | A form of relapse prevention for men in a high security hospital | Intervention did not fit criteria, selection criteria did not stipulate substance misuse problems | Hand searching reference lists` |
| Rothbard, Wald, Zubritsky, Jaquette & Chhatre (2009) | Effectiveness of a Jail-Based Treatment Program for Individuals with Co-Occurring Disorders | Intervention did not fit criteria, intervention provided was individual jail-based treatment planning incorporating a number of varying treatments | Search of databases |
| Weiss, Griffin, Kolodziej, Greenfield, Najavits, Daley, Doreau & Hennen (2007) | A Randomized Trial of Integrated Group Therapy Versus Group Drug Counseling for Patients With Bipolar Disorder and Substance Dependence | Population did not fit criteria, not inpatients in secure environment | Search of databases |

Appendix 5: Quality assessment form – qualitative studies

| Questions | Yes | No | Unclear | Comments |
|--|------------|-----------|----------------|-----------------|
| Does the study clearly identify research aims? | | | | |
| Is a qualitative approach appropriate to the research question/aims? | | | | |

Continue – Yes / No

| Questions | Yes (2) | Partial (1) | No (0) | Unclear | Comments |
|---|--------------------|------------------------|-------------------|----------------|-----------------|
| Is the research design appropriate to the study aims? | | | | | |
| Is there an explanation of how participants were recruited? | | | | | |
| Were participants recruited in an acceptable way? | | | | | |
| Are data collection methods clear? | | | | | |
| Are data collection methods justified and explicit? | | | | | |
| Has the relationship between researcher and participants been considered? | | | | | |
| Was research sufficiently explained to participants? | | | | | |
| Are ethical issues raised by the study discussed? | | | | | |
| Is the data analysis adequately described? | | | | | |
| Is data sufficient to support findings? | | | | | |
| Are findings clear and explicit? | | | | | |
| Are findings discussed in relation to the research question? | | | | | |
| Is the research discussed in the context of existing knowledge? | | | | | |
| Are new areas of research identified? | | | | | |
| Is generalisation of the study discussed? | | | | | |

Appendix 6: Quality assessment form – quantitative studies

| Questions | Yes | No | Unclear | Comments |
|---|------------|-----------|----------------|-----------------|
| Does the study address a clearly focused issue? | | | | |
| Is the method used appropriate to the research question/aims? | | | | |
| Are the outcome measures clearly defined? | | | | |
| Is the sample population clearly described? | | | | |

Continue – Yes / No

| Questions | Yes (2) | Partial (1) | No (0) | Unclear | Comments |
|--|--------------------|------------------------|-------------------|----------------|-----------------|
| Were participants recruited in an acceptable way? | | | | | |
| Are participants representative of the target population? | | | | | |
| Is there a comparison group? | | | | | |
| Are ethical procedures detailed? | | | | | |
| Is description of the group(s) adequate? | | | | | |
| Are demographic factors included? | | | | | |
| Is the intervention clearly described? | | | | | |
| Was the intervention standardised for all participants? | | | | | |
| Have confounding variables been identified and controlled for? | | | | | |
| Is the study design appropriate? | | | | | |
| Were valid and reliable measurements used to assess outcome? | | | | | |
| Were measures fully described? | | | | | |
| Were the same measures used to assess outcomes for all groups? | | | | | |
| Were outcomes clearly described? | | | | | |
| Were participants blind to the study aims? | | | | | |
| Were outcome assessors blind to intervention outcome? | | | | | |
| Were all participants accounted for? | | | | | |
| Were reasons and rates of treatment drop out clearly | | | | | |

| | | | | | |
|--|--|--|--|--|--|
| described? | | | | | |
| Were follow-up assessments included? | | | | | |
| Was the follow-up time period long enough? | | | | | |
| Are study results clear and applicable to the research question? | | | | | |
| Are results reported supported by statistical analysis? | | | | | |
| Was statistical analysis of data appropriate? | | | | | |

Appendix 7: Data Extraction Form

| | |
|---|--|
| Author(s) | |
| Title | |
| Journal | |
| Year | |
| Volume/ Page number | |
| Location | |
| Study design | |
| Participants: <i>Sample size</i> <i>Gender</i> <i>Age</i> <i>Recruitment method</i> | |
| Intervention: <i>Approach</i> <i>Duration</i> | |

| | |
|---|--|
| <i>Frequency</i> | |
| Measures: <i>Quantitative:</i> <i>Measures used</i> <i>Validity of measures</i> <i>Qualitative:</i> <i>Data collection</i> <i>methods</i> | |
| Outcomes: <i>Quantitative:</i> <i>Statistical analysis</i> <i>Findings</i> <i>Qualitative:</i> <i>Themes</i> <i>Findings</i> | |
| Limitations | |
| Quality score | |

Appendix 8: NHS ethical approval

Appendix 9: SOCRATES 8A/D

Appendix 10: DTCQ

Appendix 11 – GSES

Appendix 12: IPC LOC

Appendix 13 – Semi-structured interview questions

Appendix 14: Participant Information Sheet

Appendix 15: Consent form

Appendix 16: Exposure to treatment details

| Participants | Number of sessions attended | Number of sessions missed | % treatment exposure |
|-----------------|-----------------------------|---------------------------|----------------------|
| P ₁ | 20 | 14 | 59% |
| P ₂ | 32 | 2 | 94% |
| P ₃ | 34 | 0 | 100% |
| P ₄ | 33 | 1 | 97% |
| P ₅ | 32 | 2 | 94% |
| P ₆ | 33 | 1 | 97% |
| P ₇ | 31 | 3 | 91% |
| P ₈ | 32 | 2 | 94% |
| P ₉ | 30 | 4 | 88% |
| P ₁₀ | 31 | 3 | 91% |
| P ₁₁ | 25 | 1 | 96% |
| P ₁₂ | 24 | 2 | 92% |
| P ₁₃ | 24 | 2 | 92% |
| P ₁₄ | 22 | 6 | 79% |
| P ₁₅ | 24 | 4 | 86% |
| P ₁₆ | 15 | 13 | 54% |
| P ₁₇ | 30 | 0 | 100% |
| P ₁₈ | 28 | 2 | 93% |
| P ₁₉ | 21 | 8 | 72% |
| P ₂₀ | 26 | 3 | 90% |

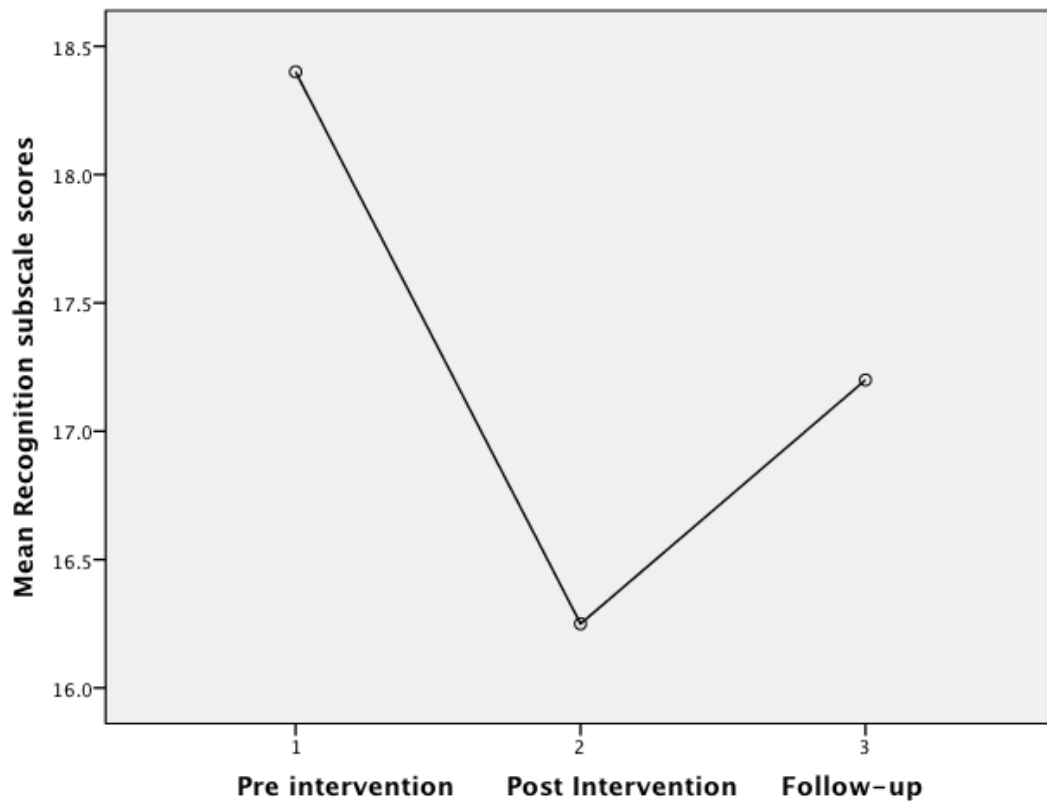
Appendix 17: Index offences details

| | n | Percentage % |
|--|----------|---------------------|
| <i>Index offence</i> | | |
| Murder | 1 | 5% |
| Attempted murder | 2 | 10% |
| Manslaughter | 2 | 10% |
| Rape | 1 | 5% |
| Rape and attempted murder | 1 | 5% |
| GBH | 4 | 20% |
| Indecent assault against an adult | 2 | 10% |
| Assault | 1 | 5% |
| Wounding (section 18) | 2 | 10% |
| Threats to kill | 1 | 5% |
| Possession of a firearm with intent | 1 | 5% |
| Arson | 1 | 5% |
| No current index offence – previous IO | 1 | 5% |
| attempted murder | | |

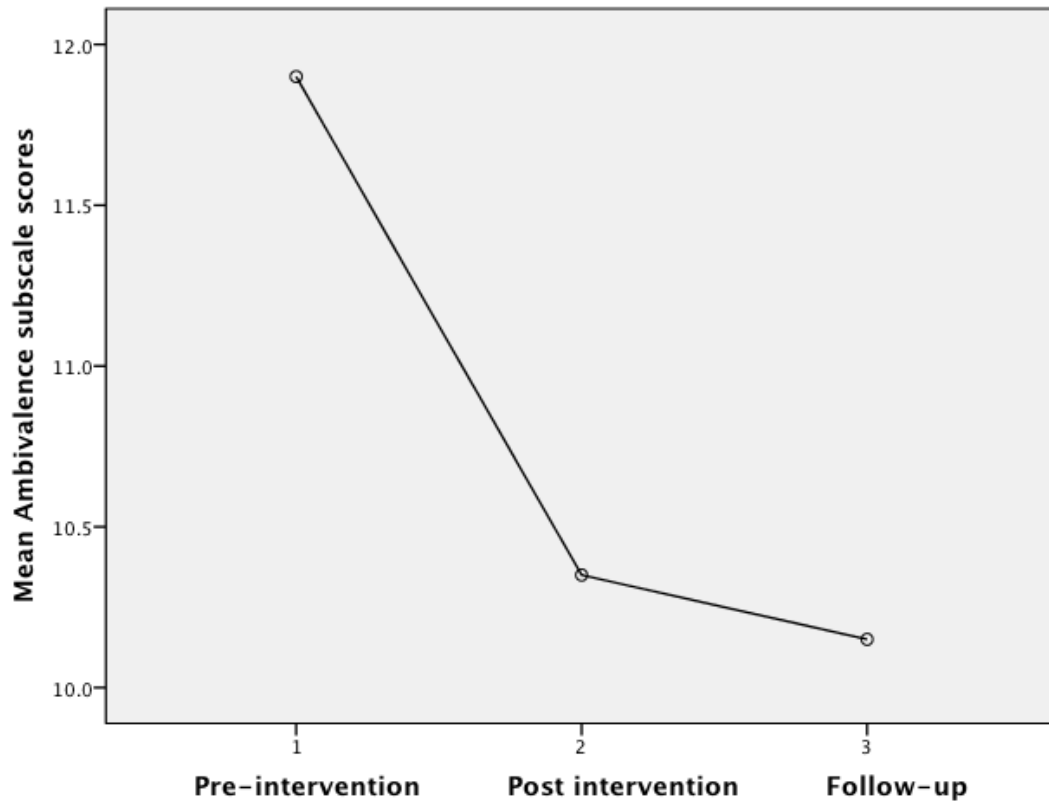
Appendix 18: SOCRATES Decile Ranges (Project MATCH)

| Decile Scores | Recognition | Ambivalence | Taking steps |
|---------------|-------------|-------------|--------------|
| 90 Very High | | 19-20 | 39-40 |
| 80 | | 18 | 37-38 |
| 70 High | 35 | 17 | 36 |
| 60 | 34 | 16 | 34-35 |
| 50 Medium | 32-33 | 15 | 33 |
| 40 | 31 | 14 | 31-32 |
| 30 Low | 29-30 | 12-13 | 30 |
| 20 | 27-28 | 9-11 | 26-29 |
| 10 Very Low | 7-26 | 4-8 | 8-25 |

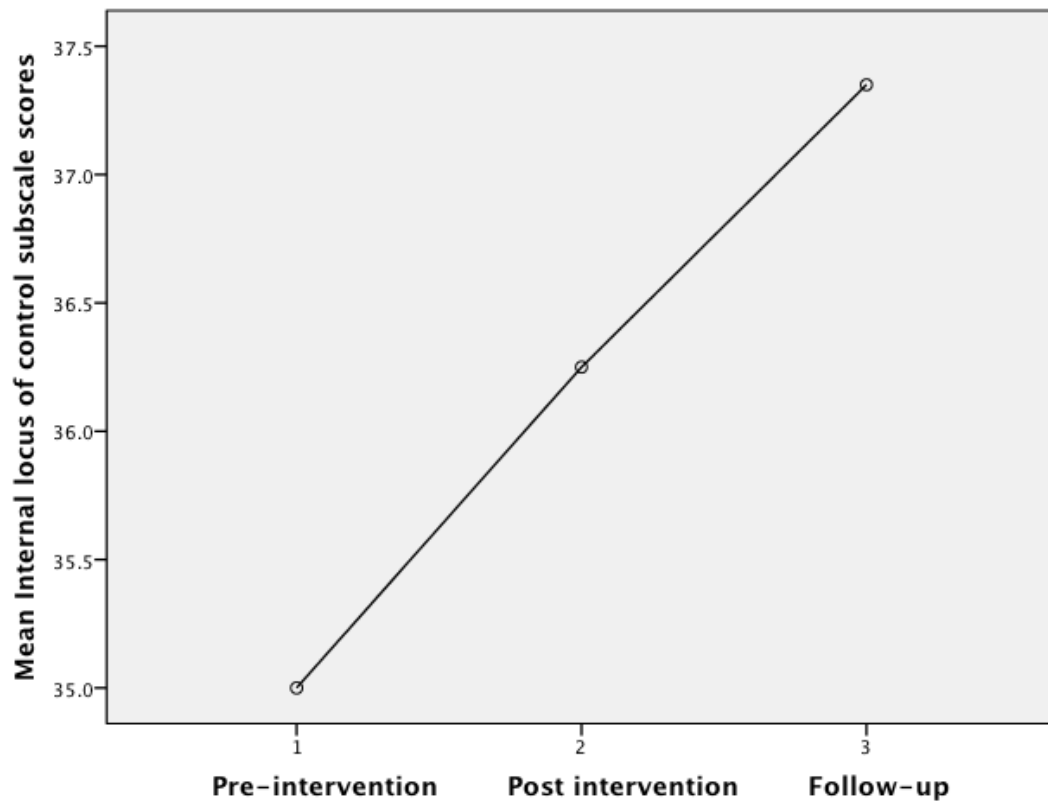
Appendix 19: Differences between pre, post and follow-up mean scores for recognition of substance use problems as measured by the SOCRATES



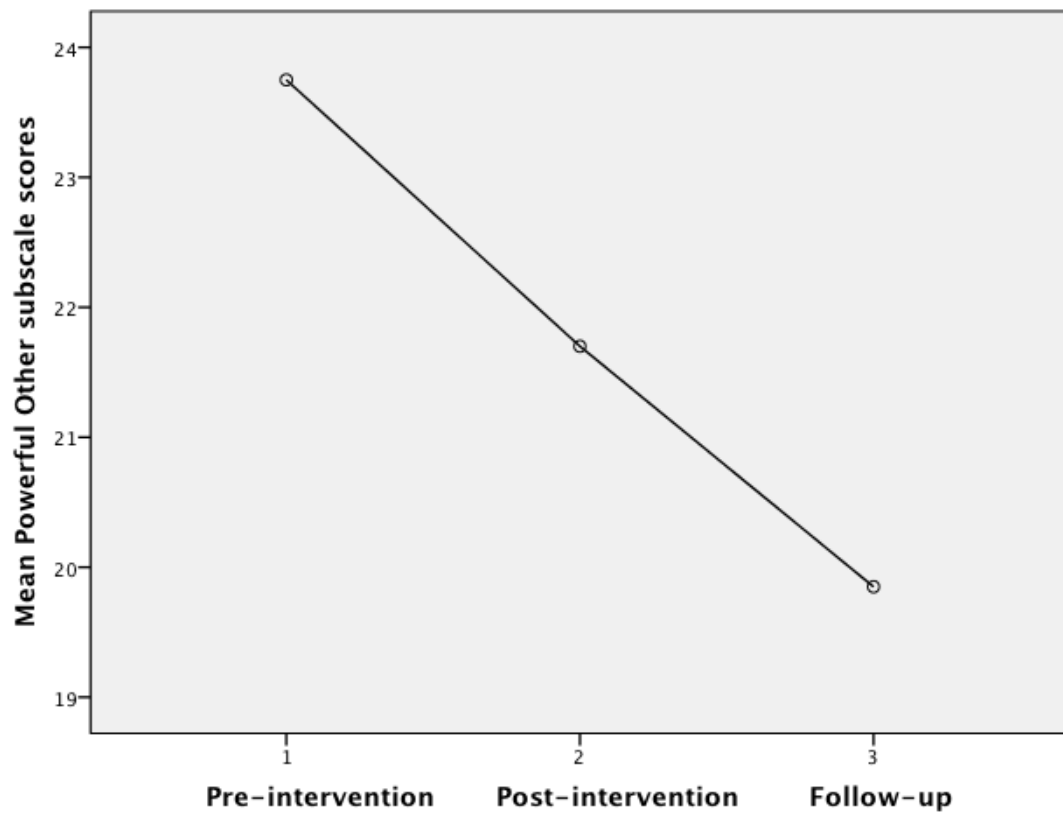
Appendix 20: Differences between pre, post and follow-up mean scores for ambivalence towards substance use problems as measured by the SOCRATES



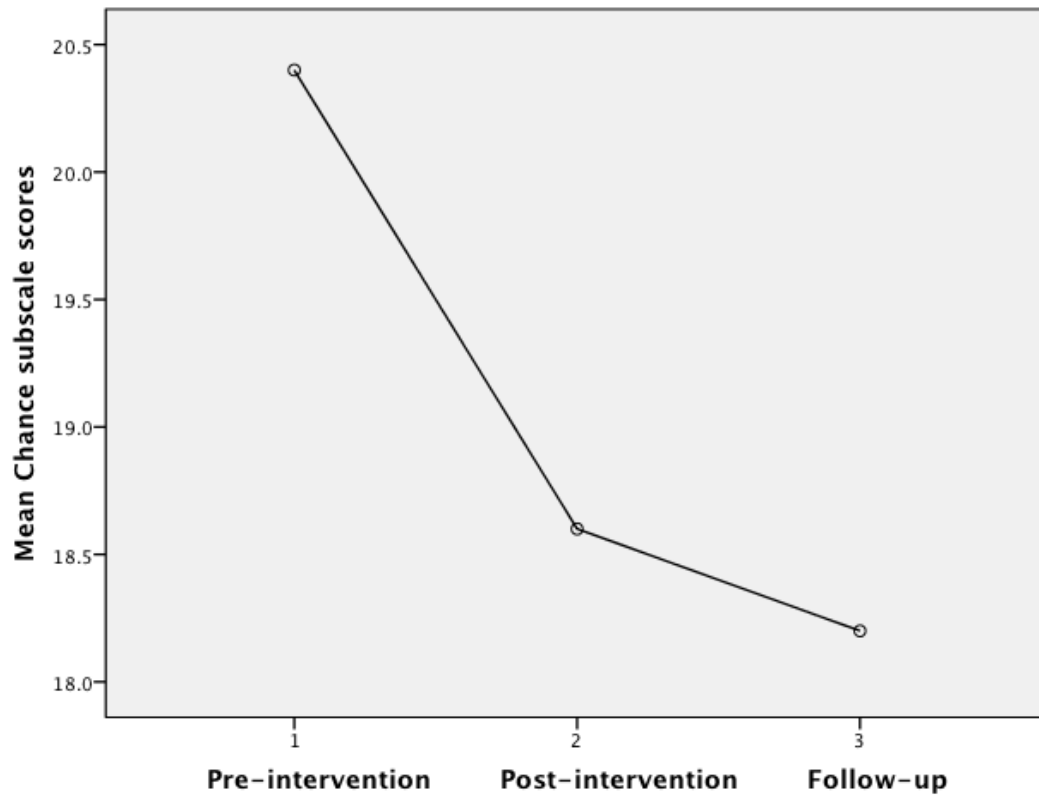
Appendix 21. Differences between pre, post and follow-up scores for internal locus of control as measured by the IPC LOC



Appendix 22. Differences between pre, post and follow-up scores for powerful others as measured by the IPC LOC



Appendix 23. Differences between pre, post and follow-up scores for chance as measured by the IPC LOC



Appendix 24: Substance use as indicated by Urinary Drug Screens and self-report

| Participants | UDS | Positive UDS | Self-report | Session numbers for positive results | % clear (screens and self-report) |
|-----------------|-----|--------------|-------------|--------------------------------------|-----------------------------------|
| P ₁ | 20 | 0 | 0 | | 100% |
| P ₂ | 32 | 0 | 0 | | 100% |
| P ₃ | 34 | 0 | 0 | | 100% |
| P ₄ | 33 | 0 | 0 | | 100% |
| P ₅ | 32 | 0 | 0 | | 100% |
| P ₆ | 33 | 0 | 0 | | 100% |
| P ₇ | 31 | 0 | 0 | | 100% |
| P ₈ | 32 | 0 | 0 | | 100% |
| P ₉ | 30 | 0 | 0 | | 100% |
| P ₁₀ | 31 | 0 | 0 | | 100% |
| P ₁₁ | 25 | 0 | 0 | | 100% |
| P ₁₂ | 24 | 0 | 3 | 15, 16, 23 | 87.5% |
| P ₁₃ | 24 | 0 | 0 | | 100% |
| P ₁₄ | 22 | 0 | 0 | | 100% |
| P ₁₅ | 24 | 0 | 0 | | 100% |
| P ₁₆ | 15 | 0 | 2 | 17, 21 | 86.7% |
| P ₁₇ | 30 | 0 | 0 | | 100% |
| P ₁₈ | 28 | 2 | 0 | 19, 23 | 92.9% |
| P ₁₉ | 21 | 2 | 0 | 21, 25 | 90.5% |
| P ₂₀ | 26 | 1 | 2 | 15, 25, 27 | 88.5% |