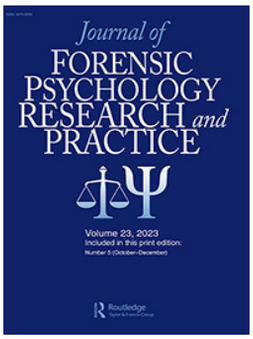

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Dual Diagnosis in a Forensic Patient Sample: A Preliminary Tripartite Investigation to Inform Group Treatment Delivery for Substance Use

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ABSTRACT

The etiology of forensic dual diagnosis and the efficacy of psychosocial substance use interventions remain poorly understood. This multi-study: (1) Examined what is empirically known about forensic psychosocial substance use interventions; (2) Empirically quantified from forensic inpatient's perspectives (*n* 12) psychosocial risk factors relevant to substance using behaviors (Study 1); and (3) Evaluated from forensic service users (12) and service providers (9) standpoint the acceptability and feasibility of a novel substance use intervention (Study 2). Findings showed that (1) Existing interventions are of limited effectiveness; and (2) Eleven etiological psychosocial risk factors and two bifurcative pathways are arguably implicated in substance using behaviors.

KEYWORDS

Dual-diagnosis; substance use; forensic mental health; offenders; FADD

Introduction

Substance misuse can serve as the precipitant for some marked problems within society including antisocial behaviors, aggression, and violence (Drake et al., 2004; Mueser et al., 2005; Mueser et al., 2013). Yet, the risks associated with "drug-taking" do not merely impact "healthy individuals", but inordinately affect those with severe mental illnesses and forensic histories (McMurran et al., 2002; Ogloff et al., 2004). Over the past 40 years, researchers and clinicians have become conscious of the burgeoning dual diagnosis problem, referred to in the literature as co-occurring substance misuse problems in individuals with severe mental illnesses, with most experts recognizing this comorbidity as the most significant issue facing healthcare services (Hunt et al., 2019). Given the unanimous agreement that dual diagnosis increases the risk of violent behaviors (Fazel & Seewald, 2012), disproportionally affects offending populations (McMurran et al., 2002), negatively impacts societal wellbeing (Khokhar et al., 2018) and is of relevance to forensic populations (specifically prisoners: Baranyi et al., 2019), the need for interventions specific to forensic psychiatric

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populations have been emphasized (Graham et al., 2001). However, despite this warning and appeal for research, such treatments have historically received little attention, with existing interventions fragmented and lacking empirical support (Hunt et al., 2019). In addition, whereas offending-behavior programmes have benefited from well-developed models, such as the Risk-Needs-Responsivity model (RNR: Andrews et al., 2011; Bonta & Andrews, 2007) to determine how to assess, capture needs and maximize an offender's response to therapy, the addictions field among forensic patients is not similarly well developed. Accordingly, the development and examination of evidence-based structured psychosocial substance use interventions tailored to the specific risk profile of forensic dual diagnosed inpatients remains of the utmost importance.

Theoretical framework

It has been acknowledged that the effectiveness of psychosocial substance use interventions would likely be enhanced if a better understanding could be obtained concerning the underlying causes of substance using behaviors in a dual diagnosed population (Drake et al., 1989; Mueser et al., 1997). While there exists little research relevant to discerning the etiological processes specific to the development of substance using behaviors in the forensic dual diagnosed population (Drake et al., 2001; Fisher, 2015), the biological *Supersensitivity Model*, and the psychosocial *Multiple Risk Factors Model* holds some empirical relevance and support.

The Supersensitivity Model asserts that a heightened psychobiological vulnerability to the effects of substances, which is determined by a combination of genetic and early environmental events (e.g., adverse childhood experiences, traumatic upbringing), interacts with environmental stressors (e.g., substance use) to either precipitate the onset of psychiatric disorders or trigger relapse (Mueser et al., 1997). This heightened vulnerability is suggested to predispose the individual to experience severe, negative, and adverse mental health outcomes from the consumption of relatively minor amounts of substances (Fisher, 2015). In support of this model, pharmacological studies have shown that patients with severe mental illnesses tend to be highly sensitive to low doses of substances, which produce comparatively minimal responses in controls (see Lieberman et al., 1987).

Several researchers have, alternatively, attempted to reconcile various psychosocial etiological theories using a psychosocial risk factor approach. Mueser et al. (1998) *Multiple Risk Factors Model* proposes ten psychosocial risk factors: (1) social isolation, pressure or association with deviant subgroups, (2) poor interpersonal and cognitive skills, (3) abuse, (4) alleviation of dysphoria, (5) limited structured alternative activities, (6) school and vocational failure, (7) lack of adult responsibility, (8) high drug availability, (9) poverty, and (10) familial substance use. These factors are considered critically

important in the presentation, development and course of substance use in those with severe mental illnesses. Subsumed within this overarching model lies two discrete approaches, each with empirical backing:

Alleviation of Dysphoria Model and Social Learning Theory

The Alleviation of Dysphoria Model postulates that those with severe mental illnesses are particularly susceptible to dysphoric experiences (e.g., negative self-image), increasing their propensity for ameliorating substance-taking behaviors (Leshner, 1998). Concordant with *General Strain Theory* (GST; Agnew, 1992) dysphoria in these patients is theorized as emerging from the removal of positively valued stimuli (e.g., such as the death of a parent) or the introduction of negatively valued stimuli (e.g., abuse). This produces "strain" that invokes several negative emotions, necessitating behavioral intervention (e.g., use of substances).

Forming the second prong of the Multiple Risk Factors Model, Social Learning Theory asserts that individuals engage in substance-using behaviors as a direct product of parental modeling and peer influences. According to Christiansen and Goldman (1983), early exposure to substance-using behavior or enmeshment within "drug subcultures" facilitates the development of normative substance use attitudes and perceptions, leading to use and cognitive expectations of substance related experiences. Grounded within the perceptions of dual diagnosed individuals, studies have observed that those with severe mental illnesses often lack social problem-solving skills (Bellack & DiClemente, 1999), or drug refusal strategies (Dusenbury et al., 1989). They therefore tend to gravitate and connect with dissocial others, increasing their vulnerability to social influence (Pandina et al., 1990). In these groups, substance use is often perceived as socially normative, therefore resulting in high substance use availability and subsequent drug-taking (Trumbetta et al., 1999). While there is limited direct evidence for the Multiple Risk Factors Model, patient self-reports tend to be consistent with the identified factors (e.g., Thornton et al., 2012), lending some empirical support for this theoretical explanation.

Despite uncertainty surrounding its etiological underpinnings, it has been acknowledged that those with co-existing substance misuse problems, severe mental illnesses, and offending histories are an extremely heterogenous population with complicated developmental trajectories that lack common causal pathways (Crome et al., 2009). According to Mueser et al. (1998), individual differences in this diverse group may account for some variability among the noted theoretical explanations. Therefore, it is likely that more than one model may apply to any given individual. Surprisingly, one domain that remains largely unexplored in forensic populations, are substance users' stated *reasons* for drug-taking,

that is, what these individuals believe motivates their substance use. The further development of holistic theories that adopt a more patient-informed understanding to forensic dual diagnosis may be beneficial in better understanding the etiological complexities and treatment needs specific to this population.

Psychosocial interventions

Psychosocial substance use interventions hold particular importance within the forensic dual diagnosis domain, given that such treatments are uniquely positioned to assist "tripled diagnosed" individuals (i.e., those with substance use, mental health and offending challenges), in reducing substance use, improving their mental state, facilitating treatment adherence and social recovery, and decreasing reoffending (Khokhar et al., 2018). Despite these stated benefits, there remains a paucity of research examining forensic psychosocial substance use interventions, with examinations from patient's perspectives sparser still (Ogloff et al., 2004).

Rationale for the current research

There is an acknowledged lack of etiological clarity regarding dual diagnosed forensic patients and a failure to incorporate their views in understanding factors of relevance to their substance use and how group treatment could progress. The current research aims to address this knowledge gap via a tripartite investigation. The first element comprises a systematic review that aims to capture what is empirically known about the acceptability, feasibility, and effectiveness of structured group psychosocial substance use interventions for forensic inpatients with dual diagnosis. This is followed by two qualitative studies; Study 1, examining the perspectives of dual diagnosed forensic patients regarding the psychosocial risk factors relevant to the initiation and maintenance of their substance use; and Study 2, patient and service provider views regarding the acceptability and feasibility of a psychosocial substance use intervention. Both studies take place with an adult male high secure forensic sample. It was expected that risk factors broadly concordant with the Multiple Risk Factors Model (Mueser et al., 1998) would emerge from patient perspectives (Study 1, 2), and that patient and provider perceptions of psychosocial substance use intervention would be favorable with regards to acceptability and feasibility (Study 2).

Exploring psychosocial substance use group interventions for forensic inpatients with dual diagnosis: a systematic review

The current review evaluated (1) the *acceptability* of structured group psychosocial substance use interventions from a forensic patient perspective. Acceptability was defined here as how patients evaluated the programme; (2) the *feasibility* of structured group psychosocial substance use interventions from a service provider viewpoint, with this defined as the workability of such interventions in such settings; and (3) the *effectiveness* of such interventions in secure forensic settings.

Method

Following PRISMA guidelines, a systematic electronic search was conducted via a review of publications across the following English language databases: PsycINFO, EMBASE, MEDLINE, PubMed, Web of Science, The Cochrane Central Register of Controlled Trials, and CINAHL. Search terms were grounded in previous research and selected using the PICO search strategy protocol (Eriksen & Frandsen, 2018). Consistent with PICO protocol, (1) the relevant population, comparators, and outcomes were identified, (2) key terms highlighted, and (3) alternate phrases generated, to develop a coherent search strategy. Final search terms included dual diagnos*, serious mental illness, substance*, misus*, forensic inpatient*, psychosocial and intervention. Additional articles were obtained via manual searching of relevant publications and reference lists.

Inclusion and exclusion criteria

The PICO search strategy protocol was further used to identify study inclusion and exclusion criteria (Miller & Forrest, 2001). Studies were restricted to peer-reviewed research and considered eligible if they (a) reported information concerning the acceptability, feasibility and/or effectiveness of structured group psychosocial substance use interventions, (b) studied these outcomes in adult forensic inpatients with co-occurring severe mental illnesses and substance misuse problems, (c) presented findings derived from any empirical research method, and (d) were available in English. A total of 16 studies were ultimately included.

Quality assessment

The Effective Public Health Practice Project (EPHPP) quality assessment tool was used to appraise the included quantitative studies (Thomas et al., 2004);

the Critical Appraisal Skills Programme (CASP) qualitative checklist (QC) was used to appraise all qualitative studies (CASP Critical Appraisal Skills Programme, 2018) and The Mixed Methods Appraisal Tool (MMAT) to appraise mixed method studies (Hong et al., 2018). To minimize the risk of bias during the quality appraisal process, a random sample ($n = 3$) of the included studies were selected for quality assessment by a second assessor. Agreement between the two raters was considered good (Kappa Measure of Agreement of 0.83, $p < .05$).

Analysis

Due to heterogeneity, Thematic Analysis was used to examine the noted aims. In accordance with Braun and Clarke (2006), information was organized by codes based on features within the data. Following coding, themes were drawn out based on patterns that developed. To ensure reliability in the coding process a second rater, who had no previous knowledge of the study, screened a sample of the data. The second rater was presented with 48 descriptive codes (25% of the total number of distinct descriptive codes across all included studies), together with definitions of each theme. Using a code book, the second rater independently rated and assigned each code to a theme. Agreement between the two raters was considered very good (Kappa Measure of Agreement of 0.92, $p < .05$).

Results

Figure 1 shows a flowchart of the selection process. In total, 2,141 articles were identified through electronic database searching and exported into EndNote. Manual searching of the literature identified a further 12 records. A total of 1,598 articles remained after duplicates were removed. Titles and abstracts were then screened, resulting in 52 articles that were read in full to determine whether they met the inclusion criteria. At the full text stage, 36 articles were excluded, leaving 16 articles, which were examined using the quality assessment tools. A full breakdown of reasons for exclusion are provided in Figure 1. Despite some publications receiving a "weak" global quality rating, no papers were excluded after the quality appraisal stage given the noted methodological limitations and scarcity of literature within this domain.

Results showed that interventions were predominantly formulated for male forensic inpatients (68%), detained within conditions of medium security (43%). All treatment programmes were delivered as a poly-substance misuse intervention (i.e., alcohol and drugs; 100%), with around two thirds using an integrated Cognitive-Behavioural Therapy

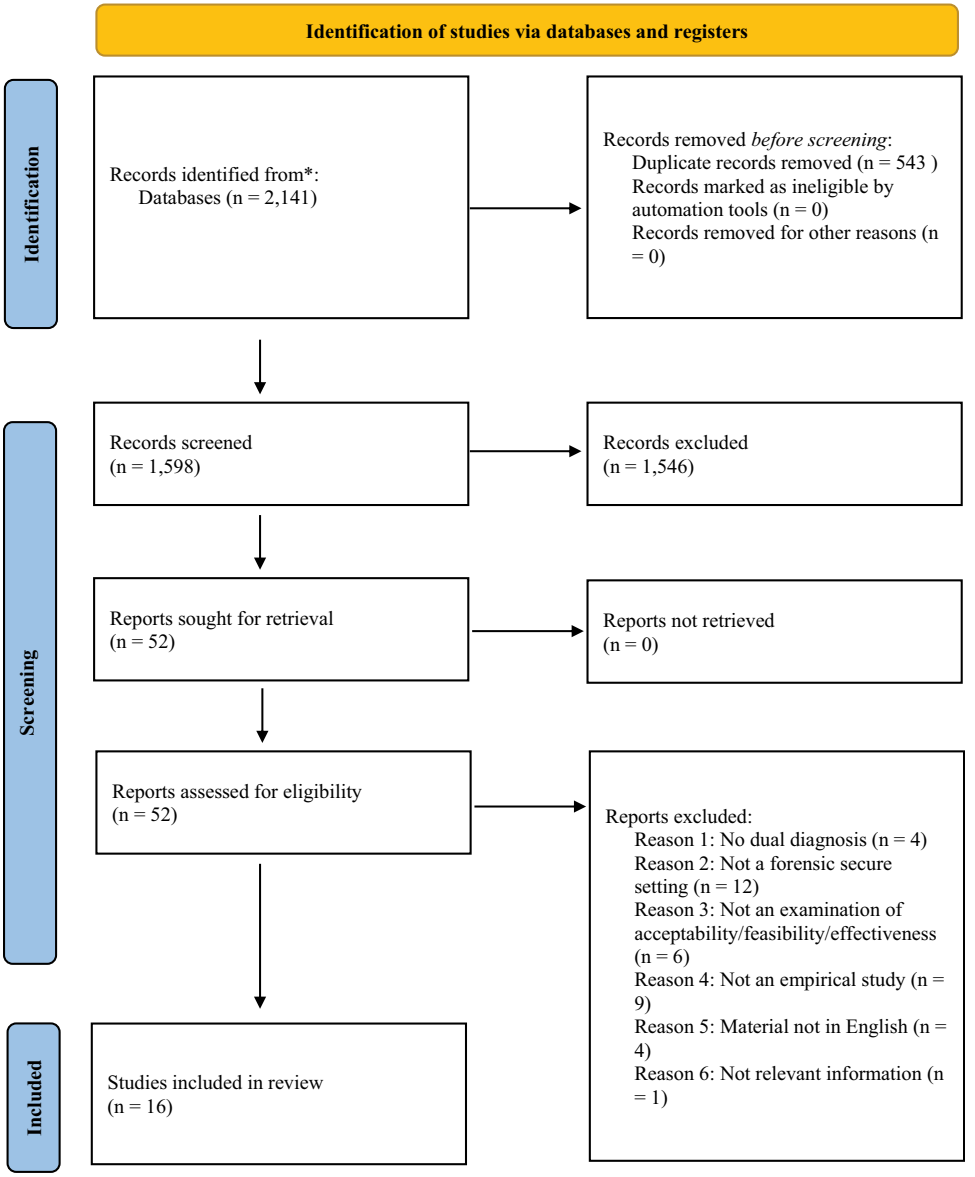

Figure 1. Flow chart depicting the systematic review process.

(CBT) and Motivational Interviewing (MI) approach (62%). Common therapeutic techniques included motivational interviewing, psychoeducation, cognitive and practical coping skills. Interventions ranged from between eight and 38 sessions, with sessions delivered by multidisciplinary care teams. Table 1 details the selected papers and the identified interventions.

Table 1. Summary of structured group psychosocial substance use interventions available for forensic dual diagnosed inpatients.

	Sample		Intervention					
Author(s) and Publication Date	Sex	Secure Service	Name	Approach | Poly Substance (Y/N)	Therapeutic Techniques	Length, Intensity and Duration	Group Size	Facilitators
Baker et al. (2014)	Male	Low Secure	*Substance Misuse Intervention*	CBT[1] (integrated treatment) | Y	Motivational interviewing, psychoeducation, practical coping skills (role plays), relapse prevention	14 sessions (intensity not specified)	8	Mental health professionals (not specified)
Derry and Batson (2008)	Male	Medium Secure	*Drug and Alcohol Programme*	CBT | Y	Motivational interviewing, psychoeducation, relapse prevention, practical coping skills	24 sessions (intensity not specified)		
Downsworth and Jones (2014)	Male	Low and Medium Secure	*Addressing Substance Related Offending (ASRO)*	CBT | Y	Motivational interviewing, relapse prevention, lifestyle changes			
Edwards et al. (2011)	Male	Medium Secure	*Behavioural Treatment for Substance Abuse (BTSAS)*	Psychoeducation, Motivational and Relapse Prevention (behavioral integrated treatment) | Y	Psychoeducation, social skills development (role plays), relapse prevention, relaxation skills, goal setting	24 sessions, x2 sessions per week, 2 hours per session	8	Clinical Psychologist led MDT
Johnson et al. (2019)	Mixed	Low Secure	*Finding Your Way Programme*	ACT[2] | Y	Motivational interviewing, psychoeducation, cognitive coping skills (mindfulness), relapse prevention, goal setting	16 sessions, x1 session per week, 2 hours per session + 1 hour weekly individual sessions	9	Clinical Psychologist led MDT
Long et al. (2010)	Female	Medium Secure	*Understanding and Overcoming Substance Use*	CBT (integrated treatment) | Y	Motivational interviewing, psychoeducation, practical and cognitive coping skills, relapse prevention	11 sessions over 16-week period, 75 minutes per sessions +30 min concurrent individual sessions	8–10	CBT therapists

(*Continued*)

Table 1. (Continued).

	Sample		Intervention					
Author(s) and Publication Date	Sex	Secure Service	Name	Approach | Poly Substance (Y/N)	Therapeutic Techniques	Length, Intensity and Duration	Group Size	Facilitators
McFadden et al. (2020)	Mixed	High Secure	*Substance Use Treatment Programme (SUTP)*	CBT (integrated treatment) | Y	Motivational interviewing, psychoeducation, functional analysis, practical coping skills, relapse prevention	12 sessions, x1 session per week, 2 hours per session	10	Allied Health Professionals
Miles (2015)	Mixed	Medium Secure	*Substance Use Treatment Programme (SUTP)*	CBT (integrated treatment) | Y	Motivational interviewing, psychoeducation, functional analysis, practical coping skills, relapse prevention + participant led booster session post-intervention	12 sessions, x1 session per week, 2 hours per session + x1 monthly booster sessions	10	Allied Health Professionals
Miles et al. (2007)	Male	Medium Secure	*Substance Use Treatment Programme (SUTP)*	CBT (integrated treatment) | Y	Motivational interviewing, psychoeducation, functional analysis, practical coping skills, relapse prevention	24 sessions, x1 session per week, 1 hour per session + x1 monthly booster sessions	10	Allied Health Professionals
Milosevic et al. (2018)	Mixed	Medium Secure	*Mental Disorder, Drugs and Offending (MDO)*	CBT (integrated treatment) | Y	Psychoeducation, practical and cognitive coping skills	38 sessions, x2 sessions per week, 1 hour per sessions		Nurses
Morris and Moore (2009)	Male	High Secure	*Substance Misuse Intervention*	CBT | Y	Motivational interviewing, psychoeducation, practical coping skills, relapse prevention, functional assessment (psychodrama)	9 to 14 months duration, x 1 session per week, 2 hour per sessions	8	Mental health professionals (not specified)
Oddie and Davies (2009)	Male	Medium Secure	*Poly-Substance Misuse Programme*	CBT (integrated treatment) | Y	Motivational interviewing, psychoeducation, practical coping skills, relapse prevention	16 sessions, x1 session per week, 1 hour per sessions + 5 individual sessions	4–6	Mental health professionals (not specified)
Ritchie et al. (2011)	Male	High Secure	*Relapse Prevention Programme*	CBT (integrated treatment) | Y	Motivational interviewing, psychoeducation, practical and cognitive coping skills (role plays), relapse prevention	28 sessions, intensity not specified, 3 hours per sessions	6–8	Clinical Psychologist and Consultant Nurse

(*Continued*)

Table 1. (Continued).

	Sample		Intervention					
Author(s) and Publication Date	Sex	Secure Service	Name	Approach | Poly Substance (Y/N)	Therapeutic Techniques	Length, Intensity and Duration	Group Size	Facilitators
Ritchie et al. (2010)	Male	High Secure	*Relapse Prevention Programme*	CBT (integrated treatment) | Y	Motivational interviewing, psychoeducation, practical and cognitive coping skills (role plays), relapse prevention	28 sessions, intensity not specified, 3 hours per sessions	6–8	Clinical Psychologist and Consultant Nurse
Ritchie et al. (2004)	Male	High Secure	*Education and Awareness Programme*	Psychoeducation | Y	Psychoeducation	8 sessions, x1 session per week, 1.5 hours per session	4–8	Trained Nurses
Tibber et al. (2015)	Male	Low to Medium Secure	*Customised Manual-Based Dual Diagnosis Intervention*	CBT (integrated treatment) | Y	Motivational interviewing, psychoeducation, practical coping strategies	34 sessions, intensity not specified, 1 hour per sessions	6–8	Psychologist led MDT

[1]CBT = Cognitive Behavioural Therapy.
[2]ACT = Acceptance and Commitment Therapy

Research aim 1: to evaluate the acceptability of structured group psychosocial substance use interventions from a forensic patient's perspective

Ten (62.5%) studies reported information pertaining to patient's experiences of undertaking substance use interventions. In these studies, acceptability was measured using interview questions, feedback forms/activities, and self-report questionnaires. Five superordinate and four subordinate themes were identified:

Theme 1: positive engagement and maintenance of treatment (56%[1])

Patient's experienced psychosocial substance use interventions as *pragmatic and engaging* (Subordinate Theme 1). This was reflected in comments regarding the useful, interesting, and engaging nature of the relevant programmes (Baker et al., 2014), and high levels of self-reported satisfaction (88% to 96.9%; McFadden et al., 2020; Miles et al., 2007). Using attendance rates as a proxy measurement for engagement and satisfaction, Baker et al. (2014), Johnson et al. (2019), and Miles (2015, 2007), found high levels of treatment adherence, with *intervention attrition attributable to mental state deterioration* and hospital transfer, rather than intervention refusal (Subordinate Theme 2). Of note, patients commented on facilitator expertise/support and external speakers as drivers for improved engagement (Edwards et al., 2011).

Theme 2: preference for skills-based sessions over psychoeducational content (38%)

Preference for skills-based sessions over psychoeducational content refers to patient's acceptance of practical therapeutic components (e.g., role playing) over theoretical learning (e.g., goal setting). Patients consistently rated behavioral rehearsal and demonstrations as the most beneficial components of the treatment programmes (Baker et al., 2014; Morris & Moore, 2009), with patients in Edwards et al. (2011) and Ritchie et al. (2010) studies requesting additional skills-based sessions in preparation for discharge. Edwards et al. (2011) found that theoretical content and repetition, were rated least favorable.

Theme 3: need for group understanding and connectedness (50%)

Patients indicated that *a need for group understanding and connectedness* was integral in promoting both the acceptability of an intervention and a positive therapeutic experience, noting the importance of both a *cohesive group* (Subordinate Theme 1), and *cohesion in experiences* (Subordinate Theme 2). Studies noted that having a common theme, being with people who never want to use drugs again and hearing and sharing experiences, facilitated group cohesion, understanding, and accountability (Downsworth & Jones, 2014; Morris & Moore, 2009). Patients in Johnson et al. (2019) and McFadden

[1]Percentages represent the number of publications that addressed this area.

et al. (2020) described not feeling so alone by virtue of strong connections with other group members, which fostered a greater sense of belonging. A by-product of *a need for group understanding and connectedness*, patients across three studies identified that sharing stories and learning from others allowed for the normalization of their own experiences, which was perceived as therapeutically beneficial (McFadden et al., 2020; Miles, 2015; Oddie & Davies, 2009). Of importance, McFadden et al. (2020) noted that contravention of group rules may lead to a breakdown in *group understanding and connectedness*, which could impact on the acceptability of the treatment programme.

Theme 4: treatment prompting iatrogenic cravings (25%)

This refers to patient's propensity and experiences of developing cravings following discussions regarding previous substance use. A small number of studies found that general discussions regarding substance use, hearing other people share their experiences, and/or conversing directly about cravings, triggered old memories, which subsequently resulted in increased thoughts and dreams about using substances (Baker et al., 2014; Oddie & Davies, 2009). In Oddie and Davies (2009) study, 55% of patients acknowledged that their cravings for substances had increased during the intervention, with the discussion and emergence of cravings rated the least acceptable component of Baker et al. (2014) therapeutic programme.

Theme 5: need for throughcare (19%)

There was consensus across the literature that acceptability of psychosocial substance use interventions was dependent on the provision of *throughcare*. Addressed by Edwards et al. (2011), Morris and Moore (2009), and Oddie and Davies (2009), *need for throughcare* referred to a patient's belief that current psychosocial substance use interventions lack sufficient post-discharge and outreach support, which according to patients necessitates support via external groups and 1-to-1 sessions. Of note, 57% of patients in Oddie and Davies (2009) study requested further work in relation to poly substance misuse problems prior to and during discharge, while some participants believed that the service could be improved via the provision of aftercare packages (Oddie & Davies, 2009).

Research aim 2: to review the feasibility of administering structured group psychosocial substance use interventions from a forensic service provider's perspective

Of the included publications, six (37.5%) studies reported information regarding service provider's experiences of delivering substance use interventions within forensic secure settings. In these studies, feasibility was evaluated via narrative accounts, and insights offered by service providers. Overall, three superordinate themes were developed:

Theme 1: interventions are time and resource intensive (13%)

Both Edwards et al. (2011) and Johnson et al. (2019), observed that the organization, preparation, delivery, and feedback associated with the administration of structured group psychosocial substance use interventions was onerous and an intensive use of resources, given the limited number of patients within their treatment groups.

Theme 2: need for experienced and flexible facilitators (31%)

There was consensus across the literature that delivering a feasible and effective psychosocial substance use intervention requires *experienced and flexible facilitators*. In their feasibility review, Edwards et al. (2011) noted that it was challenging for facilitators to possess all the key skills required to deliver such a broad model with absolute fidelity, given the psychologically complex and multifarious nature of substance use interventions. Despite acknowledging the manualised nature of current substance use treatments limited therapeutic flexibility, Miles (2015) and Oddie and Davies (2009) noted that practitioners must still demonstrate a degree of adaptability during session delivery as comorbid cognitive impairments and anxiety disorders, which are common in dual diagnosed forensic inpatients, may impact on the acceptability and effectiveness of an intervention, if not adequately addressed. The researchers advised against a rigid adherence to the manualised format in favor of a flexible approach adaptable to patient needs (Baker et al., 2014; Johnson et al., 2019).

Theme 3: treatment being conducted in an artificial abstinent environment (25%)

Service providers noted that the *artificial abstinent environment* of forensic secure settings, where access to the community and substances is significantly restricted, precluded opportunities to test the impact of interventions on participants' substance using behaviors (Johnson et al., 2019; Ritchie et al., 2010, 2011). According to researchers, this artificial abstinent environment not only minimized the learning experiences of patients, but limited examinations of treatment effectiveness, thereby preventing evidence-based programme improvements via the use of objective real-time feedback (Ritchie et al., 2010).

Research aim 3: to examine the effectiveness of structured group psychosocial substance use interventions used within forensic secure settings on any outcome measure

All publications reported information concerning the effectiveness of substance use interventions administered within forensic secure settings. The included studies examined treatment effectiveness using several outcome measures, including psychometrics and urianalysis. Four superordinate themes were identified:

Theme 1: treatment enhancing understanding of the consequences of substance use (63%)

There was consensus across the extant literature that psychosocial substance use interventions were effective in *enhancing patients' understanding of the consequences of substance use*. This manifested in improvements across several domains including increased substance-related general and specific knowledge (Milosevic et al., 2018; Tibber et al., 2015), improved insight regarding the detrimental effects of substance use on family and relationships (Baker et al., 2014; Johnson et al., 2019), an enhanced awareness of the negative impact on employment (Johnson et al., 2019), and a better understanding of substance use and its link with violence and reoffending (Oddie & Davies, 2009). Of note, only one study reported improved patient understanding of the detrimental effects of substance use on mental health (Oddie & Davies, 2009).

Theme 2: evidence of inconsistent effects on substance using behaviours (44%)

Of the seven included publications that provided objective data pertaining to substance use, three reported findings consistent with a reduction in substance using behaviors (Baker et al., 2014; Derry & Batson, 2008; Morris & Moore, 2009). In their comparative study of treatment completers and non-completers, Derry and Batson (2008) found, via the use of electronic patient records, that the proportion of patients known to be using substances after release was significantly lower in treatment completers (50%) compared to non-completers (74%). Consistent with these findings, Baker et al. (2014) in a one-year follow-up study of treatment completers, found that 82% of participants had remained abstinent after providing negative alcometer and urinalyses readings. In contrast to these findings, Downsworth and Jones (2014), Miles (2015) and Milosevic et al. (2018) reported nil treatment effects with regards to each of their evaluated substance use interventions. In two connected studies using urinalyses readings, Miles et al. (2007) initially found a significant effect of treatment group on whether in-patients became drug free, however a follow-up study of the same intervention observed no significant treatment effect (Miles, 2015). Similarly, Milosevic et al. (2018) reported no significant differences between treatment completers and non-completers on abstinence or time to first substance use. The discussed studies indicated the *inconsistent effects of psychosocial substance use interventions on substance using behaviours*.

Theme 3: evidenced improvements in coping and problem-solving skills and resources (44%)

There was consensus across the included publications that substance use interventions were efficacious in promoting *improvements in coping and problem-solving skills and resources*. Patients reported improvements in

employing cognitive (e.g., mindfulness) and practical (e.g., assertiveness) strategies to assist in managing high-risk situations, experiences, and environments (Johnson et al., 2019). Both Miles (2015) and Milosevic et al. (2018) further identified improvements in relapse prevention skills, including proactively dealing with lapses and relapses and using "urge surfing" tactics to cope with cravings. Generally, participants demonstrated an increased tendency to seek social support when faced with challenging situations (Baker et al., 2014; Ritchie et al., 2010).

Theme 4: increased motivation for a substance free future (25%)

Psychosocial substance use interventions were generally effective in *increasing patient's motivation for a substance free future*. According to Ritchie et al. (2010, p. 23), "substance free future" refers to "participants own substance free self-image beyond the hospital," which develops via the "release of the negative image of his (*sic*) former substance using self, acceptance of his (*sic*) current situation, and the positive sense of self, which he envisages for the future." This "substance free future me" was evidenced in studies by Baker et al. (2014), Johnson et al. (2019) and Miles (2015), who observed a firm denouncement of future substance using behaviors in favor of improved motivation toward the realization and actualization of important life goals, following programme completion.

Discussion

Overall, treatment programmes were considered mostly acceptable, nominally feasible, but only limitedly effective in the treatment of forensic dual diagnosed inpatients. While participants perceptions and general acceptance of the examined psychosocial substance use interventions are promising given that patient satisfaction is positively associated with improved treatment outcomes nil improvements in functional insight (Pennay & Lee, 2009), and negligible decreases in actual substance using behaviors (Milosevic et al., 2018), raise queries about the appropriateness of extrapolating existing interventions for use within forensic secure settings (Miles, 2015Ritchie et al., 2011). Interestingly, though substance use interventions appear adequately grounded within etiological non-offending dual diagnosis models (i.e., target evidence-based risk factors; Phillips & Johnson, 2010), patients limited understanding and awareness of internal substance use drivers might indicate a failure of these models to adequately capture forensic psychosocial risk factors, or address patients stated reasons for drug-taking behaviors (Dixon, 1999).

Given these etiological concerns, the paucity of research within the forensic dual diagnosis domain, and the methodological limitations of the included studies, there was clear justification for a more detailed examination of the perspectives of dual diagnosed forensic patients.

Study 1: An Aetiological Examination of a Forensic Dual Diagnosed Population

The following study attempts to address the knowledge and treatment gaps identified in the preceding systematic review by using a grounded theoretical approach to explore forensic inpatient's perspectives of psychosocial risk factors implicated in the initiation and maintenance of their substance using behaviors.

Methods

Setting and participants

A high secure hospital for adult male forensic psychiatric inpatients served as the data collection host. Twelve patients ($n = 12$) opted into the study (from n=15). All had a substance use functional assessment completed as part of a psychosocial substance use intervention (Substance Free Futures) within the previous five years. Table 2 presents demographical information.

Data collection approach

Qualitive semi-structured interviews guided by the AABC functional assessment model (AABC; Dyer, 2013) were completed with each patient. The AABC model aims to determine the functions of substance using behaviors by exploring (1) *Ante-Antecedents* – historical factors that may be associated with prior learning and which support substance use, (2) *Antecedents* – direct triggers to substance use, (3) substance using *Behaviours*, and (4) *Consequences*. Each patient completed two functional assessments: first episode, and continued substance use.

Procedure

Data access approval was obtained from the relevant NHS Foundation Trust. Patients meeting inclusion criteria were approached by the first author after authorization from their Responsible Clinician. Participants were introduced to the study using an information sheet and consented. Each interview lasted between 60 and 120 minutes.

Analysis

A systematic process of data analysis specific to the constructivist grounded theoretical approach (GT; Charmaz, 2006) was employed. Each transcript was subjected to initial coding, which involved line-by-line analysis at a descriptive level, using participants' language and gerunds, to identify psychosocial risk

Table 2. Patient demographic information.

Age	Index Offence	Intoxicated Index Offence (Y/N)	Primary Mental Health Diagnoses	Age at First Substance Use	First Substance Used	Primary Substance of Concern	Poly-Substance Use (Y/N)
30	Rape	Y	Paranoid Schizophrenia	8	Alcohol	Cocaine	Y
40	Murder	Y	Paranoid Schizophrenia	21	Amphetamines	Cocaine	Y
28	Manslaughter	Y	Paranoid Schizophrenia	14	Cannabis	Cannabis	N
42	Robbery	Y	Emotionally Unstable PD	13	Cannabis	Cannabis	Y
43	Manslaughter	Y	Paranoid Schizophrenia	21	Amphetamines	Heroin	Y
32	Murder	Y	Schizoaffective Disorder	11	Alcohol	Heroin	Y
33	Arson	Y	Paranoid Schizophrenia	10	Cannabis	Cannabis	Y
34	Rape	Y	Paranoid Schizophrenia	13	Cannabis	Cannabis	Y
26	Manslaughter	Y	Paranoid Schizophrenia	12	Cannabis	Cannabis	Y
38	Wounding	Y	Paranoid Schizophrenia	11	Cannabis	Heroin	Y
29	Rape	Y	Paranoid Schizophrenia	12	Ecstasy	Amphetamines	Y
33	Murder	Y	Schizoaffective Disorder	12	Cannabis	Cannabis	Y

NB: Average sample age = 34; Average age at first substance use = 13.16; 91.6% used illicit drugs as their first substance used; 91.6% poly drug users.

factors closely grounded in the data. Reoccurring initial codes were subsumed through focussed coding into risk factors and then risk categories to explain larger segments of the data at a more abstract level. During this iterative process, the constant comparison of data in and between transcripts highlighted similarities and differences in the emerging codes, risk factors and risk categories. Reflections and interpretations prompted during constant comparison and the creation of codes, risk factors and risk categories were recorded in memos to further guide and enhance theoretical development (Browne et al., 2019).

To ensure reliability in the coding process, an additional rater, who had no prior knowledge of the study, screened a sample of the data. They were presented with 26 descriptive codes (25% of the total number of distinct descriptive codes across all 12 transcripts), together with definitions of each conceptual category. Using a code book, the second rater independently rated and assigned each code to a conceptual category. The final Kappa Measure of Agreement value was 0.89 ($p < .05$), which is considered good.

Results

Three superordinate conceptual risk categories consisting of 11 subordinate psychosocial risk factors for substance use were identified (see Table 3).

Psychosocial risk factors

The eleven psychosocial risk factors were demarcated into three superordinate categories: (1) *adjustment risk factors*, (2) *individual risk factors*, and (3) *social and environmental risk factors*.

Adjustment risk factors

This superordinate risk category reflected features of participants' psychosocial adjustment and encapsulated historical factors considered by patients as "shaping or setting" their subsequent substance using behaviors. This

Table 3. Psychosocial risk categories and factors.

Superordinate Risk Categories	Subordinate Psychosocial Risk Factors
Adjustment risk factors	Early onset of substance use
	Witnessing familial substance use
	Experiencing traumatic and/or adverse childhood experiences
	Childhood behavioral difficulties
Individual risk factors	Holding substance use supportive and normative attitudes
	Sensation seeking tendencies
	Substance use curiosity
	Alleviating negative affect and mood
	Attempting to cope with severe mental illnesses
Social and environmental risk factors	Social pressure and peer influences
	Increased substance availability

superordinate risk category comprised four "static" subordinate psychosocial risk factors: (1) *early onset of substance use*, (2) *witnessing familial substance use*, (3) e*xperiencing traumatic and/or adverse childhood experiences*, and (4) *childhood behavioural difficulties*.

Early onset of substance use. Ten out of 12 (83%) participants reported engaging in substance using behaviors prior to the age of 14, with most patients describing an escalation in their own substance taking behaviors following this initial early experience. As one participant described.

> my first use of substances was at the age of eight or nine … by the age of 14 I was drinking every day (*SU6*). This description indicates the perception of the detrimental nature of early substance use and its subsequent contribution to substance misuse.

Witnessing familial substance use. Eight (66%) patients reported observing parental substance use within the family unit prior to the age of 18, with most interviewees stating that this early exposure shaped their subsequent perceptions of substances and influenced their own substance using behaviors, e.g.

> When I went to live with [my mother], I would see her and her friends' using drugs. I recalled seeing them injecting amphetamines. I was offered some by my mother … It increased my own use. (*SU11*)

Experiencing traumatic and/or adverse childhood experiences. Ten out of 12 (83%) participants frequently described using substances as a means of coping with trauma resulting from parental abuse and/or neglect; parental separation and/or displacement; rejection and isolation e.g.

> My childhood wasn't very good. It was a hostile environment. Eventually I was evicted from the house … . This felt awful and made me feel unloved. (*SU10*)

Childhood behavioural difficulties. All participants described a history of problems associated with education including truancy, suspensions, and expulsions, e.g.

> By the time I was ten, I'd been expelled. After that, I'd just end up doing these things with mates [drugs]. (*SU7*)

Individual risk factors

This superordinate risk category reflected attitudinal, behavioral and/or psychological features internal to the participant and which, according to patients, may predispose or increase their propensity toward substance use. This risk domain consists of five "changeable or tractable" subordinate psychosocial risk factors: (1) *holding substance use supportive and normative attitudes*, (2) *sensation seeking tendencies*, (3)

substance use curiosity, (4) *alleviating negative affect and mood*, and (5) *attempting to cope with severe mental illnesses*.

Holding substance use supportive and normative attitudes. Eleven (91%) participants reported continuing to hold some supportive and normative attitudes toward substance use, and which they described as significantly contributing to their substance dependence.

> Using cocaine makes me feel like a man . . . like the men I had seen in films who were rich and successful. I thought kids smoke weed and real men take coke. (*SU1*)

> Using substance seemed like a normal way of life. I thought it was cool. (*SU6*)

Sensation seeking tendencies. All participants self-reported that sensation-seeking characteristics such as impulsive, reckless, or rebellious personality traits motivated their initial and continued use of substances, e.g.

> I really enjoyed the feeling of excitement and doing something that I shouldn't be doing. When it came to drugs, I was trying to keep the same buzz the whole time . . . I'd make my own crack cocaine, then use it with other things. (*SU7*)

Substance use curiosity. Nine (75%) participants described how an initial curiosity vis-a-vis the effects of substances, initiated and maintained subsequent substance misusing behaviors, e.g.

> I first started using substances in my 20s. I found it highly enjoyable. It also led to curiosity about other substances. (*SU5*)

> I was apprehensive at the thought of smoking and scared that I would spew up but the curiosity and wanting to see what all the fuss was about was too overpowering. (*SU12*)

Alleviating negative affect and mood. Eight out of 12 (66%) participants described using substances to allay negative moods, low self-esteem, and confidence.

> I was very shy . . . had very low self-esteem . . . but substances increased my confidence, it made me feel better about myself as a person . . . . (*SU1*)

> I had a history of depression from my teens. I first attempted suicide when I was 14. I would use illicit substances when I noticed an adverse effect on my mood or when I was stressed. I just couldn't cope otherwise. (*SU5*)

Attempting to cope with severe mental illnesses. All participants described using substances for self-medicative purposes, e.g.

> Around the age of 15 or 16 I started to experience a visual hallucination of a person . . . and then an auditory hallucination that would say derogatory things about me . . . I felt scared and stressed, so to cope I resorted to what I knew best, drinking alcohol. (*SU1*)

Social and environmental risk factors

This superordinate risk category encapsulated societal and structural psychosocial risk factors considered by participants as mediating their decision to use substances. This superordinate domain comprises two "changeable or tractable" subordinate psychosocial risk factors for substance use: (1) *social pressure and peer influences*, and (2) *increased substance availability*.

Social pressure and peer influences. All participants reported substance use related peer pressure and persuasion was a key driver in their initial and continued use of substances, e.g.

> The first time I tried substances was with a large group of friends. . . I recalled thinking that if I turned this down or didn't drink, I would come across as weak and that I wouldn't fit in. Not long after that, I was 'encouraged' by friends to start taking heroin . . . Taking drugs gave me this social identity. (*SU7*)

Increased substance availability. Ten (83%) participants described how the pervasiveness and availability of substances across both community and institutional settings contributed to substance misusing behaviors and dependence disorders.

> Growing up, I was from a rough council estate. . . There was a lot of cannabis around. (*SU8*)

> When the gang started getting involved in crime, so did I. This included drug dealing, so drugs were always around me . . . . (*SU2*)

Psychosocial pathways to substance using behaviours

Eleven psychosocial risk factors for substance use were regarded by participants as key drivers for their initial and continued use of substances. Further examination of participants functional assessments guided by the identified psychosocial risk factors, revealed two theoretical subtypes of the forensic dual diagnosed inpatient: (1) *The Escapist*, and (2) *The Social Identifier*.

The escapist

This subtype referenced patients who engage in substance using behaviors primarily as a means of escaping from or coping with adverse conditions. These participants showed a greater incidence of negatively valanced psychosocial risk factors, including *experiencing traumatic and/or adverse childhood experiences*, *alleviating negative affect and mood*, and *attempting to cope with severe mental illnesses*. Half the sample reported functionally using substances for escapist or self-medicative purposes.

> Because of my upbringing I used alcohol and then cocaine to help me deal with feelings of sadness and depression. I had learnt that alcohol and cocaine also helped me deal with my hallucinations . . . Using made me feel more positive about myself and made me feel like I was worthwhile. . . I was trying to block out past experiences that made me feel bad and depressed . . . . (*SU1*)

The social identifier

This subtype references patients who engage in substance using behaviors primarily as a means of reaffirming their social identity within a peer group. These participants showed a greater incidence and higher concentration of social and attitudinal psychosocial risk factors including *social pressure and peer influences, holding substance use supportive and normative attitudes*, and *sensation seeking tendencies*. Of the total sample, half reported functionally using substances for socially motivated purposes.

> I started using amphetamines to feel close to my birth mother. It felt normal to do it and I held this belief that 'everyone was doing it' and my mother using made it seem ok. It made me feel like I was having fun and good times, and it gave me this buzz and fed my curiosity for something new and exciting . . .. (*SU11*)

Discussion

This study represents the first known efforts at the empirical quantification of psychosocial risk factors for substance use from a forensic dual diagnosed inpatient perspective. This is arguably significant for two reasons. First, as discussed within the systematic review, etiological frameworks for forensic dual diagnosed populations are typically extrapolated from general population studies, and therefore may be susceptible to false equivalency (Mueser et al., 1998). Second, patient perceptions may themselves drive drug-taking behaviors thereby mandating consideration (Dixon, 1999). Addressing the noted shortcomings in this area of research, eleven subordinate psychosocial risk factors across three superordinate risk categories were identified. These were described by participants as relevant and responsible for the development and maintenance of their substance using behaviors. The emergence of two subtypes within this broader framework, *The Escapist* and *The Social Identifier*, indicates that separate etiological pathways may be implicated in dual diagnosed offending populations. These subtypes will be further considered when the Forensic Etiological Dual Diagnosis Framework (FADD) is later presented.

Study 2: perspectives from those involved in a psychosocial substance use group intervention

The following study further addresses the identified knowledge and treatment gaps by considering the perspectives of service users and service providers, who have engaged in or delivered psychosocial substance use group interventions. Study 2 aimed to (1) evaluate the *acceptability* of psychosocial substance use intervention from a forensic patient's perspective; and (2) review the *feasibility* of administering such an intervention, from a forensic service provider's perspective.

Method

Setting and participants

A high secure hospital for adult male forensic psychiatric inpatients served as the data collection host. Twelve patients ($n = 12$) interviewed as part of the preceding study and who had completed a psychosocial treatment programme, Substance Free Futures, within the previous five years (Study 1) were included. In addition, there were nine Substance Free Futures service providers ($n = 9$) who opted into this study, all of whom were part of therapeutic services within the hospital.[2]

Substance Free Futures is based largely on Cognitive Behavioural Therapy and Motivational Interviewing. This intervention aims to reduce substance using behaviors by (a) building motivation and readiness for change, (b) improving understanding regarding the functions of substance use, (c) increasing psychoeducational knowledge, (d) enhancing coping and stress management skills, and (e) promoting relapse prevention strategies. It comprises of circa 40 group sessions, delivered by therapists in two-hour blocks, twice a week. Groups typically consist of between four and eight patients.

Data collection approach

Semi-structured interviews were conducted with all participants. Structured interview guides were employed, consisting of questions obtained from protocols published in the qualitative studies examined in the systematic review (Johnson et al., 2019; Morris & Moore, 2009; Oddie & Davies, 2009; Ritchie et al., 2010). Patient questions focused on their perspectives of the value of the programme and how this met their needs, with provider questions focusing on the delivery of the intervention.

[2]Refer to Table 2 for patient demographic information.

Procedure

Appropriate data collection approval was obtained from the relevant NHS Foundation Trust. The procedure for engaging patients was the same as for Study 1. Patient interviews were conducted face to face, with provider interviews conducted remotely. All providers were approached directly and invited to take part. The mean duration of interviews was 42 minutes (range = 27–81 minutes). Following transcription, each record was assigned a numerical code to preserve anonymity.

Analysis

The approach to analysis was the same as detailed in Study 1. A second rater with no prior knowledge of the study was utilized to ensure reliability in the coding process. They were presented with 22 descriptive codes (25% of the total number of distinct descriptive codes across all 21 transcripts). The final Kappa Measure of Agreement value was 0.92 ($p < .05$) and thus very good.

Results

Results are presented in accordance with research aims:

Research aim 1: to evaluate the acceptability of substance free futures from a forensic patient's perspective

Five superordinate categories relevant to treatment acceptability were developed from patient's responses and experiences of the therapeutic programme.

Intellectually stimulating and experientially engaging

Patients noted how the structured and systematic learning of relevant, practical, and real-world therapeutic skills, tailored to their specific risk profile and needs, facilitated an interesting and useful therapeutic experience, enhancing their perceptions of treatment acceptability, e.g.

> There were these few sessions on the effects of substances on your brain. This stuff was new to me but really good practical advice. (*SU1*)

> Role plays were really good . . . It allows you to test yourself, see how you would cope. It makes it like proper real-world life . . .. (*SU6*)

Need for group cohesion and understanding

Participants described a process whereby group anxiousness metamorphosised into collective understanding and connectedness through the sharing and learning of experiences.

> We all had lived experiences of it [drugs] and the bad shit it does to you . . . So yeah, we could relate to each other . . . In the end we're all in the same boat. (*SU10*)

Alongside this process of experiential normalization, the supportive aspect of the therapeutic group environment was described by some patients as the primary driver for their continued involvement in therapeutic sessions.

> You had people to back you up and encourage you . . . I definitely prefer group therapies over individual work. To be honest, I am not sure whether I would have attended all the sessions or done so well if it wasn't for the group. (*SU3*)

Facilitator support and understanding prompting increased participation

Patients explained how facilitator familiarity and attachment provided both security and reassurance within the therapeutic setting, leading thereafter to increased openness and willingness to engage with the interventional content.

> I was a 100% comfortable in our sessions which is sometimes difficult because of my anxiety. I don't always open up to people just because I have been hurt before, so it helps having someone who has known you for a long time, she knows me, she knows how to motivate me . . . (*SU4*)

Absence of iatrogenic cravings following groupwork

Patients reported an absence of any substance cravings over the duration of the treatment programme.

> I actually thought doing therapy, talking about drugs, and looking at drugs would make me crave them more. But it never actually manifested. I mean talking about it makes you consider it. It brings it to the forefront of your mind. But sometimes you need to challenge these thoughts and feelings. (*SU3*)

Lack of throughcare as impeding treatment appropriateness

The lack of throughcare was indicated by participants as encumbering their full and total acceptance of the treatment programme.

> I think you really need that sort of work [follow-up sessions]. Drug taking is something you need to be talking about. Some people will say it's not an illness because you can just choose to stop. But no, it's an illness and it's something that you need to work on all the time. You need to have that constant support to keep you on the right path. (*SU7*)

Research aim 2: to review the feasibility of administering substance free futures from a forensic service providers perspective

Three superordinate categories relevant to the feasibility of administering the therapeutic programme were developed from service provider's responses and experiences of the programme.

Efficient treatment programme

Service providers indicated that the *efficient* nature of Substance Free Futures shaped as a prominent motivator for their positive appraisals of treatment feasibility.

> I immensely enjoyed delivery the programme and there is always good uptake and continuity. I think it is quite clear from all the interventions I have delivered at [the hospital] that Substance Free Futures is a really good therapy, a very well-considered intervention, that equips patients with key skills in a relatively short space of time. Its short work on my part for high [patient] reward. (*SP3*)

Artificial abstinent environment as a barrier to observing and implementing change

Service providers indicated that the artificial abstinent environment of high secure services limited opportunities to test the impact of interventions on substance using behaviors.

> Sometimes, I think, why are we doing Substance Free Futures in a high secure unit . . . I mean tracing peoples drug use and using behaviours in the long-term is the most effective measure of treatment effectiveness, but that's just not possible in this environment. (*SP2*)

While some service providers (22%) perceived this lack of environmental realism as a major obstacle in the delivery of a feasible and effective intervention, others remarked of the opportunity to use proxy measures of effectiveness to evaluate treatment progression.

> When no substances get in, it's about looking outside the box to determine whether what you're doing is effective. For me, it's looking at behavioural signals. I look for how they interact and engage, how much they contribute . . . . (*SP5*)

Structural revisions to therapy content and inclusion of facilitator training

Service providers indicated a need for structural programme revisions, namely amendments to the therapeutic model and increased facilitator training and flexibility.

> I think the programme is good and probably effective in its current format. But it does require some revisions. If we want to evolve the programme for future cohorts there needs to be more emphasis on practical skills, and less scientific [psychoeducation] jargon. There needs to be more consideration of novel psychoactive substances, and integrated multimedia components. (*SP5*)

Discussion

Findings from this qualitative evaluation provided preliminary evidence for the acceptability and feasibility of a psychosocial substance use intervention with this population. Patient's perceptions and experiences of the treatment programme were generally positive, with the therapeutic approach considered suitable, appropriate and acceptable. This is an important finding given that high levels of patient acceptability are positively associated with enhanced engagement (McMurran et al., 2002) and improved treatment outcomes (McFadden et al., 2020). Despite being considered time and resource intensive relative to the psychosocial substance use interventions examined within the systematic review (Edwards et al., 2011), service provider perceptions and experiences of the therapy as an efficient treatment programme is similarly encouraging given feasibility is considered an important factor in service planning (Johnson et al., 2019) and is likely to impact on the application and extrapolation of the therapeutic approach across forensic secure settings (Baker et al., 2014).

Overall discussion

Using a tripartite research paradigm in conjunction with a grounded theoretical approach, this multi-study aimed to dually examine and understand both the (a) etiological psychosocial risk factors relevant to the initiation and maintenance of substance using behaviors, in a forensic dual diagnosed population, and (b) the acceptability, feasibility, and effectiveness of a psychosocial substance use intervention (Substance Free Futures) used with male forensic inpatients detained within conditions of a high secure hospital. Findings demonstrated, (1) that existing psychosocial substance use interventions were mostly acceptable, nominally feasible but only limitedly effective in the treatment of forensic dual diagnosed inpatients; (2) eleven psychosocial risk factors and two etiological bifurcative pathways were fundamental in the development and maintenance of forensic inpatients substance using behaviors; and (3) as expected, the Substance Free Futures treatment programme was considered an acceptable and feasible therapeutic approach by forensic service users and service providers.

Acceptability

Findings from the qualitative studies provided preliminary support for the acceptability of a psychosocial substance use programme (Substance Free Futures), with a need for continued research and evaluation of the programme well recognized. Concordant with outcomes developed in the systematic review, results from the evaluation indicated that patient's positive appraisals of the Substance Free Futures programme were largely influenced by the interaction of four domains (i.e. *intellectually stimulating and experientially engaging*; *need for group cohesion and understanding*; *facilitator support and understanding prompting increased participation*; and *absence of iatrogenic cravings following groupwork*), which and when taken in combination enhanced the therapeutic experience and provided for an acceptable psychosocial intervention.

Patient responses indicated that the treatment programme's emphasis on the structured and systematic learning of relevant, practical, and real-world therapeutic skills facilitated both an *intellectually stimulating and experientially engaging* therapeutic experience. Indeed, the importance placed on the acquisition of applied skills over psychoeducational knowledge was consistent with results from the systematic review, which found patient's evaluations of treatment acceptability were moderated by the examined programme's ratio of practical strategies to theoretical content (Morris & Moore, 2009).

Secondary to this finding, results from Study 2 indicated that *need for group cohesion and understanding* was of central importance to patients' positive determinations of therapy acceptability. Patients described a process whereby group anxiousness metamorphosised into collective understanding through the sharing and normalization of substance using experiences. These results, consistent with the examined interventions included in the systematic review and supported by a comparable qualitative study conducted by Ritchie et al. (2010), establishes the significance of group cohesion and its impact on fostering mutual support (Miles et al., 2007). In simple terms, the systematic review and qualitative research elucidates the importance of the therapeutic milieu in enhancing both programme acceptability and motivation for change.

Study 2 further indicated the significant role of *facilitator support and understanding in prompting both increased participation* with the therapeutic programme and positive appraisals of treatment acceptability. These findings are encouraging given that facilitator expertise and support was observed in the systematic review to drive improved motivation and engagement with psychosocial substance use interventions (Oddie & Davies, 2009). Emergent within the systematic review and the non-offending dual diagnosis literature, the development of a continuous and effective therapeutic alliance was shown to be a moderate but significant and consistent predictor of positive treatment outcomes (Bambling & King, 2001), which supports the treatment protocol and delivery methodologies adopted by Substance Free Futures facilitators.

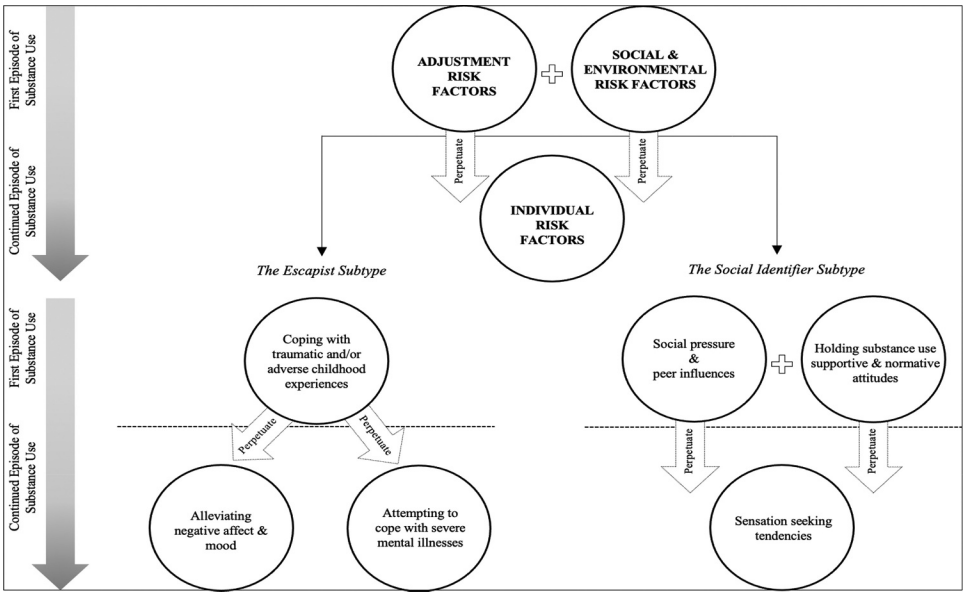

Figure 2. Forensic aetiological dual diagnosis (FADD) framework.

Feasibility

Despite these preliminary positive findings, service providers identified a need for structural improvements across three key domains to enhance operational feasibility: (1) amendments to the therapeutic model to more effectively target novel psychoactive substance use, (2) increased facilitator training and support given the psychologically complex nature of the substance use intervention model (Baker et al., 2014), and (3) consistent with findings from the systematic review, the use and development of proxy measures of effectiveness to track treatment progress in the *artificial abstinent environment* of secure services (Ritchie et al., 2010, Ritchie et al. 2011).

Forensic aetiological dual diagnosis (FADD) framework

Central to the Substance Free Futures treatment programme, findings from the integrated evaluation indicated the importance and benefits of incorporating a holistic functional assessment within psychosocial substance use interventions. Indeed, the use of the AABC functional assessment (Dyer, 2013) better enabled the targeted and tailored treatment of forensic etiological risk factors, subsequently promoting improved dual diagnosis recovery. Grounded theoretical analyses of these functional assessments allowed for the proposal of a *Forensic Aetiological Dual Diagnosis* (FADD) *Framework* (see Figure 2).

Within this framework, *adjustment psychosocial risk factors* (i.e., early onset of substance use; witnessing familial substance use; experiencing traumatic

and/or adverse childhood experiences; childhood behavioral difficulties), together with *social and environmental psychosocial risk factors* (i.e., social pressure and peer influences; increased substance availability) were frequently described by participants as "shaping" their first episode of substance use. Thereafter, *individual psychosocial risk factors* (i.e., holding substance use supportive and normative attitudes; sensation seeking tendencies; substance use curiosity; alleviating negative affect and mood; attempting to cope with severe mental illnesses), were perceived as perpetuating or facilitating the processual transformation from initial substance use into continued substance misuse. While the foregoing psychosocial risk factors are broadly consistent with the risk markers identified in Mueser et al. (1998) Multiple Risk Factors Model, thereby lending some empirical support for the generalization and application of non-offending dual diagnosis etiological paradigms to the forensic domain (Charles & Weaver, 2010), the FADD framework extends this conceptualization. It does so by explicitly detailing the cumulative and additive effects of the identified psychosocial risk factors on the development of substance misusing behaviors in forensic dual diagnosed inpatients. Despite this conceptualization providing a useful theoretical bridge between common observation that a multitude of psychosocial risk factors are implicated in substance use (McMurran et al., 2002) and the practical and interactive processes by which substance misusing behaviors emerge, the framework's assumption that all factors equally contribute to the development of substance use may fail to capture the etiological heterogeneity of a forensic population. In other words, this conceptualization may overlook individual risk pathways implicated in substance using behaviors.

Subsumed within the FADD framework, findings from this Study 1 implicated two subtypes of the forensic dual diagnosed inpatient – *The Escapist* and *The Social Identifier*. Regarding The Escapist, a notable subset of participants indicated substance using behaviors serve the functional purpose of "escaping from or coping with adverse conditions." Relative to the framework's initial assumption of risk factor equivalence (i.e., each risk factor equally contributes to substance using behaviors), The Escapist subtype showed greater incidence and higher concentration of negatively valanced psychosocial risk factors. Accounts provided by Escapist participants indicated that *experiencing traumatic and/or adverse childhood experiences* (e.g., using substances as a means of coping with parental abuse, neglect, displacement, or peer rejection), *alleviating negative affect and mood*, and *attempting to cope with severe mental illnesses* (i.e., using substances to alleviate psychotic symptomatology) acted in concert to drive substance using behaviors. While no unifying theory currently exists, capable of explaining the development and maintenance of substance using behaviors characteristic of The Escapist subtype, participant's descriptions of the mechanistic pathways by which substance use and misuse emerged are broadly in line with conceptions offered by General Strain Theory (Agnew,

1992), the Alleviation of Dysphoria Model (Leshner, 1998), and the Self-Medication Hypothesis (Khantzian, 1997). More simply, Escapist subtypes initially use substances as a means of escaping early traumatic experiences or "strains" (i.e., General Strain Theory), with substance using behaviors subsequently generalized and applied to alleviate trauma-induced dysphoria (i.e., Alleviation of Dysphoria Model) and self-medicate positive psychotic symptomatology (e.g., application of a "trial-and-error mix-and-match method"; Self-Medication Hypothesis).

Emergent alongside, but comparatively distinct from The Escapist, The Social Identifier subtype indicated substance using behaviors served the functional purposes of "reaffirming and reinforcing their social identity and status within a peer group." Comparative to the framework's initial assumption of risk factor equivalence, The Social Identifier showed greater incidence and higher concentration of social and attitudinal psychosocial risk factors. More particularly, early and continued exposure to substance-using peers and enmeshment within "drug subcultures" (i.e., *social pressure and peer influences*) facilitated both the development of normative substance use perceptions (i.e., *holding substance use supportive and normative attitudes*), and risk-taking personality traits (i.e., *sensation seeking tendencies*), leading to the continued use of substances. Although Social Learning Theory provides a partial explanation for the development of substance using behaviors characteristic of *The Social Identifier* subtype (Christiansen & Goldman, 1983), this theoretical account fails to accord for the influences of sensation-seeking tendencies on substance maintaining behaviors. In fact, studies conducted within non-offending dual diagnosed populations have emphasized the central role of enduring antisocial personality traits on long-term substance use risk (i.e., rebelliousness; Dervaux et al., 2001). Accordingly, these findings suggest that an interpretation of The Social Identifier's substance using behaviors purely through a social learning lens may be overly reductionistic if not considered alongside personality explanations.

While each of the 11 psychosocial risk factors in isolation have attracted empirical support from self-report studies and are evidenced contributors to the initiation and maintenance of substance using behaviors in non-offending dual diagnosed populations (Charles & Weaver, 2010), the current research is the first to establish the prevalence of these factors within a forensic sample, whilst highlighting its multiplicative impact on substance misuse. The FADD framework, by exposing the bifurcative pathways central to the development of such behaviors, improved our knowledge of the etiological differences between forensic and community populations. While it is not asserted that The Escapist and The Social Identifier are mutually exclusive, findings indicated that the identified grouping of psychosocial risk factors are heightened within each subtype. Given this functional difference, it is recommended that

future psychosocial substance use interventions use a core functional assessment to etiologically calibrate therapeutic approaches commensurate with the risk needs and pathways identified within the FADD framework.

Limitations and future directions

Certain limitations that should be taken into consideration when interpreting the findings. For example, both studies recruited a small, purposive sample of forensic inpatients with significant substance use histories. Consequently, findings are unlikely to represent patterns of substance use amongst all forensic dual diagnosed inpatients. The size and composition of the examined sample also provided no opportunities to investigate sex and ethnic differences in substance using behaviors. In addition, with respect to the psychosocial intervention, social desirability or demand biases may have influenced patient's responses; the research was conducted within a forensic secure setting, where attitudes toward authority or fear of future recrimination may arguably have elicited compliance and/or distorted responses (Ritchie et al., 2010). Given these limitations and the clinical implications, it is suggested that future research considers the validation of the FADD framework (i.e., psychosocial risk factors and etiological bifurcative pathways) using a larger more diverse sample and exploring in more detail further psychosocial risk factors of relevance. This should also consider application to a non-forensic sample. Future research could also explore in more detail the functional link between substance use and offending among patients in psychiatric care, to determine the association and how this appears evidenced for some but not others. Finally, future efforts could also consider a hybrid RCT examining outcomes and implementation, considering the lack of studies evaluating programmes and the preliminary nature of the current evidence for the Substance Free Futures programme.

Conclusion

This tripartite research investigation identified, via systematic review, that existing psychosocial substance use interventions were mostly acceptable, nominally feasible, but only limitedly effective in the treatment of forensic dual diagnosed inpatients. The ensuing etiological examination highlighted the psychosocial risk factors and bifurcative pathways implicated in the initiation and maintenance of substance using behaviors, suggesting two subtypes to account for – The Escapist and The Social Identifier – and therefore recognizing heterogeneity as an important consideration. This contributed to the formulation of a unique framework – the FADD – to assist with addressing issues connected to forensic dual diagnosis in terms of etiological knowledge and treatment delivery.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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