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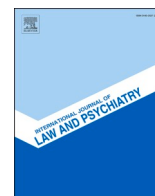


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Engaging vulnerable populations in drug treatment court: Six month outcomes from a co-occurring disorder wraparound intervention

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ABSTRACT

Objective: Although drug treatment courts (DTCs) have demonstrated positive outcomes, participants with co-occurring mental health and substance use disorders (CODs) are a high-risk group that often struggle with treatment engagement not previously examined. This pilot study fills this gap by looking at six-month behavioral health and criminal justice outcomes among a hard to engage DTC COD participant sample in two Massachusetts DTCs receiving a wraparound-treatment (Maintaining Independence and Sobriety through Systems Integration, Outreach, and Networking-Criminal Justice - MISSION-CJ).

Methods: Participants were evaluated at baseline and at six-month follow-up. Bivariate analyses examined baseline differences between clients with higher versus low engagement were examined. A mixed analysis of variance (ANOVA) for repeated measures with time as the within subject factor, and level of engagement as the between subject factor was performed for criminal justice (CJ) and behavioral health outcomes.

Results: Participants were primarily male (86.6%), White (90.6%), living in unstable housing (86.2%), had an average of 18.94 years of criminal justice involvement, had an average of 15.49 years of regular illicit substance use, and mild mental health symptoms as measured by the BASIS-32 average total score (0.51), with no statistically significant differences at baseline from bivariate analyses. Mixed ANOVA results demonstrated significant effect time of time in MISSION-CJ on reducing nights in jail ($p = 0.0266$), opioid use ($p = 0.0013$), and mental health symptom ($p = 0.0349$). Additional improvements in nights in jail ($p = 0.0139$), illicit substance use ($p = 0.0358$), and opioid use ($p = 0.0013$), were observed for clients that had high engagement in MISSION-CJ.

Conclusions: Wraparound services, such as MISSION-CJ, alongside DTC programming for a chronic relapsing DTC population can improve engagement in treatment and CJ and behavioral health outcomes. Future research is needed with MISSION-CJ that includes a randomized trial and a larger sample.

1. Introduction

Addiction is a chronic relapsing disorder that impacts nearly 1 in 10 people over the age of 12 (Uhl & Grow, 2004). Many individuals with addiction, particularly those with a co-occurring substance use and mental health disorders (COD) have difficulty engaging in care, experience prolonged cycles of use, relapse, and repeated treatments before achieving stable recovery (Brown, Allison, & Nieto, 2011; Flynn & Brown, 2008; Ho et al., 1999; Levy, 2008; Marlatt & Gordon, 1985; Pettersen, Ruud, Ravndal, Havnes, & Landheim, 2014). Given the high rates of addiction, mental illness, and their large intersection with the

criminal justice system in the US, alternative to incarceration programs have been established over the past few decades to address substance use and mental health disorders in lieu of jail or prison (Piquero, Jennings, & Farrington, 2010). Drug Treatment Courts (DTCs), one type of alternative to incarceration program, are designed to leverage legal sanctions in exchange for mandatory and court-monitored addiction treatment (Brown, Bennett, Li, & Bellack, 2011; Hepburn & Harvey, 2007; Roman, Yahner, & Zweig, 2020).

Research suggests that DTCs are successful in reducing substance use, increasing abstinence rates, and reducing criminal recidivism (U.S. Government Accountability Office, 2005). However, these outcomes are

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not uniform across DTC participants (Listwan, Sundt, Holsinger, & Latessa, 2003). For example, participants with COD who report both high levels of drug use and numerous failed treatment attempts at DTC entry demonstrate the poorest outcomes (Butzin, Saum, & Scarpitti, 2002; Hiller, Knight, & Simpson, 1999; Marlowe, 2011; Marlowe, DeMatteo, & Festinger, 2003; Peters, Haas, & Murrin, 1999; Roll, Pendergast, Richardson, Burdon, & Ramirez, 2005). DTC studies also indicate that up to 70% of participants with COD drop out of programming before completion, and low treatment engagement predicts poor DTC outcomes (Belenko, 2001; U.S. Government Accountability Office, 2005; Marlowe, 2016). Although DTC literature has identified individuals with a COD as a vulnerable subpopulation, few targeted treatments have been proposed, and none exclusively to be implemented alongside DTC settings (Lamberti, Weisman, & Faden, 2004; Morrissey, 2013; SAMHSA, 2019).

Non-DTC literature also indicates that individuals with a COD are also more vulnerable to relapses (Brown, O'Grady, Battjes, & Farrell, 2004; Compton III, Cottler, Jacobs, Ben-Abdallah, & Spitznagel, 2003; Flynn & Brown, 2008; McLellan, Lewis, O'Brien, & Kleber, 2000; Shahan et al., 2005; White & McLellan, 2008; Xie, McHugo, Fox, & Drake, 2005). For individuals that experience frequent relapses, including those in DTC, wraparound supports are effective in improving treatment engagement and reducing episodes of relapse (Angell, Matthews, Barrenger, Watson, & Draine, 2014; Bergman, Hoepfner, Slaymaker, & Kelly, 2015; Grimes et al., 2011; Penzenstadler, Machado, Thorens, Zullino, & Khazaal, 2017; Pinals et al., 2019; Rapp, Van Den Noortgate, Broekaert, & Vanderplassen, 2014; Smelson et al., 2020; Smith, Jennings, & Cimino, 2010). Forensic Transition Teams are an example of a wraparound support model used in the criminal justice system to facilitate treatment engagement and linkages to community support (Lamberti et al., 2004; Morrissey, 2013; SAMHSA, 2019); these studies have shown mixed results and have not been developed specifically for clients with a COD (Lamberti et al., 2004; Morrissey, 2013). Maintaining Independence and Sobriety through Systems Integration, Outreach, and Networking-Criminal Justice (MISSION-CJ) on the other hand is a unique intervention that is delivered by a case manager and peer specialist team, and combines assertive outreach with traditional behavioral health treatments to meet the complex needs of individuals with COD (Pinals, Smelson, Harter, Sawh, & Ziedonis, 2014). MISSION-CJ aims to address criminal justice recidivism, substance use and mental health needs simultaneously (Cuddeback et al., 2013; Hartwell, 2004; Swartz & Lurigio, 2007). Therefore, the current pilot study embedded MISSION-CJ wraparound support in two Massachusetts DTCs with a vulnerable COD relapsing population and evaluated 6-month outcomes. We aimed to reduce CJ recidivism, and behavioral outcomes through the implementation of MISSION-CJ. Our study hypothesis predicts that participants with higher engagement in MISSION-CJ would yield greater improvements in the aforementioned aims.

2. Method

2.1. Program description

The MISSION-CJ treatment approach was adapted from the original evidence-based MISSION model designed for homeless individuals with COD (Smelson et al., 2012, 2013, 2015, 2016) to address the unique needs of justice-involved individuals with COD. MISSION-CJ includes the integration of criminogenic risk and needs assessment, risk-need-responsivity (RNR) informed treatment planning, and materials that promote prosocial thinking and behavior. These adaptations are further described in the MISSION-CJ Treatment Manual (Pinals et al., 2014) and MISSION-CJ Participant Workbook (Smelson et al., 2014). With regard to program structure and format, MISSION-CJ is delivered jointly by a case manager and a peer support specialist (an individual with lived recovery and criminal justice experience), with caseloads of approximately 15 clients per team. MISSION-CJ recovery services are integrated

within the DTC docket and offered as part of a court-order and a term of probation. MISSION-CJ staff work closely with probation throughout the duration of the program to help support the clients' adherence to their terms of probation, as well as their mental health and substance use recovery and community re-integration. The MISSION-CJ curriculum includes 3–4 h per week of individual and/or group sessions in the first 4 months of the program, then tapers to 2 h of individual and/or group sessions every other week during months 5–6. Services are provided in the court, the community, and the participant's home.

The MISSION-CJ curriculum systematically incorporates six evidence-based treatment components in the service delivery model. The first component, Critical Time Intervention (CTI) Case Management (Susser et al., 1997), offers intensive community-based services to help the client establish firm linkages to behavioral health and other prosocial supports in the community via assertive outreach, care coordination, and collaborative treatment planning. The second treatment component is Dual Recovery Therapy (DRT) (Ziedonis & Stern, 2001), which includes thirteen structured sessions delivered in the first 3 months of MISSION-CJ programming, followed by booster sessions as needed, for participants to develop skills and to address both mental health and substance use symptoms and related problematic behaviors.

The third treatment component is Peer Support (Chinman et al., 2014; Chinman, Shoai, & Cohen, 2010), which includes both unstructured community visits, as well as eleven structured recovery-based sessions (e.g., a session reinforcing the importance of medication and maintaining a medication schedule in the recovery process) that were designed to complement DRT, and to facilitate and support recovery in the community. The fourth component of MISSION-CJ is vocational and educational support, which includes assessing clients' needs, and assisting them in finding and maintaining employment and achieving educational goals. The fifth component of MISSION-CJ is trauma-informed care, and while MISSION-CJ is not a Post-Traumatic Stress Disorder and Addiction Treatment intervention, MISSION-CJ teams are trained to understand, recognize, and respond to the effects of trauma, and refer clients to other treatment providers who offer evidence-based trauma treatment. The sixth component of MISSION-CJ is the RNR framework, which utilizes RNR assessment and treatment planning, to individualize and match interventions to clients' unique criminogenic risks and needs (Andrews & Bonta, 2006; Andrews, Bonta, & Hoge, 1990; Andrews, Bonta, & Wormith, 2006; Bonta & Andrews, 2007; Taxman, Thanner, & Weisburd, 2006). More information on the MISSION-CJ components and sessions can be found in the MISSION-CJ Treatment Manual (Pinals et al., 2014).

2.2. Procedures

This study included a quasi-experimental single group, open pilot design to examine the preliminary effectiveness of integrating MISSION-CJ as a comprehensive treatment option operating alongside the DTC in two Massachusetts DTCs, for chronic relapsing individuals. It is noteworthy that one of the two DTCs was smaller, commenced recruitment halfway through the pilot, and thus recruited fewer participants in the study. During DTC team meetings, judges, probation, other court personnel, and the MISSION-CJ treatment staff discussed potential referrals. Referrals were deemed eligible by the judge and probation if the individual had multiple relapses while in DTC and deemed at risk for DTC non-completion.

2.3. Participants

Once enrolled in the DTC and deemed eligible by the judge for experiencing multiple relapses and concerns regarding program non-completion, potential participants were screened by the MISSION-CJ team with the following eligibility criteria: (1) 18 years or older; (2) enrolled in DTC; (3) met DSM-IV-TR (American Psychiatric Association, 2000) Axis I psychiatric disorder criteria (as determined by the licensed

court clinician); and (4) exhibited current substance abuse or dependence as confirmed by the Addiction Severity Index-“Lite” (ASI-“Lite”) (McLellan et al., 1997). Exclusion criteria included: (1) individuals that had an acute severe psychiatric condition in need of immediate treatment or were acutely psychotic (; (2) were acutely suicidal; or (3) needed immediate medical attention related to substance use (i.e., withdrawal). Of note, no individuals were excused for these three criteria. Once clients provided consent and enrolled, all clients completed a comprehensive baseline assessment prior to starting MISSION-CJ services to inform treatment planning. Participants were re-assessed at 6 months post-enrollment. 79 participants enrolled in MISSION-CJ services and were eligible for a 6-month follow-up assessment; 65 completed a 6-month follow-up assessment. All clients met criteria for COD, with Depression, Anxiety and Trauma related-disorders as the most prevalence Mental Health disorders.

2.4. Criminal justice, behavioral health, and substance use measures

Self-reported baseline and follow-up data regarding criminal justice involvement, alcohol and illicit substance use, and other behavioral health issues were derived from a collection of instruments required as a term of the Substance Abuse and Mental Health Services Administration (SAMHSA) grant that funded this project. This included the SAMHSA Government Performance and Results Act questions (GPRA) (Substance Abuse and Mental Health Services Administration, 2015), which included the following Addiction Severity Index (ASI) items: self-reported frequency and type of criminal justice involvement in the prior 30 days; previous 6 months; and over the lifetime (such as number of lifetime arrests and convictions, number of nights incarcerated in the previous 6 months) in the legal section: quantity; frequency; and severity of substance use in the drug and alcohol use section (McLellan et al., 1997). Behavioral health improvements were measured via the Behavior and Symptom Identification Scale-32 (BASIS-32). The BASIS-32 includes 32 items which are rated on a scale of 0 to 4, where 4 indicates extreme difficulty and 0 indicates no difficulty, and is divided into five subscales (Depression and Anxiety; Psychosis; Relation to Self and Others; Impulsive and Addictive Behavior; and Daily Living and Role Functioning) (Eisen & Youngman, 1994).

2.5. Engagement in MISSION-CJ measure

Case Manager and Peer Support teams tracked all encounters with MISSION-CJ participants during the duration of the study and submitted weekly encounter tracking sheets to the research assistant. For analyses, engagement in MISSION-CJ was dichotomized based on an a priori threshold. Based on prior literature defining engagement regarding adequate dosage and service adherence for behavioral health treatment (Andrews & Dowden, 2005; Medic et al., 2013; Oslin, Pettinati, & Volpicelli, 2002; Remington et al., 2007; Simpson, Joe, Rowan-Szal, & Greener, 1995), we set a threshold of 80% or more as adherence to the MISSION-CJ model (e.g., high engagement), and less than 80% as non-adherence to MISSION-CJ (e.g., low engagement). Two dichotomous variables were created based on this a priori threshold: (1) engagement in unstructured MISSION-CJ sessions; and (2) engagement in structured MISSION-CJ sessions.

2.6. Data analysis

To determine baseline characteristics of the study cohort, univariate and bivariate analyses were conducted using JMP PRO 14. Participant characteristics by site were compared, and a mixed-model repeated measures analysis of variance (ANOVA) was conducted to compare the effect of time (baseline to 6 months) as the within subjects factor, and a between subjects factor of engagement in MISSION-CJ on the main outcomes of the study: criminal justice recidivism (as measured by nights in jail and arrests); reduction in mental health symptoms (as

measured by the BASIS-32); and reduction in substance use (as measured by GPRA/ASI frequency of use measures). All repeated measures ANOVA computations include the total sample of $N = 65$. All assumptions for ANOVA were met (e.g., normality, homogeneity of variance, and sphericity).

3. Results

3.1. Baseline characteristics

Among the 79 participants enrolled in MISSION-CJ services and were eligible for a 6-month follow-up assessment; 65 completed it for an 82.3% follow up rate. Among the 65 participants, the majority were served in one of the Massachusetts DTCs (84.6%), and (15.4%) were served in a second Massachusetts DTC. Both courts reside in urban communities, in close proximity to Boston, Massachusetts, and serve similar demographics. There were no notable differences in the clients served between the two DTC sites, and site as an interaction term had no effect on outcomes; thus, our results are aggregated. Table 1 shows the demographic characteristics of the study participants. Participants were an average age of 36 years old, the majority were white (90.6%), male (84.6%), employed (65.1%), and reported living in an unstable housing arrangement at enrollment (86.2%). On average, clients had 18.94 years of criminal justice involvement, and reported using any illicit substance for 15.49 years and alcohol for 13.16 years, during their lifetime. Regarding behavioral health among participants, the average baseline total BASIS-32 score (Eisen & Youngman, 1994) was 0.51, and of note, the BASIS-32 overall score, and five subscales, range from 4 (extreme difficulty) to 0 (no difficulty). Moreover, the average score was 0.67 for the Relation to Self & Others subscale, 0.78 for the Depression & Anxiety subscale, 0.55 for the Impulsive/Addictive Behaviors subscale, and for the Psychosis subscale. No significant differences were observed for bivariate analyses for high and low MISSION-CJ utilizers.

3.2. Primary six-month outcomes

3.2.1. Criminal justice outcomes

As shown in Table 2, there was a significant effect of time in MISSION-CJ on reducing nights in jail ($p = 0.0266$). Additional reductions in nights incarcerated were detected for clients with high engagement in MISSION-CJ structured sessions ($p = 0.0139$), and although not significant for unstructured sessions ($p = 0.129$). There was no significant effect of time in MISSION-CJ on reducing the number of arrests ($p = 0.1936$), or for those with high engagement in MISSION-CJ.

3.2.2. Substance use outcomes

Regarding illicit substance use, there was no significant effect of time alone; however, reductions in illicit substance use were observed for clients that had high engagement in MISSION-CJ unstructured sessions ($p = 0.0358$). Regarding opioid use, there was a significant effect of time in MISSION-CJ in reducing opioid use ($p = 0.0013$), and reductions were observed for clients with high engagement in MISSION-CJ unstructured sessions ($p = 0.0387$).

3.2.3. Mental health outcomes

While the total BASIS-32 score significantly improved over time ($p = 0.0349$), there was a lack of statistical significance for the between subjects' factor (engagement in MISSION-CJ), indicating that there were no differences between high and low engagement groups. Additionally, improvements in two BASIS-32 subscales were observed over time: daily living and functioning ($p = 0.0428$); and depression and anxiety ($p = 0.0464$). There was no significant effect of engagement in MISSION-CJ for any of the BASIS-32 subscales.

Table 1
Participant baseline characteristics (N = 65).

Characteristic	n	%	M(SD)
Demographics & General Information			
Gender			
Female	10	15.4	
Male	55	84.6	
Age (Years)			36.47(8.57)
Race			
Black/African American	3	4.7	
White	58	90.6	
Asian	1	1.6	
Two or More Races	2	3.1	
Ethnicity			
Hispanic/Latino	7	10.8	
Non-Hispanic/Latino	58	89.2	
Marital Status			
Married	5	7.8	
Separated	2	3.1	
Divorced	8	12.5	
Never Married	49	76.6	
Highest Level of Education (Lifetime)			
Less than High School Diploma/GED	21	32.3	
High School Diploma/GED	26	40	
Post-High School	18	27.7	
Employment			
Employed	43	66.2	
Unemployed	22	33.8	
Housing			
Stable	9	13.8	
Unstable	56	86.2	
Homelessness			
Nights homeless (Past 30 Nights)			3.57(16.12)
Age when First Homeless			26.09(7.74)
Criminal justice history			
Arrested at least one time	65	100	
Years of criminal justice involvement			18.94(9.79)
Age of first arrest			17.88(5.69)
Lifetime arrests			17.18 (15.48)
Lifetime convictions			7.08(10.24)
Lifetime months incarcerated			28.08 (37.08)
Mental health & trauma			
Psychological/Emotional Problems (Past Six Months at Baseline)			
Depression	32	49.2	
Anxiety	43	66.2	
Hallucinations	0	0	
Trouble understanding, concentrating, remembering	23	36.5	
Trouble controlling violent behavior	9	13.8	
Suicidal thoughts	2	3.1	
Suicidal attempts	0	0	
Psychological/Emotional Problems (Lifetime)			
Depression	41	65.1	
Anxiety	47	74.6	
Hallucinations	2	3.1	
Trouble understanding, concentrating, remembering	23	36.5	
Trouble controlling violent behavior	23	36.5	
Suicidal thoughts	8	12.3	
Suicidal attempts	6	9.2	
Trauma			
Experienced at least one traumatic event in lifetime	45	69.2	
Experienced interpersonal violence	29	44.6	
Experienced domestic violence	9	13.8	
Experienced community or school violence	6	9.2	
Experienced traumatic grief or neglect	6	9.2	
BASIS-32			
Relation to self & others			0.67(0.609)
Depression & anxiety			0.78(0.760)
Daily living & role functioning			0.55(0.567)
Impulsive/addictive behaviors			0.25(0.331)
Psychosis			0.16(0.386)
Total score			0.51(0.454)
Substance use history			

Table 1 (continued)

Characteristic	n	%	M(SD)
Most Frequent Drugs of Abuse (Past Six Month at Baseline)			
Street Opioids	16	24.6	
Cocaine/Crack	14	21.5	
Marijuana	7	10.8	
Most Problematic Substances (Lifetime)			
Opioids	42	65.6	
Alcohol	13	20.3	
Cocaine/Crack	3	4.6	
Substance Use History (Lifetime)			
Age of first use			14.16(3.36)
Marijuana*			10.03(9.23)
Alcohol*			13.16 (10.44)
Heroin*			6.14(6.08)
Cocaine/Crack*			6.56(7.64)
Any illicit drug*			15.49(8.79)

* Years of substance use

4. Discussion

This pilot study demonstrated that MISSION-CJ could be implemented alongside a DTC for a relapsing DTC population with COD to enhance criminal justice and behavioral health outcomes. This study observed high treatment engagement, from baseline to 6-month follow up, with 82.3% of clients remaining actively engaged in treatment at follow-up, which is difficult to accomplish among a chronically relapsing COD population in DTC (Hickert, Boyle, & Tollefson, 2009). DTC participants receiving MISSION-CJ also demonstrated statistically significant improvements over time for several outcomes: reductions in nights in jail; opioid use; and improved mental health symptoms as measured by the BASIS-32 total score, and two subscales (daily living and functioning, and depression and anxiety). High engagement in MISSION-CJ also indicated greater reductions in nights in jail, illicit substance use, and opioid use.

In the current study, engagement in MISSION-CJ seemed to be a driver of criminal justice, and SUD outcomes. Other studies have also found wraparound supports to be effective for improving treatment engagement and reducing substance use (Angell et al., 2014; Bergman et al., 2015; Fiorentine, Nakashima, & Anglin, 1999; Grimes et al., 2011; Penzenstadler et al., 2017; Pinals et al., 2019; Rapp et al., 2014; Smelson et al., 2020; Smith et al., 2010). Moreover, a study of individuals with COD receiving a behavioral health intervention after residential step down, observed improved engagement and increased abstinence rates (DeMarce, Lash, Stephens, Grambow, & Burden, 2008). Another study indicated that providing time-limited case management for individuals with COD, improved overall engagement and days of attended treatment (Smelson et al., 2005).

It is also interesting to note that greater engagement was not a driver for improved outcomes across all domains in this study. For example, although improvements in mental health symptoms as measured by the BASIS total score, and two subscales (daily living and functioning, and depression and anxiety) were observed over time, high engagement in MISSION-CJ did not demonstrate greater mental health improvement. This may be a result of the inclusionary criteria of this study, which included eligibility based on the chronicity of SUD relapses, risk for relapse, and potential of DTC program non-completion. Although the participants in this study had co-occurring mental health disorders, individuals with a serious mental illness generally would be enrolled in a mental health court as opposed to a DTC in Massachusetts. Consequently, perhaps there was a ceiling effect (i.e., best possible functioning) for some individuals as mental health symptoms measured at baseline via the BASIS were relatively low, and there was less room for statistical change, although clinical change in mental health symptoms may have occurred (Eisen, Normand, Belanger, Spiro, & Esch, 2004), or perhaps due to dissimulation of symptoms as clients were court

Table 2
Six-month outcomes.

Table 2. Repeated Measures ANOVA

Outcome Domain	Outcome Variables (DVs)	Independent Variables (IVs)	Wilks' Lambda	F	Baseline M(SD)	6 Month M(SD)	P-value
Criminal Justice	Number of Arrests	Time	0.018	1.4183	0.20 (0.440)	0.15 (0.364)	0.1936
		Time	0.104	5.2218	25.23 (39.408)	30.18 (48.387)	0.0266
	Nights Incarcerated	Structured Fidelity*Time	0.130	6.5045	n/a	n/a	0.0139
		Unstructured Fidelity*Time	0.133	6.6524	n/a	n/a	0.129
Substance Use (Days of Use)	Illicit Drug Use	Time	0.133	6.5168	10.51 (27.747)	14.08 (38.722)	0.0139
		Time*Unstructured Fidelity	0.0950	4.6578	n/a	n/a	0.0358
	Opioids	Time	0.2365	11.589	7.55 (20.242)	3.94 (10.006)	0.0013
		Time*Unstructured Fidelity	0.0920	4.5114	n/a	n/a	0.0387
	Alcohol Use	Time	NS	NS	0.43 (1.520)	1.92 (8.006)	NS
	Mental Health	BASIS Total	Time	0.1115	1.7140	0.5137 (0.45423)	0.4278 (0.51109)
BASIS – Daily Living		Time	0.1013	4.3588	0.5496 (0.56664)	0.4256 (0.55990)	0.0428
BASIS – Depression and Anxiety		Time	0.978	4.2067	0.7821 (0.75973)	0.7026 (0.75662)	0.0464

* Note- clients that met threshold criteria for at least 80% of structured fidelity ($n = 36$, $n = 29$ for those that did not); clients that met threshold criteria for at least 80% of unstructured fidelity ($n = 39$, $n = 26$ for those that did not).

involved. Other studies have noted similar phenomena regarding the BASIS-32 (Higgins & Purvis, 2002; Klinkenberg, Cho, & Vieweg, 1998); including less sensitivity of detecting change due to ceiling effects for less frequently occurring symptoms (e.g., self-harm) (Eisen et al., 2004), and noting the same for some subscales (Eisen et al., 2004), despite the great sensitivity of the overall measure (Jerrell, 2005). Although this pilot demonstrated positive change over time, further research is needed to tease apart the therapeutic dose effects of MISSION-CJ and the direct impact on mental health symptoms.

Given the few available specialized treatments for high relapsing individuals with a COD to work alongside DTCs reported in the literature, we are also excited by the overall improvement among these DTC participants (Marlowe, 2016; Marlowe et al., 2003). Non-DTC literature indicates that the recursive nature of addiction is similar to other chronic diseases, as relapse rates are similar across illnesses (McLellan et al., 2000), and rates are even higher among individuals with COD (Brown et al., 2004; Flynn & Brown, 2008). While the majority of people with lifetime SUD eventually enter sustained recovery (i.e., no symptoms for the past year), most do so after participating in multiple episodes of care (Dawson et al., 2005), and the majority of individuals discharged from addiction treatment will relapse within 30–90 days (Hubbard, Flynn, Craddock, & Fletcher, 2001; Scott, Dennis, & Foss, 2005; Wilbourne & Miller, 2002). It is likely the combination of MISSION-CJ, a comprehensive wraparound intervention for clients with a COD, combined with the sanctioning power of the court that works synergistically to improve outcomes for this high-risk population.

4.1. Limitations

Despite our preliminary evidence from adding wraparound supports alongside DTC programming to improve critical outcomes for frequent relapsing clients, several limitations should be acknowledged. The most substantial limitation is the small sample and pre/post one-group design, notably lacking a comparison group. Another limitation was the self-report data, such as substance use, re-arrests, and nights incarcerated, as opposed to official record data. It is noteworthy that self-report data is routine in program evaluations to judge the effectiveness of a service delivery model (SAMHSA, 2011). This study also includes quantity and frequency components of the ASI as part of the GPRA measure, and if we had the entire ASI it would have helped identify a broader picture of addiction severity and related problems. Moreover, a measure to confirm the diagnosis from the licensed court clinician would have enhanced this study (e.g., SCID). Additionally, the referral process for this study did not include a risk assessment for addiction severity or level of relapse risk measure to quantitatively ascertain who to accept to the program. Therefore, this pilot relied on the judge's and probation officer's referrals (e.g., participants that

experienced multiple relapses or concerns regarding program non-completion); thus, the participants may have constituted a somewhat homogeneous sample. However, a critical next step is to conduct a large, longitudinal randomized controlled trial of MISSION-CJ in DTCs, as longitudinal studies provide a clearer picture of the course of addiction and affirm the potential for recovery even among those clients with very severe and chronic symptoms. Additionally, sensitivity analyses and causal inference methods are needed to determine what type of MISSION-CJ sessions (e.g., structured and unstructured), and what components (e.g., DRT, CTI, etc.) drive CJ and behavioral health improvements for participants with COD given some of the variation in the current pilot findings. Nonetheless, despite these limitations, MISSION-CJ seems like it could be an effective treatment strategy to work alongside DTC programming to support chronic relapsers, increase engagement in care, and improve outcomes.

Declaration of Competing Interest

None.

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