TREATMENT NEEDS AND GENDER DIFFERENCES AMONG CLIENTS ENTERING A RURAL DRUG TREATMENT COURT WITH A CO-OCCURRING DISORDER

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VALUE STATEMENT

Findings from this study suggest gender-responsive implications for specialty court management of participants with co-occurring mental health and substance use disorders in rural areas. These implications include suggestions for drug treatment court staff (court staff and integrated behavioral health practitioners), including how they might think about assessment, treatment planning, and innovative ways of augmenting evidence-based care in rural areas that lack access to services.

ABSTRACT

Objective: Although drug treatment courts (DTCs) have been well established, research focused on the needs of DTC clients in rural communities is nascent. This pilot study fills this gap by reporting on treatment needs and gender differences among a rural Massachusetts DTC with Co-Occurring Mental Health and Substance Use Disorders (CODs). **Methods:** DTC intake data were analyzed for 73 participants (57.5% males, 42.5% females). **Results:** This rural sample reported substantial criminal justice (CJ) histories, and lifetime behavioral health and medical needs, which included: 74% anxiety, 68.5% depression, 71% opioid use disorder (with an average of 1.67 prior nonfatal overdoses), and 36% sharing needles. Physical health needs included chronic medical conditions (26%), Hepatitis C (44%), and dental care (43.8%). Social and support needs included 49% unstable housing at intake and 52% unemployment. Regarding gender differences, males had longer CJ involvement, alcohol use, and more needle sharing compared to females. Females reported more trauma, sexual abuse, interpersonal violence, chronic and recent medical conditions, unstable housing, and a lower rate of employment than males. **Conclusions:** These findings have implications for specialty court management, treatment planning, and for integrating treatment alongside DTCs to holistically address participant treatment needs.

KEYWORDS

Specialty courts, co-occurring disorders, addiction, mental health, alternatives to incarceration, criminal justice, rural, drug court, peer support, treatment needs, gender

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IRB NOTE

Per UMMS IRB, this study was deemed evaluation and not human research. Publications are an allowable activity under this determination. For documentation, please contact the authors or UMMS IRB.

INTRODUCTION

Findings from recent epidemiological investigations indicate that substance use in rural America has increased to the point where it nearly equals, if not exceeds, the rates observed in suburban and urban areas (Dew, Elifson, & Dozier, 2007). Moreover, chronic drug users from rural areas have significantly higher rates of lifetime drug use, as well as higher rates of drug use in the 30 days prior to incarceration, than chronic drug users from urban areas (Warner & Leukefeld, 2001; Dew et al., 2007). As drug overdose deaths in the United States continue to rise (Dew et al., 2007), it is important to gain a better understanding of clients' needs and of how to optimally provide treatment and support services. This is especially critical in rural communities that have high rates of substance use, as well as elevated rates of co-occurring mental health and substance use. Many rural communities are also designated as Mental Health Professional Shortage Areas (MHPSAs) and lack adequate levels of co-occurring mental health and substance use disorder (COD) care and services (Browne et al., 2016; Center for Disease Control and Prevention, 2017). Furthermore, due to the limited supply of COD services in rural communities, criminal justice institutions often end up serving as the provider or intermediary to link individuals to COD services (Staton-Tindall et al., 2015).

In response to the high rates of substance use disorders among criminal justice-involved populations, Drug Treatment Courts (DTCs) were developed as a treatment alternative to jail or prison and are now the most well studied alternative to incarceration programs within the CJ system (Friedmann, Taxman, & Henderson, 2007; Fox et al., 2015). Studies report that up to 70% of those served in a DTC have a COD (Peters, Kremling, Bekman, & Caudy, 2012; Cooper, 1997). DTCs share a number of common practices, including a specialized court docket with regular appearances in front of a dedicated judge. The judge receives input from probation officers and other members of the drug court team, conducts ongoing monitoring of client participation in community-based treatment, and provides sanctions and incentives to aid participants in their recovery process (Brown, 2010).

DTCs commonly serve individuals with CODs and assess needs via a Risk-Need-Responsivity (RNR) framework (to match the intensity of treatment to level of risk for reoffending, connect behavioral health needs to criminogenic risk and needs, and link clients to services tailored to their individual attributes). Studies to date have largely focused on basic characteristics and factors that predict: CJ recidivism reduction adherence to the DTC model or facilitators and barriers to treatment engagement (Gaba, Vargas, Pinals, Vanmali, & Smelson, n.d., Steadman, Davidson, & Brown, 2001; Taxman & Bouffard, 2002; Evans, Huang, & Hser, 2011). Furthermore, DTC literature has not

focused on gender-specific treatment needs in rural communities, despite the fact that broader Criminal Justice (CJ) and behavioral health research has shown disparities in needs between females and males, as well as between justice-involved individuals in rural and urban areas. For example, females involved in the CJ system are significantly more likely than males to experience symptoms of psychiatric disorders, trauma, experience sexual abuse, parental stress, and unstable housing; they also generally receive less economic and family support, making it difficult to transition out of the system (Mahmood, Vaughn, Mancini, & Fu, 2013; Morse et al., 2014; Finlay et al., 2015; Datchi and Ancis, 2017; Shannon, Jackson Jones, Perkins, Newell, & Payne, 2018; Singh, Cale, & Armstrong, 2018). Alternatively, males are more likely than females to have extensive arrest and conviction histories in the CJ system, engage in risk-taking behavior, use multiple illicit drugs, and have fatal overdoses (Substance Abuse and Mental Health Services Administration, 2010; Walklate, 2004). However, less is known about female specific characteristics and needs in DTCs (Fielding, Tye, Ogawa, Imam, & Long, 2002; Morse et al., 2014; Brewer & Heitzeg, 2008).

Furthermore, DTC literature has not focused on gender-specific treatment needs in rural communities, despite the fact that broader Criminal Justice (CJ) and behavioral health research has shown disparities in needs between females and males, as well as between justice-involved individuals in rural and urban areas.

Despite the research on rural COD treatment needs and DTCs, there is a dearth of research examining the gender specific needs among rural DTC participants with COD. This lack of information on treatment needs among rural DTC participants with a COD and by gender is unfortunate and further compounded by the fact that many DTCs across the US are located in MHPSAs (McClelland, Teplin, Abram, & Jacobs, 2002; Abram, Teplin, & McClelland, 2003; Zlotnick et al., 2008; Staton-Tindall et al., 2015). This paper fills this gap by examining rural and gender-related treatment needs in a rural Massachusetts DTC population with a COD, which offers an opportunity to have courts think about how to maximize often-limited DTC resources. Additionally, this study has important implications for a gender-responsive application of Risk-Need-Responsivity (RNR) principles in DTCs (Andrews, Bonta, & Hoge, 1990; Andrews & Bonta, 2006; Serin & Lowenkamp, 2015).

METHODS

STUDY DESIGN

This pilot study included 73 participants (42 males, 31 females) with COD who completed a comprehensive intake assessment in a rural Massachusetts DTC. Communities served by this DTC have federal designations either for rural (defined by HRSA) and/or meeting eligibility for rural health grants from HRSA (Health Resources and Services Administration, 2019), in addition to being located in MHPSAs.

We enrolled individuals in this pilot study if they: (1) were to participate in a COD program that was integrated within the DTC; (2) were age 18 or older; (3) met DSM-IV-TR (American Psychiatric Association, 2000) Axis I psychiatric disorder criteria; (4) exhibited current substance use or dependence as confirmed by the Addiction Severity Index-Lite (ASI-Lite) (McLellan et al., 1992); and (5) were able to provide written informed consent to participate in the study. We used the following exclusion criteria: (1) a medical condition that would make participation medically hazardous; (2) an acute severe psychiatric condition in need of immediate treatment, or an imminent suicide risk; (3) required immediate medical attention related to physical dependence on substances (i.e., withdrawal); (4) unable to receive treatment due to geographic location; or (5) unable to provide informed consent. No clients from the study were excluded based on the aforementioned exclusionary criteria. The University of Massachusetts Medical School Institutional Review Board (IRB) approved this study, deeming it to be program evaluation rather than human subjects research.

CRIMINAL JUSTICE, BEHAVIORAL HEALTH, AND SUBSTANCE USE MEASURES

During study intake, clinicians conducted a comprehensive baseline assessment with all participants as a term of the SAMHSA grant that funded parts of this project. Self-report data for baseline characteristics were measured via SAMHSA Government Performance and Results Act Modernization Act of 2010 questions (Government Performance and Results Act Modernization Act of 2010, 2011), as well as other validated and reliable scales (i.e., ASI, BASIS-32, and PCL-C). The GPRAMA includes the following required data elements: client-planned services; demographics; military history if applicable; history of drug and alcohol use; living conditions; education, employment, and income; crime and criminal justice status; mental and physical health problems; and services received. The Addiction Severity Index (ASI) (McLellan et al., 1992) provided measures of demographics; criminal justice involvement; and quantity, frequency, and severity of substance use. Acute behavioral health symptoms were measured via the BASIS-32. The BASIS-32 assessed psychiatric symptoms among five subscales (i.e., relation to self and others, daily living and role functioning, depression and anxiety, impulsive and addictive behavior, and psychosis) using 32 items rated from 0 to 4, with 0 indicating no difficulty and 4 indicating extreme difficulty. This self-report measure is commonly used in mental health settings to identify problem areas to target in treatment planning and has demonstrated high reliability and validity (Eisen, Dill, & Grob, 1994). The Posttraumatic Disorder Checklist-Civilian version (PCL-C) is a self-report checklist of PTSD symptoms based closely on DSM-IV criteria that has demonstrated good psychometric properties (Eisen et al., 1994; Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; Ruggiero, Del Ben, Scotti, & Rabalais, 2003).

DATA ANALYSIS

To determine the treatment needs of the 73 participants enrolled in a rural Massachusetts DTC, we computed frequencies and descriptive analyses using SPSS Statistics 25. For gender comparisons, we computed independent sample T-Test/Mann Whitney-U Test for continuous variables, and Chi-Square Test of Independence for nominal variables.

Table 1. Participant Baseline Characteristics (N=73)

Characteristics	*n*	%	*M (SD)*
DEMOGRAPHICS & GENERAL INFORMATION			
Gender			
Male	42	57.5	
Female	31	42.5	
Age (Years)			34.38 (8.10)
Ethnicity			
Hispanic/Latino	3	4.1	
Non-Hispanic/Latino	70	95.1	
Race			
African American	5	6.8	
American Indian	2	2.8	
Caucasian	61	83.6	
Two or More Races	5	6.8	
Highest Level of Education (Lifetime)			
Less than High School Diploma/GED	24	32.9	
High School Diploma/GED	31	42.5	
Post-High School	18	24.6	
Employment			
Employed Full Time	27	37.0	
Employed Part Time	8	11.0	
Unemployed	38	52.0	
Housing			
Unstable Housing at Baseline	36	49.3	
Homelessness			
Years of Homelessness			2.93 (3.2)
Age when First Homeless			21.33 (7.0)
UTILIZATION OF HEALTH AND BEHAVIORAL HEALTH SERVICES			
Service Use (Past Month)			
Inpatient for Physical Complaint	3	4.1	
Outpatient for Physical Complaint	1	1.4	
Emergency Room for Physical Complaint	9	12.3	
Inpatient for Psychiatric Complaint	4	5.5	
Outpatient for Psychiatric Complaint	9	12.3	
Emergency room for Psychiatric Complaint	3	4.1	
Inpatient for Substance Abuse	11	15.1	
Outpatient for Substance Abuse	16	21.9	
Emergency Room for Substance Abuse	7	9.5	
CRIMINAL JUSTICE HISTORY			
Arrested at least one time	72	98.6	
Incarcerated for at least one month	70	95.9	
Lifetime arrests			13.93 (14.43)
Lifetime convictions			6.59 (9.11)
Lifetime months incarcerated			23.42 (37.05)
Most Common Types of Criminal Charges			
Parole/Probation violation	57	78.0	
Drug charges	72	76.8	
Burglary	44	60.3	
Assault	43	58.9	

Characteristics	*n*	%	*M (SD)*
MENTAL HEALTH			
Psychological/Emotional Problems (Past Month)			
Depression	33	45.2	
Anxiety	45	61.6	
Hallucinations	0	0	
Trouble understanding, concentrating, remembering	23	31.5	
Trouble controlling violent behavior	10	10	
Suicidal thoughts	1	1.4	
Suicidal attempts	0	0	
Psychological/Emotional Problems (Lifetime)			
Depression	50	68.5	
Anxiety	54	74.0	
Hallucinations	1	1.4	
Trouble understanding, concentrating, remembering	24	32.9	
Trouble controlling violent behavior	19	26.0	
Suicidal thoughts	6	8.2	
Suicidal attempts	5	6.84	
Trauma			
Experienced at least one traumatic event in lifetime	44	60.3	
Experienced Interpersonal Violence	38	52.0	
Experienced physical abuse	37	50.7	
Experienced sexual abuse	22	30.1	
Basis-32			
Relation to self & others			1.07 (.89)
Depression & anxiety			1.26 (.94)
Daily living & role functioning			1.1 (.81)
Impulsive/addictive behaviors			0.62 (.77)
Psychosis			0.21 (.47)
Total score			0.80 (.65)
SUBSTANCE USE HISTORY			
Most Common Drugs of Abuse (Past Month)			
Alcohol	7	15.1	
Cocaine/Crack	9	12.3	
Any illicit drug	22	30.1	
Marijuana	13	17.8	
Most Problematic Substances (Lifetime)			
Heroin	43	58.9	
Cocaine/Crack	7	9.6	
Alcohol	6	8.2	
Other Opioids	5	6.8	
Percocet	4	5.4	
Substance Use History (Lifetime)			
Years of Substance Use			
Marijuana			9.19 (9.12)
Alcohol			8.03 (8.85)
Heroin			6.19 (6.33)
Cocaine/Crack			4.19 (5.38)
Any illicit drug			12.55 (8.71)

RESULTS

BASELINE CHARACTERISTICS AND NEEDS

Demographics. Table 1 summarizes the demographics of individuals enrolled in the DTC. Of the 73 participants, 42 (57.5%) were males and 31 (42.5%) were females, a much higher proportion of females than other DTC literature indicates (Peters et al., 2012). Participants were predominantly Non-Hispanic or Latino (95.1%) and Caucasian (83.6%). Mean age of the sample was 34.38 (SD=8.1). Regarding marital status, 9.6% were married, 1.4% were widowed, 6.8% were divorced, and 82.2% never married. Sample demographics such as gender are similar to the population of this region. However, this DTC had a slightly higher proportion of Black/African Americans compared to the general population in this region (6.8% versus 2%) (Barnstable County Department of Human Services, 2010).

Criminal Justice Involvement Needs. As indicated in Table 1, and not unexpected given the DTC setting, participants had a significant history of criminal justice involvement and therefore substantial needs in this area. On average, participants had been arrested 13.9 times in their life; the average age of first arrest was 17.3 years. On average, participants spent at least 23.42 months incarcerated in their lifetime and 34.77 days incarcerated in the last 6 months.

Mental Health Needs. We examined a variety of mental health-related areas of potential need. On average the sample had modest acute behavioral health needs and an overall BASIS-32 score of .80 (SD=.65), the BASIS-32 subscales of depression and anxiety (1.26, SD=.94), daily living and role functioning (1.1, SD=.81), and relation to self and others (1.07, SD=.89), psychosis (.22, SD=.47), and impulsive and addictive behavior (.62, SD=.77)[2]. By contrast, a high proportion of participants also reported lifetime mental health symptomology: 74% anxiety; 68.5% depression; 32.9% trouble understanding, concentrating, and/or remembering; and 26% reported trouble controlling violent behavior. In addition, 60.3% of the sample reported experiencing at least one traumatic event in their lifetime (52% have experienced interpersonal violence, 50.7 % have experienced physical abuse, and 30.1% have experienced sexual abuse), and 6.84% reported prior suicide attempts in their lifetime.

Substance Use Needs. A high proportion of the sample reported opioids as their primary drug (71.1%, with 58.9% specifically attributable to heroin), followed by 9.6% crack/cocaine and 8.2% alcohol. A high proportion of the sample also reported polysubstance use (55%). On average participants have had 1.67 prior nonfatal overdoses in their lifetime. Participants reported using any illicit drug for an average of 12.55 years (SD=8.71) in their lifetime. Regarding lifetime use, marijuana was used for the longest amount of time (9.19 years, SD=9.12), followed by alcohol (8.03 years, SD=8.85), and heroin (6.19 years, SD=6.33). Regarding intravenous drug use (IDU), 37% of the sample reported IDU in the past six months, and 36% reported using a syringe/needle that someone else had used.

[2] Of note, despite observed extensive behavioral health histories, modest acute behavioral health symptoms (as measured by the BASIS-32) were reported, suggesting underreporting. Previous studies have also found similar patterns of underreporting of these symptoms on the BASIS-32 (Higgins & Purvis, 2002). Therefore, findings concerning acute behavioral health symptoms should be interpreted with some caution. This sample may have much higher acute behavioral health symptoms and needs than observed.

Physical Health Needs. Regarding physical health, 26% of DTC participants reported a current chronic medical problem and 23.3% reported taking a prescription for a physical ailment. Moreover, in the 30 days prior to study intake, 30% of participants reported experiencing medical problems, and 90.5% reported being bothered by these medical issues. 90.3% of the sample have been tested for HIV in their lifetime, and 1.6% had a positive result. Regarding Hepatitis C, 88.9% of the sample has been tested, and 44% had a positive result with a confirmatory test. Regarding dental care, 64.4% of the sample reported receiving no dental care in the past 6 months; 43.8% reported needing dental care.

Social and Support Needs. Approximately half of the sample reported unstable housing (49.3%) and 52% were unemployed at intake. On average, participants reported being homeless for a total of 2.9 years in their lifetime (SD=3.2) and were first homeless at 21.3 years of age (SD=7.0).

GENDER-DIFFERENCES AND NEEDS

Demographics. Demographics stratified by gender are presented in Table 2. Within the sample, 57.5% were male, and 42.5% were female. Male and female participants did not statistically differ in terms of age, ethnicity, race, or marital status.

Criminal Justice Needs by Gender. As in the full sample, and not unexpectedly given the DTC setting, both male and female participants had a significant history of criminal justice involvement. Differences in lifetime arrests were considered. Although not statistically significant, the means did differ between males and females; males had been arrested on average 15.07 times, as compared to 12.39 times on average for females ($p<0.12$, Cohen's $d=0.19$). However, on average, males were arrested at a younger age and did statistically differ as compared to females (15.5, 19.8, respectively, $p<.003$). Other statistically significant differences between males and females included: average number of convictions (7.95, as compared to 4.54 for females, $p<.025$, Cohen's $d=0.87$); the average number of months incarcerated (32.9 months for males, as compared to 10.58 for females ($p<.000$), Cohen's $d=0.63$); and most prevalent types of criminal charges (prior violations of probation or parole: 88.1% of males, 65.5% of females, $p<.013$, $\varphi= -.30$).

Mental Health Needs by Gender. Females disproportionately reported experiencing more traumatic events as compared to males, consistent with other DTC literature (Gray & Saum, 2005; Morse et al., 2014; Richman, Moore, Young, & Barrett, 2014; Wolf, Nochajski, & Farrell, 2015). On average, 77.4% females reported experiencing at least one traumatic event in their lifetime, as compared to 47.6% of males ($\varphi= .30$, $p<.014$). Females also disproportionately reported experiencing more interpersonal violence than males (77.4%, 33.3%, respectively, $\varphi=.44$, $p<.000$). In regard to sexual abuse, 48.4% of females reported experiencing sexual abuse in their lifetime, as compared to 16.7% of males ($\varphi= .33$, $p<.005$). Regarding mental health symptomology, although not statistically different, on average females reported more psychological problems in their lifetime as compared to males in regard to depression (74.2%, 64.3%, respectively), anxiety (80.60%, 69.0%, respectively), and suicidal thoughts (12.9%, 4.80%, respectively); whereas males on average reported more trouble controlling violent behavior as compared to females (33.3%, 16.1%, respectively).

Table 2. Baseline Characteristics Stratified by Gender (N=73, Males=42, Females=31)

Variable	Males (mean or %)	Females (mean or %)	t or Chi Square x^2	p value
DEMOGRAPHICS				
Age (Years)	34.47	34.32	582.0	0.44
Ethnicity				
Hispanic or Latino	2.40%	6.5%	0.75	0.386
Non-Hispanic or Latino	97.6%	93.5%	0.75	0.386
Race				
African American	9.5%	3.2%	1.1	0.292
American Indian	4.8%	0%	1.5	0.218
Caucasian	80.9%	87.1%	0.49	0.484
Two or more races	4.8%	9.7%	0.67	0.411
Education				
Less than High School	47.6 %	12.9 %	9.7	0.002*
High School Diploma/GED	38.0 %	48.4%	0.77	0.379
Post-High-School	14.3%	38.7%	5.7	0.017*
Employment				
Employed Full Time	47.6%	22.6%	4.798	0.028*
Employed Part Time	9.5%	12.9%	0.20	0.648
Unemployed	42.9%	64.5%	3.3	0.067
Housing				
Unstable Housing at Baseline	33.3%	70.9%	21.159	0.001*
Homelessness				
Years of Homelessness	3.40	2.19	198.0	0.17
Age when First Homeless	20.52	22.38	-0.901	0.37
HEALTH SERVICE UTILIZATION				
Service Utilization (Past Month)				
Inpatient for Physical Complaint	2.4%	6.5%	0.75	0.386
Outpatient for Physical Complaint	0	3.2%	1.3	0.241
Emergency Room for Physical Complaint	11.9%	12.9%	0.01	0.898
Inpatient for Psychiatric Complaint	4.8%	6.5%	0.09	0.754
Outpatient for Psychiatric complaint	4.8%	22.6%	5.2	0.022*
Emergency Room for Psychiatric Complaint	4.8%	3.2%	0.10	0.744
Inpatient for Substance Abuse	14.3%	16.1%	0.04	0.828
Outpatient for Substance Abuse	9.5%	38.7%	8.8	0.003*
Emergency Room for Substance Abuse	11.9%	6.5%	0.61	0.434
MENTAL HEALTH				
Psychological & Emotional Problems (Past Month)				
Depression	35.7%	58.1%	3.5	0.058
Anxiety	54.8%	70.0%	1.9	0.159
Hallucinations	0	0	0	N/A
Trouble understanding, concentrating, remembering	26.1%	38.7%	1.2	0.255
Trouble controlling violent behavior	16.6%	9.67%	0.73	0.391
Suicidal thoughts	2.4%	0	0.74	0.387
Suicide attempts	0	0	0	N/A
Psychological & Emotional Problems (Lifetime)				
Depression	64.3%	74.2%	0.97	0.324
Anxiety	69.0%	80.6%	0.92	0.336
Hallucinations	2.4%	0	0.76	0.381
Trouble understanding, concentrating, remembering	31.0%	35.5%	0.11	0.736
Trouble controlling violent behavior	33.3%	16.1%	2.7	0.100
Suicidal thoughts	4.8%	12.9%	1.4	0.222
Suicide attempts	7.1%	6.5%	0.11	0.916

Table 2. Cont. Baseline Characteristics Stratified by Gender (N=73, Males=42, Females=31)

Variable	Males (mean or %)	Females (mean or %)	t or Chi Square x^2	p value
Trauma				
At least one traumatic event in life	47.6%	77.4%	6.0	0.014*
Experienced physical abuse	40.5%	64.5%	4.2	0.118
Experienced sexual abuse	16.7%	48.4%	7.7	0.005*
Experienced interpersonal violence	33.3%	77.4%	13.9	0.000*
BASIS 32-Scores				
Relation to self and others	0.95	1.10	581.0	0.432
Depression and anxiety	1.15	1.44	503.0	0.191
Daily living and role functioning	0.96	1.35	476.5	0.105
Impulsive and addictive behaviors	0.56	0.67	607.5	0.621
Psychosis	0.13	0.33	526.5	0.091
Total	0.75	0.90	493.0	0.290
SUBSTANCE USE HISTORY				
Primary Drug of Use (Past Month)				
Marijuana	19.0%	16.1%	0.10	0.747
Alcohol	16.7%	12.9%	0.19	0.657
Heroin	11.9%	16.1%	0.26	0.604
Cocaine/Crack	11.9%	12.9%	0.01	0.898
Any illicit drug	30.1%	29%	0.03	0.860
Most Problematic Substances (Lifetime)				
Heroin	59.5%	58.1%	0.01	0.900
Cocaine/Crack	7.1%	12.9%	0.68	0.409
Alcohol	7.1%	9.7%	0.15	0.697
Other Opioids	9.5%	3.2%	1.1	0.292
Percocet	2.4%	9.7%	1.8	0.176
Marijuana	7.1%	0	2.3	0.129
Years of Substance Use				
Marijuana	10.62	7.23	492.0	0.072
Alcohol	9.86	5.55	414.5	0.039
Heroin	6.62	5.61	539.5	0.210
Cocaine/Crack	4.52	3.74	636.0	0.868
Any illicit drug	13.05	11.87	0.568	0.572

*$p < 0.05$

Substance Use Needs by Gender. Males reported a longer history of alcohol use as compared to females; on average, males reported using alcohol for 9.86 years of use in their lifetime, whereas females reported using alcohol for 5.55 years in their lifetime (Cohen's d=0.5, p<0.039). Other lifetime and past-six-month drug use preferences and patterns did not differ by gender. However, regarding IDU, although not statistically significant, females disproportionately reported more IDU within the past six months (48.4%) as compared to males (28.6%). However, males disproportionately reported using shared needles/syringes in the past six months as compared to females (50%, 26.7%, respectively, φ=.27, p< .022).

Physical Health Needs by Gender. Regarding physical health, females reported chronic medical conditions at a higher rate than males (38.7%, 16.7%, respectively, $\chi 2=4.501$, φ=.25, p<.034). Females also reported taking prescription medication for a physical problem more often than males (38.7%, 11.9%, respectively, $\chi 2=7.173$, φ=.31, p<.007). Moreover, in the 30 days prior to study intake, female participants experienced more medical problems as compared to males (U=474, p<.015, and $\eta 2=.08$ indicating a medium-large effect size). Although 64.4% of the sample reported needing dental care, males disproportionately reported receiving less dental care in the past six months as compared to females (23.8%, 51.6%, respectively, $\chi 2=6.013$, φ=.29, p<.014). Regarding Hepatitis C, 44% of the study sample had a positive result with a confirmatory test, and there was no difference between genders.

Social and Support Needs. At intake, a higher proportion of females reported having unstable housing in the past 30 days (77.9%) compared to males (33.3%, $\chi 2=21.159$, φ=.44, p<.001). Females had more education after high school as compared to males (38.7%, 14.3%, respectively, $\chi 2=5.7$, φ=.28, p<.017), yet males had more full-time employment (47.6%, 22.6%, respectively, $\chi 2=4.798$, φ=.26, p<0.028) as compared to females.

DISCUSSION

To better understand the treatment needs and gender differences of rural DTC participants with CODs, we analyzed sample characteristics collected at intake. This study observed that rural DTC clients had extensive criminal justice involvement (e.g. high number of lifetime arrests and convictions); high rates of opioid use disorder (OUD); lifetime mental health symptomology (e.g. anxiety, depression, and trauma); high rates of Hepatitis C; and other psychosocial needs, such as housing and employment. This study also identified important gender differences. Compared with their male counterparts, females evidenced more lifetime mental health symptoms, IDU, chronic medical conditions, and unstable housing. Conversely, men had more extensive criminal justice involvement (e.g. arrests and convictions), trouble controlling violent behavior, more needle sharing, longer history of alcohol use, and more dental care needs. Although the needs identified by this study do not drastically differ from other literature highlighting needs of people in the criminal justice system (e.g. women with trauma histories, psychosocial, and medical needs) (Mahmood et al., 2013; Morse et al., 2014; Finlay et al., 2015; Datchi & Ancis, 2017; Shannon et al., 2018; Singh et al., 2018), the findings from this study suggest important clinical implications for rural DTCs and community treatment providers, as well as several gender-specific recommendations. This is important as rural areas often struggle with DTC understaffing and often lack access to evidence-based care in the community (Edmond, Bond, Aletraris, and Roman, 2015; Pullen & Oser, 2014; Borders & Booth, 2007). Further, given the often-limited community resources in rural settings, it may be critical for ongoing evaluation to determine if DTCs are meeting the myriad of needs of participants and whether any modifications are needed.

DTC participants in this study presented with extensive criminal justice histories, which is highly correlated with an elevated risk of recidivism (US Sentencing Commission, 2017). To address DTC participant's high risk for recidivism, DTCs should consistently use RNR principles and provide ongoing evidence-based risk needs assessment monitoring such as the Level of Service Inventory-Revised (LSI-R) in order to evaluate changes in risk factors and needs related to recidivism to drive treatment planning (Serin & Lowenkamp, 2015; Andrews & Bonta, 2017). Unfortunately, despite significant advances in the development of effective risk assessment tools in recent years, research has highlighted inadequacies in the implementation of a service delivery process that uses risk assessments such as the LSI-R (i.e., up-to-date assessments) and links risk needs assessment to referrals and placement across CJ settings to better address recidivism (Taxman, Thanner, & Weisburd, 2006; Taxman, Cropsey, Young, & Wexler, 2007; Salisbury, Boppre, & Kelly, 2016). Literature indicates that CJ settings still struggle to use these assessments accurately and consistently to inform collaborative case planning (Taxman et al., 2006, Taxman et al., 2007; Salisbury et al., 2016). For example, these assessments should be used at multiple decision points to direct the supervision intensity, case planning and management, programming requirements, and treatment referrals. In this particular DTC, assessments were sometimes conducted prior to the participant's enrollment in the court (e.g. several months prior to intake), and only once during the participant's involvement in DTC. In addition, many DTC programs still struggle to develop and implement collaborative case plans that assist their participants in both reducing their recidivism risk and advancing their recovery. Our findings suggest a continued need for collaborative and comprehensive case planning that integrates behavioral health, criminogenic risk, psychosocial assessments, and ongoing collaborative reviews of case plans between clients and behavioral health, medical, and criminal justice providers.

Compared with their male counterparts, females evidenced more lifetime mental health symptoms, IDU, chronic medical conditions, and unstable housing. Conversely, men had more extensive criminal justice involvement (e.g. arrests and convictions), trouble controlling violent behavior, more needle sharing, longer history of alcohol use, and more dental care needs.

This study also identified a significant need for infectious disease screening and medical care in DTCs. Given the high proportion of participants who reported chronic medical conditions, other physical ailments, and tested positive for Hepatitis C, DTCs in rural locations can benefit from close collaboration with a medical provider or a dedicated nurse who could provide integrated medical care (Galambos, 2005). Psychoeducation regarding safe needle practices and linkages to local needle exchanges can also help reduce the high rate of needle sharing among IDU and contraction of blood borne illnesses. Additionally, 64.4% of DTC participants did not receive dental care during the past six months, although 43.8% reported needing dental care. Consistent with the identified need

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for dental care in this study, research has indicated a disproportionate amount of oral health problems among individuals who are chronically homeless and use substances (Rosenheck & Lam, 1997). Therefore, it is critical to provide linkages to dental care for DTC participants to prevent periodontal disease.

Lastly, about half the study sample reported unstable housing and unemployment at intake. Unfortunately, many rural communities lack the necessary infrastructure to meet the needs of people experiencing homelessness, and have poor economic structures with a lack of employment opportunities (Arthur, 1991; Rephann, 1999; Donnermeyer, Jobes, & Barclay, 2006). For example, compared with urban and suburban communities, rural communities tend to have less access to shelters and supportive services, including employment services and often fewer employment opportunities (Rural Health Information Hub, 2016). Therefore, targeted efforts around housing and employment, such as case management, supportive housing, and/or supported employment services, are critical components to providing necessary supports to these DTC participants, so they are able to focus on their path to recovery.

In regard to gender differences, females disproportionately experienced more lifetime trauma, unemployment, and unstable housing. These findings are consistent with previous research in non-DTC settings that identified the complexity of women's needs within the CJ system and support the need for gender-responsive treatment (Messina, Calhoun, & Warda, 2012). Research has shown that, compared with men, trauma is a distinct criminogenic risk factor for women, putting them at risk for reoffending (Boppre & Salisbury, 2016). Gender-responsive treatment programs address the unique needs of women and have been found to have a positive effect on significant outcomes, such as treatment retention, completion and post treatment abstinence (Saxena, Messina, & Grella, 2014). Findings from this study suggest two implications for female specific treatment needs in DTC settings.

First, given the high rates of observed trauma among females in this study, DTCs should consider assessment related to trauma. Unfortunately, criminogenic risk and need assessments routinely used in most DTCs are still designed for male participants. To better meet the unique criminogenic risk and needs of female participants, DTCs should integrate gender responsive criminogenic risk and needs assessments, such as the Women's Risk Needs Assessment (WRNA) instrument. These types of gender-specific RNR assessments can be helpful in assessing women's specific criminogenic needs and developing a comprehensive treatment plan designed to guide trauma-responsive treatment and supervision matched to women's needs. Additionally, clinicians can use validated trauma assessments, such as the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5) (Weathers et al., 2018). Second, studies confirm that

it may be more difficult for women in the criminal justice system to overcome many complex challenges to obtain and maintain employment and stable housing (Covington, 2003; Flower, 2010). To increase the likelihood that women will obtain and maintain long-term employment and housing, DTCs should provide access to (1) supported employment and supportive housing programs skilled in working with women, (2) opportunities to engage in a gender-responsive strategies for treatment and case management services, and (3) assistance in applying for needed benefits and entitlements such as childcare assistance.

In regard to male findings, consistent with established non-DTC research, men had more extensive CJ histories (e.g. arrests and convictions), reported a higher difficulty in controlling violent behavior, engaged in more risk-taking behaviors such as needle sharing, and reported more lifetime alcohol use (Substance Abuse and Mental Health Services Administration, 2013). Findings from this study suggest three implications for male-specific treatment needs in DTC settings. First, men had more extensive CJ histories, which place them at high risk for recidivism. As aforementioned, RNR assessment and linkages to evidence-based intervention matching identified needs is warranted to adequately address criminogenic risk and need. It should be noted that there is growing support for integrating a gender-responsive lens and approach for men as well. For example, maladaptive male identity and masculinity in men has been found to be a critical dynamic factor to consider as it impacts all elements of the treatment process, including treatment engagement and in turn potentially court completion (Blagden, 2018; Substance Abuse and Mental Health Services Administration, 2013).

Given the high rates of men who report trouble controlling violent behavior, as well as its correlation to masculinity, relapse, and recidivism in other studies, male offenders should be linked to programming that integrates an understanding of how masculine roles may affect criminal involvement and relapse, initiation, and engagement in behavioral health treatment (Feder, Levant, & Dean, 2007; Hakansson & Berglund, 2012; Meijers, Harte, Meynen, & Cuijpers, 2017; Mannerfelt & Hakansson, 2018). In addition, linking male participants to targeted services that integrate problem-solving, decision-making, conflict resolution, impulsivity, and anger management skills to help participants better manage conflicts without violence. Specifically, evidence-based cognitive behavior interventions have been found to be effective in enhancing ability to control violent behavior (Jewkes, Flood, & Lang, 2015; Substance Abuse and Mental Health Services Administration, 2013). Additionally, men reported more needle sharing as compared to women. This risk-taking behavior is also linked to aforementioned maladaptive male identity and masculinity (Umbach, Raine, & Leonard, 2018). Sharing needles puts these men at greater risk not only for viral hepatitis but for other serious health problems, like skin infections, HIV, heart infections, and abscesses. Typically, hepatitis and infectious disease prevention is not among the ancillary services typically provided by drug courts (Blagden, 2018). Given the high rates of reported needle sharing, which can increase risk for contracting Hepatitis C and other infectious diseases, these findings suggest that rural DTCs should consider linking participants to infectious disease prevention programming that integrates psychoeducation regarding safe needle use.

Lastly, men in this study reported more lifetime alcohol use compared to women. Male participants in rural DTC may benefit from linkages to medication assisted treatment (MAT) for the treatment of alcohol use disorders (AUD): naltrexone, disulfiram, and acamprosate. Unlike MAT for OUD, these medications can be prescribed by physicians in any practice setting without special licensing. Therefore, there should be less obstacles encountered in linking to MAT for AUD than those found in linking to MAT for OUD in rural communities. In addition

to formal AUD treatment, male participants may also benefit from linkages to self-help recovery groups such as Alcoholics Anonymous and SMART recovery. Additionally, given the high prevalence of OUD in this sample, linkage and access to MAT for OUD is critical. Given the obstacles related to licensing MAT providers for OUD, the Bureau of Justice Assistance (BJA) encourages DTCs to link participants to American Society of Addiction Medicine (ASAM) certified physicians/MAT providers. To increase MAT capacity rural communities, telemedicine can help local providers facilitate patient initiation and engagement by fostering collaborations with these ASAM certified physicians/MAT providers (Peyton & Gossweiler, 2001; Priester et al., 2016). Additionally, using mobile opioid recovery units and increasing access to Narcan/naloxone are critical for rural communities to combat the opioid epidemic.

Limitations

Several limitations need to be acknowledged and could be addressed in future research. First, this rural study only included one DTC without an urban comparison. Second, this pilot study only involved one rural DTC in one state; therefore, the findings may not be representative of other courts in Massachusetts or other rural DTCs in other parts of the country. Third, the data presented were collected as part of a standardized self-report assessment; we did not have access to other data sources, such as objective collateral information on substance use or measures of PTSD symptoms and type of traumatic event experienced. Fourth, and related, although we collected self-report data on criminal justice involvement, we did not use data from the Massachusetts Department of Corrections to verify data on incarcerations, arrests, and convictions. Fifth, during project planning and IRB submissions, the DSM-5 was not in circulation; therefore DSM-IV-TR (American Psychiatric Association, 2000) criteria were used to determine participants' eligibility to participate in the study, and for consistency, these criteria were used for the duration of the study. Future research should evaluate whether having clinicians working alongside DTCs can improve such engagement overtime. Lastly, there are limitations to data gathered to explore other factors that may involve gender, such as details regarding domestic violence and parental stress.

CONCLUSION

This study highlights the unique treatment needs and gender differences of participants in a rural Massachusetts DTC. The results from this study suggest the need for a gender-responsive considerations of rural DTC populations. Although the notion of gender-responsive interventions is not novel and is in fact considered best practice for all treatment courts, limited research in this area continues to show that gender-responsive care is not consistently happening. In fact, a recent study in 2018 (Gallagher, Nordberg, & Gallagher, 2018) garnered that female participants felt that they were not receiving effective, gender-responsive treatment for their substance use disorders, which was a barrier to them graduating DTC. More research is needed to track the implementation of these best practices. Additionally, while there is often limited access to treatment, and particularly gender-specific treatments in rural areas, this data suggest that particular needs are critical to address in these communities and by gender. Moreover, others have begun to integrate comprehensive and specialized treatments within DTCs in order to better meet the needs of the participants (Kushner, Peters, & Cooper, 2014). These treatments should include comprehensive assessment across domains, criminogenic risk, and needs-informed service linkage; gender-responsive and evidence-based treatment and supports, such as Cognitive-Processing Therapy (CPT) for trauma and childcare supports for women; linkages to medical and dental care; and supportive housing and employment services. This work is an important first step to begin tailoring services to participants in rural DTCs.

In particular, services should be tailored to address the pathways to offending. In addition, gender-responsive wraparound supports such as childcare are critical considerations to integrate into any vocational and housing supports for women in order to appropriately address the employment and housing gender disparity in this population. Lastly, although historically, standard behavioral health and CJ services have been designed with male clients in mind, services in these systems need to integrate more "male-specific" approaches to better engage and treat men. Growing research points to a need for systems and providers to increase their awareness of the impact of male gender roles on men's mental health, substance use, criminal justice involvement, and help-seeking behaviors.

Future research efforts that include a larger sample with a comparison group in a nonrural (i.e., urban/suburban) community are needed to further understand and evaluate unique needs of women and men in rural drug courts with COD and to effectively develop and implement and evaluate these tailored treatment services. Additionally, more research is needed regarding how to effectively integrate wraparound and treatment services for participants with COD and high treatment needs in DTCs in rural areas (Wolff et al., 2013). Ensuring that the unique needs of DTC participants are met will provide greater opportunities for participants to complete court programming, a lower risk of criminal recidivism, and a more successful path to recovery.

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