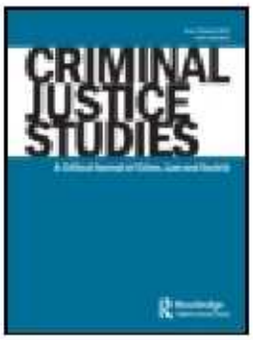

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Identifying predictors of drug court graduation: findings from an evaluation of the Milwaukee County Adult Drug Treatment Court

Alyssa Sheeran, Victoria A. Knoche and Tina L. Freiburger

Department of Criminal Justice and Criminology, University of Wisconsin – Milwaukee, Milwaukee, WI, USA

ABSTRACT

Adult drug treatment courts provide an alternative to incarceration that focuses on the treatment of substance abuse issues and other psychological dysfunctions. The literature thus far has generally indicated that drug courts are significantly more effective than other criminal justice interventions, yet rates of drug court effectiveness vary substantially across jurisdictions. The current study was able to peek inside the "black box" of drug treatment courts to understand which characteristics might be critical to the success of these courts. An evaluation of the Milwaukee County Adult Drug Treatment Court in Wisconsin revealed that age at intake, race and ethnicity, prior convictions, primary drug of choice, and custody sanctions were all significantly associated with an individual's likelihood of graduating the drug court. The inclusion of these findings to the literature offers an additional examination of drug court effectiveness and further assists in providing a more comprehensive understanding of the factors that predict drug court graduation. As a result, the health of the individual, the community, and the justice system at large can be significantly improved.

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drug court; substance abuse treatment; drug offenders; rehabilitation

Adult drug treatment courts play a key role in the criminal justice system by providing a program focused on treating substance abuse issues as a means to reduce criminal recidivism (National Association of Drug Court Professionals, 2018). Drug courts operate under the premise that individuals committing crime suffer from substance-related illnesses and other psychological dysfunctions which predispose them to criminal behavior (Gottfredson, Najaka, & Kearley, 2003). Rather than incarceration, drug courts divert individuals from jail or prison (Dannerbeck, Harris, Sundet, & Lloyd, 2006), and provide them with an individualized treatment plan (Guastaferro, 2012) and targeted resources in the community to address their substance abuse issues and other needs. In the case of successful graduation, individuals also have the possibility of avoiding lengthier jail or prison sentences (Kuehn & Ridener, 2016) by having their charges either reduced or dismissed (Gottfredson et al., 2003). Drug courts are thought to improve not only the health and reintegration of the individual, but also improve the health and safety of the community and the overall justice system (Brown, 2011; Milwaukee County Courts, 2021).

CONTACT Alyssa Sheeran asheeran@uwm.edu Department of Criminal Justice and Criminology, University of Wisconsin – Milwaukee, Milwaukee, WI, USA

Treating the offender holistically can address criminal behavior and reduce recidivism, creating a safer and healthier community, and the diversion of individuals from jail or prison assists the overburdened criminal justice system and presents the possibility of cost and resource savings (Smith, 2017).

The use of drug treatment courts as an alternative to incarceration has spread quickly and widely throughout the United States, with an estimated 3,400 adult drug courts nationwide (National Institute of Justice, 2014). Research examining the effectiveness of drug treatment courts have generally found that completion rates in drug courts are significantly higher than completion rates in other criminal justice interventions, such as probation (Kaeble, Maruschak, & Bonczar, 2015; Marlowe, Hardin, & Fox, 2016). For example, Marlowe et al. (2016) determined in their study that drug court participants received completion rates that were two-thirds higher than those for probationers and more than twice as high when compared specifically to drug-involved probationers. While drug treatment courts are generally found to be effective, the effect sizes that are produced can vary greatly across jurisdictions. For instance, a review by the Government Accountability Office (2005) revealed, nationwide, that drug court completion rates ranged from 27% to 66%; and, in 2014, Marlowe et al. (2016) found that graduation rates varied from 35% to 92%. Although drug courts have empirical support, the reality remains that some drug courts 'work' better than others. It is suggested these differences in successful graduation could be due to a multitude of factors, including differences in target populations, individual-level program performance, treatment availability and resources, policies and practices, and even methodological quality of evaluations, among others (see, Lowenkamp, Holsinger, & Latessa, 2005; Marlowe et al., 2016). While several patterns (personal and programmatic) have been identified with drug court graduation, results in the literature still vary across studies, likely providing a reason for variability in drug court effectiveness. The current study sought to contribute to the existing literature by evaluating the Milwaukee County Adult Drug Treatment Court (MCADTC) in Wisconsin between 2016–2018. This study provides further insight into the effectiveness of drug treatment courts, and the potential participant and programmatic factors that are associated with drug court graduation.

Literature review[1]

Participant characteristics

The drug court literature has identified several characteristics that may be associated with drug court graduation including age, gender, race and ethnicity, risk level, prior criminal history, drug of choice, and program violations and sanctions (Dannerbeck et al., 2006; Evans, Li, & Hser, 2009; Gill, 2016; Marchand, Waller, & Carey, 2006; Mateyoke-Scrivner, Webster, Staton, & Leukefeld, 2004; Roll, Prendergast, Richardson, Burdon, & Ramirez, 2005; Shaffer, Hartman, Listwan, Howell, & Latessa, 2011). Several studies have determined that increasing age (Gill, 2016; Mateyoke-Scrivner et al., 2004) and being female (Dannerbeck et al., 2006; Gill, 2016) was associated with successful graduation. Yet, there are still studies that contradict these patterns and contribute to the discrepancies across jurisdications in drug court graduation rates. For instance, some scholars have indicated

that age was not significantly associated with drug court graduation (Evans et al., 2009; Gallagher, 2013; Gray & Saum, 2005; Marchand et al., 2006; McRee & Drapela, 2012; Roll et al., 2005); and others have determined that males and females graduate at similar rates (Evans et al., 2009; Hickert, Boyle, & Tollefson, 2009; Marchand et al., 2006; McRee & Drapela, 2012; Roll et al., 2005).

Prior literature has also determined a relationship between race and ethnicity and drug court graduation, yet these patterns may vary across jurisdictions. There have been several studies that have revealed that Caucasians were more likely to graduate when compared to African Americans (Dannerbeck et al., 2006; Howard, 2016), Hispanics and African-Americans combined (Gallagher, 2013), or non-white participants (Gray & Saum, 2005; Mateyoke-Scrivner et al., 2004). Yet, other studies have determined no racial differences in drug court graduation (Marchand et al., 2006; Roll et al., 2005). Some researchers have also suggested that differences by race could be a result of an interaction between race and education (Butzin, Saum, & Scarpitti, 2002; Gill, 2016), or race being confounded by employment status, educational attainment, and drug of choice (Brown, Allison, & Nieto, 2010). It has further been suggested that the drug treatment court's level of cultural competency and racial sensitivity could have a significant impact on the likelihood of graduation and overall program effectiveness (Dannerbeck et al., 2006).

Scholars have further examined the relationship between an individual's primary drug of choice and their likelihood of graduation in a drug court, producing some varied results. Some studies have found that an individual's primary drug of choice was not predictive of drug court graduation (Gallagher, 2013; Marchand et al., 2006; McRee & Drapela, 2012), particularly when controlling for other factors (e.g. age, education) (Roll et al., 2005; Shaffer et al., 2011). Gill (2016) found within-sample differences between graduates and revoked participants, such that the presence of an alcohol disorder was significantly associated with graduating a drug treatment court in Tennessee. Other scholars, such as Brown et al. (2010), found that polydrug use was linked to an increased likelihood of drug court revocation. Further, several studies have determined that the presence of a cocaine-use disorder (via issues potentially associated with impulse control and cortical dysfunction) (Brown, 2010), cocaine/stimulants acting as their most troubling substance (Hickert et al., 2009), and the frequency of cocaine use (Mateyoke-Scrivner et al., 2004) were all associated with an increased likelihood of revocation. While many scholars have revealed a relationship between drug of choice and drug court graduation, it appears the type of substance abuse issue may vary across jurisdictions.

Drug court research has largely concluded that prior criminal involvement is predictive of successful completion in a drug treatment program. Research indicates that having increased lifetime prior arrests (Evans et al., 2009; Gray & Saum, 2005) as well as in the preceding year (Evans et al., 2009), were associated with an increased likelihood of revocation. Evans et al. (2009) found significant differences between individuals who graduated and who were revoked; specifically, being younger at the time of their first arrest, having increased lifetime arrests and convictions, and being arrested or incarcerated more in the previous month were significantly associated with revocation. Mateyoke-Scrivner et al. (2004) further determined that having an increased number of probation violations was associated with a decreased likelihood of graduation. While the literature typically supports this negative relationship between prior offenses and the likelihood of

graduating drug court, there have been some studies that have found no significant relationship with prior offenses (Jewell, Rose, Bush, & Bartz, 2017; used as a control variable) or prior felonies (McRee & Drapela, 2012).

Programmatic factors

In addition to participant characteristics, there have been several programmatic factors, such as risk assessment tools and the use of sanctions, that have been examined in relation to drug court graduation. The Level of Service Inventory – Revised (LSI-R), in particular, is a quantitative assessment tool that incorporates various offender attributes on criminal history, education and employment, financial, family and marital status, accommodation, leisure and recreation, companions, alcohol and substance issues, emotional and personal health, and various attitudes (Andrews & Bonta, 1995, 1998). The LSI-R aids in predicting the risk of offender recidivism, as well as providing appropriate services and programming for individuals (Mellow, Mukamal, LoBuglio, Solomon, & Osborne, 2008) and has been determined beneficial at the both the individual and group levels in drug court programs (Guastaferro, 2012). For instance, when included as a control variable, Shaffer et al. (2011) research indicated that lower scores on the LSI-R (indicating lower risk) were associated with being significantly more likely to graduate drug court.

Once admitted to the program, drug courts typically impose both incentives and sanctions as a response to an individual's compliance with the program requirements. As such, this can affect an individual's progress through the drug court, ultimately affecting their likelihood of graduation. Research that has analyzed the relationship between sanctions and graduation generally indicates that receiving fewer sanctions is associated with individuals who successfully graduate from drug court (Gill, 2016). Studies examining programs that specifically utilize jail as a sanction have also found that participants who were revoked from the program had received more sanctions and served more time in jail [as a sanction] than those who had graduated (Marchand et al., 2006). Furthermore, individuals who received their first sanction early-on in the program were more likely to be revoked compared to those who were sanction-free at that same time (Brown et al., 2010; McRee & Drapela, 2012). Yet, a study conducted by Hepburn and Harvey (2007) compared two adult drug treatment court programs in which one applied a 120-day jail sanction for noncompliance and the other did not implement jail sanctions; the results indicated no significant differences between the two types of programs and the likelihood of graduation. For this particular study it appears the threat of or use of incarceration was not necessary as a sanction to motivate offenders, making it essential to continue examining the potential influence of sanctions (particularly jail sanctions) on drug court graduation.

Milwaukee County Adult Drug Treatment Court

Alcohol and/or substance use has been widespread within the United States for decades and has led to a significant number of drug-involved deaths. National rates indicate that, in 2014, there were roughly 70,000 individuals who died from a drug-involved overdose death; and in 2019, this number increased to more than 100,000 deaths (National Institute on Drug Abuse, 2021). More specifically, there were approximately 29,000 opioid-related

deaths, 5,000 cocaine-related deaths, and 30,700 alcohol-related deaths reported nationally in 2014 (Center for Disease Control and Prevention, 2020; National Institute on Drug Abuse, 2021). These rates increased significantly in 2019, with approximately 49,800 opioid-related deaths, 15,800 cocaine-related deaths, and 39,000 alcohol-related deaths reported in the United States (Center for Disease Control and Prevention, 2020; National Institute on Drug Abuse, 2021).

Like that of national rates, increasing trends have been found in Milwaukee County, Wisconsin. Milwaukee County is the most populous of the 72 counties in the state of Wisconsin and is comprised of nearly 950,000 individuals (U.S. Census Bureau, 2019). From 2014 to 2019 the average rate of all opioid-related deaths in Milwaukee County was 28.7 per 100,000; with the rate of deaths increasing from 22.3 (per 100,000) in 2014 to 34.5 (per 100,000) in 2019 (Wisconsin Department of Health Services, 2021). Additionally, the rate of cocaine-related deaths has shown a considerable increase from 2014 to 2019. The overall rate of cocaine-related deaths from 2014–2019 was 11.7 per 100,000 individuals, signifying a rate of 5.8 (per 100,000) in 2014 and increasing substantially in 2019 to 18.7 (per 100,000) (Wisconsin Department of Health Services, 2021). As it pertains to alcohol-related issues, the average rate of all alcohol-attributable deaths between 2014–2019 in Milwaukee County was 51.2 per 100,000, however, the number of deaths has since risen from 42.7 (per 100,000) deaths in 2014 to 55.9 (per 100,000) deaths in 2019 (Wisconsin Department of Health Services, 2021).

To address the historically significant issues in Milwaukee County, the Milwaukee County Adult Drug Treatment Court (MCADTC) was implemented in 2009 to reduce alcohol and/or other substance use issues, as well as criminal recidivism. MCADTC provides a comprehensive and individualized treatment program that focuses on coordinating resources for substance abuse treatment and recovery, while also considering a participant's mental and physical health, as well as any relevant environmental factors (Milwaukee County Courts, 2021; Milwaukee County Drug Treatment Court, 2016). MCADTC assists individuals by providing close judicial supervision and monitoring through the use of regular court appearances, random drug testing, and sanctions and incentives. The program also supports participants in acquiring medical treatment, further education, job training or employment, community service, and housing needs among others (Milwaukee County Courts, 2021).

MCADTC is a voluntary program that lasts between 12 to 18 months. It is designed to serve high risk/high need individuals who have significant substance abuse issues (Milwaukee County Drug Treatment Court, 2016). To participate in MCADTC, individuals must meet the following eligibility criteria: Milwaukee County resident, age 18 years or older, receive a diagnosis of a substance use disorder, face a felony charge or be a chronic misdemeanant, meet the federal definition of a 'non-violent offender', and face a recommendation by the District Attorney's Office of substantial incarceration (Milwaukee County Courts, 2021; Milwaukee County Drug Treatment Court, 2016).

Once admitted to MCADTC, individuals are required to participate in a highly structured and individualized treatment program that provides intensive supervision and oversight from the MCADTC team. The program is comprised of four phases that each focus on various components of the recovery process. Phase 1 (60 days minimum) centers on detoxing, abstinence, and engaging in formalized treatment. Phase 2 (90 days minimum) focuses on stabilization, implementing recovery skills, goal setting, and identifying/

connecting with additional community services. Phase 3 (90 days minimum) focuses on continued individual change and sobriety, development and internalization of recovery skills, employment, and educational pursuits. Phase 4 (90 days of consecutive sobriety) centers on maintaining a sober and crime free lifestyle, stable employment and housing, and completion of all drug court requirements (Milwaukee County Drug Treatment Court, 2016).

As participant's progress through the phases of the program, the presiding judge has the discretion to reward a participant's progress (e.g. verbal praise, reduced court appearances, gift cards, etc.) or impose immediate sanctions (e.g. verbal admonishment, increased court appearances, reflection essay, jail sanction, etc.) when program requirements are violated (Milwaukee County Courts, 2021; Milwaukee County Drug Treatment Court, 2016). Participants become eligible for graduation upon satisfactory completion of the prescribed treatment and compliance with the requirements of supervision under MCADTC. The decision to graduate an individual is approved by the Court, the District Attorney's office, and the Public Defender's Office and typically allows individuals' the opportunity to reduce or dismiss their charge(s) upon graduation. Individuals who do not successfully complete MCADTC requirements are withdrawn from the program, usually due to excessive noncompliance, the acquisition of new criminal charges, or excessive/lengthy bench warrants, among other reasons. (Milwaukee County Drug Treatment Court, 2016). When this occurs, the individual is revoked from the drug treatment court and subsequently convicted and sentenced on their initial charge(s) (Milwaukee County Drug Treatment Court, 2016).

Current study

Since the inception and spread of adult drug treatment courts in the U.S., research has generally indicated significantly more positive outcomes compared to other criminal justice interventions (Kaeble et al., 2015; Marlowe et al., 2016). Yet, different drug courts typically have unique policies/practices/requirements and serve different populations, leading to differences in rates of drug court graduation. It remains important to continue examining the performance of various drug courts to determine 'what works' and whether certain factors are contributing to successful drug court completion. In the current study, an evaluation was conducted on the Milwaukee County Adult Treatment Court in Milwaukee County, WI between 2016–2018 to determine whether participant or programmatic factors were significantly related to drug court graduation.

Methodology

Data for this study were obtained from several sources. Information on participant demographics and legal and extralegal case variables were provided by the District Attorney's Office and MCADTC court coordinator. Additional information related to each participant's progress during the program was collected by the researchers from participant treatment reports or during observations of the court staffing meetings[2] and official court appearances. The original dataset contained information for all individuals who were admitted to MCADTC between 2016–2018, resulting in a sampling frame of 203 individuals. Only those individuals who either graduated or were revoked from the drug

court were included in the final analysis; six individuals had died while enrolled in MCADTC. Thus, the final data set contained complete information for 197 participants; 87 participants graduated from MCADTC and 110 participants were revoked.[3] This produced an overall graduation rate of 44.2% for MCADTC participants between 2016–2018.

Variables

The dependent variable in the current study examined the likelihood of graduation for MCADTC participants; program outcome was coded dichotomously (revocation = 0, graduation = 1). Several independent variables also were included in the analysis to examine variables associated with the likelihood of graduation in MCADTC. Participant characteristics such as age at intake, gender, race and ethnicity, LSI-R risk score, prior criminal involvement, prior alcohol/substance abuse treatment, and primary drug of choice were examined. A participant's age at the time of admission to MCADTC was measured continuously in years; and gender was coded as a dichotomous variable (female = 0, male = 1). Three dummy variables were also created for race and ethnicity; they included non-Hispanic White (=1), non-Hispanic Black (=1), and Hispanic/Latino (=1). Non-Hispanic White was left out of the analysis as the reference variable. An individual's risk score was examined based on their responses from the Level of Service Inventory-Revised (LSI-R)[4] at the time of intake. Results of the LSI-R can produce a total score between 0–40,[5] however, MCADTC only admits individuals who receive a total LSI-R score between 24–40 (indicating medium- to high-risk). Therefore, the LSI-R score was coded as a dichotomous variable, operationalized as medium-risk (=0) and high-risk (=1). Prior criminal involvement was examined with a continuous measure that represented the number of prior convictions for each individual. Additional independent variables were included to gauge an individual's substance abuse history. Whether an individual had previously received any alcohol and/or substance abuse treatment was measured dichotomously (no = 0, yes = 1). Further, an individual's primary drug of choice was measured via dummy variables including heroin (=1), cocaine (=1), and alcohol (=1). Heroin was used as the reference variable.

Finally, two programmatic variables were included in the present analysis to examine the influence of program violations and custody sanctions. As mentioned, MCADTC participants are expected to adhere to several program requirements such as regular drug testing, court appearances, and attending formal treatment, among others. If these requirements are violated the presiding judge has the discretion to impose immediate sanctions, including both custody and non-custody responses. The current analysis sought to examine the influence of overall violations in the program, as well as certain violation responses (specifically the influence of custody sanctions). Thus, two continuous measures were employed to represent the total number of violations that a participant received while participating in MCADTC, and the total number of custody sanctions received while participating in MCADTC.

Table 1. Descriptive statistics.

	Graduated (*N* = 87)	Revoked (*N* = 110)	Significance Test	Total (*N* = 197)
Age at intake	34.2 (9.2)	31.8 (9.8)	$t = -1.77$	32.8 (9.6)
Gender	77.0%	70.9%	$\chi^2 = .931$	73.6%
Male	23.0%	29.1%		26.4%
Female				
Race/ethnicity	60.9%	56.4%	$\chi^2 = .415$	58.4%
Non-Hispanic White	29.9%	34.5%	$\chi^2 = .481$	32.5%
Non-Hispanic Black	9.2%	9.1%	$\chi^2 = .001$	9.1%
Hispanic/Latino				
LSI-R	81.6%	76.4%	$\chi^2 = .797$	78.7%
Medium-risk	18.4%	23.6%		21.3%
High-risk				
Prior convictions	2.3 (3.2)	3.6 (4.7)	$t = 2.17$*	3.0 (4.1)
Prior substance abuse treatment	42.5%	36.4%	$\chi^2 = .776$	39.1%
No	57.5%	63.6%		60.9%
Yes				
Drug of choice	75.9%	66.4%	$\chi^2 = 2.11$	70.6%
Heroin	18.4%	21.8%	$\chi^2 = .353$	20.3%
Cocaine	5.7%	11.8%	$\chi^2 = 2.16$	9.1%
Alcohol				
Total violations	14.7 (13.3)	16.3 (13.8)	$t = .846$	15.6 (13.6)
Total custody sanctions	1.3 (1.6)	2.5 (1.9)	$t = 4.85$***	2.0 (1.9)

Categorical variables are presented as frequencies (%) and continuous variables are examined by calculating the mean and the standard deviation.
*p < .05. **p < .01. ***p < .001

Analytic plan

Descriptive statistics were first examined for MCADTC participants and are delineated by outcome group (graduated and revoked). Second, binomial logistic regression analysis was employed to determine which independent variables were associated with the likelihood of graduation in MCADTC.

Results

The descriptive statistics for all independent variables, delineated by program outcome are provided in Table 1. The majority of MCADTC participants were male, and the average age at intake was a little under 33 years old. A higher proportion of participants were non-Hispanic White, followed by non-Hispanic Black, and Hispanic/Latino; and over two-thirds of the sample received an LSI-R score that indicated a medium-level of risk. Overall, there was a higher proportion of individuals who reported heroin as their primary drug of choice, followed by cocaine, and then alcohol. Prior to entering MCADTC, a greater part of the sample (about 61%) had previously engaged in some form of alcohol and/or substance abuse treatment. MCADTC participants also had an average of three prior convictions, with those who were eventually revoked from the program holding a slightly more extensive criminal record than those who graduated (M = 3.6 vs. M = 2.3 convictions respectively; $t = 2.17$, $p = .031$). Once admitted to MCADTC, participants received an average of 15.6 total violations in the program, with graduates receiving slightly fewer violations (14.7 vs 16.3 respectively); although this was not found to be significant. Related specifically to custody sanctions, there

Table 2. Binomial logistic regression results comparing MCADTC outcome.

	B	*SE*	Odds
Age at intake	.085***	.023	1.089
Gender	.330	.397	1.391
Race/ethnicity	−.987*	.436	.373
Non-Hispanic Black	-.876	.585	.416
Hispanic/Latino			
LSI-R	−.254	.435	.776
Prior convictions	−.142**	.054	.868
Prior substance abuse treatment	−.610	.364	.544
Drug of choice	−.548	.451	.578
Cocaine	−1.519*	.694	.219
Alcohol			
Total violations	.024	.014	1.024
Total custody sanctions	−.591***	.123	.554
Constant	−1.098	.789	.333

*p < .05. **p < .01. ***p < .001

Current offense type was initially included in the model, however, this variable yielded non-significant findings and was therefore excluded from the final analysis.

was a significant difference in the number of jail sanctions imposed ($t = 4.85$, $p = .000$), with those who graduated having fewer jail sanctions (M = 1.3) than those who were revoked (M = 2.5).

Next, binomial logistic regression analysis was employed to further examine the relationship between the independent variables and the likelihood of MCADTC graduation. All model assumptions were tested and met for the current sample. Results of the analysis are presented in Table 2. Findings indicated that age at intake, race and ethnicity, prior convictions, drug of choice, and total custody sanctions were all significantly associated with graduating MCADTC. More specifically, participants who were older at the time of intake were significantly more likely than younger participants to graduate MCADTC, with each year increasing the odds by 1.089. Results also indicated that non-Hispanic White participants had 2.68 increased odds of graduating when compared to non-Hispanic Black participants; Hispanic/Latino participants were just as likely to graduate as non-Hispanic White participants. An individual's prior criminal record also was indicative of their successful graduation in MCADTC, with each increase in a prior conviction significantly decreasing the likelihood of graduation by an odd of 0.868. Further, a participant's drug of choice was significantly influential in their likelihood of graduation in the program, with those who reported heroin as their primary drug of choice having 4.57 increased odds of graduating from MCADTC compared to those who indicated alcohol as their drug of choice. Lastly, while the total number of violations received was found to be non-significant, the number of custody sanctions received was significantly associated with program outcomes. Specifically, for every custody sanction received there were 0.554 decreased odds of graduating the drug court.

Discussion

The present study examined the influence of participant and programmatic factors on the likelihood of graduation from the Milwaukee County Adult Drug Treatment Court (MCADTC) in Wisconsin. Between 2016–2018, MCADTC had a completion rate of 44.2%, which falls between the national variations (27% to 92%) that have been produced over the years (Government Accountability Office, 2005; Marlowe, 2010; Marlowe et al., 2016). Determining which characteristics were associated with successful graduation in MCADTC, results of the binomial logistic regression analysis indicated that race and ethnicity, age at intake, prior record, primary drug of choice, and custody sanctions were all associated with drug court graduation. Specifically, non-Hispanic Black participants were significantly less likely than non-Hispanic White participants to graduate from MCADTC, while Hispanic/Latino participants were found to graduate at similar rates to non-Hispanic White participants. While prior literature is mixed on the relationship between race and ethnicity and drug court outcomes, the results of the current analysis support the findings from studies conducted by Dannerbeck et al. (2006) and Howard (2016). A closer examination into the data suggest a possible interaction between race and ethnicity and primary drug of choice.[6] Interaction effects were subsequently included in the original models to determine their impact on MCADTC outcomes. The results indicated a significant interaction between race and ethnicity and, specifically, heroin as the drug of choice. Non-Hispanic White participants who reported heroin as their drug of choice were significantly more likely to graduate than their non-Hispanic Black counterparts ($b = -1.0$, $p = .048$; full results available by request).[7] These findings suggest a racial disparity among opioid users in the current sample. Racial disparities have also been found in a study conducted by Furr-Holden, Milam, Wang, and Sadler (2020), where they examined race and opioid-involved overdose deaths (OOD) from 1999–2018. The study determined that, while Whites had a higher prevalence of OOD, the change in the rate of OOD was increasing more rapidly among African Americans than Whites (Furr-Holden et al., 2020). This study also found similar trends in Wisconsin, where the rate of change of OOD had decreased for Whites (47.4% to 39.5%) between 2010–2018 but increased for African Americans (48.8% to 91.4%) (Furr-Holden et al., 2020). The troubling findings between the current study and those produced by Furr-Holden et al. (2020) indicate that current opioid prevention and treatment services are not as effective for certain racial/ethnic groups; and it becomes critical for drug courts to identify and provide culturally competent opioid treatment that will assist in improving outcome measures for all demographics.

Other participant characteristics, such as age at intake, was found to significantly influence the likelihood of graduation in MCADTC. Consistent with much of prior research (Gill, 2016; Mateyoke-Scrivner et al., 2004) this study found that older participants were significantly more likely to graduate. It appears that younger participants have a harder time navigating through the drug court than older participants, possibly due to a difference in relationships and support from peers and/or family. Future research should strive to examine the influence of both age and level of support to better understand the possible influence they have on program outcomes.

Both gender and LSI-R score were also analyzed in the current study but failed to yield significance. A closer examination into the data revealed similar rates between males and females on factors like race and ethnicity, primary drug of choice, age at intake, and prior convictions. Further, MCADTC offers a multitude of treatment programs and services that incorporate gender-responsive programming for both male and female participants (Milwaukee County Courts, 2021; Milwaukee County Drug Treatment Court, 2016). It seems in the current sample that both males and females, while holding similar participant characteristics, also receive appropriate gender-responsive services that allow them to effectively graduate at similar rates. Data on risk scores, as measured through the LSI-R, also failed to reach significance in the present study. Considering MCADTC only admits individuals who already present a higher level of risk (i.e. medium-to-high risk), it is possible that this lack of variation is the reason this relationship was not significant. A different finding might be produced in courts that include lower risk-level offenders. Prior literature has indicated that mixing high-risk and low-risk participants can lead to a disruption in low-risk individuals' prosocial network and an 'education' in anti-social behaviors from other high-risk participants (Latessa & Lowenkamp, 2006). The effects of this can lead to increased technical violations (Latessa & Reitler, 2015; Lowenkamp & Latessa, 2002) and, ultimately, the chance of failure in the program (Latessa & Lowenkamp, 2006). Thus, courts that also admit lower-risk offenders should strive to examine the potential relationship between risk level and program outcomes.

Additional participant characteristics were found to significantly influence an individual's likelihood of successful graduation in MCADTC, including their primary drug of choice. This study determined that individuals who reported alcohol as their drug of choice were significantly less likely to graduate compared to those who reported heroin as their drug of choice. While prior literature on the relationship between type of drug use and graduation is mixed (Brown, 2010; Gallagher, 2013; Hickert et al., 2009; Marchand et al., 2006; McRee & Drapela, 2012), statistics on the location of this study might offer a possible explanation. Wisconsin ranks among the highest in the nation for binge drinking, alcohol-impaired driving, and alcohol-related arrests and convictions (Wisconsin Department of Health Services, 2016; Wisconsin Department of Transportation, 2018, August 15). Therefore, it is possible that in the present study participants with alcohol as their primary drug of choice had a harder time abstaining from alcohol in a state where alcohol use is prevalent and generally culturally accepted. Further, as the opioid epidemic hit Wisconsin in 2014, many treatment facilities began to focus recovery services on heroin and other opiates (Center for Behavioral Health Statistics and Quality, 2018; Wisconsin Department of Health Services, 2020). It is possible that individuals who report alcohol as their primary drug of choice may have a more difficult time finding or connecting to appropriate treatment services in the community.

Findings from this study further indicate that an individual's prior record was negatively associated with the likelihood of graduation, meaning that an increased number of prior convictions was associated with a significant decrease in the likelihood of graduating. Prior literature generally provides support for this relationship with findings indicating that various aspects of increased involvement in the criminal justice system makes it more difficult for individuals to successfully graduate from a drug court (Evans et al., 2009; Gray & Saum, 2005; Mateyoke-Scrivner et al., 2004). It is possible that individuals who have a more extensive criminal record may (1) have a harder time adjusting to a drug-free and

crime-free lifestyle during the course of a drug court program or (2) could be more likely to be reprimanded for noncompliance due to subjective perceptions, thus increasing the likelihood for revocation.

Finally, two programmatic factors were analyzed to determine the influence of total violations and custody sanctions on graduating from MCADTC. As mentioned, when a program violation occurs in MCADTC (e.g. positive drug test, missed drug test or office visit, failure to appear in court, missed treatment session, etc.), the presiding judge has the discretion to implement an immediate sanction that can range from verbal admonishment to a jail sanction, depending on the severity of the violation (Milwaukee County Drug Treatment Court, 2016). Descriptive statistics for the current sample indicated that graduates received an average of 14.7 total violations in the program, while revoked participants received an average of 16.3 total violations; however, the overall number of program violations was not found to be significantly associated with program outcome. Yet, custody sanctions were found to significantly influence program outcomes, with the likelihood of graduating significantly decreasing with every jail sanction imposed. Further examination of the data revealed that graduates received an average of 12.2 court responses to violations such as positive drug tests (average of 4.5 violations), missed drug tests/office visits (average of 3.9 violations), failure to appear in court (21.8% of graduates had at least one failure to appear), and other types of violations (e.g. missed treatment sessions, failure to submit recovery hours, etc.; average of 5.5 violations). Revoked participants, on the other hand, received an average of 13.2 court responses to violations of positive drug tests (average of 5.5 violations), missed drug tests/office visits (average of 3.7 violations), failure to appear in court (42.7% of revoked participants had at least one failure to appear), and other types of violations (average of 7.0 violations). Significance tests were subsequently conducted to determine if graduates and revoked participants significantly differed on any of these types of violations. Results revealed a significant difference between the two groups for the violation of 'failure to appear in court' ($t = 3.35$, $p = .001$), with revoked participants committing a higher number of these violations (42.7% vs. 21.8% respectively). This suggests that specific types of violations (i.e. failure to appear) were likely associated with the implementation of custody sanctions, ultimately leading to an increased likelihood of revocation. In this sense, drug courts should identify 'warning signs' that participants are violating more severe program requirements and implement an appropriate court response. As shown in this study, the use of custody sanctions was not found to benefit drug court participants, and instead, non-custody responses would likely be more appropriate.

Limitations and future research

While the findings of the current study are informative into our understanding of factors that impact drug court graduation, some limitations should be noted. First, this evaluation was limited to one county in Wisconsin. While MCADTC represents a 'typical' drug treatment court in terms of its component, there are still unique program characteristics (e.g. target population, community resources, etc.). It is possible, therefore, that MCADTC might suggest different predictors of program graduation compared to other

jurisdictions. This has certainly been suggested in the substantial variation across jurisdictions in drug court completion (Government Accountability Office, 2005; Marlowe, 2010; Marlowe et al., 2016).

The current study also was able to evaluate numerous factors deemed influential in prior literature, however, there are undoubtedly additional characteristics that may affect an individual's likelihood of graduation in a drug court, such as education, employment, marital status, support systems, and mental health, among others. Qualitative analyses would also benefit our understanding of the quality of treatment programs and services within a drug court and the potential influence on program outcome for various groups of participants. Future evaluations should also strive to examine additional dependent variables that can aid in understanding the effectiveness of drug treatment courts. For instance, examining the risk of recidivism and relapse following the completion of a drug court program could provide a more comprehensive understanding on the effectiveness of these interventions, as well as the potential factors that may influence 'success' once individuals leave the program.

Conclusions

Adult drug treatment courts have spread quickly and widely over the past several decades as an alternative to incarceration that offers individuals targeted resources to address alcohol and/or substance abuse issues. The literature thus far has generally indicated that drug courts are significantly more effective than other criminal justice interventions (Kaeble et al., 2015; Marlowe et al., 2016); yet, rates of drug court effectiveness vary substantially across jurisdictions (Government Accountability Office, 2005; Marlowe, 2010; Marlowe et al., 2016). The current study was able to peek inside the 'black box' of drug treatment courts to understand which characteristics might be critical to the success of these courts. An evaluation of the Milwaukee County Adult Drug Treatment Court (MCADTC) in Wisconsin revealed that age at intake, race and ethnicity, prior convictions, primary drug of choice, and the use of custody sanctions were all significantly associated with an individual's likelihood of graduating the drug court. The inclusion of these findings to the literature can further assist in understanding the differences between those who are able to successfully graduate a drug court versus those who are revoked. By understanding disparities that are present in a drug court, programs can begin to focus their efforts on equity in program and treatment resources, allowing more individuals to successfully graduate, treat their underlying substance-related issues and psychological disfunctions, and ultimately reduce subsequent criminal behavior. In doing so, the health and safety of the community and the justice system at large is also improved.

Notes

1. Various drug treatment courts measure participant outcomes in different ways. Some drug courts differentiate between participants who drop-out or do not complete the program from those who are revoked from the program, whereas other drug treatment courts combine these participants and label them as revoked-only. Furthermore, graduation and completion are occasionally used interchangeably for participants who complete the program. For consistency, this paper will utilize the terms 'graduation' to indicate individuals

who completed the program and 'revoke' to indicate individuals who did not complete the program despite whether they dropped out or were revoked; the literature review will also reflect this despite terminology used in the original paper. For instances in which cited studies examined participants who dropped out as well as those who were revoked, only results pertaining to those categorized as revoked were reported.

2. During the court staffing meetings, the drug court team (i.e. presiding judge, court coordinator, attorneys, and case managers) discuss each participant's progress in the program, including prosocial and noncompliant behaviors, since the previous court hearing. Participants are not present during these meetings, but instead meet with the presiding judge during the regular court appearances where they discuss the participant's progress in the drug court.
3. A power analysis was conducted to determine the number of participants needed in this study to conduct multivariate analyses. Results of the power analysis (to achieve power of .80, with an alpha of .05) indicated a minimum sample size of 194 participants required to detect a significant model. There were no outliers or missing data; therefore, the sample size was determined to be adequate to identify medium and large statistical effects (see Cohen, 1988).
4. In Wisconsin, officials frequently employ the Level of Service Inventory – Revised (LSI-R), which is a quantitative assessment tool that incorporates various offender attributes on criminal history, education and employment, financial, family and marital status, accommodation, leisure and recreation, companions, alcohol and substance issues, emotional and personal health, and various attitudes (Andrews & Bonta, 1995). The LSI-R aids in predicting the risk of recidivism, as well as providing appropriate services and programming for individuals (Mellow et al., 2008).
5. The LSI-R suggests the following risk-levels based on the total score that an individual receives: low-risk (0–23), medium/moderate-risk (24–33), high-risk (34–40) (Andrews & Bonta, 1995).
6. Interaction effects were created for non-Hispanic White, non-Hispanic Black, Hispanic/Latino, heroin, cocaine, and alcohol.
7. Non-Hispanic White, heroin was used as the reference category. The models were also run using different reference categories and the results were the same.

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

Notes on contributors

Alyssa M. Sheeran is an Assistant Professor in the Criminal Justice and Criminology Department at the University of Wisconsin – Milwaukee. Alyssa received her Ph.D. in Social Welfare from the University of Wisconsin – Milwaukee. Her research interests focus on adult drug treatment courts, veteran's treatment courts, sentencing disparities in the criminal justice system, and correlates of jail recidivism.

Victoria A. Knoche is a postdoctoral fellow in the Helen Bader School of Social Welfare criminal justice and criminology program at the University of Wisconsin - Milwaukee. She received her Ph.D. in interdisciplinary social psychology at the University of Nevada - Reno. Her research interests center around the intersection between criminal justice, psychology, sociology, and social welfare. She is particularly interested in the justice system as it relates to juveniles, including judicial impact on youth and families in the juvenile justice system.

Tina L. Freiburger is a professor and Dean of the Helen Bader School of Social Welfare at the University of Wisconsin-Milwaukee. She has published several journal articles on racial and gender disparities in decision making and juvenile justice issues. Her recent publications have appeared in Feminist Criminology, Crime and Delinquency, and Youth Violence and Juvenile Justice.

References

Andrews, D.A., & Bonta, J. (1995). *The level of service inventory–Revised*. Toronto, Ontario, Canada: Multi-Health Systems.

Andrews, D.A., & Bonta, J. (1998). *Level of service inventory–Revised: Screening version*. Toronto, Ontario, Canada: Multi-Health Systems.

Brown, R. (2011). Drug court effectiveness: A matched cohort study in the Dane County drug treatment court. *Journal of Offender Rehabilitation*, *50*(4), 191–201.

Brown, R.T. (2010). Associations with substance abuse treatment completion among drug court participants. *Substance Use and Misuse*, *45*(12), 1874–1891.

Brown, R.T., Allison, P.A., & Nieto, F.J. (2010). Impact of jail sanctions during drug court participation upon substance abuse treatment completion. *Addiction*, *106*(1), 135–142.

Butzin, C.A., Saum, C.A., & Scarpitti, F.R. (2002). Factors associated with completion of a drug treatment court diversion program. *Substance Use and Misuse*, *37*(12–13), 1615–1633.

Center for Behavioral Health Statistics and Quality. (2018). *2017 National survey on drug use and health: Detailed tables*. Rockville, MD: Substance Abuse and Mental Health Services Administration.

Center for Disease Control and Prevention. (2020). *Underlying cause of death, 1999-2019 results: Alcohol*. Atlanta, GA: Author. Access date: January 25, 2021, Retrieved from https://wonder.cdc.gov/controller/datarequest/D76;jsessionid=96C80C3C2B2C36731513DD7BE1A1 .

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

Dannerbeck, A., Harris, G., Sundet, P., & Lloyd, K. (2006). Understanding and responding to racial differences in drug court outcomes. *Journal of Ethnicity in Substance Abuse*, *5*(2), 1–22.

Evans, E., Li, L., & Hser, Y. (2009). Client and program factors associated with dropout from court mandated drug treatment. *Evaluation and Program Planning*, *32*(3), 204–212.

Furr-Holden, D., Milam, A.J., Wang, L., & Sadler, R. (2020). African Americans now outpace whites in opioid-involved overdose deaths: A comparison of temporal trends from 1999-2018. *Addiction*, *116*(3), 677–683.

Gallagher, J.R. (2013). Drug court graduation rates: Implications for policy advocacy and future research. *Alcoholism Treatment Quarterly*, *31*(2), 241–253.

Gill, M.E. (2016). Predictors of drug court client graduation. *Journal of Offender Rehabilitation*, *55*(8), 564–588.

Gottfredson, D.C., Najaka, S.S., & Kearley, B. (2003). Effectiveness of drug treatment courts: Evidence from a randomized trial. *Criminology & Public Policy*, *2*(2), 171–196.

Government Accountability Office. (2005). *Adult drug courts: Evidence indicates recidivism reductions and mixed results for other outcomes*. Washington, DC: U.S. General Accountability Office.

Gray, A.R., & Saum, C.A. (2005). Mental health, gender, and drug court completion. *American Journal of Criminal Justice*, *30*(1), 55–69.

Guastaferro, W.P. (2012). Using the level of service inventory-revised to improve assessment and treatment in drug court. *International Journal of Offender Therapy and Comparative Criminology*, *56*(5), 769–789.

Hepburn, J.R., & Harvey, A.N. (2007). The effect of the threat of legal sanction on program retention and completion: Is that why they stay in drug court. *Crime and Delinquency*, *53*(2), 255–280.

Hickert, A.O., Boyle, S.W., & Tollefson, D.R. (2009). Factors that predict drug court completion and drop out: Findings from an evaluation of Salt Lake County's adult felony drug court. *Journal of Social Service Research*, *35*(2), 149–162.

Howard, D. (2016). Race, neighborhood, and drug court graduation. *Justice Quarterly*, *33*(1), 159–184.

Jewell, J.D., Rose, P., Bush, R., & Bartz, K. (2017). The long-term effectiveness of drug treatment court on reducing recidivism and predictors of voluntary withdrawal. *International Journal of Mental Health Addiction*, *15*(1), 28–39.

Kaeble, D., Maruschak, L.M., & Bonczar, B.P. (2015). *Probation and parole in the United* States, *2014*. Washington, DC: Bureau of Justice Statistics, U.S. Department of Justice. Access date: February 4, 2021, Retrieved from http://www.bjs.gov/content/pub/pdf/ppus14.pdf

Kuehn, S., & Ridener, R. (2016). Inside the black box: A qualitative evaluation of participants' experiences of a drug treatment court. *The Qualitative Report*, *21*(12), 2246–2267.

Latessa, E.J., & Lowenkamp, C.T. (2006). What works in reducing recidivism. *University of St. Thomas Law Journal*, *3*((3)), 521–535.

Latessa, E.J., & Reitler, A.K. (2015). What works in reducing recidivism and how does it relate to drug courts? *Ohio Northern University Law Review*, *41*(3), 757–790.

Lowenkamp, C., & Latessa, E. (2002). Evaluation of Ohio' s community-based correctional facilities and halfway house programs. Access date: February 4, 2021, https://ohiomemory.org/digital/collection/p267401ccp2/id/627

Lowenkamp, C.T., Holsinger, A.M., & Latessa, E.J. (2005). Are drug courts effective: A meta- analytic review. *Journal of Community Corrections*, *15*(1), 5–11.

Marchand, G., Waller, M., & Carey, S.M. (2006). *Barry County adult drug court outcome and cost evaluation*. NPC Research. Access date: February 4, 2021. Retrieved from https://npcresearch.com/wp-content/uploads/Barry-Final-Report_10063.pdf .

Marlowe, D.B. (2010). *Research updates on adult drug courts*. Alexandria, VA: National Association of Drug Court Professionals.

Marlowe, D.B., Hardin, C.D., & Fox, C.L. (2016). *Painting the current picture: A national report on drug courts and other problem solving court programs in the United States*. Alexandria, VA: National Drug Court Institute.

Mateyoke-Scrivner, A., Webster, J.M., Staton, M., & Leukefeld, C. (2004). Treatment retention predictors of drug court participants in a rural state. *American Journal of Drug and Alcohol Abuse*, *30*(3), 605–625.

McRee, N., & Drapela, L.A. (2012). The timing and accumulation of judicial sanctions among drug court clients. *Crime and Delinquency*, *58*(6), 911–931.

Mellow, J., Mukamal, D.A., LoBuglio, S.F., Solomon, A.L., & Osborne, J.W.L. (2008). *The jail administrator's toolkit for reentry*. Washington, DC: The Urban Institute.

Milwaukee County Courts. (2021, January 13). *Milwaukee County Drug Treatment Courtc* [brochure]. Author: Milwaukee, WI.

Milwaukee County Drug Treatment Court. (2016). *Milwaukee County Drug Treatment Court: Policy and procedure manual*. Milwaukee, WI: Milwaukee County Courts.

National Association of Drug Court Professionals. (2018). *Adult Drug Court Best Practice Standards: Volume I*. Alexandria: National Association of Drug Court Professionals, National Drug Court Institute.

National Institute of Justice. (2014). Overview of drug courts. Access date: January 22, 2021, Retrieved from https://nij.ojp.gov/topics/articles/overview-drug-courts

National Institute on Drug Abuse. (2021). *Overdose death rates*. Access date: March 1, 2021. Retrieved from https://www.drugabuse.gov/drug-topics/trends-statistics/overdose-death-rates .

Roll, J.M., Prendergast, M., Richardson, K., Burdon, W., & Ramirez, A. (2005). Identifying predictors of treatment outcome in a drug court program. *The American Journal of Drug and Alcohol Abuse*, *31*(4), 641–656.

Shaffer, D.K., Hartman, J.L., Listwan, S.J., Howell, T., & Latessa, E.J. (2011). Outcomes among drug court participants: Does drug of choice matter? *International Journal of Offender Therapy and Comparative Criminology*, *55*(1), 155–174.

Smith, B. (2017). Completion rates: An analysis of factors related to drug court program completion. *Cogent Social Sciences*, *3*(1), 1–13.

U.S. Census Bureau. (2019). *Annual estimates of the resident population*. Milwaukee, Wisconsin. Retrieved from https://data.census.gov/cedsci/table?q=milwaukeewisconsinpopulation&tid=PEPPOP2019.PEPANNRES&hidePreview=false .

Wisconsin Department of Health Services. (2016). *Wisconsin epidemiological profile on alcohol and other drugs, 2016*. Retrieved from https://www.dhs.wisconsin.gov/publications/p4/p45718-16.pdf

Wisconsin Department of Health Services. (2020). *Opioids*. Access date: January 20, 2021,https://www.dhs.wisconsin.gov/opioids/index.htm

Wisconsin Department of Health Services. (2021). *Substance use: Drug overdose deaths dashboard*. Retrieved from https://www.dhs.wisconsin.gov/aoda/drug-overdose-deaths.htm

Wisconsin Department of Transportation. (2018, August 15). *Offenses and penalties for OWI*. Retrieved from http://wisconsindot.gov/Pages/safety/education/drunk-drv/ddoffenses.aspx