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Attrition in drug court research: Examining participant characteristics and recommendations for follow-up

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Abstract

Drug court research is often challenged by study attrition. In this study, researchers attempted to predict study completion using variables traditionally associated with treatment attrition. Findings showed that participants who reported a need for additional help to resolve legal problems and who reported accessing outpatient treatments were more likely to complete the study at the three-month follow-up. The study also demonstrated a relationship between trauma-related symptoms and study attrition. Although sample size was a limitation with these pilot data, researchers are urged to examine attrition and increase efforts to engage drug court enrollees in research studies, especially those with trauma-related symptoms.

Keywords

Drug court; attrition research; forensic social work; trauma; problem-solving court

Drug courts are a criminal justice intervention targeted to offenders who abuse substances. Since the early 1990's, drug court interventions have become pervasive (Carey, Finigan, Crumpton, & Waller, 2006; Mitchell, Wilson, Eggers, & MacKenzie, 2011; Shaffer, 2011). Although models vary in different states and counties, drug courts are typically comprised of common elements that include participant supervision, consequences for noncompliance, and substance abuse treatment (Carey et al, 2006; DeMatteo, Filone, & LaDuke, 2011; Kalich & Evans, 2006; Kassebaum & Okamoto, 2001).

Since the introduction of drug courts in the United States in 1989, research on drug court effectiveness has proliferated. Studies conducted on drug courts, including recent meta-analyses, have found that they are effective at reducing recidivism rates (Mitchell et al., 2011; Shaffer, 2011), and some studies show that the effects may last up to three years (Mitchell et al., 2011). The general consensus is that drug courts are a cost-effective method of reducing recidivism (Carey et al, 2006; Kalich & Evans, 2006; Mitchell et al., 2011; Shaffer, 2011).

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While drug court research continues to demonstrate positive outcomes, challenges exist for researchers relating to both treatment attrition and study attrition. The current pilot study was an examination of variables traditionally related to both drug court treatment attrition and research attrition. The fundamental and non-directional hypothesis was that participants who completed the study follow-up (three months) would be different from participants who did not complete the study.

Drug Court Treatment Attrition

Reasons that individuals drop out of drug court treatment may or may not be similar to reasons for research study attrition. In the current study, researchers attempted to predict study completion utilizing some of the same predictor variables found to be associated with treatment attrition. A number of factors may affect drug court treatment attrition. For example, Kassebaum and Okamoto (2001) found that criminal justice history (e.g. prior felony and/or drug conviction) was associated with a higher rate of termination or attrition from the drug court program in question. Of those with both a prior drug conviction and a felony conviction, 47% were terminated and 22% graduated. Only 5% of those with no prior drug or felony convictions were terminated and 60% graduated (Kassebaum & Okamoto, 2001). Participants who had been terminated from the program also had a higher likelihood of having been confined during their program, and had a longer average time of confinement than those who graduated. Of those who had been terminated without graduating, 58% had been confined while in the program. Of those who graduated, only 27.8% had been confined while in the program (Kassebaum & Okamoto, 2001). Kalich and Evans (2006) found that participants who were in 'bad standing' (attrition risk) with the drug court were more likely to have charges related to drug possession and property crimes than control group members; they were also more likely to use cocaine. Ultimately, criminal justice history, confinement while in the program, and specific types of drug abuse may be related to higher rates of drug court treatment attrition.

Treatment Attrition and Trauma-related Symptoms

While it is unclear if trauma is directly related to drug court outcomes, trauma related symptomatology may play a role in drug court treatment attrition. Scant research has examined the explicit impact of trauma history on drug court treatment outcomes; however, a body of evidence demonstrates a clear link between alcohol/drug abuse treatment attrition and histories of physical and sexual abuse (e.g., Amaro, Nieves, Johannes, & Cabeza, 1999; Claus & Kindleberger, 2002; Kang, Deren, & Goldstein, 2002). In a study on mental health issues among drug court participants, Weitzel, Nochajski, Coffey, and Farrell (2007) found that 32 of 108 participants reported traumatic events in their past, and 25% of these participants met the criteria for post-traumatic stress disorder (PTSD). Hagedorn and Willenbring (2003) similarly found that PTSD was one of the most common diagnoses among drug court participants in their study. In a study of offenders charged with driving under the influence (DUI) and receiving treatment, Shaffer, Nelson, LaPlante, LaBrie, Albanese, and Caro (2007) found that 11.5% of the participants had a past-year diagnosis of PTSD.

Drawing from the literature related to drug court treatment attrition, the current study explored demographics, alcohol and drug use, treatment and criminal justice history, and trauma symptoms as predictors of study follow-through in order to better understand attrition from drug court research studies.

Drug Court Research Methods

Although some of the empirical literature about drug courts has explored methodology related to study design and participant recruitment to minimize attrition (e.g., Hagedorn & Willenbring, 2003; Mateyoke-Scriver, Webster, Staton, & Leukefeld, 2004), less is known about individual characteristics that predict research attrition in drug court settings. Following up with drug-abusing participants in longitudinal substance abuse research is a difficult task, and attrition from research studies is fairly common (Hansten, Downey, Rosengren, & Donovan, 2000; Vaughn, Sarrazin, Saleh, Huber, & Hall, 2002). Attrition can lead to systematic bias in research studies due to the possibility of differences between groups who can be located and groups who cannot be located, and between participants who choose to follow-through and those who do not choose to follow-through. These differences limit generalizability of results (Hansten et al., 2000; Vaughn et al., 2002).

Although a few studies do exist, much less attention has been given to understanding the characteristics of individuals that lead to study attrition. In Hansten and colleagues' (2000) study, age was the only factor that proved to be significant when looking at participant characteristics and attrition. Those who were harder to locate tended to be younger (Hansten et al., 2000). Vaughn et al. (2002) also found that older participants were more likely to be retained in their study. They found that study participants who were easiest to track had better drug use outcomes than those in the most difficult-to-track group (Hansten et al., 2000). These results suggested it may be possible that those who are difficult to track or who 'drop-out' of the study by being difficult to find (as opposed to refusing) might be those who are having the most problems with substance use.

In line with other work examining drug court research attrition, we examined the relationship between psychosocial predictor variables and drug and alcohol use frequency over three months prior to arrest. As a first step toward understanding participant attrition, these exploratory analyses examined whether any of the following factors were predictive of study completion: 1) demographics, 2) alcohol/drug use severity and involvement, 3) criminal justice history, 4) perceived need for services, and 5) trauma symptoms. Our primary hypothesis was that there were fundamental differences between those who completed the study compared to those who did not.

Method

Participants and Procedures

With permission and support of the Amherst Town Drug Court Judge and court staff, recruitment took place over the course of one year (once per week) during drug court proceedings. Project staff briefly, privately, and confidentially screened and obtained informed consent from participants while they were at court. Participation in the study was completely confidential, meaning that neither the judge nor court staff had any knowledge of participant identity. Research staff stressed that participation in the study was not in any way linked to participation in drug court and that participation would have absolutely no bearing (positive or negative) on court reward or sanction mechanisms.

In order to volunteer to take part in the study, participants had to be new to the current drug court (i.e., accepted into court program within the last 30 days). Participants were eligible if they were over the age of 18. Participants were not eligible if they were unable to speak or read English. If reading was a challenge, but participants could understand English, research staff offered assistance in filling out the instruments. To take part in the study, participants were required to meet a cutoff score for problematic substance use using the Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993) or the Drug Abuse Screening

Test (DAST; Skinner, 1982). Participants were eligible if they scored six or higher on either the AUDIT or DAST (see Measures).

Eligible and voluntary participants were incentivized at baseline and follow-up (three months later) with gift cards of \$40 at each time point. Once recruited into the study, participants were given instructions and instrument packets to be completed and returned. To facilitate follow-up, research staff asked participants to supply contact information for themselves and another person who may be able to contact them in the event outreach attempts were unsuccessful. Eighty participants were screened for eligibility, 55 participants completed the baseline survey, and 26 participants completed the three-month follow-up.

Measures

Screening for alcohol and drug problem—The Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993) and the Drug Abuse Screening Test (DAST; Skinner, 1982) were used to screen for alcohol and drug abuse. Only eligible participant data were included in these analyses.

The AUDIT is a 10-item, brief self-report questionnaire that is useful for screening alcohol problems. Questions focus on problem drinking patterns, frequency, dependence, and quantity of consumption. Research has demonstrated high internal consistency and high reliability ($r=.86$) in samples of non-hazardous drinkers and alcoholics (Sinclair, McRee, & Babor, 1992). Example items are, “How often do you have a drink containing alcohol?” “How often during the last year have you had a feeling of guilt or remorse after drinking?” and “Have you or someone else been injured because of your drinking?” Scores range from 0 to 40 with cutoffs for problematic use ranging from 6–8 depending on the population of interest. In this study, the cutoff for eligibility was a score of 6 on either of the measures.

The DAST includes 20 items that focus on the consequences of drug use, and has demonstrated high internal consistency ($r=.92$). The purpose of the measure is to identify individuals who are abusing drugs and offer information about the degree of problems related to use. Example items are, “Have you used drugs other than those required for medical reasons?” “Have you lost friends because of your use of drugs?” and “Have you engaged in illegal activities in order to obtain drugs?” Scores can range from 0 to 20. Cutoff scores of 6 or higher are indicative of drug problems.

Alcohol and drug use frequency—The Quick Drinking Screen (QDS; Sobell, Agrawal, Sobell, Leo, Johnson-Young, Cunningham, et al., 2003) and an instrument adapted from the QDS were used to measure frequency of alcohol and drug use over the three months prior to arrest. The QDS has demonstrated good internal consistency and reliability with alpha coefficients ranging from .68 to .82. The outcomes of interest in the current study were related to frequency based on participant self-reports of the average number of days per week (during the past three months) participants used any alcohol or drugs. Participants were also asked to report the average number of drinks per day prior to arrest.

Complete criminal justice history—Criminal justice history was collected using a questionnaire developed by the Center for Advancing Longitudinal Drug Abuse Research at UCLA (www.caldar.org, 2010). The UCLA questionnaire was developed to facilitate cross-project analysis among research studies. The instrument includes items that are found across commonly used measures as a minimum standard for criminal history assessment. Questions are part of the UCLA Natural History Interview (<http://caldar.org/html/natural-history.html>). Test-retest reliability of the overall measure is described as high over several years with inter-variable correlations as high as .86 (Chou, Hser, & Anglin, 1996). Items focus on past (i.e., six-months, twelve-months, and life time) arrests, incarcerations, and specific types of

criminal involvement. Example items are, “How old were you the first time you were incarcerated?” and “How many times have you been arrested for possession of drugs?”

Treatment services—The Treatment Services Review (TSR; McLellan, Alterman, Metzger, et al., 1992) is an interview used to gather information about specific services provided to people attending substance abuse and other types of treatment programs. The TSR focuses on services for seven potential problem areas: medical status, employment, support, drug use, alcohol use, legal status, family/social status, and psychiatric status. In this study participants were asked (using an adapted self-report instrument) about the services that they received in the past 90 days, either in a program or outside of a program through referral. Because the instrument was adapted for self-report and not used in an interviewer format, reliability and validity coefficients from the empirical literature are not germane. Item examples are “Did you receive additional services to help resolve legal problems?” and “Resulting from drug use, were you treated as an outpatient?” The current analyses do not include reports of treatment dosage (e.g., hours in treatment).

Trauma-related symptoms—The Modified PTSD Symptom Scale Self-Report (MPSS-SR; Resick, Falsetti, Resnick, & Kilpatrick, 1991) assesses the severity of trauma-related symptomatology as well as the frequency of symptoms. The instrument consists of 17 items that correspond to the DSM-IV-TR criteria for PTSD. Versions of the instrument have demonstrated good internal consistency with treatment and community samples (.96 and .97 respectively). Items are rated on four-point frequency (ranging from 0 = “not at all” to 3 = “5 or more times per week”) and intensity scales (ranging from A = “not at all upsetting” to D = “extremely upsetting”). Respondents were instructed to report symptoms over the last two weeks that may be related to a past traumatic event.

Data Analysis

Initial analyses involved t-tests, analysis of variance (ANOVA), and nonparametric tests to first examine the differences between three groups: participants who completed only the screen (but who were eligible with scores > 6 on either the AUDIT or DAST) (n=22), participants who completed the baseline measure only (n=29), and participants who completed the final survey at the three-month follow-up (n=26). AUDIT and DAST total scores and individual items were examined for differences across all three groups. For baseline and completer groups, t-tests or nonparametric tests (to compare nominal data) were used to examine differences across all measures including individual items, subscales scores, and instrument totals where applicable. Only significant differences found across baseline survey measures were systematically entered (i.e., forward stepwise) into logistic regressions predicting study completion (1=Completion, 0=No Completion).

Results

Groups did not differ with respect to age, race, marital status, years of education, and employment. Baseline and completer groups did not significantly differ ($M=3.14$, $SD=2.46$ and $M=2.54$, $SD=2.85$ respectively) on the average number of days drinking alcohol or using drugs three months prior to arrest. When participants who completed the screen only were compared to those who completed the study using AUDIT and DAST scores, there were no significant differences. However, in both instances there is a trend for those who completed the survey to demonstrate more severe scores (see Fig.1). Moreover, those who completed the survey appeared to be accessing more outpatient treatment services (see Fig. 2). Those who completed the survey also appeared to be drinking more drinks per day (see Fig. 3).

Initial statistics (i.e., t-tests) demonstrated variable differences related to perceived need for treatment, criminal justice history, and trauma symptoms (see Table 2). Completers, more so than participants who completed only the baseline measure, perceived a need for additional medical treatment and additional services to help resolve legal problems. For baseline only completers and three-month study completers who experienced a traumatic event, those who completed only the baseline measure experienced reliving the trauma and irritability/anger related to said trauma significantly more often.

Based on the above significant differences, variables were entered into two different forward stepwise regressions. In the first regression, severity, service need, and criminal justice predictors were entered (N=48). In the second regression, only trauma predictors were entered (N=31) because not every participant reported ever having experienced a traumatic event. A decision was made to relax the significance level for variable inclusion to account for sample size and limited statistical power. A perceived need to help resolve legal problems appeared to be the strongest predictor of study completion. Recalling a traumatic event and reports of irritability/anger over the past two weeks was negatively related to completion (see Table 3).

Discussion

Understanding why participants would differ with respect to their research participation over time is complicated by several factors that may or may not be related to their treatment or program attrition. Drawing from the literature, we examined variables related to both treatment attrition and research attrition in drug court settings and hypothesized that research completers would be different from participants who only completed baseline measures.

Our findings demonstrated that group demographics did not differ. Participant drinking and/or drug use three months prior to arrest did not differ among groups. Perhaps the most notable trend was that participants who experienced more severity with respect to alcohol and drug problems and who were accessing outpatient treatments tended to complete the study at the three-month follow-up. Moreover, participants who perceived a need for help to resolve legal problems were more likely to complete the study. It may be that participants who experienced more problems, and consequently more drug court involvement, were more closely tied to drug court services. By virtue of their involvement in the court and perceived need, these participants may have been more available to take part in the study. Research has shown that high-risk participants may demonstrate better outcomes than lower risk participants (Marlow, Festinger, Lee, Dugosh, & Benasuttie, 2006) and this may be due to more appropriate treatment match. While it may seem counterintuitive that participants with more alcohol and drug problems would make for less challenging research follow-up, this may in fact, be the case.

Unlike research predicting program attrition (Kassebaum & Okamoto, 2001), the current study found no relationship between criminal history and study attrition. The current study did not find an association between confinement (i.e., jail time), charges, or drug use and study attrition, which is different from research demonstrating said links to program or treatment attrition (e.g., Kalich & Evans, 2006). Reasons for divergence from the empirical literature are unclear. These data do not show relationships between confinement, charges, drug use, and attrition; we are unable to draw any conclusions based on a lack of evidence. These data are limited by sample size and scope. We would be remiss in suggesting that these relationships would not exist if we had increased statistical power. Therefore, the reader should note that the current findings do not dispute past evidence of afore mentioned predictors; rather, the reader should be aware that there is a need for future research in this domain.

Drug court administrators as well as researchers should recognize a notable finding in this study; there is a relationship between trauma-related symptoms and study attrition. This finding may have important implications for treatment follow-up as well as protocols built into research designs. Specifically, researchers who note participants experiencing greater trauma-related symptomatology may wish to enhance follow-up protocols in an effort to make research be more trauma-informed. Mandated treatment and related research should be trauma-informed; both to provide the best services and to produce the best research.

Conclusion

Ultimately, there is need for continued research exploring the link between severity and study follow-through. Findings of the current study indicated a relationship between alcohol and drug problems, a perceived need for legal services, and study follow-through. Data trends also showed that being involved with outpatient treatment was associated with study completion. We submit that participants who experience greater substance use problems and are more invested in their case may be more invested in research involvement. Conclusions drawn from the current study are restrained due to the pilot sample size and pre-selected variables. As such, we urge future researchers to consider variables measuring biological factors that contribute to treatment outcomes (in addition to demographic and behavioral factors). In sum, researchers must continue to explore reasons for study completion and increase efforts to engage drug court enrollees in research, especially those with trauma histories and/or symptoms.

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Figure 1. Alcohol/drug use severity and involvement. AUDIT and DAST Scores are not significantly different. They are included to illustrate data trends.

Figure 2.

Percent of enrollees who reported having attended outpatient treatment at baseline. The difference is significant $p < .10$.

Figure 3. Number of drinks per day (prior to arrest) reported at baseline. The difference is significant $p < .05$.

Table 1

Demographics

Variable	Baseline Only (n=29)	Completers (n=26)
Age, In years, M (SD)	33.28 (10.17)	35.12 (10.50)
Gender, % Men	69.00	53.90
Race		
Caucasian/White, n,%	55.20	65.40
Black/African American, %	37.90	30.80
Hispanic, %	7.00	4.00
Other, %	--	3.80
Married		
Married/Cohabiting, %	24.10	7.70
Single, %	75.90	92.30
Highest Education, In years, M (SD)	12.22 (2.59)	12.70 (1.83)
Employment		
Full time, %	25.00	16.00
Part time, %	14.30	12.00
Unemployed, %	50.00	56.00
Other, %	10.70	16.00

Note. Demographics are not significantly different across groups. -- No available data. Other employment includes student, disabled, retired.

Table 2

Descriptive Statistics and T-test for independent samples, key measures

Variable	Baseline Only	Completers	<i>t</i>	<i>df</i>
Perceived need for treatment				
How important is...				
Additional treatment for your medical problem?	1.24 (1.43)	2.13 (1.33)	2.31 [*]	51
Additional services to help resolve legal problems?	1.75 (1.74)	2.73 (1.45)	2.26 [*]	52
Criminal justice history				
Number of times arrested in the past year?	1.11 (0.83)	1.69 (1.67)	1.65 [†]	52
Recalling a traumatic event, trauma symptoms past two weeks?				
Frequency of reliving a traumatic event.	0.89 (0.96)	0.36 (0.50)	-1.88 [†]	30
Frequency of irritability and outbursts of anger.	1.06 (0.96)	0.29 (0.47)	-2.73 [*]	29

Note.

Standard deviations appear in parentheses below means. Only Items demonstrating significant differences are included Perceived need for treatment is measured on a 5 point Likert-type scale ranging from "Not at all" to "Extremely." For trauma symptoms, only those participants who reported having ever experienced trauma are included.

[†]
= *p* .10,

^{*}
= *p* .05.

Table 3

Summary of Stepwise Logistic Regression Analyses for Variables Predicting Completion

Severity, Service Need, and Criminal Justice Predictors (N=48)	β	SE(β)	Odds Ratio	X ² Δ
Step 1.				
Additional services to help resolve legal problems?	0.48	0.20	1.62**	6.76**
Constant	-1.36			
Step 2.				3.16 [†]
Additional services to help resolve legal problems?	0.48	0.20	1.62*	
Resulting from drug use, treated as an outpatient? (1=yes)	1.42	0.84	4.15 [†]	
Constant	-1.66			
Step 3.				3.22 [†]
Additional services to help resolve legal problems?	0.36	0.21	1.43 [†]	
Resulting from drug use, treated as an outpatient? (1=yes)	1.45	0.88	4.30 [†]	
Number of times arrested in the past year?	0.54	0.33	2.62	
Constant	-2.13			
Additional treatment for your medical problem?	<i>a</i>			
How many drinks in a typical day?	<i>a</i>			
Trauma Predictors (N=31)				
Step 1.				
Recalling a traumatic event...				
Frequency of irritability and outbursts of anger.	-1.42	0.61	0.23*	7.32**
Constant	0.67			
Frequency of reliving a traumatic event.	<i>a</i>			

Note. Significance level for variable inclusion was relaxed to account for sample size.

[†]=*p* .10,

*=*p* .05,

**=*p* .01.

^aThe variable was not retained in the regression equation on the final step of the stepwise analysis. For trauma symptoms, only those people who reported having ever experienced trauma are included.