whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.
Predictors of Engagement in Court-Mandated Treatment: Findings at the Brooklyn Treatment Court, 1996-2000

MICHAEL REMPEL
Center for Court Innovation

CHRISTINE DEPIES DESTEFANO
Urban Institute, Justice Policy Center

ABSTRACT Past research indicates that more time in treatment yields better post-treatment outcomes, with 90 days of treatment often identified as a minimum threshold for achieving positive results, thus making it important to identify factors that predict meaningful engagement in treatment and to devise policies to assist subgroups facing a high risk of dropping out. Although a literature currently exists on voluntary treatment programs, fewer studies examine dynamics specific to court-mandated programs such as drug courts. Those programs use legal coercion applied via the threat of incarceration, coupled with ongoing court supervision, to motivate participants to succeed. Results were analyzed at the Brooklyn Treatment Court. Analyses looked at retention for at least 90 days of treatment, and engagement, defined as completing four consecutive months of drug-free and sanction-less participation. Multivariate analyses revealed that the level of legal coercion, measured by expected incarceration time in the event of program failure, strongly predicted both retention and engagement. Also predictive was the legal/emotional coercion faced by participants who indi-
cated at intake that they had a pending Family Court case whose outcome might hinge on the drug court outcome. Participation during the 30-day period immediately following program entry was as important as coercion. Warranting or failing to begin treatment within 30 days of formal entry strongly predicted dropping out. The following additional characteristics predicted dropping out: younger, primary drug of heroin, prior misdemeanor conviction(s), and residence in a neighborhood characterized by greater social isolation. Policy implications of all findings are discussed.

KEYWORDS Drug court, ethnicity, legal coercion, race, recidivism, social isolation, socioeconomic status, substance abuse history, treatment duration, treatment engagement

The substance abuse treatment literature consistently links more time in treatment to more favorable outcomes on measures such as drug use, criminal activity, and employment (Anglin et al., 1989; Collins and Allison, 1983; DeLeon, 1988(a); DeLeon, 1988(b); Hubbard et al., 1989; Lawental et al., 1996; Peters and Murrin, 1998; Siddall and Conway, 1988; Taxman, 1998; Taxman et al., 1999; Trone and Young, 1996). Some studies identify 90 days of treatment as a minimum threshold for achieving positive outcomes (e.g., De Leon 1984; Hubbard et al., 1989; Simpson, 1979, 1981; Simpson, Joe, and Brown, 1997). Yet, fewer than half of the participants in most community-based programs are retained for 90 days (De Leon and Schwartz, 1984; Joe and Simpson, 1976). Understanding why many participants abandon treatment prematurely, while others become seriously engaged, presents a critical challenge for the treatment community.

It was originally believed that participants voluntarily seeking treatment were more motivated and more likely to succeed in treatment than coerced participants. However, evidence is now mounting that coerced treatment is as effective as voluntary treatment at producing favorable outcomes (Anglin et al., 1989; Belenko, 1999; Collins and Allison, 1983; DeLeon, 1988(a); DeLeon, 1988(b); Hubbard et al., 1989; Lawental et al., 1996; Siddall and Conway, 1988; Trone and Young, 1996). Some programs, such as the Brooklyn Drug Treatment Alternative-to-Prison (DTAP), report a higher retention rate among their defendant population than non-defendants referred to comparable com-
munity-based treatment programs (Trone and Young, 1996). Responding to this evidence, court-mandated treatment programs proliferated during the 1990s, and national anti-drug policies broadened from interdiction and enforcement to put more emphasis on treatment. Court-mandated programs are characterized by the application of legal coercion, usually via the threat of incarceration, to motivate participants to succeed. Programs using the drug court model generally differ from earlier court-mandated programs by incorporating more intensive court supervision. Most drug courts require participants to report regularly for evaluation by a court-employed case manager and the drug court judge. Responding to progress, the judge uses a system of intermediate rewards or sanctions, including temporary jail stays, in an effort to motivate participants to remain in treatment.

With the recent explosion of drug courts, it is important for research to identify key characteristics associated with treatment retention among a court-mandated population and to develop effective policies to assist those facing a high risk of dropout. Yet, current studies analyzing predictors of success primarily focus on a voluntary population (Hiller, Knight, and Simpson, 1999), and few studies examine programs using the drug court model (for exceptions, see Peters, Haas, and Murrin, 1999; and Schiff and Terry, 1997). Although several locally funded drug court evaluations show predictors of retention, their methodologies are unknown, and their results were not disseminated except as project reports provided to the funder. For a summary of results from these evaluations, see Belenko (1998, 1999). The existing gap in the literature is addressed here by analyzing predictors of treatment engagement at the Brooklyn Treatment Court (BTC), a program for substance-abusing persons arrested in Brooklyn, New York.

**THE SIGNIFICANCE OF LEGAL COERCION**

Legal coercion has repeatedly been found critical in motivating participants to begin treatment and, once there, to remain in treatment (Anglin et al., 1989; Collins and Allison, 1983; DeLeon, 1988(a); DeLeon, 1988(b); Hubbard et al., 1989; Lawental et al., 1996; Peters and Murrin, 1998; Siddall and Conway, 1988; Trone and Young, 1996). For example, Trone and Young (1996) examined repeat felony defendants (facing three to six years in prison) participating in the Drug Treatment Alternative-to-Prison (DTAP) program and found that 63% were still in treatment at one year. In drug courts nationwide, Belenko (1998) estimates that 60% of participants were in treatment at one year. By comparison, only half of the participants in outpatient drug-free programs nationwide were still in treatment after just three months (Simpson et al., 1997). Trone and
Young attributed the high DTAP retention rate to the “credible threat of incarceration to keep people in treatment until their improvement begins to motivate them to finish the program” (1996: 9). Nonetheless, other studies found no relationship between legal status and treatment retention (Joe and Simpson, 1976; Sansone, 1980; and Simpson and Friend, 1988). Hiller et al. suggest that these “inconsistencies might be due in part to the variety of indicators used as estimates of legal pressure” (1998: 466).

Our review revealed primarily two analytic strategies for measuring legal coercion, and each has methodological limitations. One popular strategy is to study participants enrolled in community-based programs, distinguishing between those who are and are not subject to outside legal supervision (Anglin et al., 1989; Hiller et al., 1998). For example, Hiller and colleagues classified participants as facing low, medium, and high legal pressure and find that those under moderate and high pressure were more likely to be retained at 90 days than were those under low pressure. However, the low pressure group did not have any formal legal status, thus making it difficult to establish whether the moderate and high pressure groups were more likely to be retained due to legal coercion per se or due to other aspects of their legal involvement (e.g., court supervision, encouragement by parole or probation officers, regular drug-tests, etc.).

A second analytic strategy is to focus on participant perceptions as to the level of coercion facing them. For example, Young, Dynia, and Belenko (1996) found, using a sample consisting only of court-involved participants, that those perceiving greater legal pressure were likely to remain in treatment longer, even though objective program features did not vary systematically across participants. While clearly informative, this strategy leaves untested the impact of more objective differences in the level of coercion facing different participants: e.g., whether participants factually facing more incarceration time do better. Testing this is important, since it is easier for programs to manipulate their objective features than to affect the psychological processes underlying each participant’s perceptions. Accordingly, we developed a measure classifying the objective level of coercion facing different Brooklyn Treatment Court participants.

OTHER PREDICTORS OF TREATMENT ENGAGEMENT

Much research has studied other factors affecting treatment success outside a court-mandated population. This section reviews those factors found generally relevant. Some of the contradictory findings reported below underscore the difficulty in distinguishing which factors predict treatment success and
failure. In some instances, better theorization is needed to explain why certain relationships hold, as opposed to merely reporting results and then relating them to past results (which sometimes differ).

**Personal Characteristics**

Previous findings suggest that persons who are young, female, less educated, unemployed, and dependent on a highly addictive drug are at higher risk of treatment dropout.

*Age.* Research consistently shows that throughout the United States and other industrialized societies, criminal behavior peaks in late adolescence and gradually declines thereafter (e.g., Hirschi and Gottfredson, 1983; Farrington, 1986). Most explanations note that adolescents and young adults are particularly likely to seek autonomy and status through involvement in deviant peer groups, whereas deviant peer involvement diminishes as persons age (Hirschi and Gottfredson, 1983; Moffitt, 1993). Correspondingly, it is plausible that older persons tend to be more receptive to rehabilitative policy interventions such as drug courts. Another explanation for the “aging out” phenomenon among a substance-abusing population may be that over time, persons grow tired of their addicted lifestyle. Saxon reasons, “it makes sense that as opioid addicts grow older, increasing dissatisfaction with their addict life-styles, health concerns, and other factors associated with aging may make them more amenable to treatment” (1996: 1206). Indeed, several studies report that older participants are retained in treatment longer than younger participants (Grella et al., 1997; Mammo and Weinbaum, 1991; Sansone, 1980; Saxon, 1996).

*Sex.* In general, treatment outcomes for women are poorer than for men (Beckman, 1979; Mammo and Weinbaum, 1993; Wilsnack, 1982). In their analysis of 12,697 alcoholics admitted to outpatient treatment centers, Mammo and Weinbaum (1993) found that 48.8% of the women dropped out of treatment whereas 38% of the men dropped out. However, Mammo and Weinbaum cautioned that educational background may be a confounding variable, since the women in their study were more likely to lack college training (1993: 96). Poorer outcomes may also result because women are more often the primary caretakers of young children and sick family members, possibly creating external barriers to their ability to attend treatment. The literature suggests a need to control more carefully for confounding variables in pinpointing if and why sex-based differences exist. (See Beckerman & Fontana, this volume.)

*Race/Ethnicity.* To date, studies assessing race and treatment outcome have produced different results. Some conclude that race is significant (Peters and Murrin, 1998; Steer, 1980; Sansone, 1980; Saxon et al., 1996), while others report no relationship (Condelli and Hubbard, 1994; McFarlain et al., 1977).
Mammo and Weinbaum (1991) found that it is more likely for white and “other” race/ethnic groups than blacks and Hispanics to complete treatment. However, when social, demographic, and economic variables were controlled, they found that race is no longer significant. As with the analysis of sex, this highlights the need to control for socioeconomic variables. Additionally, it is important for research to study treatment programs designed specifically for different ethnic groups, since nonwhites may be particularly prone to drop out when treatment programs are not culturally sensitive to their needs (Beauvais, 1998; Fisher et al., 1996; Westermeyer, 1995).

Socioeconomic Status. Research indicates that higher socioeconomic status predicts better outcomes. Several studies report a positive relationship between educational background and treatment success (Hiller et al., 1998; Mammo and Weinbaum, 1991; Sampson et al., 1978). Other studies report a positive relationship between employment and treatment success (Hiller et al., 1999; Hser et al., 1990-91; Mammo and Weinbaum, 1991; McLellan et al., 1983(a); Siddall and Conway, 1988; Steer, 1980). One explanation may be that those higher in socioeconomic status have more to lose economically by continuing to abuse drugs. A second explanation derives from the social control theory of deviant behavior (Hirschi, 1969; Kornhauser, 1978; Sampson and Laub, 1993) which proposes that crime and other forms of social deviance become more likely when ties to mainstream social institutions are attenuated. Alternatively, when persons are significantly invested in mainstream social ties, for instance by becoming involved in a stable marriage, educational pursuits, or employment, they are more likely to avoid criminal behavior or to desist from prior criminal behavior (see also Laub, Nagin and Sampson, 1998).

Substance Abuse History. The literature indicates that the more addictive the participant’s primary drug of choice (e.g., heroin, cocaine, crack) the more difficult it is to break the addiction (Grella et al., 1997; O’Donnell et al., 1976; Robins, 1980; Peters and Murrin, 1998; Peters, Haas, and Murrin, 1999; Young, Dynia, and Belenko, 1996). The severity of the addiction, as measured by the amount, duration, and frequency of chemical use (McLellan et al., 1980, 1982), is also associated with post-treatment outcomes (Babor et al., 1988; Stanton, 1980). The literature on prior treatment episodes has produced differing results. On one end of the spectrum, some researchers found that failed prior treatment episodes predict attrition in future episodes (Beckman and Bardsley, 1986; Brown et al., 1982/1983; Leigh et al., 1984; Siguel and Spillane, 1978). On the other end, Maglione et al. (2000) found that those who reported prior treatment experiences were less likely to drop out. Still others reported no relation (Ball et al., 1988; Feigelman, 1987; Steer, 1983a, 1983b; Steer and Kotzker, 1978; Szapocznik and Ladner, 1977). Stark pointed out that the “effects of prior treatment history are confounded with age and longevity.
and severity of drug use” (1992: 103). Young participants with no prior episodes may drop out at a higher rate because of their age whereas older patients with extensive prior treatment may be retained due to their maturity.

Criminal History. Criminological research consistently demonstrates that prior delinquency is associated with future delinquency (Elliott and Menard, 1996; Thornberry et al., 1994). Elliott and Menard (1996) explained that interaction with delinquent peers tends to precede the onset of delinquency and to independently predict future delinquency (see also Elliott et al., 1985; Jensen, 1972; Matsueda and Heimer, 1987). Corresponding with this research, some studies of voluntary treatment participants report that those with more prior arrests are disproportionately likely to drop out (Babst, 1971). Similarly, in a study of coerced participants, Young, Dynia, and Belenko (1996) found that those with more prior prison sentences (which involve at least one year of incarceration) were retained for less time on average.

Other Personal Characteristics. Two additional variables have been found predictive of treatment retention, although they were not included in the present study. First, participants with little or no family/emotional support tend to have poorer treatment outcomes (Connor, 1998; Kingree, 1995; McLellan et al., 1992; Siddall and Conway, 1988). In this paper, the available measure of family support was whether the participant lived with family members at intake; but this measure was deemed inappropriate, since family members may themselves be addicts or a loving/supportive relationship may be absent. Following social control theory referenced earlier, we expected that emotional/family support would show a positive impact on retention only if family members were themselves integrated into the mainstream social structure. Since we believed we did not have an appropriate measure for family/emotional support that would take into account these issues, we did not include this variable. Second, psychiatric history has been an important variable in other studies, with the literature showing poorer retention rates and outcomes among a dually diagnosed population (Gottheil et al., 1992; McLellan et al., 1981, 1983(a), 1983(b); Rounsaville et al., 1987; Zuckerman et al., 1975). BTC does not use an effective, validated screening instrument to diagnose mental health disorders other than substance abuse. Hence we could not test the impact of mental health status.

Neighborhood Social Isolation

Previous research links neighborhood social isolation to a higher propensity for crime, drug use, single-parent households, and other social dislocations (e.g., Anderson, 1990; Jargowsky and Bane, 1991; Wilson, 1987, 1997). Social isolation applies to neighborhoods with widespread poverty, weak social institutions (e.g., schools, churches, or industry), and few gainfully employed
adult role models. Wilson (1987) argues that in neighborhoods high in social isolation, residents confront fewer social controls that might deter criminal behavior, substance abuse, and other forms of social deviance. Accordingly, neighborhoods high in social isolation may not provide a supportive environment for substance abuse recovery. Yet, a review of the literature resulted in no studies testing the impact of neighborhood social isolation on treatment outcomes.

**Participation Immediately After Program Entry**

Few studies assess the relationship between developments in the period immediately after a participant agrees to enter treatment and subsequent outcomes. One study by Leigh et al. (1984) examined treatment outcomes among 172 alcoholic patients attending an outpatient program. They found that a delay of more than 14 days from assessment to first appointment was a key discriminating variable between those who failed to show for treatment at all versus those who kept at least one appointment. However, that study did not report the eventual treatment completion rate for those who did show for at least one appointment. So it is possible that the majority of those participants dropped out of treatment prematurely as well. Other studies analyzing waiting time and treatment retention reveal conflicting results. Joe (1994) found that limiting the waiting time for placement into a substance abuse program did not affect attrition, while Maddux (1993) found that a two-week delay in admission resulted in a loss of 25% of substance abusers seeking treatment. And Mundell (1994) reported that addicts placed on waiting lists returned to their addict lifestyle and lost their motivation for change by the time a treatment slot became available.

**Summary/Hypotheses**

Previous research illuminates the overall effectiveness of coerced treatment for a defendant population (e.g., see especially reviews in Belenko, 1998, 1999). Not yet established are the critical factors that predict treatment outcomes, leading some court-mandated participants to begin with a better or worse chance of success than others. Extrapolating from the above body of research that mainly did not focus on a court-mandated population, the following may be hypothesized.

H1. **Coercion:** *Increased legal coercion is related to probability of treatment engagement.*
H2. Personal Characteristics:
  2a. Probability of treatment engagement varies positively with age.
  2b. Women are more likely to drop out of treatment than men.
  2c. Probability of treatment engagement varies positively with socio-economic status.
  2d. Number of mainstream social ties (e.g., to family, work, or school) is related to probability of treatment engagement.
  2e. Addiction severity is positively related to a probability of treatment dropout.
  2f. Prior criminal behavior is positively related to probability of treatment dropout.

H3. Neighborhood Social Isolation: Living in a neighborhood higher in social isolation is related to probability of treatment dropout.

H4. Early Program Participation: Following program entry, rapid initiation into treatment is related to probability of subsequent engagement.

BROOKLYN TREATMENT COURT OPERATIONS

Data for analysis came from the Brooklyn Treatment Court (BTC), which serves substance-abusing persons arrested on felony drug charges in Brooklyn, New York. Since opening in June 1996, BTC has operated as a demonstration project implemented under the stewardship of the Center for Court Innovation, a nonprofit court development organization. Until September 2000, BTC was only open to defendants arrested in three of five geographic zones of Brooklyn and is now institutionalized as a permanent part of the Brooklyn court system.

BTC participation begins after a potential participant pleads guilty to an eligible drug charge and agrees to a treatment mandate, which stems from the charges in the plea agreement and the participant’s criminal history. Participants also agree up front to a jail or prison alternative that will be imposed in the event of program failure. The four BTC treatment mandates are:

1. Misdemeanor: Participants pleading guilty to a misdemeanor are mandated to a minimum of 8 months in BTC and typically face 6 months in jail if they fail the program. (Although all BTC participants are arrested on felony drug charges, some reach plea agreements enabling them to plead guilty to a misdemeanor.)

2. First Felony: Participants pleading guilty to a first felony are mandated to a minimum of 12 months in BTC and typically face 1 year in either jail or prison if they fail the program.
3. **Multiple Felony:** Participants pleading guilty simultaneously to two or more felonies are mandated to a minimum of 18 months in BTC and typically face a minimum prison sentence of 1 1/2 years if they fail the program.

4. **Predicate Felony:** Participants pleading guilty to a *predicate* felony (i.e., pleading guilty to a felony and having at least 1 prior felony conviction) are mandated to a minimum of 18 months in BTC and typically face a minimum prison sentence of 3 years. Thus the minimum time in BTC is the same for multiple and predicate felons, but predicates face more prison time if they fail.

The four treatment mandates are divided into three *phases of treatment*. To complete Phase One, participants must complete four *consecutive months of drug-free and sanction-less participation*. The four months must be consecutive. Therefore, if a participant goes out on a warrant or tests positive for drugs before four months, the count starts over again. This makes it more challenging to complete Phase One than simply to total four cumulative months of treatment time. Since relapses and other program violations are common in each Phase—and especially at the beginning of Phase One—most *successful* participants spend more time in BTC than their minimum mandate requires. For example, of those completing Phase One, the median completion time is 8.2 months, over twice the four-month minimum. To complete Phase Two and Phase Three, participants must total additional predetermined numbers of consecutive drug-free and sanction-less months. (The minimums for participants with the misdemeanor mandate are 2 months in Phase Two and 2 months in Phase Three. The minimums for participants with the first felony mandate are 4 months in Phase Two and 4 months in Phase Three. And the minimums for participants with either the multiple or predicate felony mandates are 6 months in Phase Two and 8 months in Phase Three.)

As in most drug courts, BTC employs intensive court supervision requiring regular court appearances (usually once per month) for a drug test, case manager visit, and appearance before the BTC judge. Responding to participant compliance, the judge administers a system of graduated rewards and sanctions. To reward progress, the judge can offer verbal encouragement, requests for courtroom applause, or formal certificates of achievement. To sanction relapses or other infractions, the judge can require extra court visits, reassign participants to a more intensive treatment regimen, order temporary jail stays, or choose from a long list of other sanctions, depending on what seems appropriate. The judge can also fail participants for repeated non-compliance and incurring of sanctions, a violent or otherwise ineligible new arrest (e.g., due to heavy drug trafficking), or because the participant voluntarily opted-out and requested the incarceration alternative.
DATA AND METHODOLOGY

The Sample

Analysis is based on participant status at the end of June 2000 for the 1163 participants who entered BTC at least one year earlier. The one-year time frame was chosen to allow sufficient time to elapse for participants in the study to definitively complete or not complete Phase One. Nonetheless, 6% (70) of the sample had an indeterminate completion status and were excluded from most analyses.

Measures

Treatment Retention. Treatment retention is a dichotomous variable measuring whether the participant completed 90 days of treatment. When measuring 90 days of treatment, indeterminate status was applied to participants who had not yet completed 90 days but were still actively pursuing treatment, meaning that at the time of the analysis, their status was in compliance and under program supervision. We reasoned that these participants may eventually complete 90 days and therefore should not be grouped with the dropouts. Indeterminate status participants were not included in the analysis. A second subset of participants who had not yet officially failed the program but had been out on a warrant for more than 30 days as of the analysis were defined as dropouts.

Treatment Engagement. Treatment engagement is a dichotomous variable measuring whether the participant completed Phase One. Indeterminate status was applied here to two subgroups. The first consisted of those who had not yet completed Phase One but were still actively pursuing treatment (see explanation above). The second consisted of those who had not yet completed Phase One and had been out on a warrant for more than 30 days as of the analysis but had previously completed 90 days of treatment. We reasoned that these participants had previously made sufficient progress to render plausible a scenario in which they return from their warrant and complete Phase One. A separate analysis indicated that this scenario is approximately as plausible as not. Of those who entered BTC at least two years ago, completed 90 days of treatment, but were out on a warrant as of the one-year point, 38% eventually returned from their warrant and completed Phase One, 42% eventually dropped out, and 20% still lacked final completion status after two years. Since either completion outcome is possible, it was deemed inappropriate to place participants out on warrant after 90 days of treatment but before completing Phase One in either the completed or dropped-out categories. However, test analyses (results not shown) were conducted for multivariate models reported on in Table 2, in
which warranted participants were redefined as dropouts. All findings in these test models were substantively identical to those in Table 2, except that many of the p-values rose slightly. This was interpreted as a logical outcome of including participants as dropouts whose status should really be indeterminate.

Coercion. BTC has built-in differences in the objective level of legal coercion facing different participants because each of the four BTC treatment mandates corresponds with a progressively longer incarceration alternative. Such objective variations in coercion are unusual in court-mandated programs studied to date. For the analysis, we constructed a 4-category scale for whether the participant faced the misdemeanor, first felony, multiple felony, or predicate felony treatment mandate.

The BTC data capture a second form of coercion by measuring whether participants indicated at intake that they had a pending Family Court case to gain or retain custody of one or more of their children. Given project staff knowledge of participants, a “yes” response on the Family Court item was interpreted to indicate that a pending Family Court case exists and that this case was meaningful to the participant. “No” or “don’t know” responses were not interpreted to indicate the lack of Family Court cases, as some participants may be involved in such a case but may not respond affirmatively due to a lack of attachment.

Personal Characteristics. At an intake interview generally occurring the next business day after arraignment, potential BTC participants are administered a comprehensive psychosocial assessment. Responses to this assessment were used to establish key personal characteristics. Basic demographics included in the analysis were sex, age, race/ethnicity, and educational background. Race/ethnicity was recoded into 3 categories: Hispanic/Latino (both white and non-white), black, and Caucasian or other. Due to a lack of variance in the education measure, education was recoded into a dichotomous variable for whether the participant graduated high school. Additionally, two variables were included concerning the participant’s mainstream work and social ties. A dichotomous variable was constructed for whether the participant was either employed or in school at intake. Although past research has not joined employment and educational status in this way, theoretically, we considered that either employment or school participation should signify daily interaction with mainstream social controls (hypothesis 2d). Second, a variable was included to measure whether the participant was ever homeless. From prior analyses with the BTC data, it was found that a history of homelessness is more revealing than current homelessness. Participants with a history of homelessness may have weak social support networks from families or friends and may consequently be subject to weak social controls. Also, for some, a history of homelessness may be tied to mental illness, but we could not test this, since the BTC assessment does not use a validated screening instrument for mental health disorders.
Regarding substance abuse history, primary drug of choice is a categorical variable based on self-report of the primary drug of choice: heroin, crack, marijuana, and other (subsuming non-crack cocaine, alcohol, and a small number of other responses). Prior treatment episodes is a measure based on the participant’s self-report of previous substance abuse treatment (0, 1, 2, or 3 or more previous episodes). Also, a drug addiction severity index measuring the duration, frequency, and method of substance abuse was included in test regressions but eventually excluded, due to statistical insignificance and possible multi-collinearity stemming from its strong inter-correlation with primary drug.

Nearly all criminal history data was provided by the New York State Division of Criminal Justice Services (DCJS). Criminal history variables used in the analysis were whether the participant had at least one prior misdemeanor conviction and whether the participant had at least one prior felony conviction.

**Neighborhood Social Isolation**

Neighborhood social isolation was operationalized with two variables based on the participant’s zip code (used as the best available proxy for neighborhood). First, we constructed a social isolation score based on the product of (a) the percent of households with an annual income under $15,000, (b) the females-to-males ratio, and (c) the percent of residents younger than 18 years old. The latter two measures tap the percent of single-parent, female-headed households. Wilson (1987) identified a high prevalence of these households to indicate social isolation. Second, we included a variable for the percentage of black residents to test whether discrimination may have led to neighborhood-based disadvantages in predominantly black neighborhoods. Although our primary theoretical interest was in whether there was an impact of historical discrimination faced by African-Americans, in a test model, we included a variable for the percentage of minority residents (either black or Latino). This variable was insignificant in all bivariate and multivariate analyses. All zip code-based measures were constructed from demographic data compiled by Caci Marketing Systems (1999) and drawing on 1990 census data, official census projections for changes between 1991 and 1996, and Caci projections extending to 1999. Homeless participants were assigned the median statistic for all zip code-based variables.

**Participation Immediately After Program Entry**

Two variables were intended to assess progress within the 30 days immediately following a guilty plea and agreement to enter BTC. The first was a dichotomous variable measuring whether the participant disappeared from
program contact, prompting issuance of a police warrant, within the initial 30-day post-entry period. The second was a dichotomous variable measuring whether the participant attended at least one day of treatment within 30 days of entry. These variables were affected by a third, *days to first treatment placement*, which is the number of post-entry days it takes the BTC case manager to locate a suitable community-based treatment provider. Median days to first placement were 10 (17 for women and 7 for men). Multivariate analyses excluded days to first treatment placement due to its exceptionally strong inter-correlation with attending at least one day of treatment within 30 days (*r* = .535, *p* < .001).

**RESULTS**

**Rates of Treatment Engagement**

Figure 1 presents completion rates for 90 days of treatment and Phase One. For 90 days of treatment, 70% completed, 30% dropped out, and less than 1% had indeterminate status. For Phase One, 58% completed, 36% dropped out, and 6% had indeterminate status. Thus approximately 10% fewer participants completed Phase One than 90 days of treatment, confirming our expectation that Phase One is a more challenging marker of treatment engagement than the strictly quantitative 90 days measure.

**Bivariate Analyses**

Table 1 presents descriptive and correlational statistics for the predictor variables. Concerning descriptive information on BTC participants, some of the more salient statistics include the following:

- Thirty-eight percent of the participants were female and 62% were male.
- Thirty-eight percent of participants were Hispanic/Latino, 54% black, and 7% Caucasian or other.
- Participants face more severe socioeconomic disadvantages than the general population. Only 18% of participants were employed or in school at intake, and 28% were currently or formerly homeless. Furthermore, only 39% of BTC participants completed high school, 11% had any college education, and 2% completed four years of college. (The last two percentages are not displayed in Table 1.)
- Heroin (36%) and crack (36%) were the most prevalent primary drugs of choice, followed by marijuana (14%), alcohol (6%), non-crack cocaine...
(6%), and all others (2%). Twenty-seven percent report one prior treatment episode, 10% report two prior episodes, and 12% report three or more.

- Thirty-five percent of participants had at least one prior misdemeanor conviction and 20% had at least one prior felony conviction.
- Thirty-three percent pled to the misdemeanor treatment mandate, 53% to the first felony, 5% to the multiple felony, and 9% to the predicate felony mandate.
- Seven percent of participants (14% of females and 3% of males) said they had a pending Family Court case.

As hypothesized, the bivariate correlations (last two columns of Table 1) indicate that coercion increases the probability of treatment engagement. Receiving a more serious treatment mandate and having a pending Family Court case both correlated with Phase One completion. Regarding personal characteristics, older, black, and participants naming crack as their primary drug of choice were more likely to complete Phase One, whereas Latinos and participants naming heroin were more likely to drop out. Also, participants with at
## Table 1: Descriptive Statistics and Bivariate Correlation Coefficients for Variables Used in the Analysis: Brooklyn Treatment Court Participants Entering June 1996-June 1999

<table>
<thead>
<tr>
<th>Variable</th>
<th>Participant Characteristics</th>
<th>Correlation with Completing 90 Days of Treatment</th>
<th>Correlation with Completing Phase One</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coercion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legal mandate</td>
<td></td>
<td>.143***</td>
<td>.130***</td>
</tr>
<tr>
<td>Misdeemeanor mandate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First felony mandate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple felony</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Predicate felony</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legal/Emotional</td>
<td></td>
<td>.095***</td>
<td>.098***</td>
</tr>
<tr>
<td>Current family court case</td>
<td>7% (14% females)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Demographic/Socioeconomic Characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Participant Characteristics</th>
<th>Correlation with Completing 90 Days of Treatment</th>
<th>Correlation with Completing Phase One</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coercion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>38%</td>
<td>−.011</td>
<td>−.019</td>
</tr>
<tr>
<td>Age (mean)</td>
<td>33.2 (9.4)</td>
<td>.112***</td>
<td>.138***</td>
</tr>
<tr>
<td>Race / ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic / Latino</td>
<td>38%</td>
<td>−.102***</td>
<td>−.112**</td>
</tr>
<tr>
<td>Black / African-American</td>
<td>54%</td>
<td>.092**</td>
<td>.108***</td>
</tr>
<tr>
<td>Caucasian or other (other = 1%)</td>
<td>7%</td>
<td>.014</td>
<td>.003</td>
</tr>
<tr>
<td>Education: high school graduate?</td>
<td>39%</td>
<td>.020</td>
<td>.028</td>
</tr>
<tr>
<td>Employed or in school at intake</td>
<td>18%</td>
<td>.030</td>
<td>.036</td>
</tr>
<tr>
<td>Ever homeless?</td>
<td>28%</td>
<td>.006</td>
<td>.020</td>
</tr>
</tbody>
</table>

Substance Abuse History

<table>
<thead>
<tr>
<th>Variable</th>
<th>Participant Characteristics</th>
<th>Correlation with Completing 90 Days of Treatment</th>
<th>Correlation with Completing Phase One</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coercion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heroin</td>
<td>36%</td>
<td>−.111***</td>
<td>−.126**</td>
</tr>
<tr>
<td>Crack</td>
<td>36%</td>
<td>.112***</td>
<td>.111***</td>
</tr>
<tr>
<td>Marijuana</td>
<td>14%</td>
<td>.002</td>
<td>−.019</td>
</tr>
<tr>
<td>Alcohol</td>
<td>6%</td>
<td>.010</td>
<td>.031</td>
</tr>
<tr>
<td>Other (6% non-crack cocaine, 2% other)</td>
<td>8%</td>
<td>−.016</td>
<td>.016</td>
</tr>
<tr>
<td>Number of prior treatment episodes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zero (0)</td>
<td>51%</td>
<td>.025</td>
<td>.013</td>
</tr>
<tr>
<td>One (1)</td>
<td>27%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two (2)</td>
<td>10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three (3) or more</td>
<td>12%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Criminal History

<table>
<thead>
<tr>
<th>Variable</th>
<th>Participant Characteristics</th>
<th>Correlation with Completing 90 Days of Treatment</th>
<th>Correlation with Completing Phase One</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coercion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prior misdemeanar conviction(s)</td>
<td>35%</td>
<td>−.029</td>
<td>−.041</td>
</tr>
<tr>
<td>Prior felony conviction(s)</td>
<td>20%</td>
<td>.070*</td>
<td>.081**</td>
</tr>
</tbody>
</table>

Neighborhood Characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Participant Characteristics</th>
<th>Correlation with Completing 90 Days of Treatment</th>
<th>Correlation with Completing Phase One</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coercion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neighborhood social isolation score</td>
<td>121,396 (48,063)</td>
<td>−.044</td>
<td>−.043</td>
</tr>
<tr>
<td>Percentage black in neighborhood</td>
<td>53.7% (32.3%)</td>
<td>.018</td>
<td>.063*</td>
</tr>
</tbody>
</table>

Participation Immediately After Program Entry

<table>
<thead>
<tr>
<th>Variable</th>
<th>Participant Characteristics</th>
<th>Correlation with Completing 90 Days of Treatment</th>
<th>Correlation with Completing Phase One</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coercion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attended treatment within 30 days</td>
<td>69%</td>
<td>.265***</td>
<td>.238***</td>
</tr>
<tr>
<td>Warranted within 30 days</td>
<td>24%</td>
<td>−.330***</td>
<td>−.281***</td>
</tr>
<tr>
<td>Days to first placement</td>
<td>30.7 (65.9)</td>
<td>−.065*</td>
<td>−.062*</td>
</tr>
</tbody>
</table>

Note: N = 1093. Participants with indeterminate Phase One completion status are excluded. For the correlations, N = 1021 to 1093 depending on the number of missing cases. Numbers in parentheses are standard deviations. For all correlations, tau-b coefficients are given, since nearly all relationships are between variables with a small number of categories.

*For the correlation analyses, treatment mandate is coded on a 4-category scale from least to most serious mandate.

**For the correlation analyses, prior treatment episodes is coded on a 4-category scale (0, 1, 2, or 3 or more episodes).

The distribution of days to first placement has an exceptionally long tail. Thus the median days to first placement is X days, Y days less than the mean of Z days. For the correlations, the natural logarithm is used to create a more normal distribution.

*p < .05  ** p < .01  *** p < .001
least one prior felony conviction were more likely to complete Phase One. However, this last finding may be spurious. By definition, any participant with the predicate felony treatment mandate must have also had at least one prior felony conviction; and as just noted, receiving a more serious (e.g., predicate felony) mandate is strongly correlated with completing Phase One. The multivariate analyses (below) better discriminate the effects, if any, that are specific to treatment mandate and prior felony convictions. The effect of neighborhood social isolation did not reach statistical significance. Participants living in neighborhoods with a higher percentage of black residents were more rather than less likely to complete Phase One. Finally, variables measuring participation immediately after program entry were strongly correlated with completion status. Participants attending their first day of treatment within 30 days of program entry were significantly more likely to complete Phase One (tau-b = .238, p < .001). On the other hand, those disappearing on a warrant within 30 days were more likely to drop out (tau-b = -.281, p < .001). Participants were also more likely to drop out if a longer time elapsed before the case manager could locate a suitable first treatment placement, indicating the importance of the availability of appropriate treatment slots.

**Multivariate Analyses**

All independent variables were entered into a logistic regression equation predicting the probability of Phase One completion. Table 2 presents results for five different regression models. Due to concerns over multi-collinearity, the following variables included in earlier test models were excluded from the final analysis: annual income, drug addiction severity score, a score for level of alcohol dependence, days to first treatment placement, percentage minority in zip code, and initial court supervision level. Appendix A presents a simple correlation matrix for all independent variables. From the sample, 1093 participants had a clear Phase One completion status. Of these 156 (14%) were excluded due to missing data on one or more independent variables. The most serious data quality problem was that 72 (7%) otherwise analyzable participants had missing zip code information. Hence they were missing data for all variables measuring characteristics of the participant’s zip code. Note that homeless participants were not excluded based on missing zip code data but were assigned the median for all zip code-based measures.

Model 1 included the two variables measuring court-based coercion. Receiving a more serious treatment mandate (p < .001) and having a current Family Court case (p < .01) both strongly predicted Phase One completion. This confirms hypothesis 1 regarding the impact of legal coercion. The results also suggest that the theorized relationship should be broadened beyond strictly le-
Table 2: Coefficients from the Logistic Regression of Completing Phase One on Select Independent Variables: Brooklyn Treatment Court Participants Entering June 1996-June 1999

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coercion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legal: Treatment mandate</td>
<td>.375***</td>
<td>.443***</td>
<td>.452***</td>
<td>.566***</td>
<td>.126</td>
</tr>
<tr>
<td></td>
<td>(.000)</td>
<td>(.000)</td>
<td>(.000)</td>
<td>(.000)</td>
<td>(.402)</td>
</tr>
<tr>
<td>Legal/Emotional:</td>
<td>.856**</td>
<td>1.012**</td>
<td>.999**</td>
<td>1.046**</td>
<td>.598</td>
</tr>
<tr>
<td>Current family court case</td>
<td>(.005)</td>
<td>(.002)</td>
<td>(.003)</td>
<td>(.005)</td>
<td>(.273)</td>
</tr>
<tr>
<td>Personal Characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female sex</td>
<td>-.378*</td>
<td>-.189</td>
<td>-.106</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.022)</td>
<td>(.280)</td>
<td>(.572)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.043***</td>
<td>.041***</td>
<td>.036***</td>
<td>.049**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.000)</td>
<td>(.000)</td>
<td>(.001)</td>
<td>(.004)</td>
<td></td>
</tr>
<tr>
<td>Race / ethnicity&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-.125</td>
<td>-.164</td>
<td>-.247</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic / Latino</td>
<td>(.361)</td>
<td>(.259)</td>
<td>(.118)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black / African-American</td>
<td>(.371)</td>
<td>(.326)</td>
<td>(.149)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education: high school graduate</td>
<td>-.060</td>
<td>-.008</td>
<td>-.043</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.702)</td>
<td>(.959)</td>
<td>(.810)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed or in school at intake</td>
<td>.301</td>
<td>.341</td>
<td>.342</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.140)</td>
<td>(.110)</td>
<td>(.137)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ever homeless</td>
<td>-.023</td>
<td>.076</td>
<td>.009</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.890)</td>
<td>(.662)</td>
<td>(.960)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary drug of choice&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heroin</td>
<td>-.295*</td>
<td>-.264</td>
<td>-.206</td>
<td>-.953</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.022)</td>
<td>(.053)</td>
<td>(.155)</td>
<td>(.084)</td>
<td></td>
</tr>
<tr>
<td>Crack</td>
<td>.222</td>
<td>.209</td>
<td>.318*</td>
<td>-.571</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.085)</td>
<td>(.120)</td>
<td>(.029)</td>
<td>(.267)</td>
<td></td>
</tr>
<tr>
<td>Marijuana</td>
<td>.113</td>
<td>.008</td>
<td>.021</td>
<td>-.439</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.521)</td>
<td>(.967)</td>
<td>(.914)</td>
<td>(1.087)</td>
<td></td>
</tr>
<tr>
<td>Number of prior treatment episodes</td>
<td>.031</td>
<td>.056</td>
<td>.122</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.670)</td>
<td>(.471)</td>
<td>(.147)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prior misdemeanor conviction(s)&lt;sup&gt;d&lt;/sup&gt;</td>
<td>-.430**</td>
<td>-.373*</td>
<td>-.328</td>
<td>-.478</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.006)</td>
<td>(.024)</td>
<td>(.062)</td>
<td>(.087)</td>
<td></td>
</tr>
<tr>
<td>Prior felony conviction(s)&lt;sup&gt;d&lt;/sup&gt;</td>
<td>.149</td>
<td>.124</td>
<td>-.009</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.452)</td>
<td>(.556)</td>
<td>(.967)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neighborhood Characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social isolation score in zip code</td>
<td>-3.4E – 06*</td>
<td>-3.4E – 06*</td>
<td>-3.1E – 06</td>
<td>-1.4E – 06</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.035)</td>
<td>(.046)</td>
<td>(.095)</td>
<td>(.596)</td>
<td></td>
</tr>
<tr>
<td>Percent black in zip code</td>
<td>.001</td>
<td>.002</td>
<td>.004</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.734)</td>
<td>(.528)</td>
<td>(.273)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participation within 30 Days of Program Entry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warranted within 30 days</td>
<td>-.119***</td>
<td>-.1372***</td>
<td>-.193</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.000)</td>
<td>(.000)</td>
<td>(.603)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attended at least one day of treatment</td>
<td>.767</td>
<td>.857*</td>
<td>.190</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.000)</td>
<td>(.000)</td>
<td>(.536)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completion Status for 90 Days of Treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.002)</td>
<td>(.003)</td>
<td>(.000)</td>
<td>(.004)</td>
<td>(.000)</td>
</tr>
<tr>
<td>Chi-square</td>
<td>28.584***</td>
<td>93.172***</td>
<td>179.115***</td>
<td>198.537***</td>
<td>801.384***</td>
</tr>
<tr>
<td>Change in Chi-square</td>
<td>28.584***</td>
<td>64.588***</td>
<td>85.944***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nagelkerke R&lt;sup&gt;2&lt;/sup&gt;</td>
<td>.041</td>
<td>.129</td>
<td>.237</td>
<td>270</td>
<td>.782</td>
</tr>
</tbody>
</table>

Note: N = 937 in all models. Numbers in parentheses are p values (2-tailed significance test).
<sup>a</sup> The dependent variable in Model 4 is completing 90 days of treatment. In all other models it is completing Phase One.
<sup>b</sup> Based on a deviation coding scheme. The third (unlisted) category is Caucasian in 85% of these cases.
<sup>c</sup> Based on a deviation coding scheme. The fourth (unlisted) category is cocaine (non-crack) or alcohol in over 85% of these cases, and polydrug or none in the remainder.
<sup>d</sup> Based on N.Y.S. Division of Criminal Justice Services (DCJS) rap sheets. For 47 participants, based on self-report.
<sup>*</sup> p < .05  ** p < .01  *** p < .001
coercion (i.e., the threat of incarceration) to incorporate forms of external pressure that may, for instance, have a psychological/emotional component, such as the prospect of losing contact with one’s children. To more concretely indicate the magnitude of these effects, Figure 2 shows the percentages of participants completing Phase One with each treatment mandate and each Family Court status. The Phase One completion rates (when excluding indeterminate cases) were 55% for misdemeanor, 61% for first felony, 69% for multiple felony, and a convincing 84% for predicate felony participants. Also, the completion rates rose from 61% to 80% for participants indicating that they face a pending Family Court case.

On the impact of treatment mandate (which persists in Models 1-4), this finding is interpreted to mean that facing relatively more incarceration time predicts a higher probability of treatment engagement. But as an alternative interpretation, could a more serious mandate have other relevant implications that do not stem from the length of the incarceration alternative? In particular,

![Figure 2: The Impact of Coercion on Treatment Engagement: Percentage of Participants Completing Phase One (N = 1,093)](image)

*Note: Brooklyn Treatment Court participants entering June 1996-June 1999. Cases with indeterminate status are excluded.*
participants with a more serious mandate tend to receive an initial assignment to a more intensive level of court supervision (e.g., requiring more court appearances, drug tests, and mandatory days in treatment per month). Therefore, it could be that the more intensive supervision level, rather than legal coercion, underlies the increased probability of treatment engagement for those with a more serious mandate. In test analyses controlling for initial supervision level, it did not affect the probability of Phase One completion, and its addition to the regression model did not result in any change in strength in the effect of treatment mandate. This supports our initial interpretation of the treatment mandate finding. (Note that any change in court supervision level during program participation would result from compliance or treatment-based considerations and would thus proceed independently of the treatment mandate.)

Model 2 added the variables measuring personal and neighborhood characteristics. Compared with Model 1, there was a statistically significant increase in the chi-square statistic (p < .001). As expected, younger participants (p < .001) and women (p < .05) were more likely to drop out. Race/ethnicity did not have a significant effect, even after meeting a .001 significance standard in the bivariate correlations. Further analysis revealed that black participants are significantly older and Latino participants significantly younger than average. Thus the previous bivariate relationship between race/ethnicity and treatment engagement was not due to race per se but due to the inter-correlation of race and age.

Of the variables tapping socioeconomic background and social ties, educational background, employment/educational status, and homeless status were all insignificant. Participants whose primary drug was heroin were more likely than others to drop out (p < .05). Having a primary drug of crack and having prior treatment episodes had no significant effect. Regarding criminal history, participants with at least one prior misdemeanor conviction were more likely to drop out (p < .01). This finding is consistent with BTC staff observations that those with a history of nonviolent, low level offending often have a serious personal drug addiction. Finally, as hypothesized, participants living in neighborhoods scoring higher in social isolation were more likely to drop out. The proportion of black residents living in the participant’s neighborhood had no effect.

Model 3 added the two variables measuring participation immediately after program entry. Compared with Model 2, there was a statistically significant increase in the chi-square statistic (p < .001) and a substantial rise in the Nagelkerke R square from .129 to .237. As expected, disappearing on a warrant within 30 days predicted dropping out (p < .001), whereas attending at least one day of treatment within 30 days predicted completion (p < .001). In regards to the finding on warrant status, 98% of participants who disappeared on a warrant within 30 days eventually returned (voluntarily or involuntarily).
Hence their lower probability of treatment engagement was not due to disappearing forever from program contact but due to disappearing temporarily during a critical period and then never becoming seriously engaged thereafter, even after returning to court custody. It is additionally revealing that although 24% of all BTC participants disappeared on a warrant within 30 days, of those who first attended a day of treatment, only 12% then disappeared within 30 days.

Along with legal coercion and age, the two post-entry participation variables were the strongest predictors in Model 3. Figure 3 more concretely illustrates the magnitude of these effects. Phase One completion rates (when excluding indeterminate cases) rose from 44% for those not beginning to 69% for those beginning treatment within 30 days of program entry. Also, completion rates rose from 37% for those warranting to 69% for those not warranting within 30 days of entry. And completion rates were 50% for participants aged 16-25, 59% for participants aged 26-35, and 70% for participants older than 35.

After reaching significance in Model 2 (p = .022), sex ceased to exert a significant effect in Model 3 (p = .280). To explain this, we investigated the inter-correlation of sex with the two variables added in Model 3. Females were more likely than males to go out on a warrant within 30 days (tau-b = .101, p < .01) and were less likely to attend a first day of treatment in that time (tau-b = -.152, p < .001). We also found that females averaged more than twice as many days to first treatment placement as men (17 for females versus 7 for males) which suggests that females may be less likely to begin treatment within 30 days largely due to the greater difficulty that BTC case managers have in placing females. Indeed, when controlling for days to first treatment placement, the correlation between sex and attending treatment within 30 days became statistically insignificant (partial correlation = .043, p = .160). This means that females and males do not have inherently different Phase One completion rates. Females appear to have a lower completion rate due to the consequences of taking longer to place. From a policy standpoint, addressing sex-based differences in days to first placement emerges as an important challenge.

Although not to the extent of sex, primary drug of heroin (p = .053) and prior misdemeanor conviction(s) (p = .024) also weakened in significance after controlling for post-entry participation status.

Due to multi-collinearity concerns stemming from inter-correlations among many of the predictor variables (see Appendix A), we ran a test model (results not shown) deleting all variables that failed to reach statistical significance in Model 3. Variables in the test model were treatment mandate, Family Court status, age, primary drug, prior misdemeanor conviction(s), neighborhood social isolation, warranting within 30 days of program entry and beginning treatment within 30 days of program entry.
All relationships remained nearly the same as in Model 3, except that primary drug of heroin reached a substantially more robust significance level ($p = .001$).

Model 4 used the same predictor variables as Model 3, except that the dependent variable changed to retention status for 90 days of treatment. Results were generally similar to Model 3. The two post-entry participation status variables appeared noticeably stronger in their effects (from examining Wald statistics not shown), and some of the other variables appeared weaker, falling just under the .05 significance level: primary drug of heroin, prior misdemeanor conviction(s), and social isolation. It is additionally notable that in Model 4, a primary drug of crack significantly predicted retention rather than dropout ($p < .05$). This contradicts the common classification of crack as among the most highly addictive drugs.

The purpose of Model 5 was to determine, once a participant has been retained for 90 days of treatment, whether that became the only relevant fact predicting Phase One completion, or did other variables continue to affect progress. In other words, did factors rooted in background participant characteristics or early in-program participation diminish to predictive irrelevance after a certain
point, and did retention for 90 days of treatment represent such a point? It was plausible for other variables to become insignificant once it was known that a participant has been retained for 90 days, since it is known that most BTC dropouts fail the program early on. (For BTC dropouts, median time in treatment is 24 days). Nonetheless, from Figure 1, it was determined that approximately 10% fewer participants complete Phase One than complete 90 days of treatment, raising the question of whether the outcome for this 10% can be partially explained by any of the above predictor variables.

Statistically, Model 5 mirrors Model 3 except for three changes. The first was the addition, as an independent variable, of retention status for 90 days of treatment. The second was that all predictor variables are interaction terms. Treatment mandate is actually mandate multiplied by 90-day retention status, age is age multiplied by 90-day retention status, and so forth. By creating interaction terms, and controlling for 90 days of treatment, the model could estimate the effect of each predictor variable on Phase One completion once the participant is known to have completed 90 days of treatment. The third change was that Model 5 was simplified to include only variables that were statistically significant in either Models 3 or 4.

The results show that virtually all predictors from Models 3 and 4 became statistically insignificant in Model 5, including the previously robust predictors of treatment mandate, warranting within 30 days of program entry, and attending treatment within 30 days. The one predictor that exerted a significant effect in Model 5 was age (p < .01). Younger participants retained for 90 days of treatment remain disproportionately likely to drop out during the interim period before completing Phase One. Also, although these other findings fall short of the preferred .05 significance standard, participants with a primary drug of heroin or with prior misdemeanor conviction(s) were disproportionately likely to drop out during the interim period (p < .10).

Confirmation/Disconfirmation of the Hypotheses and Implications for Drug Court Policy

First and foremost, the results in this study powerfully demonstrate the impact of what happens after the arrest that prompted drug court participation. The three strongest predictors of treatment engagement, legal coercion, warranting within 30 days of formal entry, and attending treatment within 30 days, are all set after the initiating BTC arrest. Events occurring within the criminal justice system and within the drug court can greatly affect program outcomes.
Impact of Coercion

As hypothesis 1 proposed, legal coercion was among the strongest predictors. Participants whose treatment mandate implied a longer incarceration alternative were much more likely to complete both 90 days of treatment and Phase One. The ability to divide participants into different objective levels of legal coercion, while keeping other program components constant, was one of the key advantages of studying BTC. Most previous research compared voluntary and coerced populations but did not analyze, within a coerced population, whether the specific level of coercion made a difference. Our results show that persons seemingly in the throes of a drug addiction are not wholly entrapped by that addiction. Many respond to variations in the rational incentives confronting them.

These results have several potential implications. First, drug courts may benefit from admitting as serious a defendant population as local community values will accept. In this regard, the goals of being “tough on crime” and achieving rehabilitative and fiscal “results” may be in competition. As Figure 2 demonstrated, the Phase One completion rate for the most serious predicate felony subgroup (those with a prior nonviolent felony conviction) was an exceptionally high 84%. Hence, if predicates were excluded from the program, BTC would lose a subgroup that personally benefits at a high rate and provides by far the most efficient return on the financial resources invested. A cost-benefit analysis of correctional savings at the Brooklyn Treatment Court found that average savings per participant were $1,320 for misdemeanor participants, $12,365 for first felony participants, $14,256 for multiple felony participants, and then $57,534 for predicates, over four times the savings for the next highest multiple felony subgroup. Other drug courts are likely to benefit as well from offering the program to their most serious criminal subgroups.

Second, it would be sensible for drug courts to make participants aware of the clear and tangible consequences of treatment failure up front. Young, Dynia, and Belenko (1996) confirm that participant perceptions of legal coercion are an important mediating factor. In seeking to generate clear perceptions, drug courts using a “pre-plea” model may be at a disadvantage. In the pre-plea model, instead of requiring a guilty plea and setting an incarceration alternative in advance of participation, the court deliberates on the criminal case only if and when program failure occurs. Although some participants in pre-plea programs may have a sense of the legal consequences awaiting them if they do not complete their treatment mandate, it is likely that many do not. Confirming this expectation, Sung et al. (1999) report that the Brooklyn DTAP one-year retention rate rose from 64% to 74% after switching from a pre-plea to a post-plea model. Some policy-makers prefer the pre-plea model, because
they consider it better at protecting the legal rights of defendants. In this model, defendants have an opportunity to pursue treatment without having to plead guilty to an offense in advance. Hence defendants who might wish to fight the legal case against them, but are first willing to attempt treatment, do not have to sacrifice the former legal position to obtain the latter rehabilitative opportunity. Without specifically advocating the pre-plea or post-plea models, it is worth observing that the post-plea model, whereby defendants plead guilty and have an incarceration alternative set in advance of treatment, is advantageous for generating a clearer rational incentive to succeed.

Expanding on the questions addressed in this study, a future project would be to explore the impact on court-mandated treatment outcomes of lower treatment and graduation requirements. In BTC, incarceration alternatives and graduation requirements, such as minimum time in treatment, are almost perfectly correlated; participants with a longer incarceration alternative are also required to complete proportionately more treatment. For this reason, it is not possible to test whether participants facing the same incarceration alternative but different graduation requirements average different outcomes. But in theory, it is plausible that graduation requirements enter into the rational calculus of some participants. If drug court graduation is perceived to take less time, participants may become proportionately more likely to remain committed to complete their mandate even after experiencing early setbacks. Of course, drug courts may face institutional limits in what they can change. The courts presumably seek to develop graduation requirements that are an appropriate equivalent to normal prosecution. Also, programmatically, the requirements should be sufficient to make graduation substantively meaningful in terms of what it indicates about recovery. Research indicates that 90 days of treatment is a minimum threshold, but at least one year of treatment is ideal for producing meaningful therapeutic benefits. Nonetheless, for courts failing a high percentage of their participants, it would be useful to know whether adjusting graduation requirements might affect retention.

Besides legal coercion, participants indicating at intake that they had a pending Family Court case were also more likely to become engaged in treatment. We conceive that those trying to retain or regain custody of their children face a form of legal-emotional coercion. This coercion is rooted in the threat that failure would pose to the emotional bond between them and their children.

**Impact of Early Program Participation**

Previous findings on early program participation were mixed, although we hypothesized that it would be an important factor. Confirming hypothesis 4,
the results demonstrate that what happens during the 30-day period after pro-
gram entry critically affects outcomes. Two of the strongest predictors of both
retention for 90 days and completing Phase One were whether the participant
disappeared on a warrant within the first 30 days post-entry and whether the
participant attended a first day of treatment within that same time. Further
analysis revealed a more complex relationship. Specifically, we found that
once participants attend their first day of treatment, they then become substan-
tially less likely to go out on a warrant. This critical finding stresses the impor-
tance of rapidly placing participants into treatment in order to reduce the
probability of their disappearing on a warrant. Also, 98% of participants who
do disappear on a warrant within 30 days of entry eventually return, often in-
voluntarily if the police return them to BTC. Hence the problem is not that
these participants disappear forever from program contact. Rather, the prob-
lem is that warranting early precludes participants from becoming initiated
into treatment at a critical juncture. Consequently, after returning to court cus-
tody, the more frequent scenario is not subsequent engagement but is subse-
quent disappearances and returns, followed ultimately by program failure.

Although achieving a rapid placement is clearly paramount, some drug
courts may confront barriers beyond their control, such as a lack of appropriate
community-based treatment slots. In these cases, other policy initiatives may
be possible. These could include requiring more intensive court supervision
during the first month of participation: e.g., more case manager contact or
more appearances before the drug court Judge. Also, drug courts could have
onsite clinical staff administer a brief (e.g., 1- or 2-day) treatment readiness
program immediately after participation begins. Depending on program re-
sources, it may be possible to target extra services at those subgroups known to
be particularly difficult to place in treatment, such as women in the case of
BTC. For example, in the Brooklyn Treatment Court, results reported in this
paper led the Clinical Director to develop onsite therapy groups, open to par-
ticipants who it is believed may have to wait for a significant period before re-
ceiving their first placement in a community-based program.

Impact of Personal Characteristics

Age. Confirming hypothesis 2a, this study found that younger participants
are at higher risk of dropping out than are older participants. We proposed two
explanations, but without supplemental qualitative research, it is difficult to
evaluate them. The first was that younger persons tend to have more involve-
ment with deviant peer groups and to be more generally disposed toward devi-
ant behavior. The second was that younger participants have not been abusing
drugs for long enough to have grown sufficiently tired of the addicted lifestyle.
Regarding this second explanation, the BTC assessment interview includes a question on the participant’s age at the time of first drug use. From this it is possible to construct a variable for the length of the participant’s drug use career, from age at first use to age at intake. It would then be possible to test whether length of drug use career predicts treatment engagement. However, this variable turned out to be so heavily inter-correlated with age at intake ($r = .87$, $p < .001$) that the two variables were statistically indistinguishable. Hence we could not reliably test whether older age or longer length of drug use career is the more independently important factor. As a third explanation for the impact of age, perhaps because the court is intervening at the beginning of their adult criminal careers, younger participants tend to be maintained in less intensive treatment services. It may be that such services are not appropriate for these participants. It may be that younger participants would fare better if encouraged to enter more intensive services (i.e., therapeutic communities or inpatient) or if required to have more contact with the court, particularly early in program participation.

**Sex.** Based on previous research, hypothesis 2b proposed that females were more likely to drop out. This was the case in BTC, but when controlling for days to first treatment placement, the differences disappeared. Since the literature did not contain a compelling theoretical explanation for why female sex should matter, in retrospect, it makes sense that sex became insignificant after controlling for confounding factors. The results do suggest that it is critical to place women in treatment quickly. At BTC, females tended to wait more than twice as long as males to be placed, and this affected subsequent outcomes.

**Race/Ethnicity.** Previous research assessing the relationship between race and retention were mixed, and this study reported no effect. (Although race/ethnicity was significant in the bivariate analysis, this was strictly a result of the inter-correction between race/ethnicity and age, not an inherent effect of race.) Since most BTC participants are minorities, and most attend programs with a heavy minority clientele, minority participants are not isolated within BTC, and programs are likely to be culturally sensitive to their needs. It may be that the effects of race/ethnicity depend heavily on jurisdiction. Other drug courts, perhaps in communities with different demographics, may find that minorities do face race-specific disadvantages.

**Socioeconomic and Social Situation Variables.** Hypothesis 2c proposed that participants higher in socioeconomic status are more likely to become engaged in treatment. However, educational background had no effect (and in test regressions, annual income also had no effect). This may be due to a lack of variation in the BTC population, since only 11% of the sample had any college training at all, and only 2% graduated from college.
Hypothesis 2d submitted a more theoretical interpretation for how social characteristics may affect treatment outcomes. The theory was that participants with stronger mainstream social ties would be more likely to succeed. This theory does not hinge on facts about socioeconomic status per se, but is more concerned with the deeper substance of everyday interactions; to what extent do they bring participants in contact with mainstream, non-deviant institutions, activities, and others? Two variables were considered better measures of this than educational background: whether the participant was currently employed or in school at intake and whether the participant had a history of homelessness. But neither was significant. Besides the factor of low social differentiation in the BTC population, it is also possible that in drug courts, legal coercion, supplemented with intensive court supervision, can overcome certain barriers to treatment success that are otherwise rooted in social disadvantages. Pending the outcome of future research, it is conceivable that social disadvantages are generally more influential where treatment is more voluntary.

**Substance Abuse History.** Hypothesis 2e proposed that participants with a more severe addiction are more likely to drop out. Addiction severity based on self-reported amount, duration, and frequency of use of multiple illegal drugs had no effect in test models. However, primary drug of choice was significant. Participants addicted to heroin were more likely to drop out before completing Phase One, although the effect of heroin fell short of statistical significance in the regression of retention for 90 days of treatment. In that analysis, a primary drug of crack was significant in predicting retention, not dropout. Although heroin and crack are often grouped together in the most serious addiction category, the results suggest that a heroin addiction may be more difficult to overcome. This is actually consistent with other BTC research that when controlling for approximately the same variables as in this study, a primary drug of heroin, but not crack, strongly predicted needing more intensive inpatient treatment services (Rempel, 2000). Before generalizing, it may be relevant to consider the importance of methadone policies. BTC has a drug-free approach, and for participants already on methadone at the time of program entry, their dosage must be cut in half before qualifying for Phase One completion. (Methadone users exceeding 80 milligrams at intake are found ineligible for participation.) It is possible that in drug courts with different methadone policies, a heroin addiction would have different implications.

**Criminal History.** Hypothesis 2f proposed that prior criminal behavior is related to an increased probability of dropout. The results were that prior misdemeanor convictions predicted dropout, but prior felony convictions had no effect. Discussions with BTC staff suggest that prior misdemeanor offending suggests low level criminal behavior designed to support a particularly serious and hard-to-overcome addiction. Staff members explain that persons who are
deeply “strung-out” on drugs are not likely to be entrusted to perform major
drug sales transactions and therefore not likely to be caught conducting the
kinds of drug sales that would give them a more serious felony history. This
reasoning could not be tested in the current study. A recommendation for fu-
ture research would be to conduct qualitative studies with participants to dis-
tangle the relationships between criminal history, addiction severity, and
treatment outcomes. All research would benefit from continuing to distinguish
among types of offending (e.g., misdemeanor or felony), instead of using ag-
gregate measures such as total prior arrests or convictions.

**Impact of Neighborhood**

As hypothesis 3 proposed, higher neighborhood social isolation signifi-
cantly predicted dropout. As Wilson (1987) theorized, the measures used to
tap social isolation most likely serve as proxies for broader neighbor-
hood-based social disadvantages such as poor schools, economic under-devel-
opment, a lack of stable, regularly employed adult role models, and high rates
of crime, substance abuse and other social dislocations. Participants living in
socially isolated neighborhoods are likely to be surrounded by fewer interper-
sonal and institutional supports for their recovery. Relating this to social con-
trol theory (see above), socially isolated neighborhoods exert fewer social
controls on their residents to engage in mainstream forms of behavior. Al-
though the personal characteristics we used to test mainstream social ties (em-
ployment/educational status and homeless status) were not significant, the
finding on neighborhood social isolation suggests that social control may still
affect recovery. But social control may be better measured by aggregate char-
acteristics of the participant’s daily social environment than by individ-
ual-level indicators, such as employment status. This is in fact the position
advanced by Sampson et al. (1999) in studying “collective efficacy” among
children. Since to our knowledge no previous study has investigated the im-
 pact of neighborhood on substance abuse recovery, this would be an important
area for replication. Future studies might generate even more robust results by
using better measures of neighborhood, such as census tract instead of zip
code. As reported above, the impact of social isolation reached statistical sig-
ificance at the .05 level in Model 3, with Phase One completion as the de-
pendent variable, but only reached significance at the .10 level in Model 4,
with completion status for 90 days of treatment as the dependent variable. Still,
the existence of these significant effects is notable, given that zip code is not an
ideal measure for neighborhood.

If neighborhood remains significant in other studies, that might suggest a
need for more comprehensive policies designed to improve the range of social
conditions where substance-abusing populations live. It is beyond the scope of this paper to recommend broader policy changes. However, neighborhood-based policies discussed by Wilson and others include community-based redevelopment, better access to credit for businesses located in poor neighborhoods, housing projects designed to better integrate communities by race and income, and stronger local institutions such as schools, recreational facilities, or community-based social service institutions.

**Impact of Retention for 90 Days of Treatment**

Over 10% fewer participants complete Phase One than complete 90 days of treatment (see Figure 1). In other words, of those who complete 90 days of treatment, 80-85% go on to complete Phase One. Given this strong relationship, we tested whether, once a participant has completed 90 days, did that become the only relevant fact in predicting whether the participant will go on to complete Phase One. The results confirmed that the previous predictor variables were generally insignificant in their effects on Phase One completion, once knowing that the participant made it to 90 days. The one exception was age: younger participants were still disproportionately likely to drop out, even after reaching the 90-day marker. These results indicate that the initial period of participation is when drug courts most need to use information on predictors of engagement to assist those at risk of dropout.

**CONCLUSIONS**

Level of coercion, rapid initiation into treatment, and older age all strongly predicted treatment engagement in the Brooklyn Treatment Court. Although their effects were less robust, several other characteristics confirmed expectations in predicting dropout, notably heroin as the drug of primary use, prior misdemeanor conviction(s), and higher neighborhood social isolation. Since few previous studies examined predictors of treatment outcomes in court-mandated programs, and even fewer in drug courts, this is clearly a fruitful area for replication. Two of the significant factors in this study, Family Court status and neighborhood social isolation, have received minimal attention in even the larger literature focused on a non-defendant population.

In prioritizing future research, this study points to several specific needs. The literature would benefit from research comparing urban, suburban, and rural drug courts and examining jurisdictions with varying socioeconomic and racial compositions. Although race/ethnicity was not significant in Brooklyn, it may be more influential in other communities where treatment services are
less culturally diverse. Regarding socioeconomic variables, two factors might explain their lack of significance. First, BTC serves a relatively undifferentiated, low SES population. Second, socioeconomic factors may be generally less influential in a coerced population. External coercion and court supervision may elicit better results among participants who might otherwise be affected by disadvantages related to socioeconomic status.

Among the strongest findings of this study was the relationship between facing more incarceration time and treatment engagement. Extending this line of research, it would be useful to establish the full range of incentives to which participants respond. For example, holding the incarceration alternative constant, would participants respond to variations in the extent of their graduation requirements? That is, if a hypothetical treatment mandate of (e.g.) 10 drug-free and sanction-less months was lowered to (e.g.) 7 months, would more participants subsequently be retained through the critical Phase One engagement period, even if the incarceration alternative went unchanged.

In addition to broad incentives, such as the incarceration alternative and required time in treatment, do participants respond to more specific program components, such as intermediate rewards and sanctions, treatment modality, and the frequency of required court contacts? For instance, BTC uses an extensive system of graduated sanctions to respond immediately to relapses and other forms of non-compliance. It may be that some sanctions are more effective than are others at motivating participants to succeed after initial non-compliance. Additionally, it may be that certain subgroups are particularly appropriate for more intensive treatment services. It is possible that participants at a higher risk of dropout would benefit from the extra controls provided by an inpatient treatment setting. As the significance becomes clearer of the typical prediction variables analyzed in this study, it becomes important for research to look more closely at the treatment and recovery process in drug courts. In this regard, there is a compelling need to undertake more qualitative projects that attempt to learn from participants, through focus groups and open-ended interviews, what were the crucial barriers they faced, what factors motivated their success, and how drug courts can improve their services. With the recent proliferation of drug courts nationwide, researchers should have ample opportunities to explore these many questions.

NOTE

1. “The cost-benefit analysis in Rempel (2000) considered (1) incarceration savings from not sentencing participants who graduate, (2) incarceration costs of remanding participants before their first treatment placement, (3) incarceration costs of administering jail sanctions, (4) treatment costs, and (5) difference between the savings generated by the least serious misdemeanor subgroup and the most serious predicate subgroup will remain approximately the same in the final analysis.”
REFERENCES


AUTHORS’ NOTES

Michael Rempel is deputy research director at the Center for Court Innovation. He is actively involved in research on drug courts and domestic violence courts. He recently co-authored the evaluation of the Brooklyn Felony Domestic Violence Court. Currently, he is on a research team conducting an evaluation of all New York State Drug Courts. He has also published articles on contemporary social theory and the political sociology of advanced industrial societies. In 1997 he co-edited the volume Citizen Politics in Post-Industrial Societies, on post-1960s changes in the social structure of advanced industrial societies and their impact on social conflict and public opinion.

Christine Depies DeStefano is a research associate with the Justice Policy Center at the Urban Institute and has been involved in research on substance abuse treatment for offenders since 1996. Currently, she is assisting in the National Evaluation of Juvenile Drug Courts which consists of developing and assessing a conceptual framework for evaluating the success of drug courts when they are implemented in a juvenile justice context. She authored “The Relationship Between Treatment Completion and the Composite Scores of the Addiction Severity Index” and co-authored “Violence in the District of Columbia: Patterns from 1999” and “Treatment as Crime Control: The Impact of Substance Abuse Treatment on the Individual Offending Rates of Hard-core Substance Abusing Offenders.”

The authors would like to thank Judge Jo Ann Ferdinand, Adele Harrell, Carlen Rader, Valerie Raine, John Roman, and Michele Sviridoff for their valuable comments and suggestions on earlier versions of the paper. We also thank Judge Ferdinand, Valerie Raine, and other Brooklyn Treatment Court staff for their many insights on the court’s policies and participants. This research was supported by a grant from the Center for Substance Abuse Treatment of the Substance Abuse and Mental Health Services Administration to the Center for Court Innovation (CSAT No. 1-UD8-T11213-01). Prior criminal history data came from the New York State Division of Criminal Justice Services (DCJS). The authors are solely responsible for the methodology used and results obtained from using this criminal history data.

Address correspondence to Michael Rempel, Center for Court Innovation, 520 8th Avenue, 18th Floor, New York, NY 10018 (E-mail: mrempel@courts.state.ny.us).
## Appendix A: Intercorrelations of Independent Variables Used in the Logistic Regression Analysis: Brooklyn Treatment Court Participants Entering June 1996-June 1999

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Treatment mandate</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(2) Current family court case</td>
<td>-0.039</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(3) Female sex</td>
<td>0.020</td>
<td>0.227</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(4) Age</td>
<td>-0.056</td>
<td>-0.001</td>
<td>0.099</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(5) Hispanic / Latino</td>
<td>-0.053</td>
<td>-0.024</td>
<td>-0.211</td>
<td>-0.258</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(6) Black / African-American</td>
<td>0.091</td>
<td>0.046</td>
<td>0.202</td>
<td>0.233</td>
<td>-0.862</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(7) High school graduate</td>
<td>-0.071</td>
<td>-0.007</td>
<td>-0.024</td>
<td>-0.207</td>
<td>-0.197</td>
<td>-0.142</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(8) Employed or in school</td>
<td>0.001</td>
<td>-0.082</td>
<td>-0.255</td>
<td>-0.166</td>
<td>0.074</td>
<td>-0.097</td>
<td>-0.075</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(9) Ever homeless</td>
<td>0.008</td>
<td>0.074</td>
<td>0.132</td>
<td>0.074</td>
<td>-0.063</td>
<td>0.080</td>
<td>-0.093</td>
<td>-0.142</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(10) Prior treatment episodes</td>
<td>0.077</td>
<td>-0.047</td>
<td>0.000</td>
<td>0.031</td>
<td>0.363</td>
<td>-0.378</td>
<td>-0.037</td>
<td>-0.090</td>
<td>0.042</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(11) Prim drug of heroin</td>
<td>-0.026</td>
<td>0.114</td>
<td>0.267</td>
<td>0.182</td>
<td>-0.314</td>
<td>0.352</td>
<td>-0.059</td>
<td>-0.148</td>
<td>-0.095</td>
<td>-0.559</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(12) Prim drug of marijuana</td>
<td>-0.004</td>
<td>-0.042</td>
<td>-0.239</td>
<td>-0.440</td>
<td>0.012</td>
<td>-0.008</td>
<td>-0.071</td>
<td>-0.220</td>
<td>-0.106</td>
<td>-0.298</td>
<td>-0.310</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(13) Prior misdemeanor cv(s)</td>
<td>-0.035</td>
<td>0.129</td>
<td>0.129</td>
<td>0.161</td>
<td>-0.085</td>
<td>0.062</td>
<td>0.089</td>
<td>-0.122</td>
<td>0.168</td>
<td>0.119</td>
<td>0.084</td>
<td>-0.239</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(14) Prior felony cv(s)</td>
<td>0.003</td>
<td>0.008</td>
<td>0.139</td>
<td>0.185</td>
<td>-0.074</td>
<td>0.081</td>
<td>0.030</td>
<td>-0.140</td>
<td>0.114</td>
<td>0.022</td>
<td>0.089</td>
<td>-0.138</td>
<td>0.068</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(15) Social isolation</td>
<td>0.322</td>
<td>-0.043</td>
<td>0.104</td>
<td>0.087</td>
<td>0.078</td>
<td>-0.048</td>
<td>0.001</td>
<td>-0.061</td>
<td>0.077</td>
<td>0.078</td>
<td>0.007</td>
<td>-0.109</td>
<td>0.087</td>
<td>0.207</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(16) % black in neighborhood</td>
<td>0.014</td>
<td>0.004</td>
<td>-0.027</td>
<td>-0.045</td>
<td>0.111</td>
<td>0.029</td>
<td>-0.144</td>
<td>-0.020</td>
<td>0.021</td>
<td>0.041</td>
<td>0.031</td>
<td>0.018</td>
<td>0.006</td>
<td>-0.049</td>
<td>-0.062</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(17) Warranted w/in 30 days</td>
<td>-0.204</td>
<td>0.067</td>
<td>0.167</td>
<td>0.209</td>
<td>-0.469</td>
<td>0.600</td>
<td>-0.053</td>
<td>-0.069</td>
<td>0.089</td>
<td>-0.224</td>
<td>-0.288</td>
<td>-0.048</td>
<td>0.054</td>
<td>0.006</td>
<td>-0.041</td>
<td>0.255</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(18) Attended w/in 30 days</td>
<td>-0.107</td>
<td>0.018</td>
<td>0.115</td>
<td>0.017</td>
<td>-0.064</td>
<td>0.068</td>
<td>-0.000</td>
<td>-0.058</td>
<td>0.072</td>
<td>-0.005</td>
<td>0.035</td>
<td>-0.058</td>
<td>0.037</td>
<td>0.062</td>
<td>-0.065</td>
<td>0.028</td>
<td>0.050</td>
<td>-</td>
</tr>
</tbody>
</table>

**Note:** N = 937. Coefficients are simple Pearson's R correlations. Cases are those included in the logistic regression models reported in Table 2.