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Treatment Court Program Evaluation in a Mid-sized Oregon County

Omar Melchor, Ph.D., and Vivian Djokotoe, Ph.D.

EXECUTIVE SUMMARY

- ◆ The analysis revealed that males who spent more days in the program and who were arrested less often had the best chances of successfully completing the program.
- ◆ Only 'Program Status' and 'Days in the Program' predicted the odds of being arrested post-program. Those who completed and/or spend more days in the program are arrested less often after leaving the program.
- ◆ Being arrested while in the program stood out as a common occurrence and as a significant predictor of program failure. More than half of all participants were arrested and spent some time in jail while in the program. Although all program participants had similar criminal backgrounds, those who were terminated had an average of five times more in-program arrests than those who graduated. Each in-program arrest significantly decreased the odds of program completion.
- ◆ Five times as many terminated DCP participants, and twice as many terminated MHCP participants were arrested post-program, compared to their graduated counterparts.

Parole and Post-Prison Supervision to supervise approximately 625 felony and misdemeanor offenders within their community. The agency utilizes a range of practices and programming, and treatment and intervention resources to assist Justice Involved Individuals (JII's) within the community. This effort includes participation in a Specialty Court program that offers intensive treatment, supervision and support to offenders who have been approved program entry. This program offers an alternative to incarceration and traditional probation for eligible offenders, and it requires the participants to attend assigned treatment sessions, community-based self-help groups, and meet with their counselors and Probation Officer regularly.

Statement of Purpose

Within the Treatment Court, the County Drug Court Program (DCP) is a specialized, multi-agency program for Justice Involved individuals with a substance use disorder. Until April of 2021, the county also sustained a similar Mental Health Court Program (MHCP). As the agency's mission statement asserts, and as research has long established, practices and programs used in supervising offenders and assisting them in taking responsibility for their criminal behavior are most effective when these are evidence-based and evaluated through research (Wright et al., 2013). To that end, the county engaged the Western Restorative and Criminal Justice Research Center (WRCJRC) to assist with the statistical analysis and interpretation of raw data provided on both the DCP and MHCP programs. The overall goal of this evaluation is to 1) assess whether program participation, or other variables provided by the county, are correlated, or causally related to recidivism outcomes, and 2) to assess what factors influence program success—as measured by

Introduction and Background

The program evaluation for this study is based on a mid-size county in Oregon. The county provides parole and probation supervision, services and sanction programs, and works in partnership with the courts, law enforcement, and the State Board of

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program completion. Through this analysis, WRCJRC will provide the county with summary statistics to understand this data in terms of demographics, retention patterns, and factors that may be correlated with program outcomes and recidivism patterns post-program.

Data and Methods

The DCP data contained information on 137 participants who entered the program between June of 2007 to November 2021. However, the majority of participants (96.4%) entered the program after 2013¹. The MHCP sample contained information on 44 participants who entered the program between July of 2017 to November 2020. As mentioned previously, the MHCP ended in April of 2021. Both data sets contained basic demographic variables including age, gender, and race. In terms of offending, the data contained variables related to participants' offending patterns prior to entering the program, as well as offending during the program. Most importantly, the county collected data on participants' recidivism and their offending patterns up to three years post-program. This data will allow us to analyze factors that may be correlated with those recidivism patterns. This report will discuss the DCP and MHCP programs separately. The focus will first turn to the Drug Court Program since the data provided on this program contains the most participants and data points for analysis.

Demographics and Characteristics of Drug Court Program Participants

In line with national trends, participants in the DCP were evenly distributed in terms of gender (see Table 1). In terms of race, and consistent with broader demographics in the county and in Oregon, whites accounted for the majority of the sample (91%). Those of Hispanic origin were under-represented and accounted for only 5% of the sample, although they account for about 12% of the population in the county (*Oregon Counties by Population*, n.d.). The mean participant age at the time of the arrest leading to the program was 32.34

¹ Data was only available for five participants who entered the program between 2007 and 2012. The county indicated that there were other program participants whose

years, and the youngest and oldest participants ranged in ages from 18 to 64 years old.

Table 1: Drug Court Participant's Demographics

Variable	n	%
Race		
Black	2	1.46
Hispanic	7	5.11
Native	3	2.19
White	125	91.24
Gender		
Female	68	49.64
Male	69	50.36

Note. Due to rounding errors, percentages may not equal 100%.

Table 2 summarizes the criminal history of this group. On average, participants were arrested 9.81 times, and convicted 3.91 times prior to entering the program. On average, participants were arrested and convicted at approximately twice the rate for misdemeanors compared to felonies. Criminal history data also suggests that participants were most often arrested for a statutory misdemeanor offense (M = 5.79) followed by probation violations (M = 2.82), prior to entering the program (table available but not shown). In terms of convictions, however, participants were most likely to be convicted for a drug felony (M = 1.26), followed by a property felony (M = 1.21).

Table 2: Criminal History Summary Statistics

Variable	M	SD	Min	Max
Prior Arrests Total	9.81	10.11	1	60
Prior Conviction Total	3.91	2.72	1	16
Prior Felony Arrests	5.25	5.66	0	32
Prior Misdemeanor Arrests	10.46	12.26	0	78
Prior Felony Convictions	2.77	2.38	0	13
Prior Mis Convictions	1.17	1.46	0	10
Prior PV Arrests	2.82	4.56	0	33

Regarding the offense type directly leading to their referral into the program, the majority of individuals were referred for a felony, rather than a misdemeanor conviction (n = 116, 84.67%). It was also common for some individuals to be convicted for more than one offense. Figure 1 presents information on the type of offense that participants

information was not collected or included, prior to 2013. Data collection efforts improved after 2013, and data is accurate and complete after that year.

were convicted for, leading into the program. For ease of analysis, the primary type of offense for which a participant was convicted was coded into crime categories. Participants were most often convicted for a drug-related offense (57%), followed by property offenses (22.6%), and vehicle or driving-related offences (15.3%).

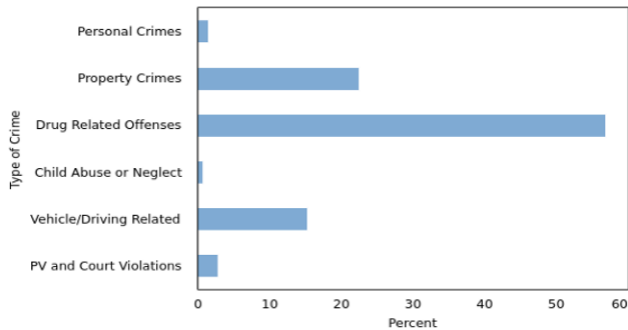


Figure 1: Offenses Leading to Drug Court Program

Program Related Measures

Participants entered the program an average of 33 days after being referred and spent an average of 372.28² days in the program (SD = 212.12; Min = 17; Max = 885). Figure 2 provides a visual representation of how the data is distributed for this variable. The vertical lines (whiskers) indicate what scores lie outside of lower and upper quartiles (i.e., bottom and top 25 percentiles). The box indicates the middle 50% and the bar inside the box is the median (middle value) of the score. The boxplot also suggests that half of the participants spent between 205 and 535 days in the program.

Participants in the sample varied in terms of their status relative to the program. Approximately half (49.6%) of all participants were terminated, which means that they were expelled from the program

because of a new offense. More than one-third of the sample (34.3%) graduated³ from the program, and approximately 9% (n = 12) were still active at the time of this analysis (see Table 3). It is also important to mention that participants who were terminated spent a considerable number of days in the program. As Figure 3 indicates, those who were terminated had roughly half the amount of ‘program days’ as those who graduated or completed the program (236 vs. 506 days, respectively). This is an important fact because it is possible that ‘program exposure’ (measured by number of days in the program) could have influenced recidivism outcomes, even if the participants did not actually graduate from the program. This will be explored later in the analysis

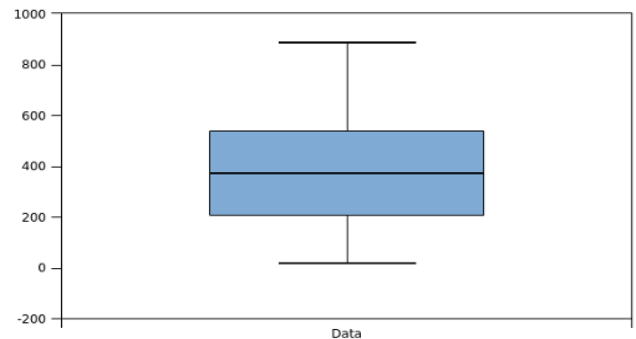


Figure 2: Boxplot of Court Program Days

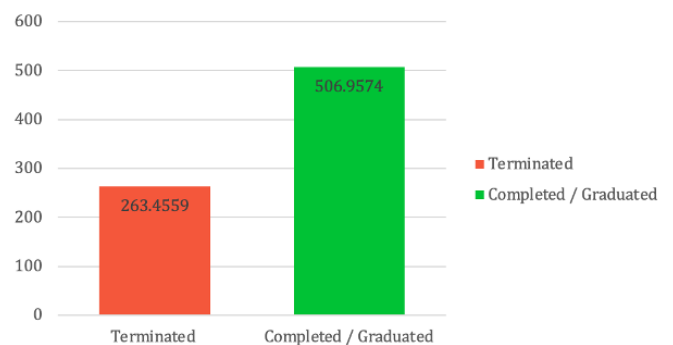


Figure 3: Average Days Spent in Program

² Program days does not equate to ‘program exposure’ or ‘program progress’. Participants who have spent the same number of days in the program, have not necessarily completed the same requirements, or have not had the same level of exposure.

³ Graduation means that the person has completed the program and is no longer on probation. Program completion

means that they have completed their programming, but they are still in probation. For this report, because of simplicity and the relatively small sample size of those who completed the program, we refer collectively to these groups as ‘graduated’.

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Program participants were also assessed a risk level for reoffending at program entry and program exit. The risk instruments used for the assessment at program entry are listed on Table 3. The most common tool (used in 48% of cases) was the Level of Service/Case Management Inventory (LSCMI). This tool was used primarily for males, where the Women’s Risk Needs Assessment (WRNA) was the preferred tool used for females. Of particular interest, almost half (45.26%) of participants had a high risk of reoffending at the time of program entry, as opposed to less than one-third (29.93%) at program exit. Although this does not establish correlation or causation between program exposure and actual reoffending outcomes, it does indicate that participants were assessed as being less likely to recidivate than when they started the program. Correlations and causal relationships are assessed later in this analysis.

Table 3: Measures Related to Program

Variable	n	%
Status of participants		
Terminated	68	49.64
Graduated	42	30.66
Dismissed	3	2.19
Completed	5	3.65
Abscond	6	4.38
Active	12	8.76
Transferred	1	0.73
Risk Tool at Program Entry		
LSCMI	66	48.18
WRNA	21	15.33
PSC	48	35.04
Missing	2	1.46
Risk at Program Entry		
Low	35	25.55
Medium	40	29.2
High	62	45.26
Risk at Program Exit		
Low	30	21.9
Medium	48	35.04
High	41	29.93
Missing/Abscond	18	13.14

Arrests, convictions, and time in jail. Program participants could have also spent time in jail while being in the program, for example, if they violated the terms of probation or committed a new offense. A slight majority were arrested (51.7%, n = 62), and roughly 75% (n = 88) also spent some time in jail while in the program. However, the average number

of days they spent in jail was relatively low (23.56 days; SD = 30.99)⁴. Table 4 also presents summary statistics for these arrests by crime type. In sum, program participants were most likely to be arrested for a statutory misdemeanor or a probation violation. The chances of being convicted while in the program were very low (M = .14; SD = .37—not shown in table).

Table 4: Summary Statistics of Arrests During the Program

Variable	M	SD	Min	Max
Drug Felony	0.14	0.52	0	4
Drug Misdemeanor	0.03	0.16	0	1
Property Felony	0.22	0.8	0	5
Property Misdemeanor	0.12	0.61	0	6
Person Felony	0.009	0.09	0	1
Person Misdemeanor	0.02	0.13	0	1
Statutory Felony	0	0	0	0
Statutory Misdemeanor	1.62	3.57	0	30
Probation Violation	0.46	1.13	0	8

Data was also collected on recidivism post-program by the county. Summary statistics on arrests and convictions one, two, and three years after program exit are presented on Table 5. According to the data, participants were arrested only two times, on average, post-program. These arrests were evenly distributed among the three years after being in the program.

Table 5: Statistics of Arrests and Convictions After Program

Variable	M	SD	Min	Max
Total Arrests	2.15	3.54	0	26
Total Convictions	0.62	1.13	0	6
Arrests After Year 1	0.87	1.38	0	7
Convictions After Year 1	0.38	0.83	0	4
Arrests After Year 2	0.79	1.39	0	8
Convictions After Year 2	0.22	0.62	0	4
Arrests After Year 3	0.72	1.72	0	11
Convictions After Year 3	0.08	0.38	0	2

⁴ According to the county, statistics on jail were only available for participants who were admitted to the Marion County jail.

Group Differences in Offending

The overall goal of this analysis is to assess whether program participation, or other variables provided by the county, are correlated or causally related to recidivism outcomes. Participants in the DCP sample differ primarily in terms of their status as it related to the program. A participant could be classified as either terminated, graduated, dismissed, completed, abscond, active, or transferred. For a more meaningful analysis, and because of the very small sample sizes, those who were dismissed ($n = 3, 2.1\%$), in abscond status ($n = 6, 4.3\%$), or transferred ($n = 1, 0.7\%$) were excluded from the analysis. Similarly, those that were still active in the program ($n = 12, 8.7\%$) were also excluded because they had no post-program data. Participants who either graduated ($n = 42, 30.6\%$) or completed the program ($n = 5, 3.6\%$) were combined into one category because of the relatively small sample size of those who completed the program and because of the similarity between the two groups in relationship to their program status. An important first step in this analysis is to examine mean group differences in terms of arrest and conviction rates prior, during, and after the program. Thus, the analysis below will compare those who were 'terminated' from the program to those who 'graduated'.

Table 6 presents summary statistics on arrests and convictions for the two groups, prior and during the program. The two groups are similar in terms of arrests and convictions prior to entering the program. However, those who were terminated had an average of five times more arrests, and four times more convictions than those who graduated, while in the program. Similarly, Table 7 presents average arrests and convictions after being in the program⁵. Not surprisingly, those who graduated were arrested at a rate of approximately five times less than those who were terminated (0.61 vs. 3.14). This pattern holds true for each individual year after being terminated or graduated from the program. Although to a lesser extent, the same disparities are observed

in terms of conviction rates. Figure 4 presents group differences in terms of crime of conviction at program entry. On average, both groups appear similar in terms of the types of crimes they were convicted for⁶.

Table 6: Arrests and Convictions Prior and During DCP

Variable	M	SD
Total Prior Arrests		
Terminated	9.15	10.88
Completed/Graduated	8.72	7.72
Total Prior Convictions		
Terminated	3.54	2.7
Completed/Graduated	3.77	2.23
Total Arrests While in Program		
Terminated	1.49	1.51
Completed/Graduated	0.28	0.59
Total Convictions While in Program		
Terminated	0.2	0.44
Completed/Graduated	0.05	0.21

Table 7: Arrests and Convictions After DCP

Variable	M	SD
Total Arrests After Program		
Terminated	3.14	4.23
Completed/Graduated	0.61	1.05
Total Convictions After Program		
Terminated	0.75	1.29
Completed/Graduated	0.41	0.81
Arrests After 1 Year		
Terminated	1.28	1.57
Completed/Graduated	0.26	0.63
Convictions After 1 Year		
Terminated	0.42	0.89
Completed/Graduated	0.31	0.75
Arrests After 2 Years		
Terminated	1.19	1.66
Completed/Graduated	0.14	0.35
Convictions After 2 Years		
Terminated	0.3	0.76
Completed/Graduated	0.08	0.28
Arrests After 3 Years		
Terminated	1.1	2.1
Completed/Graduated	0.21	0.74
Convictions After 3 Years		
Terminated	0.1	0.42
Completed/Graduated	0.06	0.35

⁵ A program end date was recorded for all participants, regardless of whether this date represented graduation or the date when the participant was terminated from the program.

⁶ Differences observed in the bar plot are partially accounted for by the differences in group size (those who were terminated are a larger group than those who graduated).

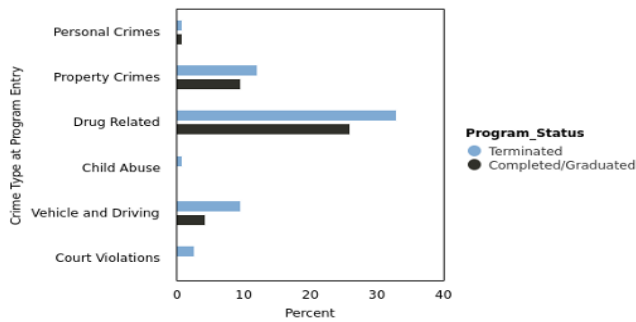


Figure 4: Crime Type by Program Status

It is important to determine whether the differences observed in terms of arrests post-program between the groups are statistically significant. First, a Chi-square Test of Independence was conducted to examine whether the total number of arrests and program status were independent. In other words, the test evaluates if graduation or termination from the program is statistically related to whether a program participant was arrested at all or not after being in the program. The results of the Chi-square test were significant based on an alpha value of .05, $\chi^2(1) = 11.61, p < .001^7$, suggesting that being graduated or terminated is statistically related to their arrest status, post-program. Second, a Two-tailed Independent Sample T-test was conducted to examine whether the mean of the total number of arrests after being in the program was significantly different between the Terminated and Graduated groups. Because the assumptions of normality and homogeneity of variance were violated for this test (due in part to the small sample size and distribution of the data), the Welch's t-test was used instead. This test has higher statistical power and is used when the two samples have unequal variances and unequal distributions (Ruxton, 2006). The result of the two-tailed independent samples t-test was significant based on an alpha value of .05, $t(74.54) = 4.58, p < .001$, indicating the null hypothesis can be rejected. In other words, the finding suggests the average number of arrests was significantly different

⁷ Similar Chi-Square tests were conducted, considering instead the total number of convictions after being in the program. These results were not significant.

⁸ Similar T-tests were conducted to see if mean differences between the groups were statistically different in terms of

between the Terminated and Graduated groups, and that those who graduated the program had significantly less arrests than those who were terminated.⁸

Bivariate Analysis

The analysis then focused on testing bivariate associations between several variables of interest in the data provided by the county. A Pearson correlation analysis was conducted to see how variables were correlated. Cohen's standard was used to evaluate the strength of the relationships, where coefficients between .10 and .29 represent a small effect size, coefficients between .30 and .49 represent a moderate effect size, and coefficients above .50 indicate a large effect size (Cohen, 1988). The full correlation matrix is offered as an appendix. There were only two noteworthy and significant negative correlations. First, there is a negative correlation between Program Status and Arrests After Program, with an r value of $-.34$, indicating a moderate effect size ($p = .051, 95.00\% \text{ CI} = [-.51, -.16]$). This suggests that as Program Status increases (Graduated), Arrests After Program tend to decrease. Additionally, there is also a separate correlation between Program Days and Arrests After Program, with an r value of $-.38$, indicating a moderate effect size ($p = .010, 95.00\% \text{ CI} = [-.54, -.20]$). This suggests that as Program Days increases, Arrests After Program tends to decrease. This is a significant finding. It suggests that regardless of whether a program participant graduates or completes the program, the number of days they spend in the program directly correlates with their arrest rate after the program.

Multivariate Analyses

A primary goal of this research is to assess whether and how variables collected by the county influenced program success (i.e., graduating from the program). Because the primary outcome variable of interest is dichotomous, a binary logistic regression was

total convictions after the program. The findings suggest that the differences were not significantly different in terms of this variable

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conducted to examine whether relevant measures predicted the odds of graduating as opposed to being terminated⁹.

The results are presented in Table 8. The table presents unstandardized logistic coefficients (B) and odds ratios (OR). Thus, the unstandardized coefficients and odds ratios represent the likelihood of graduating from the program, or program success. In this analysis, only the number of days spent in the program, gender, time spent in jail, and arrests while in the program had a significant effect on the odds of program success. More specifically, a one day increase in the program increased the odds of program graduation by 0.75% (B = 0.007, OR = 1.01, p < .001). Being a male is associated with a 261.85% (B = 1.29, OR = 3.62, p = .044) higher odds of graduating, compared to females. One additional day spent in jail while in the program decreased the odds of graduating by approximately 4.51% (B = -0.05, OR = 0.95, p = .029). An additional arrest while in the program decreased the odds of program graduation by approximately 63.57% (B = -1.01, OR = 0.36, p = .016).

Table 8: Logistic Regression Results Predicting Program Success

Variable	B	SE	p	OR
(Intercept)	-3.12	1.83	0.089	-
Age at Arrest	0.02	0.04	0.672	1.02
Program Days	0.007	0.002	< .001	1.01
Gender (males)	1.29	0.64	0.044	3.62
Time in Jail	-0.05	0.02	0.029	0.95
Prior Convictions	-0.08	0.17	0.634	0.92
Arrests During Program	-1.01	0.42	0.016	0.36
Prior Arrests	0.04	0.05	0.465	1.04
Crime of Conviction (Felony)	0.7	0.81	0.387	2.01
Entry Risk	-0.24	0.41	0.56	0.79

A second primary goal of this study was to assess if factors collected by the county predicted the odds of being arrested post-program. Binary logistic regression models revealed that only program status and days in the program predicted the odds of being arrested post-program (see Table 9). More specifically, a one day increase in the program decreased the odds of being arrested post-program

by 0.39% (B = -0.004, OR = 1.00, p < .001). Having graduated/completed the program was associated with a 73% (B = -1.33, OR = 0.27, p = .008) decreased odds of being arrested post-program, compared to those who were terminated. These results suggest that there is in fact a significant protective effect for participants who participated and completed the program.

Table 9: Regression Predicting Odds of Arrest Post-Program

Variable	B	SE	p	OR
(Intercept)	-1.26	1.48	0.394	-
Age at Arrest	0.02	0.03	0.484	1.02
Program Status(comp)	-1.33	0.56	0.018	0.27
Gender (males)	0.84	0.47	0.076	2.32
Exit Risk	0.16	0.33	0.641	1.17
Entry Risk	0.03	0.35	0.926	1.03
Time in Jail	0.19	0.21	0.375	1.21
Program Days	-0.004	0.001	<.001	1.00
Prior Arrests	0.01	0.03	0.715	1.01
Crime of Conv (felony)	0.05	0.07	0.425	1.06

This study also assessed whether any of the variables provided by the county had an influence on the number of days that a participant spent in jail while in the program. A linear regression was conducted but the results were not significant, indicating that the variables in the model did not explain a significant proportion of the variation in the time that participants spent in jail while in the program (table not shown).

MENTAL HEALTH COURT PROGRAM

The MHCP sample contained information on only 44 participants who entered the program between July of 2017 to November 2020. As mentioned previously, the MHCP ended in April of 2021. Because of the relatively low number of participants in this data set, the results provided below should be interpreted with caution. For the sake of consistency, the analysis follows the same format as that presented above for the Drug Court Program. Some comparisons are also offered.

⁹ Other variables, such as race and crime type, were removed because they did not contribute to the model and were not significant in predicting the outcome variable.

Demographics and Characteristics of Mental Health Court Program Participants

Participants in the MHCP were evenly distributed in terms of gender, but there were four more males than females (see Table 10). Similar to the DCP data, whites accounted for the majority of the sample (93%), and those of Hispanic origin accounted for only 5% of participants. The mean participant age at the time of the arrest leading to the program was 34.73 years, and the youngest and oldest participants ranged in ages from 18 to 54 years old (not shown in table). Participants of the program appear to be similar in terms of demographics to the DCP sample.

Table 10: MCHC Participant Demographics

Variable	n	%
Race		
Black	1	2.27
Hispanic	2	4.55
White	41	93.18
Gender		
Female	20	45.45
Male	24	54.55

Note. Due to rounding errors, percentages may not equal

Table 11 summarizes the criminal history of this group. On average, participants were arrested 11.5 times, and convicted 3.91 times prior to entering the program. Participants were arrested at almost five times the rate for misdemeanors compared to felonies. Interestingly, their conviction rate for misdemeanors and felonies was comparable (2.11 vs 1.80, respectively). Also similar to the DCP sample, criminal history data suggests that participants of this program were most often arrested for a statutory misdemeanor offense (M = 8.70), followed by probation violations (M = 3.59) prior to entering the program (table available but not shown). In terms of convictions, participants were also most likely to be convicted for a drug felony charge (M = 0.89), followed by a person misdemeanor conviction (M = 0.86).

Table 11: Criminal History Summary Statistics

Variable	M	SD	Min	Max
Prior Arrests Total	11.5	12.99	1	62
Prior Conviction Total	3.91	3.19	1	13
Prior Felony Arrests	2.88	3.1	0	13
Prior Misdemeanor Arrests	14.14	13.32	0	54
Prior Felony Convictions	1.8	2.51	0	12
Prior Mis Convictions	2.11	1.85	0	8
Prior PV Arrests	3.59	7.1	0	37

Participants were evenly distributed between felonies and misdemeanors as the type of crime that led to their program referral (52.3% vs 47.7%). Figure 5 presents information on the type of offense that they were convicted for, leading into the program. Similar to the DCP sample (although to a much lesser extent), MHCP participants were most often convicted for a drug-related offense (27.27%), followed by violent crimes (22.73%) and burglary or theft (11.36%). As a whole, summary statistics describing MHCP participants' criminal history suggest that this group differs in terms of criminal background when compared to the DCP sample.

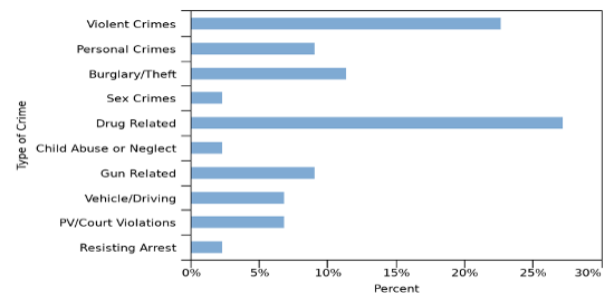


Figure 5: Offenses Leading to MHCP

Program Related Measures

Very similar to the DCP sample, participants entered the program an average of 33 days after being referred, and spent an average of 358.73¹⁰ days in the program (SD = 197.27; Min = 54; Max = 903). Figure 6 provides a visual representation of how the data is distributed for this variable. It also suggests

completed the same requirements, or have not had the same level of exposure.

¹⁰ Program days does not equate to 'program exposure' or 'program progress'. Participants who have spent the same number of days in the program, have not necessarily

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that half of the participants spent between 201 and 511 days in the program.

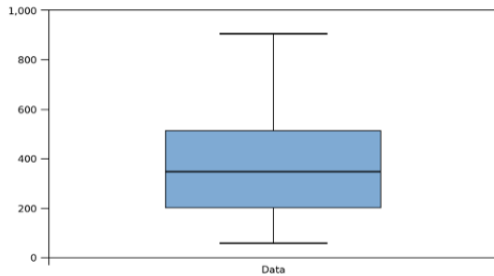


Figure 6: Boxplot of MHCP Days

As for program status, a bit less than half (47.73%) of all participants were terminated, and the remaining (52.27%) graduated/completed the program (see Table 12). In contrast to the DCP sample, there were no participants with other program status. As mentioned before, participants who were terminated spent a considerable number of days in the program. As Figure 7 indicates, those who were terminated had two-thirds as many 'Program Days' as those who graduated or completed the program, which is a significant difference when compared to the DCP sample. As mentioned previously, program participants were assessed a risk-level for reoffending at program entry and program exit. The risk instruments used for the assessment at program entry are listed on Table 12. Although the relatively low number of cases limits us from making meaningful statistical conclusions, less participants were assigned a high-risk level and more participants were assigned a low-risk level at program exit than at program entry.

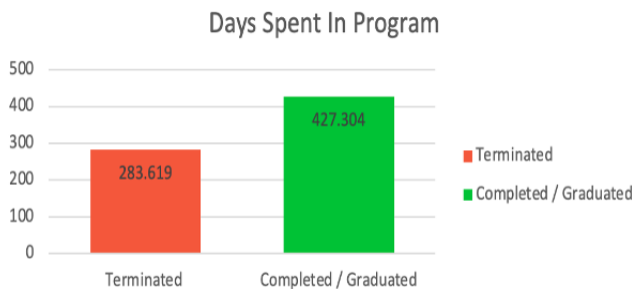


Figure 7: Average Days Spent in Program by Group

Table 12: MHCP Program Measures

Variable	n	%
Status of Participants		
Terminated	21	47.73
Graduated	21	47.73
Completed	2	4.55
Risk Tool at Program Entry		
LSCMI	30	68.18
WRNA	11	25
PSC	3	6.82
Risk at Program Entry		
Low	2	4.55
Medium	15	34.09
High	27	61.36
Risk at Program Exit		
Low	5	11.36
Medium	16	36.36
High	23	52.27

Note. Due to rounding errors, percentages may not equal 100%.

Arrests, convictions, and time in jail during and after the program. A slight majority of the sample were arrested (52.3%, n = 23), and also spent some time in jail while being in the program. They spent an average of 34 days in jail for those offenses, compared to 23.56 days for the DCP sample¹¹. Table 13 also presents summary statistics for these arrests by crime type. As with the DCP sample, program participants were most likely to be arrested for a statutory misdemeanor or a probation violation. The chances of being convicted while in the program were much higher for this sample, compared to DCP participants (11.4% were convicted).

Table 13: Summary Statistics for Arrest During the Program

Variable	M	SD	Min	Max
Drug Felony	0.05	0.21	0	1
Drug Misdemeanor	0	0	0	0
Property Felony	0.14	0.41	0	2
Property Misdemeanor	0.11	0.39	0	2
Person Felony	0.05	0.21	0	1
Person Misdemeanor	0.07	0.33	0	2
Statutory Felony	0	0	0	0
Statutory Misdemeanor	1.48	2.95	0	10
Probation Violation	1.16	1.76	0	7

¹¹ According to the county, statistics on jail were only available for those admitted to the Marion County jail.

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Summary statistics on arrests and convictions one, two, and three years after the program are presented on Table 14. According to the data, participants were arrested only one time, on average, post-program. The majority of those arrests occurred within one year after being in the program.

Table 14: Statistics of Arrests and Convictions After Program

Variable	M	SD	Min	Max
Total Arrests	1.09	1.63	0	7
Total Convictions	0.39	0.69	0	3
Arrests After Year 1	0.82	1.35	0	6
Convictions After Year 1	0.34	0.68	0	3
Arrests After Year 2	0.17	0.48	0	2
Convictions After Year 2	0	0	0	0
Arrests After Year 3	0.38	0.89	0	3
Convictions After Year 3	0.31	0.79	0	3

Group Differences in Offending

Participants who either graduated ($n = 21, 47.7\%$) or completed the program ($n = 2, 4.5\%$) were combined into one category because of the reasons previously discussed. The analysis below compares mean group differences in arrests and conviction rates prior, during, and after the program for those who were ‘terminated’ versus those who ‘graduated’. Table 15 summarizes the results. The two groups are comparable in terms of arrests and convictions prior to entering the program. However, those who were terminated had an average of five times more arrests while in the program, compared to those who graduated. Those who completed the program had no convictions while in the program. Similarly, Table 16 presents average arrests and convictions after being in the program¹². Of note, those who graduated were arrested at approximately half the rate compared to those who were terminated (0.70 vs. 1.52). Figure 8 presents group differences in terms of crime of conviction at program entry.

Table 15: Arrests and Convictions Prior/During MHCP

Variable	M	SD
Total Prior Arrests		
Terminated	12.48	14.08
Completed/Graduated	10.61	12.16
Total Prior Convictions		
Terminated	4.43	3.57
Completed/Graduated	3.43	2.79
Total Arrests While in Program		
Terminated	2.71	2.22
Completed/Graduated	0.52	1.04
Total Convictions While in Program		
Terminated	0.48	0.98
Completed/Graduated	0	0

Table 16: Arrests and Convictions After Program by Group

Variable	M	SD
Total Arrests After Program		
Terminated	1.52	1.54
Completed/Graduated	0.7	1.64
Total Convictions After Program		
Terminated	0.43	0.6
Completed/Graduated	0.35	0.78
Arrests After 1 Year		
Terminated	1.29	1.31
Completed/Graduated	0.39	1.27
Convictions After 1 Year		
Terminated	0.52	0.81
Completed/Graduated	0.17	0.49
Arrests After 2 Years		
Terminated	0.18	0.6
Completed/Graduated	0.15	0.38
Convictions After 2 Years		
Terminated	0	0
Completed/Graduated	0	0
Arrests After 3 Years		
Terminated	0.17	0.41
Completed/Graduated	0.5	1.08
Convictions After 3 Years		
Terminated	0.17	0.41
Completed/Graduated	0.4	0.97

¹² A program end date was recorded for all participants, regardless of whether this date represented graduation or

the date when the participant was terminated from the program.

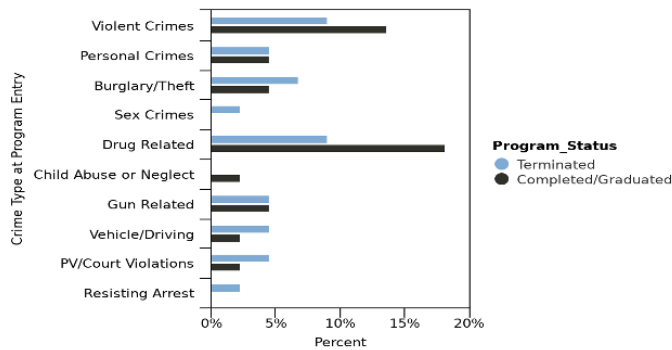


Figure 8: Crime Type by Program Status

Bivariate Analysis

The analysis then focused on testing bivariate associations between several variables of interest in the data provided by the county. A Pearson correlation analysis was conducted to see whether and how variables are correlated. Cohen's standard was used to evaluate the strength of the relationships, where coefficients between .10 and .29 represent a small effect size, coefficients between .30 and .49 represent a moderate effect size, and coefficients above .50 indicate a large effect size (Cohen, 1988). The full correlation matrix is offered as an appendix upon request. There were no noteworthy correlations to report. Unlike the DCP data, Program Days or Status did not seem to correlate with any recidivism measures.

Multivariate Analyses

A binary logistic regression was conducted to examine whether relevant measures predicted the odds of graduating as opposed to being terminated¹³. Logistic regression models use maximum likelihood to estimate the parameters. Maximum likelihood estimation generally requires a minimum of 10 observations per parameter for the results to achieve an acceptable level of accuracy. The model included 10 parameters to be estimated and 44 observations (after removing missing values), which equates to approximately 4.40 observations per parameter. Since there is not sufficient data to

achieve minimum model standards, the results cannot be considered accurate and should not be used for interpretation. Moreover, none of the variables available had a significant effect on the odds of predicting program success, suggesting again that there is not sufficient data for meaningful results or that the variables available did not capture that relationship.

As an additional step to meet minimum model standards, and to decrease the number of parameters and increase observations, only four relevant predictors were included in a subsequent model to prove whether these specific variables predicted program success. The average number of observations per parameter increased from 4.40 to 8.80, which suggests that the results should still be interpreted with caution since. The results are presented on Table 17. In this analysis, only the number of days spent in the program, and arrests while in the program had a significant effect on the odds of program success. More specifically, a one day increase in the program increased the odds of program graduation by 2.5% (B = 0.02, OR = 1.03, p < .01). An additional arrest while in the program decreased the odds of program graduation by approximately 89.32% (B = -2.34, OR = 0.11, p = .040). It is important to mention that Program Days was also significant in predicting the odds of program success among the DCP sample. This analysis reinforces its significance.

The study also assessed if factors collected by the county predicted the odds of being arrested post-program. Binary logistic regression models suggest that none of the variables in the models predict the odds of post-program arrests. This is likely related to the data limitations mentioned previously.

Table 17: Logistic Regression Results Predicting Program Success

Variable	B	SE	p	OR
(Intercept)	-5.25	3.07	0.087	-
Program Days	0.02	0.01	0.03	1.03
Gender (males)	0.64	1.42	0.652	1.9
Time in Jail in Program	-0.07	0.04	0.087	0.93
Total Arrests in Program	-2.24	1.09	0.04	0.11

¹³ Other variables, such as race and crime type, were removed because they did not contribute to the model and were not significant in predicting the outcome variable.

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Lastly, the analysis also assessed whether any of the variables provided by the county had an influence on the number of days that a participant spent in jail while in the program. A linear regression was conducted but the results were not significant, indicating that the variables in the model did not explain a significant proportion of the variation in the time that participants spent in jail while in the program.

Discussion and Limitations

WRCJRC evaluated data provided by the county on their Drug Court and Mental Health programs. The goal of the study was to summarize and present demographics and other variables of interest provided by the county, and to assess factors that may correlate with program success and recidivism patterns post-program. This section highlights and discusses the main study findings.

First. This study aimed to assess what factors influenced program success. The analysis revealed that only the number of days spent in the program, gender, time spent in jail, and arrests while in the program had a significant effect on predicting the odds of program success. Based on this analysis, males who spent more days in the program and who were arrested less often while in the program, had the best chances of successfully completing the program.

Second. Another important aim of the study was to assess what factors influenced recidivism outcomes. In this analysis, only program status and days in the program predicted the odds of being arrested post-program. These results suggest that there is in fact a significant protective effect for participants who complete and/or spend more days in the program, and that those who complete and/or spend more days in the program are arrested less often after leaving the program.

Third. Regardless of whether DCP and MHCP program participants had graduated or completed the program, they spent a significant number of days in the program. This study considered not only program completion as an important predictor of recidivism, but also the number of days enrolled. However, number of 'program days', may not

necessarily be an accurate measure of level of 'program exposure', or 'program completion'. For example, two participants who were coded as having 300 program days may have had completed the program to very different extents. It is important to reconsider the most accurate way to measure program completion to effectively evaluate the effect that these programs have on recidivism and other outcomes.

Fourth. According to the data provided by the county, participants of the DCP program were only arrested two times on average in the three years following the program. Participants of the MHCP program were only arrested once post program, on average. These rates are unusually low. If this data is incomplete, and all participants' arrests were not captured, it limits this study's ability to provide meaningful conclusions regarding the possible effect of program participation on recidivism rates.

Fifth. Being arrested while in the program stood out as a common occurrence and as a significant predictor of program failure (and as a significant predictor of post-program arrest among the MHCP sample). More than half of all participants in both programs were arrested and spent some time in jail while in the program. Although all program participants appeared to be similar in terms of their criminal backgrounds, those who were terminated had an average of five times more in-program arrests than those who graduated, and each in-program arrest significantly decreased the odds of program completion. What is driving those results? Why is one group arrested at such a high rate and failing the program while the other is not? It is likely that the factors that may be driving these differences were not captured or included in this data or analysis. Whether in-program arrests are the cause or the effect of program failure, it is important to further explore this relationship in future research.

Sixth. Clear and stark differences also exist in terms of arrest rates post-program for both the graduated and terminated groups (again, regardless of their similar criminal histories). Five times as many terminated DCP participants, and twice as many terminated MHCP participants were arrested post-program, compared to their graduated counterparts. The protective effect of program completion on

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reducing recidivism post-program seems clear. However, more data and additional measures need to be collected to understand exactly what is driving those results.

An Important Note on Study Limitations and Suggestions for Data Collection Efforts

The results of this study are valuable because they demonstrate the benefits of participating in the DCP and MHCP programs, and because they create an important baseline for continued program evaluation. However, there are important data limitations that should be considered when interpreting these results. It is also important for the county to consider these limitations as the agency plans their continued data collection efforts.

The primary limitation of the current assessment involves the relatively low sample sizes (especially the MHCP) and the lack of relevant measures that are generally included in program evaluations, that were not collected or included in this data. A small sample size limits the precision of statistical estimates and the power of the study to draw meaningful and accurate conclusions. The lack of theoretically and empirically relevant measures limits the validity and reliability of the results. Including relevant measures in statistical models allows us to isolate the effect of predictors and more accurately explain variation in study outcomes, such as program success or recidivism. For instance, common measures contained in the evaluation of similar programs include history of trauma, self-reported substance use, self-reported, mental health measures, support systems, employment and economic status, marital status, family structure and upbringing, and homelessness (Blair et al., 2014; Wilson et al., 2006).

Whereas there may be little control over sample sizes, more can be done to improve data collection design to capture the greater number of relevant variables available. Aside from seeking guidance from the theoretical and empirical literature on program evaluation, WRCJRC can be a key partner and contribute to those efforts.

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