

Criminal Justice Coordinating Council

Analysis of the Effect of Housing Instability on Rebooking at DOC

Report

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Background

Each year, thousands of men and women return to District communities after a period of incarceration. The CJCC Reentry Steering Committee convenes public, private, and community-based stakeholders to support District residents in navigating the often-daunting transition back to the District. The Steering Committee strives to identify opportunities for collaboration and to implement strategies that address barriers faced by individuals with criminal records.

Access to housing continues to be a major barrier to successful reentry for District residents, and as such, is a top priority for the Reentry Steering Committee. To this end, the Committee has re-established a Housing Subcommittee which focuses on expanding housing availability for returning citizens. The Subcommittee is dedicated to analyzing available data on housing availability, homelessness, and housing needs among the returning citizen population, and developing policy proposals for the creation or expansion of housing specifically for the returning citizen population.

To support the Housing Subcommittee's efforts, the CJCC conducted an analysis to examine whether the likelihood of being rebooked at DOC is affected by housing instability, serious mental illness, substance use disorder, and violent offenses when controlling for other factors, including demographics.

Data

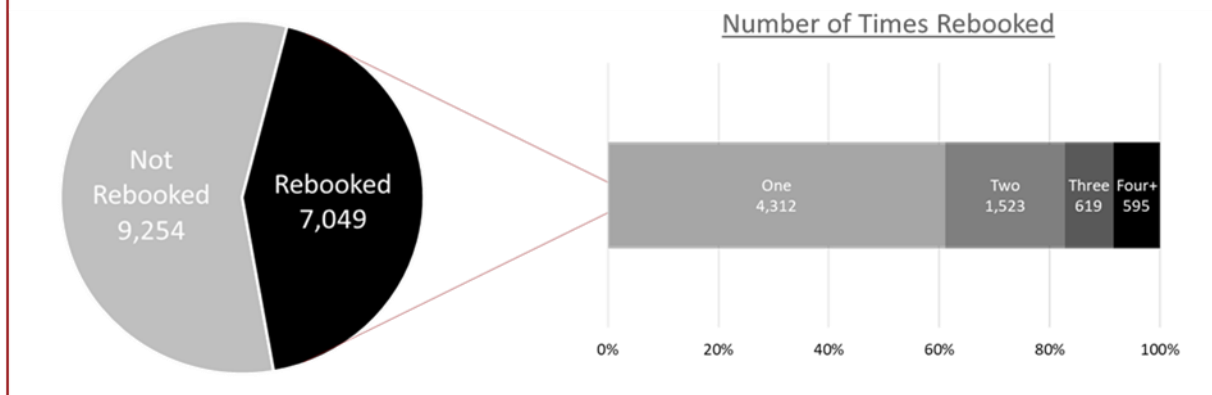
CJCC analyzed intake (booking) data provided by DOC that included all individuals booked and released between January 1, 2005 and December 31, 2019.¹ Using this data, we identified all individuals who were booked and subsequently released into the community from DOC ("eligible release").² 16,302 unique individuals had eligible releases from DOC during the timeframe under examination. Because individuals can have multiple eligible releases within the data, in total there were 25,829 eligible releases.

For each eligible release, we identified whether the individual released was subsequently rebooked at DOC for a new offense or violation ("eligible rebooking"). We excluded subsequent bookings that were part of an ongoing process, such as when individuals return to DOC following a court disposition of a prior booking or when individuals are brought to DOC from another facility, because these bookings are not the result of any alleged new behavior. Rather, they are extensions of the initial booking. Of the 16,302 individuals booked and released between January 1, 2005 and December 31, 2019, 43.2% (N = 7,049) were rebooked during the same time period, and, of those rebooked, 38.8% (N = 2,737) were rebooked more than once.

¹ Deidentified data was provided by DOC to CJCC March 2020.

² Individuals that were not released to the community (e.g. persons released to federal prison facilities) were not included in the analysis.

Figure 1. Number of Individuals Rebooked Between January 1, 2015 – December 31, 2019

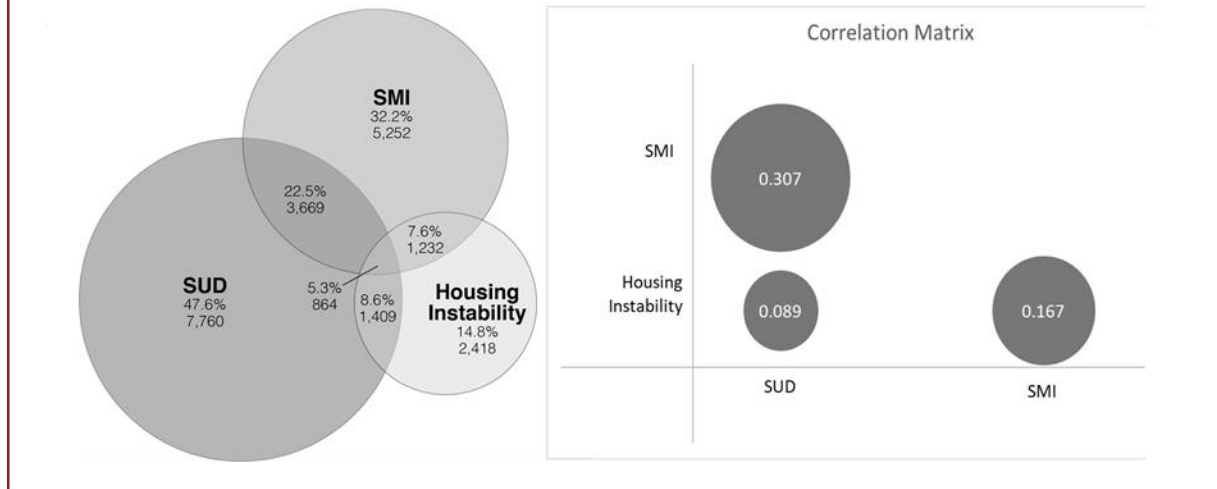


For this analysis, the four principal variables of substantive interest are: **housing instability, serious mental illness, substance use disorder, and violent crime charge**. To measure housing instability, individuals documented by DOC as homeless, living in a shelter, having no fixed address, or said their address was unknown at the time of booking were flagged for each eligible release. During the time period under examination, 14.8% (N = 2,418) of individuals released into the community were documented as experiencing housing instability at least once. Because housing instability is measured based on an individual's housing status at the time of booking for an eligible release not housing status upon release, it likely underestimates the prevalence and effect of housing instability, particularly among individuals with longer lengths-of-stay who may lose housing while at DOC.

To measure serious mental illness (SMI), information from DOC's case management system that indicates whether an individual was ever documented by DOC as having a DSM-IV Axis I disorder or Schizoaffective disorder was used. Substance use disorder (SUD) is measured as whether an individual was ever documented by DOC as having a substance use disorder. SUD was more prevalent than SMI with 47.6% (N = 7,760) having a documented SUD while 32.2% (N = 5,252) were documented as having an SMI. We find co-occurrence within 22.5% (N = 3,669) of individuals. Since this data are based on DOC documentation of individuals' histories, SMI and SUD are likely underreported. Additionally, the measures are lifetime indicators of whether an individual was ever diagnosed with either disorder category and do not capture whether a disorder is managed. Thus, this analysis likely underestimates the prevalence and effect of SMI and SUD and does not speak to any potential mitigating effects of treatment.

Additionally, we find statistically significant correlations ($p < .05$) between SMI, SUD, and housing instability with 5.3% (N = 864) of individuals having experienced all three. SMI and SUD having the largest correlation (.307) followed by SMI and housing instability (.167).

Figure 2. Co-occurrence and Correlation Between SMI, SUD, and Housing Instability



To measure violent crime charges for each eligible release, an indicator of whether the individual was booked on a charge that is defined in D.C. Code § 22-4501 as violent was included.³ Across all eligible releases, 35.8% of releases (N = 9,244) were for violent crime bookings.

Multivariate Analysis: Effect of Housing Instability, SMI, SUD, Violent Crime on the Likelihood of Being Rebooked

To examine the effect of housing instability, SMI, SUD, and violent crime on the being rebooked at DOC, a multivariate, regression-based statistical analysis was conducted. Multivariate regression analysis allows for the examination of the statistical association between two factors, such as housing and likelihood of rebooking, while controlling for other factors, such as SMI. This provides a framework to isolate and estimate the magnitude of impact of each factor on the probability of being rebooked while holding all other factors constant, thus allowing us to speak to the generalized impact across the population of interest.

For the multivariate analysis, the data were limited to each individual's first-eligible release and tested the likelihood they were subsequently rebooked within 3-month, 6-months, and 12-

³ Specifically, a crime of violence is defined as the committing or attempting to commit: "murder, manslaughter, an act of terrorism, manufacture or possession of a weapon of mass destruction, use, dissemination, or detonation of a weapon of mass destruction, first degree sexual abuse, second degree sexual abuse, or child sexual abuse, mayhem, maliciously disfiguring another, abduction, kidnapping, burglary, robbery, housebreaking, any assault with intent to kill, commit first degree sexual abuse, second degree sexual abuse, or child sexual abuse, or robbery, assault with a dangerous weapon, assault with intent to commit any offense punishable by imprisonment in the penitentiary, arson, or extortion or blackmail accompanied by threats of violence or aggravated assault."

months in three separate analyses.⁴ Thus, the dependent variable of each model was whether an individual was rebooked within each time period (0/1).⁵

Table 1. Percent of Individuals Rebooked after First-Eligible Release

Time	Rebooked
3 months	16.6% (N = 2,730)
6 months	24.7% (N = 4,021)
12 months	32.8% (N = 5,343)

Of the key substantive independent variables, SMI and SUD are individual-level variables that are constant across all releases; however, housing instability and violent crime are release-level variables and thus vary across releases. 10.3% (N = 1,671) of individuals were reported as experiencing housing instability at the time of booking for their first-eligible release in the data, compared to 14.8% across all eligible releases. 35.1% of individuals were booked on a violent crime for their first-eligible release, compared to 35.8% across all eligible releases. In addition to the main substantive variables, we controlled for the effects of age, gender, race, length-of-stay, and felony case type. Thus, the findings can be interpreted as being generalized across variations within these factors or the factors are being held constant. The technical explanation of the model and full model results can be found in *Appendix A*.

This type of analysis allows us to calculate the average predicted probability that an individual is rebooked within each time interval and then calculated the change in predicted probability associated with a change in each factor while holding all else constant at the observed values within the sample. Therefore, to interpret the statistical findings, we present in difference in the in the average predicted probability of being rebooked associated with variations in the factors of substantive interest.

⁴ For each model, if the time between an individual's first-eligible release and the end of the data time period was less than the rebooking time period being modeled, then the release was omitted from the model. Thus, individuals who were released between 9/30/2019 and 12/31/2019 were not included in the 3-month analysis. Individuals who were released between 6/30/2019 and 12/31/2019 were not included in the 6-month model, and individuals who were released between 12/31/2018 and 12/31/2019 were not included in the 12-month model. Omitting these releases was necessary to prevent data censoring issues.

⁵ The time periods are inclusive meaning that someone who was rebooked within three months is also counted as being rebooked within six months.

Predicted Probabilities: 3-month Model

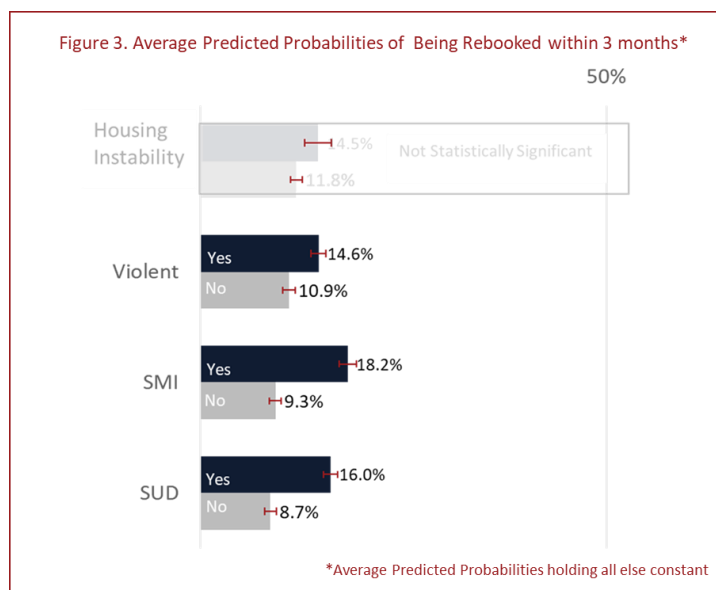


Figure 3 presents the average predicted probability of the likelihood of being rebooked within three months associated differences in each substantive factor of interest with the confidence intervals presented in red lines at the end of the bars. Confidence intervals show the error of margin on the estimate and thus, the true estimate falls within the interval bands. The findings suggest that housing instability has no statistically significant impact on the likelihood of being rebooked within three months. However, a violent crime charge, SMI, and SUD are all associated with an

increase in the probability of being rebooked, all else held constant at observed values. SMI has the largest impact and is associated with 1.96 times increase in the likelihood of being rebooked (8.9% greater probability), compared with 1.85 and 1.33 times increase for SUD and violent crime charge, respectively.

While housing instability does not have an independent effect, it does have a conditional effect on SMI. Specifically, housing instability significantly increases the likelihood of those with SMI being rebooked within three months. Figure 4 presents the additive effect of having an SMI and being housing unstable. The average predicted probability of being rebooked within three months associated with having a SMI and housing instability is almost double the base probability of being rebooked, and the probability of someone with an SMI being rebooked increases by 1.4 times if they also experience housing instability. Figure 4 also shows the average probability of being rebooked if an individual has housing instability, SMI, SUD, and was booked on a violent crime as compared to if an individual has none of those factors.

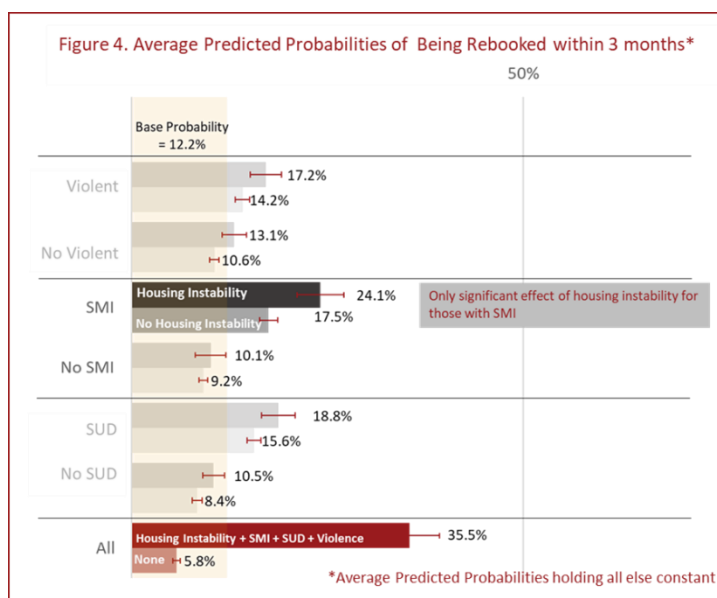
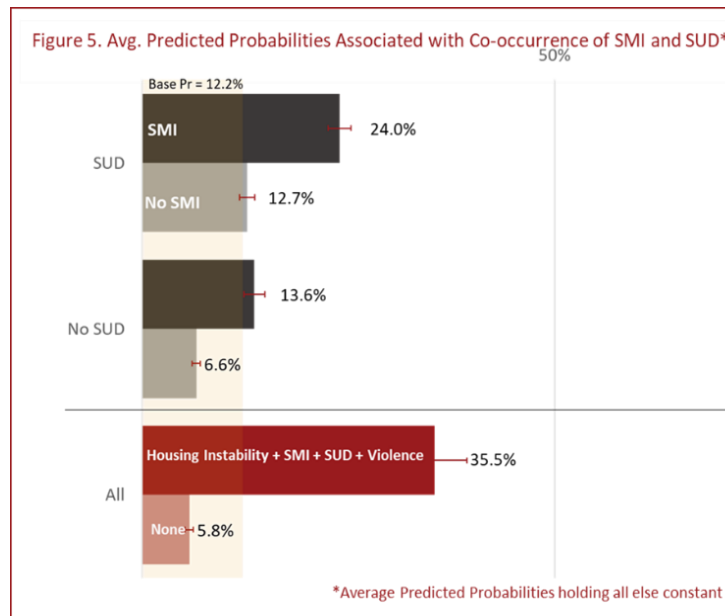
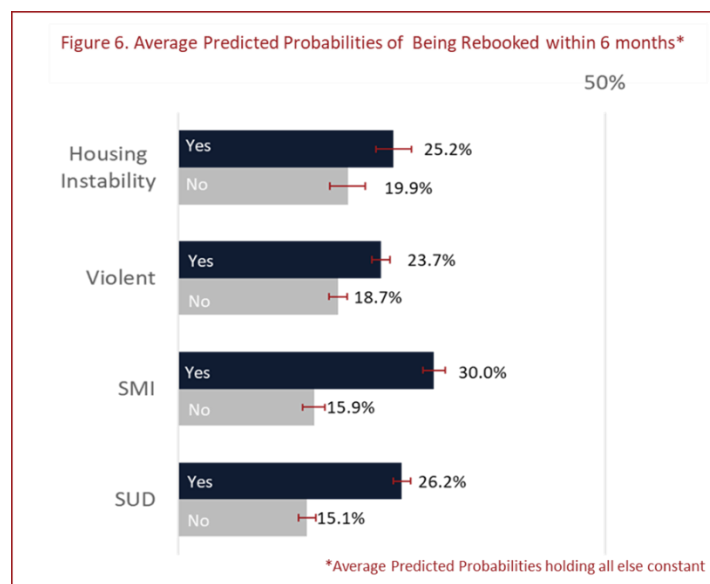


Figure 5 presents the additive, average predicted probabilities associated with having co-occurring SMI and SUDs compared to the base predicted probability of being rebooked and the probability of having all four factors. Co-occurrence of SMI and SUD is associated with 3.6 times increase in the likelihood of being rebooked compared to those with neither disorder, all else held at observed values.



Predicted Probabilities: 6-month Model



Similar to the 3-month model, we find that SMI, SUD, and a violent crime charge are associated with an increased likelihood of being rebooked within six months; however, we find that housing instability has an independent effect on rebooking within six months and that there is no conditional effect on SMI. *Figure 6* presents the average predicted probability of the likelihood of being rebooked within six months associated differences in each substantive factor of interest. The base probability of being rebooked within six months is higher than the probability of being

rebooked within three months, thus the average probabilities are all higher than in the 3-month model. However, the relative effect of each factor is smaller than the 3-month model, within the error margins, with SMI associated with 1.88 times increase in the likelihood, and SUD associated with 1.74 times increase in the likelihood.

Figures 7 and 8 present the additive, average predicted probabilities of each factor with housing and the additive predicted probabilities of co-occurrence between SMI and SUD, respectively, and present the additive predicted probability of all four factors. Because housing has an independent effect on rebooking within six months, the additive predicted probabilities are statistically and substantively significant. Nevertheless, housing has the largest relative effect on those with SMI compared to those with SUD or violent crime charge, all else held equal.

Figure 7. Average Predicted Probabilities of Being Rebooked within 6 months*

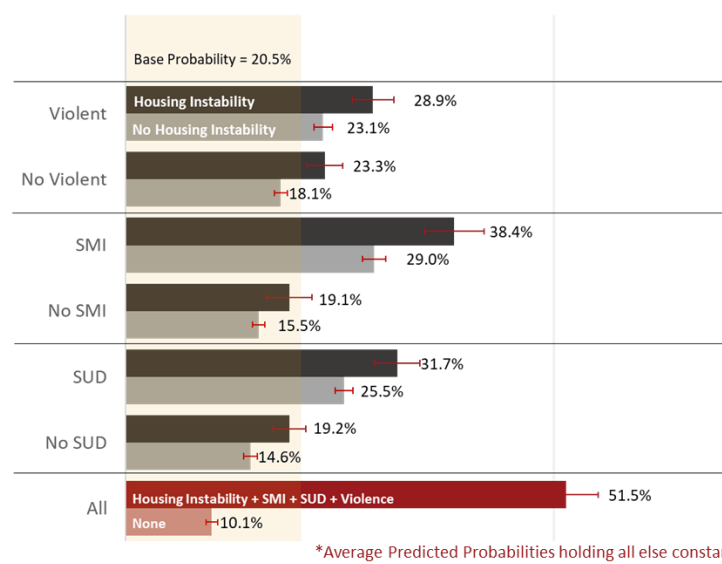
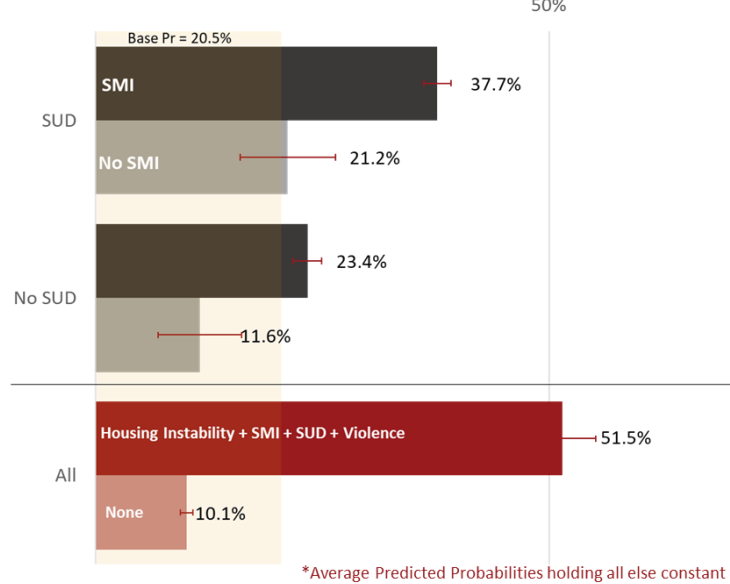
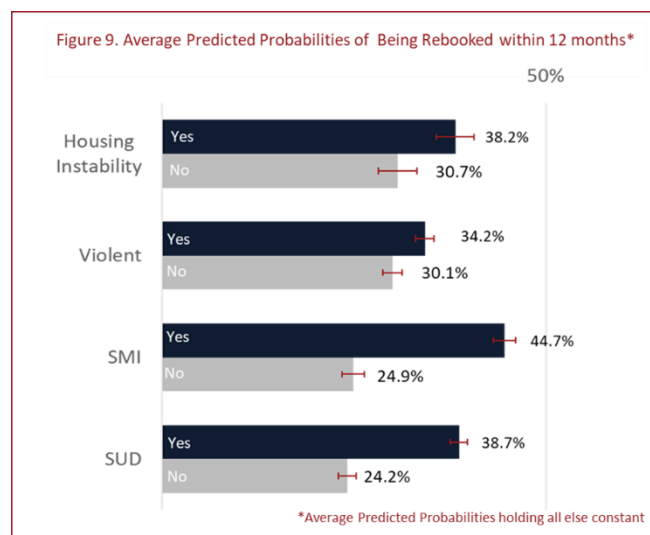


Figure 8. Avg. Predicted Probabilities Associated with Co-occurrence of SMI and SUD*

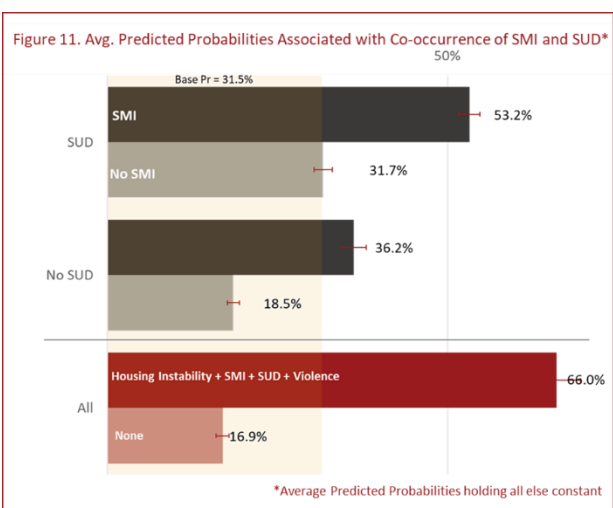
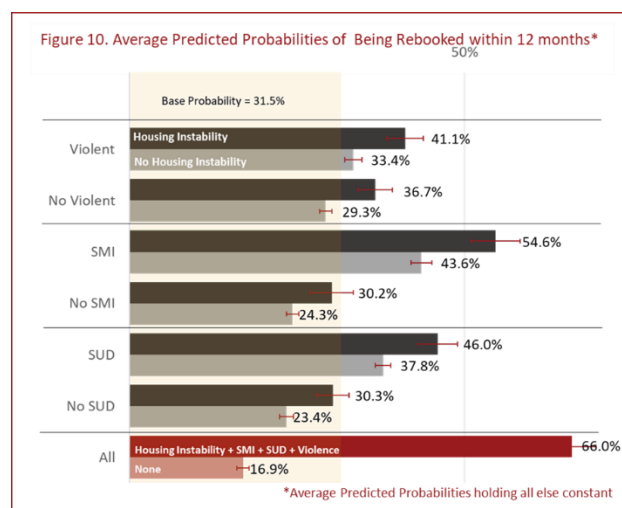


Predicted Probabilities: 12-month Model



The 12-month model had the same substantive findings as the 6-month model with housing instability, SMI, SUD, and violent crime charge all having independent effects on the likelihood of being rebooked. The probability of being rebooked within 12 months is higher than the probability for rebooking with three and six months, thus all of the predicted probabilities are larger. *Figure 9* presents the difference in average predicted probabilities associated with each substantive factor of interest. As with the 3-month and 6-month model, SMI had the largest relative effect on the

likelihood of rebooking, though the relative effect is smaller on twelve months compared to six and three months: 1.79, 1.88, and 1.96 times increase in the likelihood, respectively. *Figures 10 and 11* present the additive average predicted probabilities of housing instability and each factor and co-occurrence of SMI and SUD.



Summary of Empirical Findings

We find that SMI, SUD, and being booked on a violent crime significantly increase the likelihood of being rebooked within three, six, and twelve months controlling for all other factors, with SMI having the largest statistical impact. Additionally, the find that the impact of SMI, SUD, and violent crime in terms of relative change in probability is largest on the likelihood of being rebooked within three months and subsequently decreases in magnitude of relative impact on the likelihood of rebooking within six months and twelve months.

Similarly, our results suggest that housing instability significantly increases the likelihood of being rebooked within six and twelve months; however, we find that housing instability does not have an independent effect on rebooking within three months. Rather, we find that housing instability only affects rebooking within three months for those with SMI, thus the effect of housing is conditioned on SMI.

Policy Recommendations

- ❖ Prioritize persons with SMI released from DOC for transitional housing, as persons with SMI and who experience housing instability are at increased risk of rebooking within three months.
- ❖ Develop additional Permanent Supportive Housing and transitional housing units designated specifically for returning citizens with SMI and SUD needs.
- ❖ Collaborate with reentry organizations, such as the Reentry Action Network, to convene focus groups of housing providers and District residents with lived experience to share their perspectives on existing housing barriers and their needs/preferences regarding housing.
- ❖ Engage DC DHS and DBH to establish information sharing protocols with DOC to ensure returning citizens with SMI and SUD are prioritized for housing options.
- ❖ Convene justice, health and human services, and community stakeholders to collectively develop an action plan to address the housing needs of returning citizens with SMI and SUD.
- ❖ Engage the DC Department of Health Care Finance (DHCF) and support their efforts to develop a comprehensive consent management system to share behavioral health information, including SUD data, through the District's Health Information Exchange.

Appendix A: Multivariate Model Specification

Using STATA/IC 16, we estimated to logistic regression analysis due to the dichotomous nature of the dependent variable. The following tables present the model results with coefficient estimates. To calculate the average predicted probabilities, we used STATA's margins function and held variables at their observed values.

Table A.1. Descriptions of Included Variables

Variable	Coding	3-month Mean/% ^b	6-month Mean/%	12-month Mean/%
Age	Continuous	35.2	35.2	35.1%
Age-squared	Age*Age	--	--	--
Gender	0 = Male, 1 = Female	--	--	--
Male	--	86.0%	86.0%	85.9%
Female	--	14.0%	14.0%	14.1%
Race		--	--	--
White	0 = No, 1 = Yes	4.6%	4.6%	4.5%
Black	0 = No, 1 = Yes	89.8%	89.9%	90.1%
Hispanic	0 = No, 1 = Yes	4.2%	4.2%	4.1%
Other	0 = No, 1 = Yes	1.3%	1.3%	1.3%
Length of Stay	Days	40.6	40.5	40.3
Felony Charge^a	0 = No, 1 = Yes	--	--	--
No		45.8%	46.1%	46.4%
Yes		54.2%	53.9%	53.6%
Violent Charge^a	0 = No, 1 = Yes	--	--	--
No		65.0%	65.1%	65.0%
Yes		35.0%	35.0%	35.0%
Housing Unstable	0 = No, 1 = Yes	--	--	--
No		89.8%	89.9%	90.0%
Yes		10.1%	10.1%	10.0%
SMI	0 = No, 1 = Yes	--	--	--
No		67.6%	67.4%	66.9%
Yes		32.4%	32.7%	33.1%
SUD	0 = No, 1 = Yes	--	--	--
No		51.7%	51.1%	49.7%
Yes		48.3%	48.9%	50.3%
Housing*SMI	Interaction			

^a At booking for first-eligible release.

^b Decimals rounded so the numbers may not add to 100.

Table A.2. Logit Model of the Likelihood of Rebooking within 3 months

	Coefficient	Standard Error
Age	-.028*	.013
Age-Square	.000	.000
Female^a	-.181*	.073
Black ^b	.201	.107
Hispanic ^b	-.234	.192
Other ^b	-.169	.294
Length-of-Stay	-.039*	.002
Felony	-.354*	.054
Violent	.369*	.053
Housing Instability	.113	.121
SMI	.804*	.121
SUD	.761*	.056
Housing*SMI	.345*	.160
Constant	-1.564*	.274
Number of Observations	15,735	
Chi ²	1690.94*	
Pseudo R ²	.130	
^a Male is the comparison category		
^b White is the comparison category		
*p < .05, two-tailed test		

Table A.3. Logit Model of the Likelihood of Rebooking within 6 months

	Coefficient	Standard Error
Age	-.057*	.011
Age-Square	.001*	.000
Female^a	-.191*	.062
Black^b	.268*	.107
Hispanic ^b	-.126	.158
Other ^b	-.407	.259
Length-of-Stay	-.021*	.001
Felony	-.261*	.045
Violent	.344*	.045
Housing Instability	.272*	.098
SMI	.877*	.050
SUD	.765*	.046
Housing*SMI	.211	.135
Constant	-.601*	.230
Number of Observations	15,205	
Chi ²	2002.41*	
Pseudo R ²	.130	
^a Male is the comparison category		
^b White is the comparison category		
*p < .05, two-tailed test		

Table A.3. Logit Model of the Likelihood of Rebooking within 12 months

	Coefficient	Standard Error
Age	-.066*	.010
Age-Square	.001*	.000
Female ^a	-.267	.057
Black^b	.480*	.102
Hispanic ^b	.038	.146
Other ^b	-.369	.237
Length-of-Stay	-.008*	.000
Felony	-.164*	.041
Violent	.217*	.041
Housing Instability	.316*	.089
SMI	.945*	.045
SUD	.749*	.042
Housing*SMI	.174	.125
Constant	-.205	.211
Number of Observations	14,024	
Chi ²	1733.62*	
Pseudo R ²	.099	
^a Male is the comparison category		
^b White is the comparison category		
*p < .05, two-tailed test		