

Short Commentary

The Cost of Desistance: Examining Relationships between Treatment Intensity and Cost Effectiveness in Diversion Programming

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The United States justice system has a history of regarding substance use disorder as a rational behavior that requires punishment rather than a mental health condition that requires treatment [1]. Currently, it is estimated that up to 65% of incarcerated individuals have an active Substance Use Disorder (SUD), and an additional 20% were incarcerated for a crime involving drugs or drug use [2]. The implications are staggering for individuals and families. Federal and state carceral systems are unprepared to rehabilitate [3], recidivism rates remain high [4], and the cost of incarceration—which can be measured in many meaningful ways—has become difficult for the country to bear [5-7].

Diversion programs, redirecting non-violent offenders away from incarceration towards more meaningful behavioral redirection, are attractive alternatives for drug offenders, offering a myriad of options. Both pre-arrest diversion (pre-diversion or deflection) programs and post-arrest diversion (post-diversion) programs exist. Pre-diversion programs are varied and often involve police intervention resulting in a drop-off at a shelter, behavioral healthcare center, or day centers with various amenities. Post-diversion programs include specialty courts: veterans courts, recovery courts, drug courts, wellness courts, mental health courts, among others, each with specific interests or population focus. Both pre-diversion and post-diversion programs aim explicitly to reduce the cost of the criminal justice system to individuals, families, and society, though achieving and assessing cost savings can be challenging [8].

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Citation: Nighswander TJ, Roddy AL, Roddy J (2023) The Cost of Desistance: Examining Relationships between Treatment Intensity and Cost Effectiveness in Diversion Programming. *J Addict Addictv Disord* 10: 148.

Received: October 11, 2023; **Accepted:** October 25, 2023; **Published:** November 01, 2023

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It is important to understand whether the goal of cost reduction is being achieved by diversion programs, a task complicated by the variety of ways in which cost reduction can be measured. Benefit-cost analysis, cost-utility analysis, and cost-effectiveness studies are three different approaches often employed to understand the benefits gained, the preferences honored, and/or the effectiveness of a specific program. To contribute to the broader understanding of the efficacy and cost-efficacy of such programs, we examined 39 months of data from a Midwestern drug diversion program that treated individuals diagnosed with Substance Use Disorder (SUD) according to a Level Of Care (LOC) that was assigned to them through the Addiction Society and Medicine (ASAM) criteria [9]. We employed a cost-effectiveness approach, specifically seeking to understand the cost required to gain a 1% reduction in the likelihood of re-arrest across three treatment settings: the most intensive setting (3.5 ASAM LOC), a moderate intensity setting (3.1 ASAM LOC), and the least intensive (therapeutic care, or TC).

Results

We found pronounced differences in both treatment outcomes and cost efficacy across the ASAM LOC spectrum. Specifically, the completion of 3.5 ASAM treatment (the highest treatment intensity) resulted in an 82% reduction in the likelihood of 6-month recidivism and an 80% reduction in 12-month recidivism. This treatment lasted approximately 24 days, on average, with an implementation cost of \$5,283.85, corresponding to a 12-month cost-effectiveness ratio of \$66.04 per 1% reduction in recidivism.

For 3.1 ASAM treatment, we did not observe a significant effect on recidivism over the 6- or 12-month time horizon. Participants in the 3.1 ASAM treatment level experienced an average of 26 days in treatment, leading to a 14% reduction in the likelihood of recidivism relative to non-completers. With a total implementation cost of \$4,272.25 for program completion, the 12-month cost-effectiveness ratio for 3.1 ASAM treatment was \$305.16 per 1% reduction in recidivism.

Finally, the completion of TC programming, the longest and least intensive treatment regime with an average of duration of 113 days, significantly decreased the likelihood of re-arrest by 82% and 85% at 6- and 12-months post-program, respectively. Implementation of TC treatment cost approximately \$7,381.94 for a completed stay and a 12-month cost effectiveness ratio of \$78.52, representing an expenditure of \$78.52 for a 1% reduction in recidivism. Although the TC treatment led to slightly larger reductions in 6- and 12-month recidivism for program completers than the 3.5 ASAM treatment, the increased cost associated with the longer running and less intensive TC treatment resulted in lower cost efficacy than the high intensity 3.5 ASAM level.

Implications

The results of our research support substance use treatment as effective for individuals in diversion programs. Both the short-term, high-intensity treatment level (ASAM LOC 3.5) and the longer-term,

lower level of intensity treatment (therapeutic care) offered statistically significant reductions in recidivism. Once cost-effectiveness techniques are applied, short-term, high-intensity treatment offered greater recidivism reduction rates per dollar spent than lower levels of care such as therapeutic care. Our application of cost analysis has added to the literature that supports treatment in diversion programming, an approach that both supports the medical model of addiction and the desire of criminal justice systems for reduced recidivism and costs. By offering treatment as a diversion from the criminal justice system, the number of people incarcerated is reduced and this reduces the cost burden on the criminal justice system. By offering treatment as a diversion, we can also experience reductions in recidivism-further reducing the cost of the criminal justice system. By studying cost effective levels of care, we can ensure that the treatment efforts have an efficient impact on the variable of interest (recidivism).

Limitations and Future Research

Although the results of our research are robust and offer informative direction for both SUD and diversion programs, the research itself is not without limitations. We began with the approach of cost-effectiveness and did not attempt to measure benefits or the utility of the program. We chose cost-effectiveness specifically because the benefits of a program accrue to a wide range of individuals and entities, leading to difficulty in discerning the range of benefits that might be produced. In addition, we were unprepared to engage in research that would offer proxies for the measurement of utility, a necessity due to the fact that utility is a latent variable. Our approach, cost-effectiveness, also required that we choose an effect of interest. We chose to estimate the cost of achieving a 1% reduction in the likelihood of re-arrest across three treatment settings. There are a variety of other effects that could be explored and may produce different results. For example, the effect could be measured as a 10% reduction in the likelihood of re-arrest, a 5% reduction in the likelihood of relapse, a 20% increase in the likelihood of income increase or employment-both income and employment are factors that influence substance use. Future research that employs a different approach, benefit-cost or cost-utility, or a different effect would lend insight into the power and strength of our research.

Measures in empirical research can present questions. Our research explored the cost of achieving a 1% reduction in the likelihood of re-arrest. Of course, the measure of re-arrest is a proxy for other variables of interest, namely, decreased substance use and desistance from criminal activity. Other measures, either more direct or additional proxies, could be used to estimate the same effect. In addition, the measure of a 1% reduction in the likelihood of re-arrest must include some time element. Our research examined re-arrest rates in the 6- and 12-month periods. A longitudinal study that took data for a longer period, perhaps 3 to 5 years, would lend insight into the durability of reduced recidivism and may lead to different conclusions regarding the most cost-effective diversion programming. In addition, both race and gender were measured as binary variables (1=person of color; 1=female). Including variables with a more nuanced measure of race and gender could lend insight into a more intersectional study of the benefits of diversion programs for program participants.

Lastly, we examined the outcomes (recidivism) of those who completed the program versus those who did not complete the program. We did not examine why people did not complete the program or what variables might lead to program completion. Those same variables that lead to a lack of program completion may influence recidivism. In other words, we are interpreting success as a result of program completion; however, there may be some underlying variable that is responsible for both the lack of program completion and recidivism.

Conclusion

Our work contributes to a broader literature investigating the efficacy of diversion programs as a means of limiting incarceration for non-violent offenders and offering individuals an alternative pathway to reduced justice-involvement. By focusing on the cost-efficacy of programs with different treatment intensity, we aimed to shed light on the most efficient pathways for reducing recidivism for individuals with a history of substance abuse. As the average daily cost of incarceration for federal inmates is more than \$120 and rising over time, gaining a better understanding of the cost efficacy of diversion programs should be of paramount importance to policymakers choosing how to allocate limited tax funds [10]. Further research investigating the additional benefits accrued to program participants, beyond a reduction in recidivism, would shed further light on the importance of diversion programs for substance and justice-involved populations.

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