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Treatment Availability and Overdose Numbers in Florida Counties

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Abstract

Substance abuse rates within the United States have skyrocketed over the past few years, leading to increased costs to society and ultimately to overdose deaths. Most adults who suffer from a substance use disorder also suffer from a mental health disorder, which makes treatment much more difficult. Studies have also shown that there are regional differences in substance use, overdose deaths and the locations of substance use treatment centers. Some of the relationships between these variables have been examined, but little is known about the relationship between the prevalence of treatment and how it relates to the rates of overdose deaths.

This study seeks to examine how the number of mental health providers, substance use treatment centers and portion of the county living in rural areas affects the overdose death rates within counties in Florida. As the opioid crisis continues to grow, it is imperative to determine effective policies to treat substance use disorders. As Florida is a largely diverse state containing large cities, the results of this study will help determine if further studies around the country should be conducted. Implications for policy and practitioners will also be discussed.

Keywords: Drug use; Treatment; Availability; Florida

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Introduction

Substance Use and Mental Health

The prevalence of substance use disorders within America has reached astounding rates, with 38% of Americans suffering from this condition in 2017. The cost of this disorder on society is just as astounding, estimated at \$740 billion annually to pay for missed work days, healthcare costs related to drug use, and costs related to crime. As a result, the number of overdose deaths have also been tremendous. In 2016, overdoses reached 40,274 and by 2018 they had reached 67,367. The high rates of drug use, tremendous cost to society and increasing rates of overdose deaths call for attention from researchers to find the most effective ways of combatting these issues [1, 2].

Substance use and mental health disorders often coincide with one another and having a mental health disorder is a risk factor for early substance use. Co-occurring disorders affect about 8.5 million adults in the United States. The presence of multiple disorders has a profound effect on the duration and severity of such disorders, as is discussed below [3-6].

Co-Occurring Disorders

Co-occurring disorders have compounded effects on one another. Studies show that mental health disorders are often present before substance use disorders begin, making mental health disorders a major risk factor for developing a substance use disorder. Furthermore, the presence of a mental health disorder increases the risk of one participating in stronger and more illicit drugs. Although treatment may be available, the presence of two disorders simultaneously can make treatment particularly difficult. Having co-occurring disorders increases the likelihood of one or both of the disorders becoming a lifetime and chronic condition [7]. In other words, mental health conditions are risk factors for substance use disorders and vice versa, making treatment necessary for recovery from one or both of these disorders.

Furthermore, individuals may use substances in an attempt to cope with the symptoms of their mental health disorders, in which case the recurrence of mental health symptoms may exacerbate substance use. Specifically, co-occurring substance use and mental health disorders lead to higher levels of impairment, lower treatment success, increased likelihood of death, higher costs for treatment, increased risk of becoming

homeless, increased likelihood of incarceration, and increased risk of suicide than if the individual were struggling with only one of these disorders instead of both. The complexity of co-occurring disorders demands that those suffering undergo extensive and effective treatment. Failure to do so could lead to the disorders exacerbating the symptoms of each other and leading to more dire mental and physical health consequences.

Treatment

Barriers to treatment continue to be an issue as well, and over half of those with a co-occurring disorder not receiving treatment for their mental health or substance use disorder in the prior year they were surveyed. Treatment centers are often filled to capacity, and this has been shown to differ between regions. Studies have shown that over 30% of counties within the United States do not have any treatment programs available to their population. The treatment centers that are available often have very long waitlists and do not have availability immediately for those who may need it. These results suggest that more treatment centers may be needed in order to intervene in substance use disorders before they lead to overdose deaths.

Research has also shown regional differences in substance use and overdose rates in the United States. Overdose rates have historically been higher in metropolitan areas, but in 2015 the non-metropolitan areas took the lead [8]. This has important implications for policy and resource allocation that may vary between regions. Studies have also shown regional differences in the number of people with antisocial personality disorder and behaviors. Those who display deviant behaviors are more likely to use illegal substances, and by extension, those who use substances are more likely to be incarcerated than those who do not [9]. Regional differences in substance use trends, deviant behavior, drug use and treatment centers illuminate the need for more treatment centers and increased access to treatment for those in more remote areas.

The Current Study

As studies have revealed mental health as a significant risk factor for substance use and that substance use and overdose rates differ among regions, researchers have questioned whether treatment is accessible to those within regions that are not as densely populated and may not have the same availability of resources compared to more populated regions. What research has yet to show is whether there is an empirically supported relationship between the number of mental health providers, the number of substance use treatment centers, and the number of overdose deaths. The purpose of this study is to determine if such a relationship exists in Florida for the years 2018-2019.

Methodology

The sample is composed of counties within the state of Florida ($n = 67$). All but one of the variables originated with the County Health Rankings & Roadmaps data, which ranks Florida counties on aggregate measures of health outcomes, health factors, clinical care, social & economic factors, and physical environment. The number of treatment centers per county was sourced from the Substance Abuse and Mental Health Services Administration [10]. This study focuses on all Florida counties, representing the

majority of Florida residents; however, the analytic sample was constrained by lack of data in several counties, including Calhoun, Dixie, Franklin, Gadsden, Gilchrist, Glades, Gulf, Hamilton, Hardee, Jefferson, Lafayette, Liberty, Madison, Washington.

Measures

The dependent variable in the study is the number of drug overdose deaths for the period between 2018 and 2019, originally reported by the Center for Disease Control. Independent variables measured within this study include the number of mental health providers within a county, the number of substance abuse treatment centers within the county, and the percentage of the population of each county that lives within a rural area. Control variables included measures of economic status (severe housing cost burden, household income, income inequality, children in single-parent household), educational status (high school graduation, some college), violent crime, and demographic information (measures of race and ethnicity, gender).

Originally, variables for racial ethnicity were measured by percentage of African American, American Indian, Alaskan Native and Asian, Native Hawaii another Pacific Islander, Pacific Islander, Hispanic, and Non-Hispanic White. These variables created issues of multi collinearity when variance inflation factors were examined. To reconcile this, a single variable was created as a composite measure of racial and ethnic heterogeneity within the counties.

Analytic Strategy

Descriptive statistics and bivariate relationships were first observed. All variables were z-score standardized to account for distributional characteristics. Next, an ordinary least squares regression was used to determine whether the variables representing mental health providers, substance use centers and/or rurality was associated with overdose deaths at the county level. A negative binomial regression model was estimated to account for over dispersion in the dependent variable.

Results

The model controls for variables of economic status, educational status, violent crime and demographic information. The results show that number of mental health providers did not have a significant effect on the number of overdose deaths within a county ($b = .052$, $SE = .188$; $p = 0.32$). However, percentage of those living in a rural place did have a significant effect on overdose rates ($b = -.85$, $SE = .18$, $p = 0.000$), indicating that for every one unit change in living in a rural area, there is a .85 decrease in the log odds of overdose deaths. The number of substance use centers was also significantly associated ($b = .42$, $SE = .08$, $p = 0.000$), meaning that for every one unit increase in substance use centers, there is a .42 increase in overdose deaths within the county.

Some of the control variables within our study also showed significant effects, such as gender ($b = .63$, $SE = .24$, $p = 0.008$), those living with severe housing problems ($b = -.36$, $SE = .15$, $p = 0.019$), unemployment ($b = -.26$, $SE = .11$, $p = 0.027$) and children raised in a single-parent household ($b = .49$, $SE = .14$, $p = 0.000$). These indicate that certain measures of income, housing and family may be contributing to the variability in overdose rates among counties in Florida (Table 1).

Table 1. Demonstrate the effectiveness of each of the variables within the model.

Category	OD Deaths	Coef	S.E.	t	P > t	[95% Conf. Interval]
Primary Care	0.186896	0.188314	0.99	0.321	-0.18219	0.555984
Mental Health	0.052493	0.124605	0.42	0.674	-0.19173	0.296715
Substance Use	0.41795	0.085259	4.9	0	0.250845	0.585056
Female	0.628573	0.238333	2.64	0.008	0.161449	1.095698
Rural	-0.84964	0.182826	-4.65	0	-1.20797	-0.4913
Income	0.031632	0.121834	0.79	0.432	-0.20716	0.270421
Housing Prob	-0.36205	0.154637	-2.34	0.019	-0.66514	-0.05897
HS Grad	0.175832	0.125506	1.4	0.161	-0.07015	0.421819
Some College	-0.13754	0.240181	-0.057	0.567	-0.60828	0.333211
Unemployment	-0.25627	0.115614	-2.22	0.027	-0.48287	-0.02967
SP Household	0.492991	0.140126	0	0	0.21835	0.767632
Violent Crime	-0.03437	0.108695	-0.32	0.752	-0.24741	0.178664

Discussion

Research has examined the links between substance use and crime, mental health and substance use, and geographical differences between substance use and overdose deaths. This study explored whether the presence of mental health providers and substance use treatment centers influenced the number of overdose deaths within counties of Florida. Controlling for educational level, economic status, violent crime and demographic information, the number of substance use treatment centers, living in a rural area, gender, severe housing problems, unemployment and children raised in a single-parent household all had a significant effect on overdose deaths within the county. Number of mental health providers and the percentage of those living in a rural area did not show significance in the number of overdose deaths.

The finding that substance use centers are positively related to overdose deaths could have a few explanations. For example, if more people need to travel to substance use centers that are further away in order to seek treatment and then are released and relapse quickly, it is possible that the overdose death rates are due to those individuals with a substance use disorder being released from treatment, not having anywhere to go and ultimately relapsing. A second possible explanation could be that because some have to travel further to get to a treatment center, they could be waiting to get in and choose to use "one last time" before rehab and ultimately overdose before they are able to enter treatment. Additionally, individuals may choose to stay close to an area with more treatment centers available in order to attempt to be admitted to one if another happens to be full. Also, if family members or friends drop someone off at a treatment center and refuse to pick them up if they leave or come back for them when they have completed this treatment, the individual could be forced to remain in close proximity to where the treatment center is and if relapse happens, may overdose in that area.

The limitations of this study are largely centered around the sample that the data from which the data was collected. This study involved data representing most counties within Florida. It is possible that differences between Florida and other states exist that may impact these variables, affecting the ability to generalize beyond the counties from this state. Furthermore,

the fact that several counties were eliminated from this study due to missing data could also be a limitation. More information and increased reporting of overdose deaths by county could positively contribute toward this limitation and will hopefully be improved in the years to come.

Conclusion

Overdose death rates are an increasing and devastating issue within our nation. The results of this study done in Florida help to guide researchers toward furthering this study to incorporate other states within our nation to examine the national effect. Determining the biggest barriers to getting treatment and targeting them directly is the answers to reducing these overdose deaths, but it will begin with reducing substance use rates and increasing the ability for individuals to obtain the treatment they need. Targeting the regional differences will help to address the barriers specific to different regions of the country while increasing access to treatment for those areas that need it most. Policy implications can include emergency response personnel carrying more Narcan depending on regional needs, improving treatment accessibility, and removing barriers (such as transportation issues for those in more rural areas) to target substance use and reduce overdose rates. Individuals deserve equal access to treatment regardless of the region of the country that they live in, changes are necessary to help save lives and reduce overdose fatalities.

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