Limited research has been conducted looking at the relationship between the drugs involved in substitute addictions. With the legalization of marijuana in Alaska, Colorado, and Washington, along with the increased usage of heroine replacement medication across the United States, researchers are beginning to study these drugs and their substitutions. However, less is known about potential substitute drugs for substance abuse recovery for individuals without medication assisted therapy (MAT). For example, the use of anti-anxiety medications such as benzodiazepines is not the first option among many clinicians treating addictions due to their addictive quality and possibility of becoming just another substitute addiction. Therefore, there is little data on the use of benzodiazepines as a substitute drug. In this project, preferred drug use and use of other addictive substances, including benzodiazepines, were measured at treatment onset and then again six months following the initial treatment.

**Introduction**

Montgomery County, Ohio has the highest rate of untreated needs for illicit drug use out of all Ohio counties and currently has the second highest rate of deaths due to unintentional medication overdose. In 2015, 259 residents died from unintentional medication overdose, and there was a total of 1168 deaths recorded from 2010 - 2015, increasing the death rate by 104% (Public Health - Dayton & Montgomery County, 2016). Much of this is due to the many obstacles encountered to obtain substance abuse treatment. Past research has been conducted to address Montgomery County, Ohio's African American population. This data was used to study those individuals receiving treatment for substance abuse in Ohio, which included 1553 men (63.9%) and 876 women (36.1%). The mean age was 36.5 years, ranging from 18-74. Five-hundred-eighteen individuals identified themselves as Caucasian, 1851 as African American, 60 as American Indian, six as Asian, six as Native Hawaiian, one as Alaska Native, 84 as multiracial, and of those, 26 identified themselves as Hispanic or Latino. For this analysis, 445 individuals were used based on their drug and alcohol usage.

**Methods**

The Government Performance and Results Modernization Act (GPRA) was administered to all participants. Questions B.1. and B.2. were used to assess the number of days participants used alcohol, marijuana, cocaine/crack, opiates, and/or benzodiazepines in the past thirty days. An initial assessment was given as a baseline and then compared with a second assessment given six months post baseline.

**Analysis**

Regression analyses were conducted using all drug categories as dependent variables against each respective drug category as predictor variables.

**Results**

A multiple linear regression was calculated to predict participants’ cocaine usage based on their alcohol, marijuana, benzodiazepine, and opium usage. Preliminary analyses were performed to ensure there was no violation of the assumption of normality, linearity and multicollinearity. A significant regression equation was found (F (4, 440) = 25.27, p = .001), with an R² of .19. Participants’ predicted cocaine usage is equal to 0.27 + 0.18 (alcohol) + 0.04 (marijuana) - 0.37 (benzodiazepines) + 0.39 (opiates), where drug usage is measured as the number of days used in the past 30 days. Participants’ cocaine usage increased 0.18 days and 0.39 days for each day of alcohol and opiate usage, respectively, and decreased 0.36 days for each day of benzodiazepine usage. Alcohol, benzodiazepine, and opium usage were all significant predictors of cocaine usage. Marijuana usage did not contribute as a significant predictor in this model.

Alcohol (β = -1.18, t = 6.17, p < .001) and opiate (β = .39, t = 7.07, p < .001) use significantly decreased following six month of treatment for cocaine use. Benzodiazepine use was significantly increased following six months of treatment for cocaine use (β = -2.43, t = -.016). However, benzodiazepine use did not increase following treatment for alcohol, marijuana, or opiate use. No difference was found between gender and racial groups.

**Conclusion**

Contrary to past substitution drug research on individuals receiving MAT, participants in this sample receiving treatment without MAT did not have similar replacement tendencies. There was no significant correlation between replacing alcohol, marijuana, opiates, or cocaine in any variation amongst each of those drugs. Non-MAT treatment for these particular drugs did not promote the use of drug substitution. In fact, the opposite occurred: treatment for the participants’ drug of choice decreased the use of these drugs. However, when treating participants for cocaine use without MAT, there was a significant negative correlation for benzodiazepine usage. Participants were using less cocaine, but they increased their benzodiazepine intake.

This finding warrants further study and attention to the fact that individuals receiving substance abuse treatment without MAT also have the potential to substitute drugs. Clinicians should be aware of this potential, especially in the case of benzodiazepine replacement for cocaine addicts receiving treatment without medication.

**Cross Substitution of Drugs Following Substance Abuse Treatment that Does Not Include Medication Assisted Treatment**

**Jon-Michael Huber, Jared Embree, & Josephine Wilson**

**Substance Abuse Resources & Disability Issues (SARDI) Program**

**Abstract**

Limited research has been conducted looking at the relationship between the drugs involved in substitute addictions. With the legalization of marijuana in Alaska, Colorado, and Washington, along with the increased usage of heroine replacement medication across the United States, researchers are beginning to study these drugs and their substitutions. However, less is known about potential substitute drugs for substance abuse recovery for individuals without medication assisted therapy (MAT). For example, the use of anti-anxiety medications such as benzodiazepines is not the first option among many clinicians treating addictions due to their addictive quality and possibility of becoming just another substitute addiction. Therefore, there is little data on the use of benzodiazepines as a substitute drug. In this project, preferred drug use and use of other addictive substances, including benzodiazepines, were measured at treatment onset and then again six months following the initial treatment.

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Cross substituting drugs is a common response to SUD treatment (Wright et al., 2015; Chandra & Chandra, 2005) and understanding that behavior plays a large role in improving harm reduction models, as well as gaining insight into factors that could lead addicts to other dangerous substances. Although clinicians understand the risks associated with prescribing such medications, because of this, little is known about the self-medication and abuse of misused prescription medications by those not receiving medication assisted treatment (MAT). The purpose of this study is to evaluate these individuals from 2006-2015, the Government Performance and Results Modernization Act (GPRA) instrument was used to collect data from individuals across Ohio, predominately in Montgomery County, through a variety of grants funded by the Substance Abuse and Mental Health Services Administration (SAMSHA) to serve disenfranchised populations. This data was used to study those individuals receiving treatment without MAT for substance abuse and to monitor their preferred drug use and use of other addictive substances for the possibility to cross substitute. Similar to those individuals receiving MAT, it was hypothesized that the individuals receiving substance abuse treatment without MAT would cross substitute one drug for their preferred drug that they were receiving treatment for.

**Participants**

Participants consisted of individuals (n = 2434) who were receiving treatment for substance abuse in Ohio, which included 1553 men (63.9%) and 876 women (36.1%). The mean age was 36.5 years, ranging from 18-74. Five-hundred-eighteen individuals identified themselves as Caucasian, 1851 as African American, 60 as American Indian, six as Asian, six as Native Hawaiian, one as Alaska Native, 84 as multiracial, and of those, 26 identified themselves as Hispanic or Latino. For this analysis, 445 individuals were used based on their drug and alcohol usage.

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