Contributing Factors of Substance Abuse: Mental Illness, Mental Illness Treatment and

Health Insurance

By

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Abstract

To gain a better perspective of contributing factors to substance abuse this thesis will examine the relationship between substance abuse, mental illness, previous mental health treatment and health insurance coverage. It is estimated that about 4 million of the 17.5 million people diagnosed with a mental illness also suffer from substance abuse (Important Statistics on Dual Diagnosis, n.d.). This study is a secondary analysis on the results from the 2013 National Survey of Drug Use and Health. The results from this survey is provided by random households in the United States from individuals aged 12 years and older. I test the following research questions: Is there a correlation between a person's mental health and their likeliness to abuse illegal drugs? Does previous mental health treatment decrease the likelihood that an individual will abuse drugs? Lastly, does not having health insurance increase the likelihood of drug abuse? The findings indicate that the presence of a mental illness, especially a severe mental illness, is correlated with a higher substance abuse rate than individuals without a mental illness or who are suffering from a less severe mental illness. It was also found that persons who had received mental health treatment were more likely to abuse substances than someone who had not received treatment. Lastly, the results showed that individuals without health insurance were more likely to abuse substances than someone with health insurance.

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Chapter I

Introduction

According to the results from the 2013 National Survey of Drug Use and Health, among the 20.3 million adults with a past year substance use disorder, 7.7 million of those adults were also suffering from a co-occurring mental illness within the past year (SAMHSA, 2014). Individuals who have substance abuse disorder as well as a mental health disorder are known as having a co-occurring disorder, which is also known as dual disorders/diagnosis and they are considered a very challenging and expensive subpopulation (Sharma & Bennett, 2015). Co-occurring disorders (COD) refers to one or more disorders that involve the use of alcohol and/or other drugs as well as one or more mental illnesses (Peters & Hills, 1997). According to the Substance Abuse and Mental Health Services Administration (SAMHSA), individuals with mental health disorders are more likely to experience an alcohol or substance abuse disorder than those who are not suffering from a mental health disorder (SAMHSA, 2017). So, what exactly is substance abuse disorder and mental illness?

According to SAMHSA, "The *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition (DSM-5), no longer uses the terms substance abuse and substance dependence, rather it refers to substance use disorders, which are defined as mild, moderate, or severe to indicate the level of severity, which is determined by the number of diagnostic criteria met by an individual. Substance use disorders occur when the recurrent use of alcohol and/or drugs causes clinically and functionally significant impairment, such as health problems, disability, and failure to meet major responsibilities at work, school, or home. According to the DSM-5, a diagnosis of substance use disorder is based on evidence

of impaired control, social impairment, risky use, and pharmacological criteria"
(SAMHSA, 2015). Just like substance abuse disorder, mental illness is also broken down
into different categories based on the severity of the illness.

The levels of any mental illness (AMI) are differentiated by their level of functional
impairment. This includes serious mental illness (SMI), moderate mental illness, low
(mild) mental illness and no mental illness. AMI, also known as Any Mental Illness, is
defined as "currently or at any time within the past 12 months having had a diagnosable
mental, behavioral, or emotional disorder (excluding developmental and substance use
disorders) of sufficient duration to meet diagnostic criteria specified within the Diagnostic
and Statistical Manual of Mental Disorders" (DSM-IV; American Psychiatric Association
[APA], 1994). SMI, also known as Serious Mental Illness, is defined as "currently or at
any time in the past year have had a diagnosable mental, behavioral, or emotional disorder
(excluding developmental and substance use disorders) of sufficient duration to meet
diagnostic criteria specified within DSM-IV (APA, 1994) that has resulted in serious
functional impairment, which substantially interferes with or limits one or more major life
activities" (DSM_IV; American Psychiatric Association [APA], 1994). Why is this topic
of importance?

This topic is important and worthy of study because of the prevalence of substance
abuse in our society and the many factors that contribute to it. Substance abuse can be very
detrimental to a person's health and wellbeing. The main factor contributing to substance
abuse that this thesis is analyzing is mental illness. It will also analyze the correlation
between health insurance and any pervious mental health treatment and substance abuse.
Mental illness and substance abuse are both touchy subjects when it comes to the public.

People have preconceived ideas and accusations against those suffering from mental illness and substance abuse, even though these disorders can affect anyone. This has created social stigmas against people suffering from these disorders and it makes it harder for them to speak up and seek the help they need. Too often, people suffering from an undiagnosed mental illness turn to self-medication to treat themselves and this leads to substance abuse. This only creates further problems because substance abuse can worsen mental illness symptoms or even cause them. One of the reasons why this topic is important is because of the current opiate epidemic. According to the CDC (2017), in 2015, more than 33,000 people were killed from an opioid overdose, which is more than any year on record. Also, since 1999, the opioid deaths for women increased by 400% and for men by 265% (SAMHSA, 2015). Individuals with a mental health disorder are more likely to abuse opioids than someone without a mental health disorder-18.7% versus 5% (Bernstein, 2017). Therefore, we must recognize and treat both disorders to help combat the current opiate epidemic. This thesis will help bring light to this issue by focusing on the contributing factors to substance abuse such as mental illness, previous mental illness treatment and health insurance and how we can combat this issue.

Summary

There are many factors that contribute to substance abuse. The co-occurrence of substance abuse and mental illness is causing problems for those suffering from these disorders and our nation. Individuals and healthcare professionals need to recognize, diagnose, and treat both disorders to prevent any further harm being done to the individual and our nation. The next chapter of this thesis will explore and summarize previous literature on this topic and the theories and hypotheses that guided this thesis.

Chapter II

Literature Review

One of the contributing factors to substance abuse is mental illness. Those who are suffering from a mental illness are at a greater risk for a substance abuse disorder than someone who does not have a mental illness. This is because these individuals may not seek help for numerous reasons such as lack of health insurance and fear of being labeled "mentally ill" and as a result they try to take care of their mental illness on their own. Therefore, they often turn to self-medication in hopes it will aid their mental disorder. However, this just masks the problems and symptoms being caused from the co-occurring disorder. This is because drug abuse alters the mental capacity of the individual; however, if the individual has a mental illness as well, the mental ability is significantly altered (U.S. Department of Health & Human Services, 2014). These disorders can occur independently or simultaneously, it does not discriminate. There is also a potential for a mental illness to occur from abusing substances due to withdrawal or drug abuse intoxication (U.S. Department of Health & Human Services, 2014).

In 2011, there were roughly 11.5 million adults aged 18 and over in the United States who had a serious mental illness (SMI), which is approximately 5% of adults (Matejkowski & Osterman, 2015). Substance abuse is a high risk when it comes to persons suffering from severe mental illnesses such as schizophrenia and bipolar disorder with about 50% of those diagnosed meeting the criteria for a substance abuse problem (Sharma & Bennett, 2015). The use of amphetamines, cocaine, and cannabis is over-represented in patients with mental illnesses such as schizophrenia and bipolar disorder (Ringen et al., 2008). Also, individuals with schizophrenia are two to five times more likely to experience

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substance abuse compared to the public (Cruce et al., 2011). Not to mention, this problem does not just affect adults, it also affects adolescents. College students with a severe mental illness were at a greater risk of developing substance abuse issues than students without a severe mental illness (Lo et al., 2013). Co-occurring mental illness and substance abuse does not discriminate against anyone and the presence of this co-occurrence disorder can cause many problems for these individuals.

One problem that individuals with a co-occurring mental illness and substance abuse face is that between one and eight percent of people who have a concurrent mental health and substance abuse problem visit the emergency department at least once a year because of their disorders (Orisatoki et al., 2017). These persons may be seeking emergency help for their disorders because they left them untreated due to stigmas and other barriers such as lack of health insurance and financial problems (Kuppin & Carpiano, 2006). Having a co-occurring disorder makes it difficult for these individuals to seek treatment because they often have unstable housing or are homeless (Brunette, Mueser, & Drake, 2004). There is also a significant amount of evidence that persons with co-occurring mental illnesses and substance abuse are at a higher risk for high functional impairment, HIV and Hepatitis, and it is harder to recognize the co-occurrence of these disorders (Hu, Kline, & Huang, 2006). These individuals do not recognize or know, however, that the use of alcohol and drugs worsens the symptoms of their mental illness, delays their recovery, and only creates further problems for them. (Bahorik, Newhill, & Eack, 2013).

The presence of both mental illness and substance abuse is also associated with poor prognosis and the "revolving door" of admissions these individuals face when seeking treatment (Weaver, Renton, Stimson, & Tyrer, 1999). Having a substance abuse problem

while suffering from a mental illness can cause family and social relationships, further medical problems, hospitalizations, housing instability, and legal concerns (Mueser & Gingerich, 2013). Therefore, it is important to implement dual diagnosis services and treatments for individuals with mental illness and substance abuse. Dual diagnosis programs are being implemented on behalf of evidence-based practices. Dual diagnosis services combine treatment for substance abuse and mental health that are tailored to the need of every individual (Drake et al., 2001). However, it may be hard for these individuals to try and seek help because substance abuse is associated with an unwillingness to seek professional help (Dickey & Azeni, 1996). Treatment for dual diagnosis is also harder because it is more complex than treatment for individuals who are just experiencing one disorder (Townsend et al., 2006). It is important to treat both the mental illness and substance abuse issues. Professional treatment can help these individuals tremendously, however, they fear for police interaction and the labels that will be placed upon them. Which is why we must break the stigmas associated with mental illness and substance abuse and encourage these individuals to seek treatment.

Health insurance has also been shown to be contributing factor to substance abuse. This is because access to health insurance is especially difficult for persons with a SUD because they have difficulty maintaining employment which gives them money and access for health care through their place of employment (McCabe & Wahler, 2016). Numerous studies have shown that persons with a SUD have poorer work outcomes and lower incomes (Dworsky & Courtney, 2007). Substance use disorder is highest among those who are uninsured and lowest with those who have Medicaid (Bouchery et al., 2012). Many

people have an unmet need for mental health care because they are uninsured and cannot afford the services out of pocket (Wells et al., 2002).

According to a study conducted on the costs of mental health and substance abuse services among individuals with Medicaid insurance, it is very costly to treat these disorders and they are uncertain if treatment of substance abuse will reduce the annual costs of psychiatric care (Dickey & Azeni, 1996). In 1991, substance abuse accounted for 5.3 million days of care for individuals with Medicaid and they spent $4 billion dollars on substance abuse-related hospital care (Fox et al., 1995). However, in 1991, Medicaid did not include specifically substance abuse treatment in a list of their covered services (Fox et al., 1995). Therefore, it is important to have mental health parity.

"Mental health parity refers to providing the same level of health benefits for behavioral health issues such as mental illness and substance abuse as is offered for other health issues" (Rogers, 2016). Under the Affordable Care Act (ACA) additional requirements and the inclusion of substance abuse and mental health services are specified as a list of covered services (Rogers, 2016). The ACA will expand availability of mental health services to 62 million Americans whose previous coverage was non-existent or below the parity standard (Rogers, 2016). It is also estimated that the updated provisions will expand to 32.1 million Americans who did not previously have them. While 30.4 million Americans with some existing coverage will see the benefits extended to meet the parity laws (Rogers, 2016). However, while the ACA is trying to improve behavioral health care coverage, their success in improving behavioral health has be unproven (Rogers, 2016). This could be due to insurance companies limiting benefits to the most cost-

effective options instead of offering the various array of options for the insurance holder (Rogers, 2016).

Theory

The social control theory offers reasons why individuals obey rules. It believes that there are certain bonds that a person has with society that controls their impulse to commit crimes. These bonds include; attachment, commitment, involvement, and belief. Attachment is the ties the individual forms with significant people in their lives. Commitment is related to aspirations for the individual's future and the time and effort invested to make them come true. Involvement is spending time on conventional things such as work and school. The last bond is belief, which deals with the individuals beliefs regarding morals of the social-value system. Theorists believed that if an individual had a strong relationship with each bond they were less likely to engage in delinquent and criminal acts. However, if an individual has weakened bonds to society, they were more likely to engage in criminal behaviors.

One study found that adolescents who had strong bonds to their family and friends were less likely to consume ecstasy compared to adolescents who had weaker bonds (Norman & Ford, 2015). The social control theory acknowledges the importance of social bonding (Hirschi, 1969). Not to mention, being identified as a drug user leads to broken social bonds which leads to even further drug abuse (Boeri et al., 2006). It was also confirmed that stronger bonds with family, marriage, education and other various relationships and involvements reduce the likelihood of nonmedical prescription drug use (Yang & Yang, 2017). According to Schroeder and Ford (2012), the social control theory can significantly predict adolescent drug use ((Elliott, Huizinga, & Menard, 1989). When

an individual has a strong attachment to traditional culture, they are less vulnerable to the influence of drug culture (Lai, 2013). MacDonald (1984) states that virtually all drug addicts being their use as adolescents. The social control theory believes that deviance and drug use do not need to be explained because it comes naturally. However, what really needs to be explained is why some people do not deviate from the norms of society, engage in criminal behavior or abuse substances, while others do (Nilasari, 2016).

Summary

This chapter presented previous studies on this topic, however, this was not an exhaustive literature review. These studies indicate that there are many factors contributing to substance abuse. One of these factors is mental illness. There is a strong prevalence of co-occurring mental illness and substance abuse disorders in America. Having a co-occurring disorder can cause many problems for an individual such as unstable housing, homelessness, and a revolving door of hospital visits. Lack of health insurance also increases chances of substance abuse because these individuals cannot seek or afford the treatment they need. This chapter also explained theory guiding this thesis, the social control theory. The next chapter will explain the design of this study, how the sample was selected, a profile of the sample, what measures were used, and what statistical analyses were performed.

Chapter III

Methodology

Research Design

This research is a secondary analysis of data derived from the 2013 National Survey of Drug Use and Health (NSDUH). The NSDUH is an annual survey conducted on the noninstitutionalized civilian population of the United States aged 12 years old or older. The NSDUH is the primary source of information for the use of illegal drugs, alcohol use, and tobacco use for United States individuals aged 12 years old or older. The survey also includes questions that focus on mental health, as well. The survey is sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA). This survey was the best dataset that could be used for this research since it includes one's mental health status, drug history, whether they have received treatment for their mental illness and whether the participants were insured or not. The NSDUH survey was also used because it was less time consuming for the researcher than performing and conducting their own. The researcher also used this specific survey because she was familiar with it and used it in Dr. Roger's Statistical Techniques in Health and Human Services class. The dataset used in this thesis was provided by Dr. Rogers and can be found on the ICPSR website.

Measurement

The measurements used in this study were; the frequency of each variable, the percent of each variable, the mean, the mode, standard deviation, Pearson's Chi-Square, the degrees of freedom, the significance of the Pearson's Chi-Square, the Gamma and the significance of the Gamma, the Beta, the significance of the variable and the odds ratio. The frequency is the count or tallies in each variable. The percent is this frequency

converted into a percent. The mean is the average of the numbers and can be found by adding all of them up and dividing by how many numbers there are. The mode is the value that appears the most. The standard deviation measures how dispersed the data is away from the mean. Degrees of freedom indicate the number of values that are free to vary in a final calculation. The significance of Pearson's Chi-Square determines if the likelihood of an event occurring is statistically significant or not. Gamma measures the rank correlation between variables. The significance of the Gamma measures the strength of the association between the variables. Beta tells the direction and magnitude of the relationship between variables. The significance of the variable determines if the variable is statistically significant or not. Lastly, the odds ratio determines the strength and probability that an event will occur.

Dependent Variable

The dependent variable used in this study is whether the individual has abused illegal drugs or not. This variable is calculated in the survey to include instances where the responded said yes to abusing any of these illegal drugs; marijuana/hashish, cocaine/crack, heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically. The individual could answer in two ways, yes or no. If they answered yes, the individual has abused drugs within the past year. If they answered no, the individual has not abused drugs within the past year.

Independent Variables

The first independent variable used is the presence of a mental illness. The survey included four options:

> 1) No previous mental illness within the past year

2) Mild mental illness within the past year

3) Moderate mental illness within the past year

4) Serious mental illness within the past year

The second independent variable used is whether the individual sought previous mental illness treatment within the past year. There were two choices; yes, the individual sought mental illness treatment in the past year or no, the individual did not seek mental illness treatment in the past year.

The third independent variable used in this research was whether the individual had health insurance coverage or not. There were two choices; yes, the individual had health insurance or no, the individual did not have health insurance.

Control Variables

There were five control variables in this research. The first control variable was the individuals age. There were three categories;

1) Aged 18-25 years old

2) Aged 26-34 years old

3) 35 or older

The second control variable was the race of the individual. There were seven categories.

1) Non-Hispanic White

2) Non-Hispanic Black/African American

3) Non-Hispanic Native American/ Alaska Natives

4) Non-Hispanic Hawaiian/ Other Pacific Islander

5) Non-Hispanic Asian

6) Non-Hispanic more than one race

7) Hispanic

The third control variable was the individual's marital status. There were five categories to choose from;

1) Never Married

2) First Marriage

3) Remarried

4) Divorced/Separated

5) Widowed

The fourth control variable was the individual's total family income. There were four categories to choose from;

1) Less than $20,000 a year

2) $20,000 to $49,999 a year

3) $50,000 to $74,999 a year

4) $75,000 or more a year

The fifth and final control variable dealt with the person's employment status. There were four categories to choose from;

1) Employed Full Time

2) Employed Part Time

3) Unemployed

4) Other (included not in labor force)

Sample Profile

There were 37,424 individuals included in the 2013 NSDUH. These individuals conducted face-to face interviews with a surveyor from the SAMHSA. The individuals were chosen to represent the population of their residence city. They also collected data from individuals who lived in noninstitutional group quarters and from civilians living on military bases. Prior to 1999, the survey was employed through paper-and-pencil collection. In 1999, they started using computer assisted interviewing. "Most of the questions are administered with audio computer-assisted self-interviewing (ACASI). ACASI is designed to provide the respondent with a highly private and confidential mode for responding to questions in order to increase the level of honest reporting of illicit drug use and about other sensitive topics, including mental health issues. Less sensitive items are administered by interviewers using computer-assisted personal interviewing (CAPI)" (Substance Abuse and Mental Health Services Administration, 2014). Screenings were conducted at 160,325 households and 67,838 completed interviews were obtained. All 37,424 cases were used in this research except the 200 missing cases from the received any mental health treatment in the past year section and 6 missing cases from the martial status section. These cases were missing because the individual did not answer these questions, therefore they were omitted from the study. Table 1 reports the descriptive and univariate statistics of the variables for this study. This portrays the frequencies, percentages, the mean and mode, and the standard deviation of each variable. For example, the mode of the dependent variable is the category No with a count of 36,855. The mean of the dependent variable is .02. The standard deviation of the dependent variable is .122. The mode for mental illness is no past year mental illness with a measure of 29801. The median of the variable mental illness is 92.45% which is the category of past year mild mental illness and

past year moderate mental illness combined. The mode for past mental health treatment is 31790 which is the category of No, the person did not receive mental health treatment in the past year. The mean of past mental health treatment is .15 with a standard deviation of .353. The mode for health insurance is 30196 which is the category of yes, the person did have health insurance. The mean is 1.19 and the standard deviation is .395.

Analytic Strategy

To perform this study, IBM SPSS Statistics Version 24 was used. This software was chosen for this study because it could perform the statistics appropriate for the analysis of this study. Descriptive statistics/univariate statistics were performed on the variables. Univariate descriptive statistics summarize data sets with one variable and tells us the measures of central tendency (mean, median, mode) and the measures of dispersion which refers to the spread of the data around the central tendency. The two types of dispersion are range and standard deviation. The range is the highest value minus the lowest value. While the standard deviation tells us how close the other values are to the mean. As stated earlier, the results will be displayed in table 1.

Bivariate statistics were also performed. Bivariate statistics allow us to compare two variables to determine if there is a correlation between them. Pearson's Chi-square was used for all variables. Gamma was also used for variables that were categorical and binary. These variables included the dependent variable on whether the individual abused drugs or not, the independent variable on whether the individual received past mental illness treatment in the past year and the independent variable on if the individual had health insurance or not. Multivariate analysis was also conducted using binary logistic regression. Chi-square compares two data sets to determine if there is a relationship. Gamma measures

the strength and the direction of the relationship between two variables. This will determine whether the variables have a strong or weak, positive or negative correlation and whether it is statistically significant or not. The results of the bivariate analysis will be displayed in table 2.

Lastly, multivariate statistics were performed on the variables. Multivariate statistics allows a researcher to analyze more than two variables at the same time and determine how they relate to one another. Specifically, binary logistic regression was used in the analysis. It predicts the probability that an event will occur. It allows the researcher to examine the effects of the independent and control variables on the dependent variable. Regression analysis calculates the coefficient and the statistical significance of each independent and control variable. This allows me to determine its effect or relationship with the dependent variable. The results from the multivariate analysis are displayed in table 3. The reference category for each logistic regression are no mental illness within the past year, has health insurance, no mental illness treatment in past year, aged 35 or older, white, never married, less than $20,00 and other for employment status. The results section will explain the outputs for each analysis.

Hypotheses

Is there a correlation between a person's mental health and their likeliness to abuse drugs? That is one of the questions that this thesis is trying to answer. The first hypothesis of this research is that if a person has a mental illness they are more likely to abuse drugs than someone without a mental illness to try and self-medicate themselves. The more severe a person's mental illness is, the more likely they are to abuse drugs to try and alter their cognitive function. This hypothesis can be explained by the attachment bond in the

social control theory. Those with a mental illness often can be emotionally and physically distant from their loved ones (Personality Disorder, 2017). When someone is distant from their loved ones, the attachment they have to them is weakened, which makes them susceptible to abusing substances.

The second hypothesis is that previous mental illness treatment reduces the likeliness that a person will abuse drugs compared to individuals who did not receive mental illness treatment because they learned positive coping techniques and how to deal with their mental illness, whereas those who did not seek treatment did not. The social control theory can also be applied to this hypothesis through the bonds of attachment, and belief. They may be seeking treatment because society believes that being a substance abuser is immoral, therefore they must stop abusing substances and seek treatment. They could also be seeking treatment to strengthen the bond between them and their loved ones because they want them to be "proud" of them again after learning of their substance abuse.

Lastly, the third hypothesis is that there is a relationship between health insurance and substance abuse. Particularly, having health insurance decreases the likelihood of substance abuse while the lack of health insurance increases the likelihood of substance abuse due to the lack of services and treatments available to them without insurance. The social control theory can also be applied to this hypothesis through the involvement bond. A person can have health insurance through their parents, through their job, or through the government. An induvial with health insurance through their parents have an involvement with their parents. People with health insurance from their jobs are involved in their place of employment. While, those with health insurance from the government have different types of involvements such as working, but not making enough to afford insurance through

their place of employment. However, those without health insurance may not have an involvement in these things. They could be unemployed and therefore are uninvolved in conventional things. Therefore, they are at a greater risk to abuse substances. To test these hypotheses, this research will be examining the results from the 2013 National Survey of Drug Use and Health (NSDUH).

Summary

This chapter presented the hypotheses that this thesis is trying to test. Whether the presence of a mental illness, previous mental illness treatment or health insurance coverage has a correlation with the likelihood that an individual will abuse drugs. This thesis will test these hypotheses through secondary analysis from the 2013 National Survey of Drug Use and Health which had 37,424 observations of individuals aged 12 years or older within the United States. However, there are 200 missing cases from the received any mental illness treatment section and 6 missing cases from the marital status section of the survey. This study will conduct descriptive, univariate, bivariate, and multivariate statistics on the variables using the program IBM SPSS Statistics Version 24. The next chapter will present the results from these analyses and what was found relative to the hypotheses that were presented.

Chapter IV

Results

The following section will discuss the findings in Tables 2 and 3. Table 2 shows the bivariate analysis between the dependent variable and the independent and control variables. Table 3 shows the multivariate analysis of all the variables and the likelihood of each variable occurring to their reference category. Both tables give an insight on whether each variable affects the likelihood and probability that an individual abuses drugs. By showing and examining these two tables, it will show which variables increase the probability of substance abuse. Table 2 is necessary to interpret the results because it provides the bivariate results in a simple form for the readers to understand. The results in the table indicate the relationship between the two variables being analyzed. Whereas, Table 3 is necessary because it includes other factors that must be considered when determining the results of the analysis. Table 3 helps detangle all the variables and factors that must be considered when trying to predict the likelihood of an event occurring. One should not just analyze Table 3 without analyzing Table 2. This is because Table 2 is analyzing the whole variable category while Table 3 analyzes each category of every variable separately. While the whole variable could be statistically significant in Table 2, it could be insignificant in Table 3. Thus, it is necessary to look at both tables to determine the relationship and significance of each variable and category to the dependent variable. However, when comparing all the variables together, Table 3 is the ultimate go to, to determine the relationship between the variables.

Independent Variables

Mental Illness

It was hypothesized that persons suffering from a mental illness or a more serious mental illness were more likely to abuse substances than someone without a mental illness. Table 2 shows that 1.1% of those with no mental illness abused substances in the past year. Next, 2.6% of individuals with a mild mental illness claimed to have abused substances. Whereas, 3.4% of individuals with a moderate mental illness stated they have abused drugs. Lastly, 4.4% of individuals with a serious mental illness claimed to have abused substances before. In Table 3, the category of no mental illness was left out as the reference category. The probability that someone with a mild mental illness will abuse substances is increased relative to the reference category at a value of 2.263. The probability that someone with a moderate mental illness will abuse substances is increased relative to the reference category at a value of 2.689. Lastly, the probability that someone with a serious mental illness will abuse substances is increased relative to the reference category at a value of 3.302. These results indicate that the hypothesis is correct. Those who are suffering from a mental illness are more likely to abuse substances than someone without a mental illness. Those with a serious mental illness were more likely to abuse substances, followed by moderate mental illness, mild mental illness, and no mental illness. These two variables are statistically correlated at a significance of .000, which is less than .05 which is the threshold for statistical significance. This means that one's mental health status does have an influence on their likelihood to abuse substances. This result makes sense because those with a mental illness are likely to have a weakened attachment to their families because they are often distant from their loved ones (Personality Disorder, 2017).

Mental Health Treatment

It was hypothesized that those who sought mental health treatment were less likely to abuse substances than someone who did not receive mental health treatment. Table 2 shows that this hypothesis is incorrect. The results showed that 1.3% of individuals who did not receive mental health treatment abused drugs. Whereas, 2.9% of the individuals who did seek mental health treatment abused drugs. In Table 3, the category of not receiving mental health treatment was left out as the reference category. The probability that someone who did receive mental health treatment will abuse substances is increased at a value of 1.522 relative to the reference category. These two variables are statistically correlated at a significance of .000, which is less than .05 which is the threshold for statistical significance. This means that these two variables are correlated, however, not how this thesis predicted. Those who do seek mental health treatment are more likely to abuse substances than those who do not seek treatment. However, this does not mean that mental health treatment is not beneficial. There is room for improvement in surveying each patient for a co-occurring mental illness and substance abuse disorder. Also, it should be noted that those seeking treatment may abuse substances more than those who have not sought treatment because they do in fact have a co-occurring disorder and because this study was only conducted once in a year and therefore was not able to analyze the benefits of mental health treatment on substance abuse. The social control theory can also support this result through the belief bond. Those seeking treatment may go into the program thinking the services will not help them, therefore they do not try to get better, therefore they are more likely to abuse substances. Whereas, those who have not sought treatment may sill believe there is hope in treating their disorders and are less likely to seek help.

Health Insurance

This thesis hypothesized that those with health insurance were less likely to abuse substances compared to those without health insurance. Table 2 shows that this hypothesis was correct. According to Table 2, 29,777 (98.6%) individuals without health insurance abused substances compared to only 419 (1.4%) individuals with health insurance. In Table 3, the category of having health insurance coverage was left out as a reference category. Those with no health insurance increased the probability of abusing substances at a value of 1.298 compared to the reference category. These two variables are statistically correlated at a value of .000, which is less than the .05 threshold for statistical significance. This is indicative that the presence of health insurance reduces the likelihood that an individual will abuse substances. This result confirms the involvement bond of the social control theory. Those who are not involved with their parents or their place of employment to receive health insurance are more likely to abuse substances than those who are more involved.

Control Variables

Age

The results from Table 2 and 3 indicate that individuals aged 18-25 are more likely to abuse substances than any other age category. 441 (2.4%) participants aged 18-25 claimed to have abused substances before, compared to 57 (1.0%) individuals aged 26-34. Those aged 35 or older were least likely to abuse drugs at 0.5% or 71 individuals. In Table 3, the age category of 35 or older was left out as the reference category. Those aged 18-25 had an increased probability of 2.781 of abusing drugs compared to those aged 35 or older. Those aged 26-34 had an increased probability of 1.420 of abusing drugs compared to those aged 35 or older. While the entire age variable was statistically significant at .000, when

broken down into dummy variables, it is no longer considered statistically significant. The age range of 18-25 is significant at a level of .000, but the age range of 26-34 is not significant because it has a value of .069 which is greater than the .05 threshold for statistical significance. This means that the younger an individual is, the more likely they are to abuse substances. This result can be explained by the attachment bond of the social control theory. Those aged 18-25 usually have a stronger attachment to their peer than family, therefore are more likely to abuse substances than any other age category due to peer pressure.

Race

The results from Table 2 and 3 indicate that those who are Native American/Alaskan Native and Native Hawaiian/Other Pacific Islander are more likely to abuse drugs than any other race. 1.5% of individuals who were White claimed to have abused drugs, whereas 1.7% of individual who were Black claimed to have used drugs. 2.4% of individuals who were Native American and Native Hawaiian claimed to have abused drugs before, whereas 0.9% of individuals who were Asian claimed to have used drugs. Lastly, 2.1% of individuals who are more than one race claimed to have abused drugs, compared to 1.5% of individuals who were Hispanic. In Table 3 the race White was left out as the reference category. Individuals who are Black have an increased probability of abusing drugs at a value of 1.016 compared to the reference category. Persons who are Native American have an increased probability of 1.521 of abusing substances compared to Whites. Native Hawaiians have an increased probability of 1.712 of abusing drugs compared to Whites. Asian individuals have a decreased probability of .608 of abusing drugs compared to White individuals. Those who are more than one race have an increased

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probability of abusing drugs at 1.015 compared to White individuals. Lastly, those who are Hispanic have a decreased probability of .948 of abusing drugs compared to White individuals. Race and substance abuse are not statistically correlated because they have a significance value of .082 which is greater than the .05 threshold for significance. This means that one's race is not a statistically significant factor contributing to substance abuse. This result makes sense because the social control theory does not offer one's race to increase the likelihood of substance abuse. However, it does explain why Native Americans are more likely to abuse substances than any other race through the belief bond. Native Americans are known to use substances for spiritual and healing reasons.

Marital Status

The results from Table 2 and 3 indicate that individuals who were never married are more likely to abuse substances than any other marital category. Individuals who were never married were 2.4% more likely to abuse substances. Those who were in their first marriage had a percentage of 0.4 of abusing drugs, which was the same percentage for those who were remarried. Individuals who were divorced or separated had a percentage of 1.1 of abusing drugs whereas those who were widowed had a 0.2 percentage. In Table 3 the category of never married was left out as the reference category. Those who were in their first marriage had a decreased probability of .328 of abusing drugs compared to the reference category. Individuals who were remarried had a decreased probability of abusing drugs as well at a value of .430. Those who were divorced or separated had a decreased probability of abusing drugs compared to the reference category at a value of .760. Lastly, those who were widowed had a decreased probability of abusing drugs as well at a value of .224. The relationship between marital status and substance abuse is statistically

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significant with a value of .000. This means that one's marital status is a contributing factor of substance abuse. The social control theory can also explain this result through the attachment bond. Those who were never married do not have a stronger attachment than those who are married, remarried, widowed, or divorced because they never had a lifelong partner as these individuals in these categories did. Therefore, they had a weaker attachment bond and are more likely to abuse substances.

Income

The results from this analysis showed that one's income is a contributing factor to substance abuse. In Table 2, the participants who made less than $20,000 were 2.1% more likely to abuse drugs than any other income category. Those with an income of $20,000-$49,999 were 1.5% more likely to abuse drugs. Whereas, those with an income of $50,000-$74,999 were 1.0% more likely to abuse drugs and those with a yearly income of $75,000 or more were 1.2% more likely to abuse drugs. In Table 3, the category of less than $20,000 was left out as the reference category. Those who made $20,000-$49,999 and $50,000-$74,000 were less likely to abuse drugs than those who made less than $20,000 yearly. Those who made $75,000 or more yearly were more likely to abuse drugs than the other categories, but was less likely than those who made less than $20,000. The relationship between income and substance abuse is statistically significant at a value of .000. This means that one's income does influence the likelihood that they will abuse drugs. The involvement bond from the social control theory can be applied to explain this result. Those who made less than $20,000 a year are less involved in work than those who make more than $20,000 a year, and therefore are more likely to abuse substances because they have more time on their hands.

Employment Status

One's employment status is also a contributing factor to substance abuse as well. According to Table 2 and 3, those who are unemployed are more likely to abuse drugs than any other employment category. Those who are employed full time were 1.2% more likely to abuse drugs whereas those who are employed part time were 1.8% likely to abuse drugs. Those who are unemployed were 3.2% likely to abuse drugs whereas those who are categorized as having an "other" employment status was 1.3% likely to abuse drugs. Regarding Table 3, the category of "other" employment status was left out as the reference category. Those who are full time, part time and unemployed have a higher probability of abusing drugs compared to those who are categorized as having an "other" employment status. Employment status and substance abuse are statistically correlated at a value of .000. This means that one's employment status is a contributing factor to substance abuse. The commitment bond of the social control theory can explain this result. Those with jobs have a commitment while those without jobs do not have any commitments, therefore, they are more likely to abuse substances because they have a weakened commitment bond.

Summary

This chapter presented the hypotheses posed in this thesis and confirmed or denied them based on the results of the data analysis. The data showed that the hypothesis that poses that having a mental illness increases the likelihood of substance abuse was supported. However, it failed to support the hypothesis that receiving mental health treatment decreases the likelihood of substance abuse. This chapter confirmed the hypothesis that having health insurance decreases the likelihood of substance abuse. Lastly, this chapter used the social control theory to explain these results. The next chapter will

present the major findings of this study and discuss any limitations this research had. It will also present and include information on how the author would have done the research differently and the authors recommendations for future research and policy implications. It should also be noted that the data in this study was not weighted and therefore does not represent the nation entirely.

Chapter V

Conclusion

It was hypothesized that individuals suffering from a mental illness were more likely to abuse substances than an individual without a mental illness. The output from the bivariate and multivariate analysis identified that this hypothesis was accurate. It was also hypothesized that individuals who received mental health treatment were less likely to abuse substances than someone who did not receive mental health treat. However, the output from Table 2 and 3 shows that this hypothesis is inaccurate. Lastly, it was hypothesized that individuals with health insurance were less likely to abuse substances than someone without health insurance. The results from this study indicate that many factors do contribute to substance abuse. This study looked at these factors; mental illness, previous mental illness treatment, health insurance, age, race, marital status, income and employment status. These factors were statistically correlated to substance abuse but not race. This means that a person's race does not have an influence on the likelihood that they will abuse drugs. However, all other factors mentioned above do have an influence on an individual's substance abuse habits. The social control theory was applied to these results to explain why these categories were more likely to abuse substances than the other categories in this study. The findings showed how important an individual's attachment, involvement, commitment, and beliefs are in reducing the likelihood of substance abuse. The next section of this chapter will discuss the 2 figures included in this thesis, the limitations this study faced, recommendations for future research and anything the author would have done differently if given the chance.

Figures

Figure 1 depicts the past year substance use disorders and mental illness among adults aged 18 or older. The figure shows that 7.7 million individuals were suffering from a co-occurring mental illness and substance use disorder. While 12.6 million individuals had only a substance use disorder and 36.2 million individuals had only a mental illness. Figure 9 displays the past year substance use disorders and those with a serious mental illness among adults aged 18 or older. 2.3 million individuals were suffering from a substance use disorder and a mental illness at the same time. 17.9 million individuals had a substance use disorder with no serious mental illness. 7.7 million individuals had a serious mental illness without a substance use disorder.

Limitations & Future Recommendations

There are at least five limitations in this study. The first limitation to this study is that the results are based off a survey. People tend to be dishonest when completing a survey, therefore, some of the results may not be entirely accurate (Le Roy, 2012). Not to mention, some answers require a number or an answer of how many times something occurred and often people can exaggerate or under exaggerate the number of instances. This can cause the data to have errors and become skewed. Future studies on this subject should consider validity and reliability issues when requesting participants to answer questions about illegal activities because it is likely they could be dishonest and over/under exaggerate instances. Participants should be informed that all information remains confidential and no legal actions will occur based off their answers. This will hopefully keep the data as error free as possible. If the author were to do this study over again she would consider a different source of data for this topic such as conducting a survey herself which would be provided to the participants through an online survey. This would

hopefully eliminate dishonesty and participants fear of criminal proceedings and judgment for their behaviors and habits.

The second limitation to this study is that there are missing cases from two of the variables analyzed (received mental health treatment and marital status). However, these missing cases were mentioned previously in this study to make the readers aware. By not having all the data for these two variables, we are unable to 100% conclude if these two variables are entirely statistically correlated to the dependent variable. Therefore, this study could have had different outcomes if complete information was obtained from all the cases. Future studies should also aim to have all participants complete the survey 100% and leave no questions unanswered. When participants leave questions unanswered, this creates validity and reliability problems. The researcher must decide to include these studies or omit them entirely from the study. If this thesis were to be conducted again, the author would omit the missing cases entirely from the research for validity and reliability purposes.

The third limitation is the NSDUH survey because it included closed-ended questions which only gives the respondents a limited set of responses to choose from. This means the survey is suggesting answers and ideas to the respondents that they would not otherwise have. This makes it easier for respondents who have no opinion or knowledge to answer anyway they want. It also is not desirable because the respondents answer might not be a choice given which can cause frustration for the participant and validity and reliability concerns. However, closed-ended questions are easier to analyze and code than open-ended questions. Therefore, it is easy to understand why the Substance Abuse and Mental Health Services Administration (SAMHSA) chose to have closed-ended questions.

While it is harder to analyze, future research should consider giving surveys with open-ended question because they could obtain more accurate information. It allows the researcher to obtain more information on the participants such as emotions, feelings, attitudes, and whether they understand the subject being conducted. Open-ended questions also cut down on response errors. Respondents are more likely to remember the answers to questions because they must think about it instead of choosing one of the answers provided. Also, respondents will have to read the actual questions to answer them instead of disregarding them and circling a choice provided. If the author were to conduct this thesis again, she would consider a survey that included open-ended questions.

The fourth limitation of this study is that it was conducted only during a single point in time. This means that trends were not documented during different times of the year. This makes it harder to measure changes in the population because the survey was only conducted once during the year and not multiple times. However, repetition of surveys is time-consuming, expensive and often impractical due to lack of time and funding. Future research on this topic should consider giving surveys out multiple times during the year instead of just once. This way the researcher can determine changes within the population over the course of the year. The researcher will gain more data and observations this way, and the results would be more accurate. If the author were to conduct this thesis again, she would consider conducting a survey like the NSDUH but conduct it more than once in a year.

The final limitation is the theory, the items investigated and how they were narrow in scope and purpose. There's obviously other factors contributing to substance abuse that this study did not look in to. There's also different theories that can be used to explain

substance abuse. However, these factors and theory were determined by the researcher based on their hypothesis and topic. Future research should consider these factors as well; education, genetics, availability of drugs, poverty level, social changes, changing health insurance policies, previous victims of abuse, family situation and many others. It should also consider different theories such as the strain theory. If the researcher were to do this study over again, she would include poverty, gender, and education level as control variables. She would also focus on the substance abuse and mental health policies within Medicaid, Medicare, and private insurance because it would be beneficial to determine the effects these policies have on the individual's substance abuse habits. The researcher would also consider using the strain theory to explain the relationship between her variables.

Benefits of Study

This study is beneficial because we can gain a better understanding of this problem and how we can combat it. It will give us insight on what factors are contributing to substance abuse and which are not. This will then give us ideas on ways we can prevent these disorders from occurring. This study can also help break the stereotypes and stigmas associated with mental illness and substance abuse because persons will become aware of how prevalent they both are, especially when they are co-occurring. If we break these stigmas, it may encourage those who are suffering from a mental illness, substance abuse problem or both to seek help, because they can get better.

Contributions

One contribution of this study is knowing the results of the analysis between the dependent and independent variables. The results showed that having a serious mental

illness increases the likelihood of substance abuse. It also showed that receiving previous mental health treatment increases the probability of substance abuse. Lastly, having no health insurance increases the likelihood of substance abuse. With these results, we now have 3 areas where we can focus our efforts to help combat substance abuse. We can implement policies to help reduce the number of individuals suffering from a substance abuse problem. We can also focus our efforts on free or affordable healthcare. Not to mention, we should implement policies within Medicare, Medicaid, and private health insurance where it is mandatory for these insurance companies to pay for mental health services and substance abuse services. We should also consider changing the policies and programs within the mental health treatment centers, because obviously they are not effective at identifying co-occurring mental illness and substance abuse disorders. Therefore, when individuals receive mental health services, they should be screened for a substance abuse disorder. They then should incorporate a dual diagnoses treatment for both the mental illness and substance abuse.

Summary

This chapter reiterated the major findings of this thesis. All the variables tested besides an individual's race were statistically correlated to substance abuse. This thesis set out to determine if the presence of a mental illness, not receiving previous mental illness treatment, and if the lack of health insurance increased the likelihood that an individual would abuse substances. The result showed that those suffering from a mental illness were more likely to abuse substances than someone without a mental illness. It also concluded that those who did receive mental health treatment were more likely to abuse substances than someone who did not receive mental health treatment which is not what the author

initially thought to be true. Lastly, the results found that those who do not have health insurance are more likely to abuse substances than someone with health insurance.

This chapter also discussed the limitations that this study faced and future recommendations for studies on the same topic. This study was based off data from a survey which included closed-ended questions which limited the responses that the participants could give. The survey was only conducted once during the year 2013, which did not allow for the researchers to determine changes over the year. Lastly, there were missing cases in the survey which could affect the reliability and validity of the results. Future research should consider open ended questions, omitting missing cases and conducting the survey more than once in a year to obtain more accurate information.

Many contributions have been made to understand the contributing factors to substance abuse, especially the correlation between substance abuse and mental illness. However, while the correlation between these factors are known, not much is being done to prevent the co-occurrence of substance abuse and mental illness. By breaking down the stigmas associated with these two disorders, hopefully more people would be willing to seek the help they need to treat them without the fear of judgment.

Figure 1: Past Year Substance Use Disorders and Mental Illness among Adults Aged 18 or

Older: 2013

Source: SAMHSA (2014). Retrieved from

https://www.samhsa.gov/data/sites/default/files/NSDUHmhfr2013/NSDUHmhfr2013.pdf
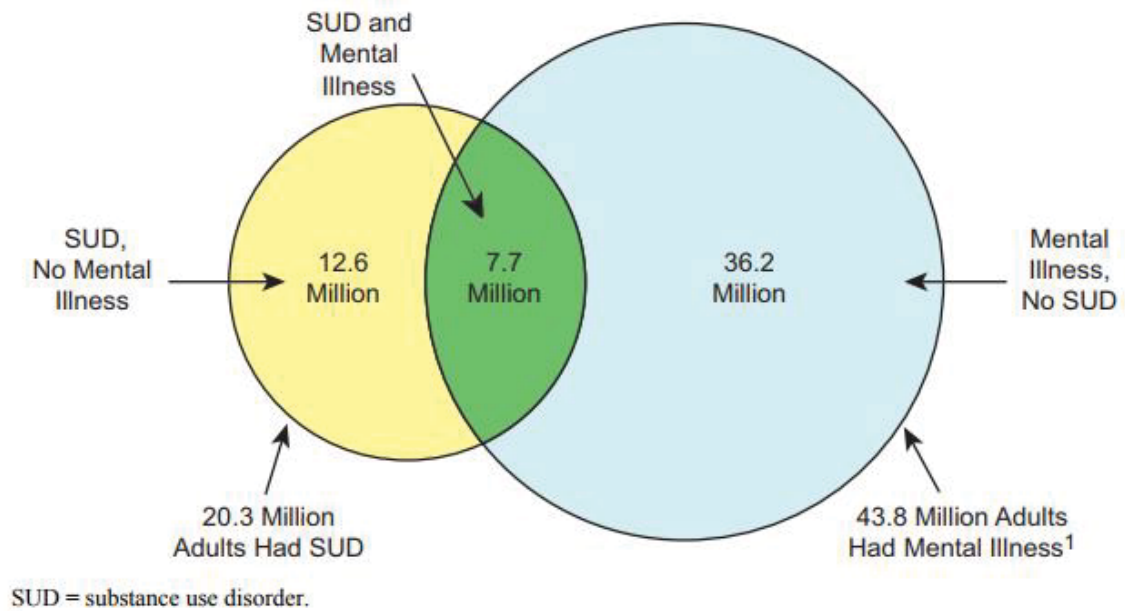
Figure 2: Past Year Substance Use Disorders and Serious Mental Illness among Adults

Aged 18 or Older: 2013

SMI = serious mental illness; SUD = substance use disorder.

Source: SAMHSA (2014). Retrieved from

https://www.samhsa.gov/data/sites/default/files/NSDUHmhfr2013/NSDUHmhfr2013.pdf
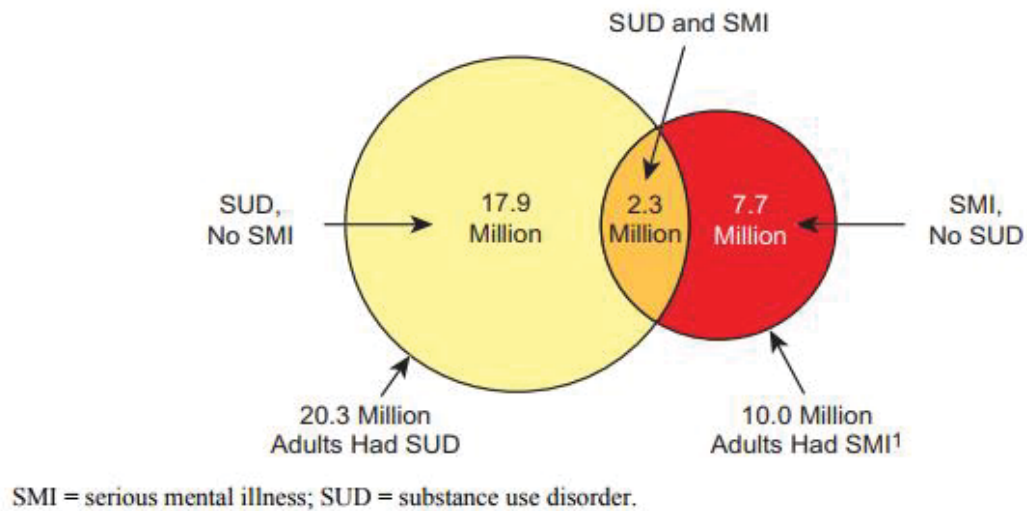
References

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (DSM-IV) (4th ed.). Washington, DC: Author.

Bahorik, A. L., Newhill, C. E., & Eack, S. M. (2013). Characterizing the longitudinal patterns of substance use among individuals diagnosed with serious mental illness after psychiatric hospitalization. *Addiction*, *108*(7), 1259-1269.

Bernstein, L. (2017, June 26). Greater opioid use and mental health disorders are linked in a new study. Retrieved November 14, 2017, from https://www.washingtonpost.com/national/health-science/greater-opioid-use-and-mental-health-disorders-are-linked-in-a-new-study/2017/06/25/628f48d0-59c6-11e7-9fc6-c7ef4bc58d13_story.html?utm_term=.afcd864d8f02

Bivariate Analysis Definition & Example. (n.d.). Retrieved September 18, 2017, from http://www.statisticshowto.com/bivariate-analysis/

Boeri, M. W., Sterk, C. E., & Elifson, K. W. (2006). Baby Boomer Drug Users: Career Phases, Social Control, and Social Learning Theory. *Sociological Inquiry*, *76*(2), 264-291. doi:10.1111/j.1475-682X.2006.00154.x

Bouchery, E., Harwood, H., Dilonardo, J., & Vandivort-Warren, R. (2012). Type of health insurance and the substance abuse treatment gap. *Journal of Substance Abuse Treatment, 42*(3), 289-300. doi:10.1016/J.JSAT.2011.09.002

Brunette, M., Mueser, K., & Drake, R. (2004). A review of research on residential programs for people with severe mental illness and co-occurring substance use disorders. *Drug & Alcohol Review*, *23*(4), 471-481.

CDC. (2017). *Opioid Overdose.* Retrieved from

https://www.cdc.gov/drugoverdose/index.html

Control variable. (n.d.). *Dictionary.com Unabridged*. Retrieved September 19, 2017 from

Dictionary.com website http://www.dictionary.com/browse/control-variable

Cruce, G., Öjehagen, A., & Nordström, M. (2011). Recovery-promoting Care as

Experienced by Persons with Severe Mental Illness and Substance

Misuse. *International Journal of Mental Health and Addiction, 10*(5), 660-669.

"Dependent Variable." *Merriam-Webster.com*. Merriam-Webster, n.d. Web. 18 Sept.

2017.

Descriptive statistics. BusinessDictionary.com. Retrieved September 19, 2017, from

BusinessDictionary.com website:

http://www.businessdictionary.com/definition/descriptive-statistics.html

Dickey, B., & Azeni, H. (1996). Persons with dual diagnoses of substance abuse and

major mental illness: their excess costs of psychiatric care. *American Journal of

Public Health*, *86*(7), 973-977.

Drake, R. E., Essock, S. M., Shaner, A., Carey, K. B., Minkoff, K., Kola, L., ... &

Rickards, L. (2001). Implementing dual diagnosis services for clients with severe

mental illness. *Psychiatric services*, *52*(4), 469-476.

Dworsky, A., & Courtney, M. E. (2007). Barriers to employment among TANF

applicants and their consequences for self-sufficiency. Families in Society, 88,

379–389.

Elliott, D. S., Huizinga, D. & Menard, S. (1989). Multiple problem youth: Delinquency,

drugs, and mental health problems. New York, NY: Springer.

Fox, K., Merrill, J. C., Chang, H. H., & Califano, J. A. (1995). Estimating the costs of
substance abuse to the Medicaid hospital care program. *American Journal of
Public Health, 85*(1), 48-54. doi:10.2105/ajph.85.1.48

"Health Insurance." *Merriam-Webster.com*. Merriam-Webster, n.d. Web. 18 Sept. 2017.

Hirschi, Travis. 1969. Causes of Delinquency. Berkeley, CA: University of California
Press

Hu, H. M., Kline, A., & Huang, F. Y. (2006). Detection of Co-Occurring Mental Illness
Among Adult Patients in the New Jersey Substance Abuse Treatment
System. *American Journal Of Public Health*, *96*(10), 1785-1793.

Important Statistics on Dual Diagnosis. (n.d.). Retrieved November 24, 2017, from
http://www.dualdiagnosis.org/dual-diagnosis-treatment/important-statistics/

"Independent Variable." *Merriam-Webster.com*. Merriam-Webster, n.d. Web. 18 Sept.
2017.

Introduction to Multivariate Statistics. (n.d.). Retrieved September 18, 2017, from
http://sites.stat.psu.edu/~ajw13/stat505/fa06/01_courseintro/WK1_courseovervie
w.htm

Kuppin, S., & Carpiano, R. M. (2006). Public Conceptions of Serious Mental Illness and
Substance Abuse, Their Causes and Treatments: Findings from the 1996 General
Social Survey. *American Journal Of Public Health*, 96(10), 1766-1771.

Lai, L. (2013, April 15). Deviance & Drug Use. Retrieved November 26, 2017, from
http://devianceanddruguse.blogspot.com/

Le Roy, M. K. (2012). *Research Methods in Political Science* (Vol. 8). Cengage
Learning.

Lo, C. C., Monge, A. N., Howell, R. J., & Cheng, T. C. (2013). The Role of Mental

Illness in Alcohol Abuse and Prescription Drug Misuse: Gender-Specific Analysis

of College Students. *Journal Of Psychoactive Drugs*, 45(1), 39-47.

MacDonalad, D.I. (1984). Drugs, Drinking and Adolescents. Chicago: Year Book

Medical.

McCabe, H. A., & Wahler, E. A. (2016). The Affordable Care Act, Substance Use

Disorders, and Low-Income Clients: Implications for Social Work. *Social*

Work, *61*(3), 227-233. doi:10.1093/sw/sww030

Matejkowski, J. & Ostermann, M. (2015). Serious mental illness, criminal risk, parole

supervision, and recidivism: Testing of conditional effects. American

Psychological Association, 39(1), 75-86.

Mueser, K. T., & Gingerich, S. (2013). Treatment of co-occurring psychotic and

substance use disorders. *Social Work In Public Health*, *28*(3-4), 424-439.

Nilasari, P. A. (2016). Theories of Drug Abuse. Retrieved from

https://docuri.com/download/theories-of-drugs-

abuse_59a8d6fdf581719e12add294_pdf

Norman, L. B., & Ford, J. A. (2015). Adolescent Ecstasy Use: A Test of Social Bonds

and Social Learning Theory. *Deviant Behavior*, *36*(7), 527-538.

doi:10.1080/01639625.2014.944072

Orisatoki, R., Quail, J., Osman, M., Teare, G., Schwandt, M., & Neudorf, C. (2017).

Concurrent Mental Health and Substance Use Disorders among Frequent

Emergency Department Users in Saskatchewan, Canada. *Canadian Journal Of*

Addiction, 8(1), 11-17.

Personality Disorder. (2017, September 12). Retrieved November 26, 2017, from

http://www.mentalhealthamerica.net/conditions/personality-disorder

Peters, R. H., & Hills, H. A., (1997). Intervention strategies for offenders with

cooccurring disorders: What works? The National GAINS Center for People with

Co-occurring Disorders in the Justice System, 1-59. Retrieved from

http://secure.energyhomestudyce.com

"Reliability." *Merriam-Webster.com*. Merriam-Webster, n.d. Web. 18 Sept. 2017.

Ringen, P. A., Melle, I., Birkenaes, A. B., Engh, J. A., Faerden, A., Vaskinn, A., & ...

Andreassen, O. A. (2008). The level of illicit drug use is related to symptoms and

premorbid functioning in severe mental illness. *Acta Psychiatrica Scandinavica*,

118(4), 297-304.

Rogers, Richard Lee. 2016. Mental health parity. In *The SAGE Encyclopedia of

Pharmacology and Society,* ed. Sarah E. Boslaugh, pp. 910-911. Thousand Oaks,

CA: SAGE Publications. Also distributed through SAGE Knowledge.

Schroeder, R. D., & Ford, J. A. (2012). Prescription Drug Misuse. *Journal of Drug

Issues, 42*(1), 4-27. doi:10.1177/0022042612436654

Substance Abuse and Mental Health Services Administration, Results from the 2013

National Survey on Drug Use and Health: Mental Health Findings, NSDUH

Series H-49, HHS Publication No. (SMA) 14-4887. Rockville, MD: Substance

Abuse and Mental Health Services Administration, 2014.

SAHSA. (2014). *Results from the 2013 National Survey on Drug Use and Health: Mental

Health Findings.* Retrieved from

https://www.samhsa.gov/data/sites/default/files/NSDUHmhfr2013/NSDUHmhfr2
013.pdf

SAHSA. (2015). *Substance Use Disorders.* Retrieved from

https://www.samhsa.gov/disorders/substance-use

SAMHSA. (2017). *Mental and Substance Abuse Disorders.* Retrieved from

https://www.samhsa.gov/disorders

Sharma, M., & Bennett, R. (2015, August). Substance abuse and mental illness:

Challenges for interventions. *Journal of Alcohol & Drug Education*. pp. 3-6.

Social Control Theory (Criminology Theories) IResearchNet. (n.d.). Retrieved September

20, 2017, from http://criminal-

justice.iresearchnet.com/criminology/theories/social-control-theory/

Townsend, A., Biegel, D., Ishler, K., Wieder, B., & Rini, A. (2006). Families of Persons

with Substance Use and Mental Disorders: A Literature Review and Conceptual

Framework. *Family Relations,55*(4), 473-486

Treatment | Definition of treatment in English by Oxford Dictionaries. (n.d.). Retrieved

September 18, 2017, from https://en.oxforddictionaries.com/definition/treatment

United States Department of Health and Human Services. Substance Abuse and Mental

Health Services Administration. Center for Behavioral Health Statistics and

Quality. National Survey on Drug Use and Health, 2013. ICPSR35509-v3. Ann

Arbor, MI: Inter-university Consortium for Political and Social Research

[distributor], 2015-11-23. https://doi.org/10.3886/ICPSR35509.v3

Univariate Analysis: Definition, Examples. (n.d.). Retrieved September 18, 2017, from

http://www.statisticshowto.com/univariate/

U.S. Department of Health & Human Services. Substance Abuse and Mental Health

      Services Administration. (2014, October). Report to Congress on the Prevention

      and Treatment of Co-Occurring Substance Abuse Disorders and Mental

      Disorders. Retrieved from http://www.widener.edu/

"Validity." *Merriam-Webster.com*. Merriam-Webster, n.d. Web. 18 Sept. 2017.

Weaver, T., Renton, A., Stimson, G., & Tyrer, P. (1999). Severe Mental Illness and

      Substance Misuse: Research Is Needed to Underpin Policy and Services for

      Patients with Comorbidity. *BMJ: British Medical Journal, 318*(7177), 137-138.

Wells, J. R., Sherbourne, C. D., & Sturm, R. (2002). Alcohol, drug abuse, and mental

      health care for uninsured and insured adults. Health Services Research, 37, 1055–

      1066.

Yang, X. Y., & Yang, T. (2017). Nonmedical Prescription Drug Use Among Adults in

      Their Late Twenties: The Importance of Social Bonding Trajectories. *Journal of*

      Drug Issues, 47(4), 665-678. doi:10.1177/002204261772256

Table 1
Univariate Statistics

Categorical Variables	N	%	Mean	Std. Dev

ABUSED DRUGS

No	36855	98.5%		
Yes	569	1.5%		
Total	37424	100%	.02	.122

HEALTH INSURANCE

No	7228	19.3%		
Yes	30196	80.7%		
Total	37424	100.0%	1.19	.395

MENTAL HEALTH TREATMENT

No	31790	84.9%		
Yes	5434	14.4%		
Total	37224	99.5%	.15	.353

MENTAL ILLNESS

No Mental Illness	29801	79.6%		
Mild Mental Illness	3820	10.2%		
Moderate Mental Illness	1974	5.3%		
Serious Mental Illness	1829	4.9%		
Total	37424	100.0%		

AGE

18-25	18142	48.5%		
26-34	5446	14.6%		
35 or older	13836	37.0%		
Total	37424	100.0%		

RACE

White	22848	61.1%		
Black	4847	13.0%		
Native American/Other	539	1.4%		
Native Hawaiian/Other	209	.6%		
Asian	1635	4.4%		
More than one race	1160	3.1%		
Hispanic	6186	16.5%		
Total	37424	100.0%		

MARITAL STATUS

Never Married	20109	53.7%		
First Marriage	10349	27.7%		

Table 1 (con't.)
Univariate Statistics

Categorical Variables	N	%	Mean	Std. Dev

MARITAL STATUS (CON'T.)

Remarried	2521	6.7%		
Divorced/Separated	3489	9.3%		
Widowed	950	2.5%		
Total	37418	100.0%		

INCOME

Less than $20,000	9760	26.1%		
$20,000-$49,999	12433	33.2%		
$50,000-$74,999	5783	15.5%		
$75,000 or more	9448	25.2%		
Total	37424	100.0%		

EMPLOYMENT STATUS

Full Time	17889	47.8%		
Part Time	7384	19.7%		
Unemployed	3050	8.1%		
Other	9101	24.3%		
Total	37424	100.0%		

Table 2
Bivariate Statistics   Abused Drugs

Variables	No	%	Yes	%	Chi-Square	df	Sig	Gamma	Sig
HEALTH INSURANCE									
No	7078	97.9%	29777	98.6%					
Yes	150	2.1%	419	1.4%					
Total	36855	98.5%	569	15%	18.419	1	.000	.202	.000
MENTAL HEALTH TREATMENT									
No	31385	98.7%	405	1.3%					
Yes	5278	97.1%	156	2.9%					
Total	3663	98.5%	561	1.5%	79.718	1	.000	.392	.000
MENTAL ILLNESS									
No Mental Illness	29482	98.9%	319	1.1%					
Mild Mental Illness	3719	97.4%	101	2.6%					
Moderate Mental Illness	1906	96.6%	68	3.4%					
Serious Mental Illness	1748	95.6%	81	4.4%					
Total	36855	98.5%	569	1.5%	224.645	3	.000		
AGE									
18-25	17701	97.6%	441	2.4%					
26-34	5389	99.0%	57	1.0%					
35 or older	13765	99.5%	71	0.5%					
Total	36855	98.5%	569	1.5%	202.344	2	.000		
RACE									
White	22510	98.5%	338	1.5%					
Black	4766	98.3%	81	1.7%					

Table 2 (con't.)
Bivariate Statistics   Abused Drugs

Variables	No	%	Yes	%	Chi-Square df	Sig	Gamma	Sig

RACE (CON'T.)								
Native American/Other	526	97.6%	13	2.4%				
Native Hawaiian/Other	204	97.6%	5	2.4%				
Asian	1620	99.1%	15	0.9%				
More than one race	1136	97.9%	24	2.1%				
Hispanic	6093	98.5%	93	1.5%				
Total	36855	98.5%	569	1.5%	11.228 6	.082		
MARITAL STATUS								
Never Married	19633	97.6%	476	2.4%				
First Marriage	10307	99.6%	42	0.4%				
Remarried	2510	99.6%	11	0.4%				
Divorced/Separated	3451	98.9%	38	1.1%				
Widowed	948	99.8%	2	0.2%				
Total	36849	98.5%	569	1.5%	217.115 4	.000		
INCOME								
Less than $20,000	9556	97.9%	204	2.1%				
$20,000-$49,999	12245	98.5%	188	1.5%				
$50,000-74,9999	5723	99.0%	60	1.0%				
$75,000 or more	9331	98.8%	117	1.2%				
Total	36855	98.5%	569	1.5%	35.192 3	.000		
EMPLOYMENT STATUS								
Full Time	17673	98.8%	216	1.2%				
Part Time	7249	98.2%	135	1.8%				

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Table 2 (con't.)
Bivariate Statistics   Abused Drugs

Variables	No	%	Yes	%	Chi-Square df	Sig	Gamma	Sig

EMPLOYMENT STATUS (CON'T.)

Variables	No	%	Yes	%	Chi-Square	df	Sig	Gamma	Sig
Unemployed	2953	96.8%	97	3.2%					
Other	8980	98.7%	121	1.3%					
Total	36855	98.5%	569	1.5%	74.717	3	.000		

Table 3
Binary Logistic Regression Results Predicting Substance Abuse (N=37,424)

Variable	B	Sig	Exp(B)
Mild Mental Illness	.817	.000	2.263
Moderate Mental Illness	.989	.000	2.689
Serious Mental Illness	1.195	.000	3.302
No Health Insurance	.261	.011	1.298
Received Mental Health Treatment	.420	.000	1.522
18-25 years old	1.023	.000	2.781
26-34 years old	.350	.069	1.420
Black	.016	.904	1.016
Native American/Other	.419	.149	1.521
Native Hawaiian/Other	.538	.244	1.712
Asian	-.498	.063	.608
More than one race	.014	.947	1.015
Hispanic	-.053	.663	.948
First Marriage	-1.116	.000	.328
Remarried	-.844	.011	.430
Divorced/Separated	-.274	.163	.760
Widowed	-1.496	.039	.224
$20,000-$49,999	-.027	.794	.973
$50,000-$74,999	-.236	.122	.790
$75,000 or more	.081	.519	1.084
Full Time	.029	.809	1.029
Part Time	.027	.834	1.028
Unemployed	.472	.001	1.062
Constant	-5.112	.000	.006

Appendix A

Locating the Survey and Results

To locate the 2013 National Survey of Drug Use and Health use the following link;

http://datafiles.samhsa.gov/study-dataset/national-survey-drug-use-and-health-2013-nsduh-2013-ds0001-nid13699

This link provides the codebook, the questionnaire used, the questionnaire showcards, and the screening used for the questionnaire. It also includes links to download the survey and data in different formats.

To locate the Mental Health findings from the 2013 National Survey of Drug Use and Health use the following link;

https://www.samhsa.gov/data/sites/default/files/NSDUHmhfr2013/NSDUHmhfr2013.pdf

This link provides the results from the 2013 National Survey of Drug Use and Health, but specifically looks at the mental health findings.

Appendix B

Glossary

Control variable- a person, group, event, etc., that is used as a constant and unchanging

standard of comparison in scientific experimentation (Dictionary.com, n.d.).

Dependent variable- a mathematical variable whose value is determined by that of one or

more other variables in a function (Merriam-Webster's Dictionary, n.d.).

Descriptive statistics- Mathematical quantities (such as mean, median, standard

deviation) that summarize and interpret some of the properties of a set of data

(sample) but do not infer the properties of the population from which the sample

was drawn (Business Dictionary, n.d.).

Bivariate statistics- the analysis of two variables. It usually involves X and Y. It is used to

find out if there is a relationship between two sets of values (Statistics How To,

2015).

Health insurance- insurance against loss through illness of the insured; especially

insurance providing compensation for medical expenses (Merriam-Webster's

Dictionary, n.d.).

Independent variable- a mathematical variable that is independent of the other variables

in an expression or function and whose value determines one or more of the

values of the other variables (Merriam-Webster's Dictionary, n.d.).

Multivariate statistics- includes all statistical techniques for analyzing two or more

variables of interest, or if you like, two or more dependent variables (Introduction

to Multivariate Statistics, 2006).

Reliability- the extent to which an experiment, test, or measuring procedure yields the

    same results on repeated trials (Merriam-Webster's Dictionary, n.d.).

Social control theory- Control theorists believe that conformity to the rules of society is

    produced by socialization and maintained by ties to people and institutions— to

    family members, friends, schools, and jobs. Put briefly, crime and delinquency

    result when the individual's bond to society is weak or broken

    (IReasearchNet.com, n.d.).

Treatment- The manner in which someone behaves towards or deals with someone or

    something. Medical care given to a patient for an illness or injury (Oxford

    Dictionary, n.d.).

Univariate statistics- Univariate analysis is the simplest form of analyzing data. "Uni"

    means "one", so in other words your data has only one variable. It doesn't deal

    with causes or relationships (unlike regression) and its major purpose is to

    describe; it takes data, summarizes that data and finds patterns in the data

    (Statistics How To, 2014).

Validity- the quality of being well-grounded, sound, or correct (Merriam-Webster's

    Dictionary, n.d.).

Appendix C

IRB Approval

Dear Investigators,

Your protocol entitled Contributing Factors of Substance Abuse: Mental Illness, Mental Illness Treatment, and Health Insurance has been reviewed and is deemed to meet the criteria of an exempt protocol, category #4. You will be using a pre-existing national data set.

The research project is now approved, and you can begin the investigation immediately.   Please note that it is the responsibility of the principal investigator to report immediately to the YSU IRB any deviations from the protocol and/or any adverse events that occur.   Please reference protocol #062-18 in all correspondence about the research associated with this protocol.

Good luck!

Karen

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