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Comparison of Vivitrol and Suboxone in Terms of Lowering Relapse Among Opioid Addicts

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Walden University
2024

Abstract

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MA, Walden University, 2014

BS, Gwynedd Mercy College, 2011

Proposal Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Drug overdoses are increasing, and the heroin epidemic is becoming more evident. There are ways to get these individuals' help. Medically assisted treatments (MATs) involve use of medications alongside counseling and therapies to treat individuals with a substance abuse disorder. This subject is important to the human services administration field, more specifically those who focus on addiction. As the epidemic of opioid use continues, so does the need for treatment. Without that treatment, the problem will get worse and inevitably have negatives effects on the entire world. Those effects involve crime, increasing costs to the public, overall health, and child abuse and neglect. The purpose of this secondary data analysis is to compare the relative effectiveness of two MATs, Suboxone and Vivitrol in the St. Bernard Parish Drug Court Program, to determine which more effectively reduces risk of relapse. Although there is some research on this topic, with the introduction of new drugs, research is not up to date. Comparing these two drugs can increase awareness and provide options for those addicted to heroin. Studying both medications will provide for those who treat heroin addicts' information about how the medication they decided to take will reduce relapse. This study will include information regarding which medication works better overall. This study can help lead to positive social change. Not only does this study help those treating individuals with heroin addiction, but it helps addicts themselves. When the addict; those addicted to opioids, in a drug court setting gets help, the family gets help, and the community; the residents of St. Bernard Parish, Louisiana gets a productive member of society back.

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Dedication

This dissertation is dedicated to my son Nikolas Pettigrew. Little did you know, your birth is what motivated me to pursue and complete this degree. On days I wanted to give up, I looked at you and knew I had to keep pushing forward. Nikolas, always remember, you are capable of anything you set your mind to. I love you so much. Never give up, impossible is nothing.

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Chapter 1: Introduction to the Study

The purpose of this secondary data analysis is to compare the relative effectiveness of two medically assisted treatments (MATs), Suboxone and Vivitrol, to determine which method more effectively reduces relapse of illegal drug use. Although there is some research on MAT, research about new drugs is not up to date. Comparing these two drugs can increase awareness and provide options for those addicted to heroin. Studying both medications will provide for those treating heroin addicts or addicts themselves information about how the medication they decide to take will reduce relapse. This study may provide information regarding which medication works better overall.

I compared Vivitrol and Suboxone by having current opioid addicts use one or the other in a drug court setting, in St. Bernard Parish, Louisiana.

This study is important as it can provide administrators, judges, probation officers, treatment providers, and family members with information about the contributions MATs can provide to current recovering opioid addicts. The ability to narrow down a treatment method that has a positive effect on addiction is extremely beneficial. This study includes research in a field that has yet to be explored. Comparing the two drugs benefits treatment of heroin addicts everywhere. With this research providers will have more insights regarding which MAT is more effective. Not only does this help those treating individuals with heroin addiction, but this helps addicts themselves. It can provide life-changing assistance to those struggling with heroin abuse. When addicts get help, families gets help, and communities get productive members of society back.

Background

The Substance Abuse and Mental Health Services Administration (SAMHSA) released an advisory warning comparing Vivitrol to other opioid addiction treatments. Vivitrol can be successful as an option. It has been shown to reduce cravings, is convenient to use, well-tolerated (any adverse side effects were tolerated), and reduces relapse (Syed & Keating, 2013). According to Syed et al. (2013), Vivitrol is an injectable, making it convenient due to the fact that it only is required to be administered once a month, and there is no daily dosing. Naltrexone, which is the oral medication for Vivitrol, "has been more useful in treating opioid dependence in populations with external motivation to remain in treatment, including people in the criminal justice system, physicians, and other individuals with employment in jeopardy" (Kjome & Moeller, 2011, p. 3). This research shows how beneficial Vivitrol can be as a MAT.

Suboxone is effective in reducing relapse. Sittambalem et al. (2014), has research that shows the increases of heroin use abstinence, decreases in emergency visits and hospitalizations, reduction of legal issues, and increased quality of life Research shows that Suboxone is a beneficial MAT.

I have found no research that has examined this comparison in a drug court setting. Further research is warranted in order to examine these two MATs and their effectiveness in terms of reducing relapse rates among heroin addicts who are involved in a drug court program.

Problem Statement

Since 2000, drug overdoses in the U.S. have increased by 137%, with a 200% increase in overdoses involving opioids (Rudd et al. 2016). According to Jiang et al. (2017), the estimated cost of heroin use disorder was $51.2 billion in 2015. There are ways to get these individuals' help. MATs involve the use of medications alongside counseling and therapies to treat individuals with substance abuse disorders (SAMHSA, 2015).

However, according to Blum et al. (2014), MATs are limited by funding. Funding is available in some states through their Medicaid programs, but this does not include all states. Without insurance covering medications, it is extremely difficult for substance abusers to obtain funds to cover MATs. Blum et al. (2014) explained this may be the reason why hospitals, clinics, intensive outpatient facilities, inpatient facilities, and drug court programs have not used this evidence-based treatment. The state of Maryland's Community Health Resources Commission funded the Buprenorphine Outpatient Outcomes Project, which is a project that looks at how Suboxone aids in sobriety of heroin users, amount of hospital stays or emergency room visits, legal problems, and overall quality of life (Sittambalam et al., 2014). Maryland has adopted a program that eliminates barriers to funding and addresses the problem. Their ability to address this is lifesaving, due to heroin abuse being life-threatening. Sittambalam et al. (2014), found that Suboxone reduced the risk of relapse in heroin addicts. Although I looked closely at Suboxone, there are other MATs that have yet to be compared with Suboxone, such as Vivitrol. Vivitrol is a nonaddictive monthly injection used to prevent relapse in opioid

addicts which must be paired with counseling prior to detox. It works by blocking the receptors of the brain affected by opioid use, while addicts work through their psychological addiction to the drug via counseling (Krupitsky et al., 2017).

According to drugabuse.gov (2016), addiction is a chronic disease that involves drug-seeking and use that becomes compulsive and increasingly difficult to control, regardless of negative consequences. Although the first time an addict tries opioids is voluntary, with repetitive use comes the danger of addiction. By addressing MATs that have a high success rate, this study can help those struggling with their addiction.

The gap in literature is that Suboxone and Vivitrol have been looked at heavily as individual MAT methods, but comparisons between the two, particularly in drug court settings, are nonexistent.

Purpose Statement

I used a quantitative groups comparison design. The independent variable was type of MAT (Suboxone or Vivitrol); the dependent variable was relapse, which was measured using drug screen results and whether or not participants tested positive for anything other than their prescribed medications.

Nature of the Study

In order to collect and analyze data, I used a comparative groups study design. This study consisted of a total of 100 participants, 50 of whom took either Suboxone or Vivitrol. They were selected from the drug court in Saint Bernard Parish, Louisiana. All opioid addicts in this court were required to be on MATs as court-ordered by judges; each client had the opportunity to choose a MAT as long as it was provided by one of the

court approved doctors. Participants were both male and female, and all were recovering heroin addicts. All 100 participants were clients of a drug court program in which MATs were court-ordered. Although methodologically, it would be preferable for the same physician to prescribe both medications, it is rare in the real world for physicians to prescribe both– they either prefer one or the other. While on MATs, participants were required to complete drug screens at random, as well as attend court appearances weekly and outside meetings. The study lasted 1 year, as that is the minimum requirement for the drug court program. Information regarding whether participants relapsed while being on MATs was available through the drug courts database; Automon AIMS. Independent *t*-tests were used to assess differences in relapse rates between the two drug groups. A total sample size of 100 was determined based on a power analysis with a one-tailed alpha of .05, desired power of .80, and medium effect size of .5. The independent variable was type of MAT (Suboxone or Vivitrol); the dependent variable was relapse, which was measured via drug screen results and whether or not participants tested positive for anything other than their prescribed medication. In order to analyze data, I used SPSS and a one-tailed t-test. Vivitrol is a MAT that is taken monthly as opposed to daily; like Suboxone It is administered by doctors versus being the responsibility of the client. Vivitrol is not accompanied by withdrawal symptoms unlike Suboxone, which has withdrawal symptoms. Therefore, I hypothesized that Vivitrol would be more successful than Suboxone in terms of reducing relapse among drug court participants.

Data that were used was provided by the drug court, which included participants' drug screen results, attendance at treatment sessions, and self-reports regarding drugs they took.

Research Question and Hypotheses

RQ1: Does Vivitrol reduce relapse among opioid addicts to a greater degree than Suboxone?

$H_0$1: Vivitrol does not reduce relapse among opioid addicts to a greater degree than Suboxone.

H_a1: Vivitrol does reduce relapse among opioid addicts to a greater degree than Suboxone.

Conceptual Framework

Kooe et al. (2009), studied that drug addiction is a disorder where individuals habitually relapse; this involves taking or looking to obtain drugs, inability to limit consumption, and worsening emotional status when they cannot get drugs. Addiction is caused by changes in the brain due to drug use. These changes prevent users from making rational decisions. Both Vivitrol and Suboxone are ways individuals can prevent relapse. According to Syed et al. (2013), Naltrexone blocks the euphoric effects of opioid use by blocking the mu opiate receptors in the brain that would normally give individuals their high. Naltrexone is also what is used to create the extended-release version known as Vivitrol. Wesson et al. (2010), found that the buprenorphine part of Suboxone is used to combat euphoria when getting high. Both Vivitrol and Suboxone seemingly do similar things for those taking them, but an issue arises when patients are responsible for taking a

pill every day or getting injections monthly. Both drugs block the mu opioid receptor, but Suboxone is more likely to be abused and/or not used at all compared to Vivitrol, which is administered by a doctor.

Operational Definitions

There are many terms that are used throughout the study, some of which are foreign to most not in the field. In this study, I used the following terms:

Drug Court: The drug court model involves using the criminal justice system to encourage defendants to address their substance abuse problem in lieu of a jail sentence (Huddleston, 1998).

Medically assisted treatment (MAT): Use of medications in combination with therapies to treat substance abuse disorders (SAMHSA, 2018).

Relapse: Resuming drug use (Saunders & Allsop, 1987).

Suboxone: A tablet or film combining Buprenorphine and Naloxone (Bell et al., 2004).

Vivitrol: An injectable which includes extended-release Naltrexone (Saxon et al., 2018).

Assumptions

Assumptions are statements that researchers assume to be true. I assumed all participants in this study were court-ordered to be on a MAT and used either Soboxone or Vivitrol. For those participants on Suboxone, I assumed they took their medications daily, and those on Vivitrol I assumed received monthly injections. All participants were court-ordered to see two doctors as referred by the drug court.

Limitations

I focused only on participants in the St. Bernard Parish adult drug court, and of those participants, only looked at those with opioid addictions. Looking at one drug court can limit generalizations from data by not having more than one location. An additional limitation of this design was drug screens, as they are not always accurate, depending on detection time, manipulation of screens, and falsification. The District Attorney's office is the gatekeeper for admission to drug court, and admission is at their discretion. There are participants who could have been overlooked or taken in when they should have been considered for a different program, which can limit the amount or quality of participants. The best way to avoid this bias was to conduct universal screening for all participants who met criteria legally to enter the program.

Delimitations

I looked at opioid addicts who were in the St. Bernard Parish drug court program and on MATs. Other parishes that have drug court participants were excluded from this study. Although both Suboxone and Vivitrol can help those with opioid problems, I focused on those who use strictly heroin as their drug of choice, and eliminated other opioid users. Age and gender were not factors I considered. Racial and ethnic categories were also not relevant information to include.

Significance and Implications for Social Change

This study was important as it provided administrators, judges, probation officers, treatment providers, and family members with information about the contributions MATs can provide to current recovering opioid addicts. Finding valuable treatment methods and

being able to measure their success is important. By comparing both Suboxone and Vivitrol, I helped determine beneficial treatment options for heroin addicts worldwide. Studying these two MATs was a way to provide treatment and address various methods as well as determine which is more effective. It is important to remember that addiction is a family disease, so by helping individuals with addiction, this in turn helps their families. When addicts get help, families get help, and communities get a productive member of society back.

Summary

The opioid epidemic is rapidly growing and finding treatment that works and lasts is important. There have been many studies looking at both Suboxone and Vivitrol individually, but only one I was able to locate compared the two. I was not able to find any studies looking at participants in drug court settings comparing these two MATs. Chapter 2 includes a review of literature.

Chapter 2: Literature Review

Opioids are increasingly a major issue in society; specifically, St. Bernard Parish, Louisiana; costs of treatment and the ability to remain drug free affects both addicts and St. Bernard Parish as a whole. MATs and their effects on relapse have been looked at in various studies. Most of the research has addressed the link between MATs and relapse reduction.

MATs are becoming widely accepted as a way to treat individuals suffering from substance abuse. This literature review includes information about Suboxone and Vivitrol. This literature review also includes information about how important MATs are and how each medication can assist differently in terms of addressing individual relapse rates. Chapter 2 includes my literature search strategy, theoretical framework, literature review, and a summary.

Literature Search Strategy

I used the following databases to search for applicable articles: Google Scholar, Academic Search Complete, BioMedCentral, Criminal Justice Database, ProQuest Central, and PsycArticles. Key search terms searched were *medically assisted treatment*, *court-imposed drug treatment*, *drug court*, *effectiveness of MATs*, *effectiveness of treatment*, *Suboxone*, and *Vivitrol*. When searching for literature, it was important to look at recent research as well as peer-reviewed articles. The only article I used that was over 15 years old was based on the theory of addiction. When using Google, I was looking for reputable sources to gather current statistics about my topic. There is some research on

MATs as a whole; however, Vivitrol and Suboxone in drug court settings have not been researched, which is why literature is lacking and not up to date.

Theoretical/Conceptual Foundation

There are many biological models to better understand addictions. One aspect is the pleasurable aspect of taking drugs, which is determined by the mesolimbic dopamine system. When an individual uses drugs, dopamine is released, causing them to eventually need drugs to release that required level of dopamine. Drugs also cause changes t to the brain. According to Potenza (2013), the brain's structure and function will change over time both normally, but also as a reflection of any recent or long-term substance abuse. There are many areas of the brain that can be affected by substance use, those areas include the mesolimbic dopamine system, nucleus accumbens, prefrontal cortex, and extended amygdala. By understanding the biology of addiction, treatment providers can take a broader look at addiction and how to address those who may need treatment. Both Vivitrol and Suboxone can help curb cravings and stop individual needs to use drugs. Although there is a great amount of literature on this topic, there is not any specifically studying Vivitrol and Suboxone in drug court settings. This literature review includes information about court-imposed drug treatments, effectiveness of treatment, effectiveness of MATs, effectiveness of Vivitrol and Suboxone, and studies comparing these two MATs.

Literature Review

Court-Imposed Drug Treatment

Although there are various other methods of treatment for substance abuse, court resources and in-house treatment have proven successful. Via in-house treatment, providers are contracted by the court system to provide individual and group treatment in order to address patients' substance abuse. These providers are licensed and/or certified social workers. Court-ordered drug treatment can consist of inpatient treatment, outpatient treatment, or drug courts. These methods vary based on risk versus need. Individuals who are assessed to be higher risk may require inpatient treatment initially, whereas those of a moderate risk/need may be able to enter the drug court or intensive outpatient. Jewell et al. (2016), found those who graduated from a drug court program had fewer reoffences compared to those who withdrew or declined to participate. Recidivism was measured after the one-year mark, and it was evident that those who graduated had reduced recidivism rates compared to the two other groups; those who graduated versus those that withdrew or declined to participate. Logan et al. (2019), compared traditional measures such as probation with nontraditional measures such as drug courts. Although probation was seen as a deterrent for those who utilized a traditional mean, such as probation, the majority of those on probation versus in a drug court setting were not successful in terms of reducing relapse and recidivism. However, various drug courts throughout the United States were found to be effective in terms of reducing relapse and recidivism. Those participating in court ordered-drug court programs tend to have reduced relapse and recidivism rates, within the results from meta-

analyses of drug courts it showed anywhere from an eight to 26 percent decrease in recidivism. Drug court programs are a key provider in terms of fighting the opioid epidemic.

O'Connor (2019) said there are more than 3000 drug courts across the United States. By shifting to a treatment approach, rather than punishment, overall outcomes are better. The U.S. is not the only country fighting the opioid epidemic. According to Zierk (2019), "an epidemic is an increase, often sudden, in the number of cases of a disease above what is normally expected in that population or area" (p. 189). Zierk explained that the crisis is getting worse, and drug overdoses tripled between 1999 and 2014. In 2016, every day 46 people died in the U.S. as a result of a prescribed opioid overdose (Zierk, 2019). Understanding the mechanisms of opiates gives providers the knowledge to understand the drug and treat individuals accordingly. MATs are used for treatment by understanding receptors in the brain that are affected; this gives treatment providers knowledge about what MATs may reduce recidivism to a greater degree than others. .

Drug courts can become better than they are now, by increasing funding, understanding MAT and incorporating it, moving away from abstinence only programs, and using restorative justice (a way to rehabilitate offenders in the community). Courts vary throughout the country and throughout the world, as do specific drug courts. Looking at specific drug court programs can provide better insight into changes that can create a more successful court. Three studies were found that focused on three different drug court programs.

Moore et al. (2017) conducted a qualitative study of young adults who completed the Pinellas County Adult Drug Court. Many of the participants said that they changed as a whole and for the better. The attitude towards individual therapy was positive, particularly among the female participants. A sense of community became increasingly important, although some of the male participants did not agree. The overall experience was a positive one and beneficial as all participants were successful, and none had failed the program. The experiences of those who have lived a life of addiction is information that is not typically obtained. There were some limitations to the study such as low sample size. It is typically not the case that all participants are successful, so the statistics of this study are extremely high.

Gottfredson et al. (2006) obtained results from an experimental study, looking at the long-term effects of the Baltimore City Drug Treatment Court. This study compared 235 clients who were assigned to drug treatment court or traditional court. The findings showed that those in drug treatment court were more likely to remain arrest-free than those in traditional court. Those in drug treatment court were exposed to more treatment, court appearances, and drug screening. This study had a much larger sample size than that of other similar studies, such as Moore et al. (2017). This study also provided data that coincided with studies that show that participants in drug courts have a lower relapse and recidivism rate. Drug court programs have the ability to look specifically at their programs as a whole. By doing this they are able to dissect their strengths and weaknesses and make them better overall. By personal experience, working in a drug court setting for 6 years, I have been able to see this firsthand.

Kuehn et al. (2016) also took a qualitative approach and studied participants' experiences in a drug court in Pennsylvania. Sixteen participants took part in the study, and all were active participants in the drug court during the time it was conducted. The researchers focused on four themes: program success, change in motivation in completing the program, role of social supports in their recovery, and program weaknesses. Focusing on those key themes was instrumental in providing the researcher with knowledge as to what works and what does not. This knowledge included the participants' reflections on their time spent in drug court. The overall conclusion was that the participants felt as though their success was in part because of the structure of the program, accountability, and the staff. Where the program could have used improvement is the lack of quality of some of the treatment providers and what seemed to the participants as unfair sanctioning of various violations. The structure provided them with a strict and demanding program. The staff being knowledgeable, trusting, respectful, and supportive also helped make their success possible.

Effectiveness of Treatment

Drug courts are made up of three key areas: treatment, drug screening, and court hearings. The combination of all three is what makes up the success or failure of a participant. The above-mentioned areas of drug courts are important factors, which can determine success for a participant in treatment. Treatment providers in drug courts use both court sessions and drug screening as tools to aid in a participant's success.

Cheesman et al. (2016) looked at the effectiveness and efficiency of drug courts in Virginia. They looked at post-program recidivism as well as in-program recidivism.

Cheesman et al. (2016) found that only about 14% of participants incurred at least one conviction resulting from arrests, during their participation in the program. They also went on to show that those who received MRT (Moral Reconation Therapy) as a part of their program treatment reduced their odds of being arrested for a new offense to just over one third of its baseline value. Baseline probability of re-offense in-program is 25.4%. Post program recidivism was also measured. They used a Kaplan-Meier time series analysis. They found that the odds of committing another offense are less than one half for drug court participants.

Skordas (2015) reviewed the twentieth anniversary of Utah Drug Courts and how far they have come. After twenty years and more than 2000 graduates, the program has provided these individuals with hope and a future, one without crime and addiction. "Three to five years after their first year out of drug court, 75%-85% of drug court graduates were not rearrested" (2015, p. 27).

Every state has their own way of doing things, which is encompassed by their own best practices and models. Each country has a larger, broad policy that is passed down to each state to adapt as necessary, which creates their own smaller more specific policies. Australia implemented drug courts after the United States.

Kornhauser (2018) looked at drug courts in Australia. Australia introduced drug courts in 1999, ten years after the United States. Effectiveness on recidivism was measured by using impact evaluations. Keeping their key limitations in mind; short follow-up periods and a lack of randomized experiments, it was found that drug courts are more effective than traditional settings; probation. Although this study looked at

Australia on a larger scale, the various counties are the jurisdictions doing the groundwork. By focusing on the counties themselves and by use of impact evaluations, Kornhauser was able to give solid data to support his claim.

According to Brown (2011), "drug courts have been called the most significant criminal justice initiative of the 20th century" (p. 192). Clinical data that was collected by the staff and court systems data was able to identify participants. Two groups were compared: drug court and non-drug court. They found that drug court participants were less likely to commit a new crime (30% versus 46%). Time before recidivism occured was also statistically different (614 days versus 463 days). They also found even higher effectiveness from women and older participants (over 35). Their research, although having limitations, which was identified as significant dropouts and atypical clients -- those who use, but are not addicted, showed the effectiveness of drug courts.

McCarthy et al. (2003) evaluated long term effectiveness of Yuma County Adult Drug Court. They gathered data from 64 graduates of their program who were interviewed at 3, 6, 12, and/or 18 months after graduation. They used several instruments to define effectiveness; Addiction Severity Index, The CSAT GPRA Client Outcomes Measure for Discretionary Programs, and a questionnaire to measure compliance with relapse prevention plans. After reviewing all the data and instruments they found that a majority were able to be successful with their relapse prevention and graduation plans. They also found a majority had significantly less criminal involvement than those who were not in a drug court setting. It was evident that treatment was an effective option.

Another option was medically assisted treatment (MAT). MAT is used in the court system as another option in conjunction with drug court.

Effectiveness of MATs

MATs are another option for drug court participants. All the studies I found looked at a different form of MAT. The three main forms of MAT are Methadone, Suboxone, and Vivitrol. It was extremely difficult to find similar methodologies, as all of the studies focused on a different type of MAT. All of the following studies looked at varying types of MATs: Methadone, Suboxone, and Vivitrol, some studied all, some studied one, some studied two. The population was also varied: state and federal correctional facilities, the general population, adolescents, and adult outpatient participants. The major theme found is that MAT is necessary and effective regardless of the setting or the method used.

Moore et al. (2019) conducted a meta-analysis of the effectiveness of MATs for opioid use in prison and jail settings; specifically; methadone, buprenorphine (Suboxone), and Naltrexone (Vivitrol). Their meta-analysis strongly supported the use of MAT. Their findings showed an increase in community-based substance use treatment engagement and a decrease in illicit opioid use and injection drug use upon release. Although there were some limitations to the studies included in the meta-analysis; for example, a limited amount of randomized controlled trials (RCTs), the overall results show how effective MAT can be. This study looked very closely at Methadone as they had more RCTs than Suboxone and Vivitrol, but since my study will focus on Suboxone and Vivitrol exclusively it is also important to look at the effectiveness of those two MATs

independently. Sanger et al. (2018) studied MAT in Canada. They found that by using patient relative outcomes rather than the outcomes currently used by researchers, effectiveness was more obtainable. The participants made decisions on what outcomes determined their success in MAT. This is the first study I have seen of its kind and poses a vastly different perspective. Allowing individuals to not just be spectators but be participants in their treatment plans can create a more successful environment.

Boltaev et al. (2012) piloted a MAT program in Kazakhstan and looked at its success, challenges, and future opportunities. Although the government is highly supportive of MAT, they found that the media was actively opposed. Since there was such an opposition there were only three sites administering MAT, with only 150 enrollees allowed. This pilot program was a way to prove that MAT is important and can be successful, in hopes to change the media's perception. After the study they found that patients reported decreases in heroin use, risky injection behavior, criminal behavior, and improved overall health.

Bukstein (2015) looked at MAT for adolescents with an opioid addiction. Typically, treatment for adolescents focuses on psychosocial interventions, but MAT for adolescents is something to be explored. The study compares Methadone and Suboxone for youth. Since Suboxone is a partial agonist, the effects are less than full agonists such as heroin and methadone. Suboxone as a partial agonist will still have similar effects by effecting the opioid receptors, but at a much smaller amount. The use of Suboxone would allow the individual to detox without withdrawal symptoms. Due to the ceiling effect, Suboxone is a better option as it has a lower risk of abuse, addiction, and side effects.

This study was written well before Vivitrol became an option. After looking at all the data and research Bukstein (2015) found that with the increase of opioid addictions the need for MAT is that much greater. MAT proves effective by way of limiting and often times eliminating side effects, withdrawal symptoms, and allowing an individual to work a plan by using a partial agonist to assist them.

Effectiveness of Suboxone

Suboxone, which is a form of MAT, can be extremely effective. The important theme to be taken from all the following studies is that treatment by way of therapeutic interventions is crucial as an adjunct to MAT. Suboxone as MAT if followed and monitored by a clinician can be extremely successful in treating opioid addiction. Attwood (2012) explained that Suboxone is a drug that has a combination of extended buprenorphine hydrochloride; use of this drug allows the patient to reduce withdrawals and cravings. Based on the findings of the study, patients who have an opioid dependence are more likely to reduce use of opioids after MAT by use of Suboxone. Suboxone is one way to utilize MAT in the drug court setting. Using Suboxone in a drug court, inpatient or outpatient setting is the best way to utilize it. Brown University (2009) looked at 152 young people ages fifteen to twenty-one with an opioid dependence. This study showed that those on an extended treatment of Suboxone did better on two outcomes: drug use and treatment retention. The study compared those on detox by use of Suboxone for only 14 days and those on a Suboxone for 12 weeks. According to Brown University (2009, p.2) “at week four, 61% of detox patients had positive urine tests compared to 26% for the long term patients, at week 8 those numbers were 54% for detox patients compared to

23% of long term patients, and lastly at week 12 those numbers were closer at 51% for detox patients and 43% for long term patients." The statistics provide a good representation of how Suboxone can be effective, particularly over a long-term treatment regimen.

Drug courts provide a more structured environment, one that is overseen by the court system, which due to its involvement creates more accountability. In an office-based setting, an individual has to be completely willing and committed to recovery. Fudala et al. (2003) captured an article in The New England Journal of Medicine written in Alcoholism and Drug Abuse Weekly, looking at the effectiveness of Suboxone in an office-based setting. The study found that Buprenorphine alone as well as the Buprenorphine/Naloxone (Suboxone) combination were successful in treating opioid addicted individuals. Another study published by Copeman (2002) in *The Lancet* suggested that a combination of MAT and counseling was successful in reducing relapse in heroin addicts. After conducting their own two-part study, Copeman found similar results. By using a double-blind trial as well as an open label phase they found relapse was lower for those on Suboxone than those on the placebo. Other countries also support the use of Suboxone. Ambekar et al. (2018) researched MAT which they refer to as Opioid Substitution Therapy (OST) in India. The OST they looked at in depth was Suboxone. It has only recently been research looked specifically at Suboxone. Ambekar et al. (2018), found that effectiveness is well established and Suboxone was 7 more effective than psychosocial interventions alone. A study was conducted by Bohan and Ray in which heroin addicts were given Suboxone over a period of 6-11 months

alongside therapy. At follow-up, participants reported that 70% had improved by using little or no heroin. According to Amberkar et al. (2018), "Indian studies on OST have demonstrated retention rates as well as reduction in opioid use, high-risk injecting behaviors, and improved quality of life" p. 266). Suboxone is not the only MAT my study plans to look at, it will be comparing Suboxone and Vivitrol. Both are effective methods of MAT.

Effectiveness of Vivitrol

Vivitrol is the second MAT to be compared in this research study. Vivitrol is one of the newest forms of MAT. Similar to the case for Suboxone, one of the common findings is that therapeutic intervention is key to success with Vivitrol. Effectiveness was found to be a common theme among the studies looked at, although represented in different ways. Some of the studies looked at oral Naltrexone versus injectable Naltrexone. Some of the studies looked at short term treatment versus long term treatment. Some of the studies looked at opioid addiction versus those with an alcohol disorder.

Krupitsky et al. (2013) explained that concerns with compliance of the oral naltrexone led to the development of a once-monthly extended-release injectable naltrexone (Vivitrol). Krupitsy et al.'s study had an initial six month double blind phase followed by a one year extension phase. Retention rates over 18 months were promising. Within the double blind six month phase, 31% completed 18 months of treatment and within the one year extension phase, 62.2% completed it. Those statistics show that long term MAT usage of Vivitrol has long term effects, showing its effectiveness. Because

Vivitrol only requires a once a month injection, it makes it much less abused than its counterpart Suboxone. Vivitrol also lasts longer, which allows an individual a longer time frame of no cravings and longer abstinence.

Roozen et al. (2006) conducted a review of the effectiveness of Naltrexone (Vivitrol) on both alcohol addicted as well as opioid addicted individuals. At the time this review was conducted there were only a small number of studies that looked at the effectiveness on opioid addicts. It was determined that Vivitrol alone does not have a large effect on relapse reduction, but combined with psychosocial interventions it is an effective approach. This conclusion is beneficial to my research as Vivitrol is only administered with a combination of therapy. Due to the need for therapy, it shows how effective Vivitrol can be in a drug court setting.

Mouaffak et al. (2017) conducted a review and meta-analysis of randomized control trials regarding Naltrexone in the treatment of broadly defined behavioral addictions. Naltrexone, an opioid antagonist, can reduce impulsivity, a characteristic of addicts. The clinical data shows that higher dosages of Naltrexone were more effective in behavioral addictions. Naltrexone was more effective than a placebo in reducing impulsivity. The use of Naltrexone is highly underutilized. If more studies were done that allowed for a longer length of time within the research more accurate results would be provided.

Nunes et al. (2018) looked at relapse of opioid addicts in a randomized, multi-site effectiveness trial. The participants were split between those on Naltrexone and those not, and split again among, short-term inpatient, long-term inpatient, and outpatient. After one

month, relapse rates varied among those without the medication. Those without medication in short-term inpatient had a relapse rate of 63%. Those without medication in long-term inpatient had a relapse rate of 14%. Those without medication in outpatient had a relapse rate of 28%. Those on Naltrexone all three settings had a relapse rate of <12%. These numbers were measured again after 6 months. Those individuals without medication again had high percentages and those on Naltrexone had much lower percentages. This study shows many things, one being that short-term treatment for opioid addicts is unsuccessful, and two, in addition to any treatment MAT should be included to add effectiveness.

Lobmaier (2008) reviewed Naltrexone regarding opioid dependence. After reviewing the research, he found gaps in the literature. There was not enough research out there to provide conclusive evidence of its effectiveness. However, the research that did exist proved that Vivitrol is effective at high dosages. They found that those on the high dosage remained in treatment longer, their craving scores were lower, and urinalysis proved that heroin use was significantly lower. Since all this data was based on one study, it leaves limitations as to the true effectiveness. By continuing to conduct more studies it will open the field to learning more about Vivitrol.

De Jong et al. (2007) conducted a study in the Netherlands that looked at opioid dependent individuals who were unsuccessful on Methadone maintenance. After being detoxed off Methadone the participants were to undergo therapy as well as have Naltrexone administered by a doctor. After studying them for 16 months they found they were more successful in several aspects: qualities of life, level of cravings, lower

psychopathology, and lower relapse. They found that 24% were persistently sober over the 16 month period.

Bigelow et al. (2012) conducted a study that looked at how effective Vivitrol was at blocking hydromorphone. This study took individuals with a known opioid addiction and gave them various doses of Vivitrol as well as various doses of Hydromorphone. Blockage was assessed by tolerance of the Hydromorphone and pupil diameter. They also used the Visual Analog Scale as a measurement tool. All three areas where blockage was assessed showed that an individual on Vivitrol and not the placebo had drastic differences. Those on Vivitrol had better tolerance to hydromorphone, scored better on the visual analog scale, and the pupil diameter showed significant differences. It was a visual way to show how Vivitrol works by way of blocking the mu receptor. This study had the ability to see the effects of Vivitrol on the body. Both Vivitrol and Suboxone address similar struggles for those working on recovery, but they also have some differences. Vivitrol as a MAT needs to continue to be explored, but the themes remain similar to other MATs in its field; long term treatment is required to ensure long term recovery.

Studies Comparing Vivitrol and Suboxone

Studies comparing both Vivitrol and Suboxone are not researched often. More often a study focusing on either Vivitrol or Suboxone separately is found. Studies comparing Vivitrol and Suboxone in a drug court setting, do not exist based on the research I have conducted. The federal government did fund a study comparing the two. According to Goodnough et al. (2017) “the study compared Vivitrol, which comes in a

monthly shot and blocks the effects of opioids and Suboxone, which is taken daily in a strip form that dissolve on the tongue and contains a mild opioid that helps minimize withdrawal symptoms and cravings" (p. 16). The study had limitations. Vivitrol requires a complete detox before being allowed to start on it, which caused many participants to drop out. Since Suboxone can be administered shortly after withdrawal symptoms begin only six percent dropped out. A quarter of study participants on Vivitrol dropped out. Looking at cost, Vivitrol is extremely expensive compared to Suboxone, with Medicaid paying about $500 a shot and Suboxone only costing a third to half as much. The cost can cause a limitation for those who do not qualify for Medicaid and even a barrier to those who do. Although the article discusses drug courts not allowing Suboxone this just is not the case anymore, it is not only allowed but encouraged. This study is the first comparing Vivitrol and Suboxone in the United States. They did mention a study conducted in Norway that was shorter and had fewer participants, which only made the limitations greater. Looking at the two options, both provide those in recovery with an option of MAT and both have pros and cons, which is why my study will be beneficial to the field on determining which MAT reduces relapse on a greater scale.

Summary and Conclusions

Both Vivitrol and Suboxone are successful MATs that are used to help reduce relapse. Although both have been proven to be successful, determining which is more successful in drug court settings has yet to be explored. The present study was used to fill this gap in literature. Chapter 3 includes the research design and rationale, methodology, and procedures for recruitment and data collection.

Chapter 3: Research Method

Opioids affect people of all ages, genders, races, and ethnicities. Limitations to obtaining effective treatment due to costs and availability are problematic and affect not only addicts, but also society as a whole within the United States. MATs have been looked at in numerous studies. Most of this research had compared various forms of MATs and relapse prevention.

MATs have more recently become an accepted form of treatment for individuals suffering from opioid addiction. The purpose of this quantitative study was to compare two MATs (Vivitrol and Suboxone) and their effects on relapse. Using a comparative groups study design, I collected and analyzed data. This chapter includes my research design and rationale, methodology, threats to validity, and a summary.

Research Design and Rationale

A comparative groups study design was used to look at the following research question and hypotheses:

RQ1: Does Vivitrol reduce relapse among opioid addicts to a greater degree than Suboxone?

$H_0$1: Vivitrol does not reduce relapse among opioid addicts to a greater degree than Suboxone.

H_a1: Vivitrol does reduce relapse among opioid addicts to a greater degree than Suboxone.

The nature of the study was quantitative. According to Creswell (2007), quantitative research is used when researchers want to collect, analyze, decipher, and

present results of their study. The objective of this study was to examine the relationship between the independent (type of MAT) and dependent variable (measures of relapse) within a specific population; in a drug court setting in St. Bernard Parish Louisiana.

Methodology

This section includes information about participant selection, data collection, design limitations, and ethical procedures.

Participant Selection

This comparative groups study consisted of a total of 100 participants, half of whom took either Suboxone or Vivitrol. Participants were selected from the drug court program in Saint Bernard Parish, Louisiana. Participants were selected after entering the criminal justice system. The district attorney's office received a referral and would file a bill of information for a felony offense, making them eligible for drug court. Whatever the felony criminal offense that brought that participant into the drug court program, if the participant was deemed to have an opioid addiction, they were offered the option to use MATs as court-ordered by the drug court judge. Participants were allowed to choose what MAT they wanted as long as it was prescribed by one of the court's approved doctors. Participants were both males and females who were 18 and older and must have had an opioid addiction. Each participant in the study was a current drug court participant whose MAT was overseen by the court. Both Suboxone and Vivitrol were prescribed by different physicians, where half of the participants would receive one or the other. Independent *t*-tests were used to assess differences in relapse rates between the two

groups. A total sample size of 100 was based on a power analysis with a one-tailed alpha of .05, desired power of .80, and medium effect size of .5.

Data Collection

Participants were entered into the Supreme Court of Louisiana's case management database. Data contained all drug screen results, treatment sessions, and monthly updates on their MAT. Drug screens were completely randomized. Each participant was given a code, and that code when entered informed them regarding whether or not they were required to test every day of the week. Drug screening involved an 11-panel test including lab confirmations for all positive results. Treatment sessions were weekly and provided by licensed, certified, and/or educated professionals. Attendance was mandatory and documented in the case management system. Lastly, their MAT was documented as they turned in their appointment cards, copies of their pharmacy printouts, and monthly communication with doctors' offices. The three variables drug screening, treatment attendance, and MAT compliance were measured and compared for all participants.

Variables

Drug Screening

Drug screening was performed on a random basis. The drug court used an independent lab to test all urine samples. This lab also provided the court with a calling system that involved using a randomized computer system, which informed clients when they were required to test. Clients were expected to call a testing line daily, and test as required. Lab tests involved an 11-panel drug screen that included testing for alcohol,

buprenorphine, methadone, methamphetamines, amphetamines, cocaine, fentanyl, oxycodone, opiates, THC, and benzodiazepines. Screening also measured for validity and specific gravity. Each drug screen was directly observed and mailed using FedEx Express, where it was shipped to the laboratory where each sample was tested and confirmed. Lab results were sent to an online portal, provided by the laboratory that only employees of the drug court have access to. Those drug screen results were automatically transmitted to the Supreme Court database.

Treatment Attendance

Treatment was conducted by three licensed and/or credentialed individuals in group and individual settings. The treatment model that was conducted was an evidence-based model where each treatment team member either had the credentials to run such a model or were trained to do so. Attendance for these meetings was recorded by the treatment team member and submitted to the drug court administrator. The final component of treatment was self-help groups. Each client was also required to attend three self-help meetings a week outside of the drug court. These groups were documented by having the lead person sign off on their attendance. Attendance for both types of meetings was recorded in the Supreme Court database manually by one of two drug court employees, either the case manager or the secretary.

MAT Compliance

MAT compliance was dependent on which MAT the client was prescribed. If the client was prescribed Vivitrol, they were required to submit monthly documentation that they in fact received their injection from their prescriber. If the client was prescribed

Suboxone, they were required to provide a monthly pharmacy printout showing the refill of the prescription, and random drug screening was used to show levels of medication in their system. This compliance was recorded on a monthly basis in the Supreme Court database.

Data Analysis Plan

After collecting data, it was exported into SPSS. In order to have clean data, only the secretary and the case manager employed by the drug court inputted the data into the database. Data that were used was provided by the drug court, which included participants' drug screen results, attendance at treatment, and self-reports regarding drugs that were taken. By limiting the number of people observed touching the data, this limited the number of errors. The primary analysis was an independent means t-test assessing the two MAT groups to determine whether relapse was significantly lower in the Vivitrol group compared to the Suboxone group.

Design Limitations

The study consisted solely of clients in a drug court setting in St. Bernard Parish, Louisiana. From this drug court, only those addicted to opiates were studied. With the study limited to one drug court and to those who use MAT, it limited the design. Eventually the study could be opened up to all drug courts in Louisiana that would provide a much larger sample size and a much wider geographical range. A final limitation was the physicians who administered or prescribed the medications. It would certainly be more ideal to have one physician prescribe both MATs, but the physicians

used concentrate on one MAT. As MAT becomes more widely acceptable physicians will explore options to offer multiple MATs.

Threats to Validity

Threats to Internal Validity

History

The increasing acceptance of MAT in the drug court setting is a large reason studies like this do not currently exist. If changes were to be made to drug courts, where MAT was not an approved form of treatment, it would completely dismiss this entire study. Fortunately, as time has gone on, individuals have learned more about MAT and its benefits, allowing its use in a drug court setting.

Maturation

Although maturation can negatively affect a study, in this case, time can be extremely beneficial to the participants. The more time an individual remains in the drug court program, the more likely they are to be successful once they graduate. The difference between an individual who participated in the program for a much shorter time would greatly vary from an individual who participated long term. The data of short term versus long term participant is vastly different. Drug courts in Louisiana have a mandatory minimum requirement of 12 months. The length of time each participant was studied was 12 months from the start of their MAT.

Testing Instrumentation

Participants were measured by three areas: drug screening, compliance with MAT, and compliance with treatment. Instrumental bias for drug screening could have

occurred when participants dilute their urine or simply do not show to drug screen. When a participant either diluted their urine or did not show for a drug screen that data was not able to be used as the tests would be deemed invalid. In order to address this, it was important all participants be compliant with drug screening by reporting when required, and ensuring all samples were valid. An instrumental bias for compliance with MAT could have occurred when a participant who was prescribed Suboxone did not take his or her medicine, or an individual prescribed Vivitrol did not go back for his or her injection. In order to address this, those who were prescribed Suboxone were checked by their buprenorphine levels on their drug screens and those prescribed Vivitrol were required to provide documentation monthly from the doctor that they received their injection. Lastly, instrumental bias for compliance with treatment could have occurred if a participant forged their self-help meeting sheets or missed their required weekly sessions with the counselors. In order to avoid this bias, the counselors were informed who had attended their self-help groups by receiving signed meeting sheets. It was important all participants attended all treatment sessions.

Statistical Regression

To avoid statistical regression, all clients had the same drug of choice, opioids. By using clients who all had addiction to the same drug it eliminated the worry that clients vary in severity of drug choice. How often an individual used the drug and the quantity each time they used varied. This variation could make it seem as though cases of higher use would be more difficult to obtain abstinence. With drug use that is not the case, no matter the amount of use, getting sober will vary from client to client. The study largely

benefited from the fact that each client randomly entered the drug court program and was not chosen, so there was no way to choose a better or worse participant for the study.

Experimental Mortality

Experimental mortality was a concern to internal validity for this study. Since this study focused on individuals with substance abuse disorders, there was a chance the individual could overdose, which could result in death. This was clearly the most extreme case, but possible. Since this was a court ordered program, participants had jail sentences over their heads. Due to the suspended sentences, it made it more difficult for individuals to simply opt out. Although this helped motivate individuals to remain in the program, they still had the option to drop out, go AWOL, or even transfer out into another jurisdiction. The goal of drug court was to keep them in treatment and continue to get them help as long as possible, so keeping experimental mortality to a minimum was preferred.

Threats to External Validity

Selection Bias

The study obtained participants by random assignment into the drug court program. Fortunately, random assignment was one way to avoid selection bias. Referrals into the drug court program could come from anywhere, which allowed for no limitation as to who was being referred. The only requirement was that they were clinically eligible (moderate to high risk/need) and legally eligible (non-violent felony offender). This referral process allowed for all ages, genders, races, ethnicities, religions, cultures, sexual orientations, etc. to have the opportunity to enter.

Testing Effects

When participants were tested multiple times, it was important to make sure results were directly a result of the independent variable and not due to testing effects. One concern was experimental fatigue. The drug court program was a minimum of a year, and it was intensive. Since they were measured throughout the program by way of drug screens, treatment participation, and MAT compliance the participants could have easily become mentally overwhelmed. By ensuring the treatment team was keeping open lines of communication and allowing the participants to be able to voice when they were becoming overwhelmed, the goal was to address it before it.

Threats to Construct Validity

Inexact Definitions of Constructs

In order to avoid inexact definitions of constructs, it was important to list the specific variables that were used in the study and define them accordingly. The list of variables started off extremely broad. By narrowing the variables down to a more specific way of measuring, it prevented inaccurate information from being represented.

Treatment-Sensitive Factorial Structure

Participants in the study received the same group treatment. Participants in the study received two different types of MATs; Vivitrol and Suboxone. The varying MATs was not a threat as it was specifically being measured. The only threat to treatment is when participants needed more intensive services; inpatient or individual sessions. When participants were offered various types of treatment that differed from the norm it could

change the perspective and the outcome of the participant. This change may not have occurred without the additional treatment services.

Ethical Procedures

Individuals with substance abuse disorders could be seen as a vulnerable population. Consent by all participants was obtained if they were active clients. Clients' identities were completely removed, and their privacy ensured. All employees signed confidentiality forms prior to the start of their employment. All clients signed confidentiality forms at their admission into the drug court. Everyone's participation was completely voluntary. Their data from the Supreme Court database was used to measure their compliance with drug screening, treatment sessions, and their MAT.

Summary

Methods, participant selection, data collection, design limitations, and ethical procedures were discussed in Chapter 3. Knowing participants, their drug of choice, and willingness to be on MATs all contributed to determining criteria for the study. Data collection was the way I was able to address regarding whether hypotheses was correct. There were some limitations of the design. Lastly, ethical procedures were of extreme importance, as they protect the individuals participating in the study. By creating a process of removing identifiers, and assigning unique codes, and signing confidentiality agreements in order to ensure participants were protected, not only did they feel more comfortable, but this also eliminated any barriers with the ethics board through Walden University.

Chapter 4: Results

The purpose of this secondary data analysis is to compare the relative effectiveness of two MATs, Suboxone and Vivitrol, in order to determine which method more effectively reduces illegal drug use relapse.

RQ1: Does Vivitrol reduce relapse among opioid addicts to a greater degree than Suboxone?

$H_0$1: Vivitrol does not reduce relapse among opioid addicts to a greater degree than Suboxone.

H_a1: Vivitrol does reduce relapse among opioid addicts to a greater degree than Suboxone.

Throughout the entire world, an opioid epidemic is occurring that does not discriminate by age, gender, ethnicity, or race. Regardless of how widespread this epidemic is, treatment for those who require it is limited. This affects individual who are addicted as well as their family, friends, and society in the United States as a whole. MATs are an important treatment method that has been widely studied.

Since MATs are becoming more widely accepted, it is important to look at how the use of this form of treatment can aid those suffering from opioid addiction. The purpose of this chapter was to describe my data and report results. Chapter 5 includes data collection, results, and a summary.

Data Collection

Data collection was conducted using secondary data. The collection itself took place in 2021 and involved using AutoMon AIMS, an online database which took approximately 1 month to review and collect. Due to the data being secondary, there was no recruitment necessary. St. Bernard Parish Drug Court is based in the 34th judicial district in Louisiana and operates under the Louisiana Supreme Court specialty court office. The court must go through a process to vet those who are eligible to be part of the drug court program.

The process consists of a referral, the administrator screening process, a review by probation, and a legal screening. Referrals can come from many sources, including the district attorney's office, indigent defender board, jail, probation officers, and/or family members. Those referrals go through a screening process that starts with the drug court administrator. This administrator screens each referral. After participants are deemed clinically appropriate, they are reviewed by the probation officer to ensure they have no outstanding warrants. Lastly, they are screened by the district attorney's office to ensure they meet legal eligibility requirements as well as the statute for drug courts in Louisiana.

Those who pass through the entire screening process are eligible for drug courts and must enter a plea of guilty to begin the program. Although many may enter the program, that does not mean that all who enter are opioid addicts, prescribed Vivitrol or Suboxone, or fully participate in the program to its entirety. Other eligible individuals include alcoholics, cocaine addicts, and methamphetamine addicts. Those individuals were excluded from this research. Although methadone is also used for MATs, that is not

included in this research. There is also a population of opioid addicts who choose to not be prescribed any type of MAT at all. Lastly, the program is extremely intensive, and not all who participate are successful or participate fully, and some may opt out of remaining in MATs.

A sample size of 100 was based on a power analysis with a one-tailed alpha of .05, desired power of .80, and medium effect size of .5 was. Of these 100 participants, 49 were prescribed Suboxone and 51 were given the Vivitrol shot (see Table 1). All participants were selected from the drug court program in St. Bernard Parish, LA.

Table 1

Sample Size of Both MAT Groups

MAT	Number	Male	Female
Vivitrol	51	41	10
Suboxone	49	25	24

The sample was based on selection by the court system and approval for the drug court program. All participants were screened in the same manner to ensure clinical and legal appropriateness. All participants had an active opioid addiction, had felony charges pending, and were allowed the option to choose the MAT that best suited them upon entrance into the program.

Results

This study was conducted using secondary data analysis. Originally, an analysis of covariance (ANCOVA) was used to assess differences in relapse rates between

Suboxone and Vivitrol with gender as a covariate. Gender was not a significant covariate ($p > .05$). Since the covariate was not significant, it was dropped, and analysis was done as an analysis of variance (ANOVA).

Table 2

ANCOVA Source Table

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	468.04 α	2	234.02	2.85	.06
Intercept	3496.60	1	3496.60	42.65	<.00
Gender	38.97	1	38.97	.48	.50
MAT	467.81	1	467.81	5.71	.02
Error	7952.71	97	81.99		
Total	14741.00	100			
Corrected Total	8420.75	99			

Note. α R Squared = 0.56 (Adjusted R Squared = 0.36).

As shown in Table 2, an ANCOVA test was run to determine the significance of both gender and MATs. It was determined that there was no statistically significant difference between males and females who were in the program. I rejected RQ1.

Table 3

ANOVA

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	429.08	1	429.08	5.262	.02

Within Groups	7991.67	98	81.55
Total	8420.75	99	

As shown in Table 3, an ANOVA test was run to determine the relationships between positive drug screens among those individuals prescribed Suboxone and those individuals prescribed Vivitrol. It was determined that the relationship between positive drug screens and individuals prescribed MAT was significant at the .05 level (.024). I rejected the null hypothesis.

Table 4

Positive Drug Screens

					95% Confidence Interval for Mean			
	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Vivitrol	51	9.98	10.90	1.53	6.92	13.04	0	43
Suboxone	49	5.84	6.55	.94	3.95	7.72	0	25
Total	100	7.95	9.22	.92	6.12	9.78	0	43

As shown in table 4, the mean of positive drug screens, which represents the relapse rate varied by MAT. For individuals on Vivitrol the mean was 9.98. For individuals on Suboxone the mean was 5.84. This table shows that those on Vivitrol

relapsed more on average than those on Suboxone. This data discredits the original hypothesis that Vivitrol will reduce relapse among opioid addicts to a significantly greater degree than Suboxone.

Summary

Chapter 4 includes results that were obtained during secondary data analysis. From Table 2, it was determined that there was no statistically significant difference between males and females who were in the program. From Table 3, it was determined that the relationship between positive drug screens and individuals who were prescribed MATs was significant at the .05 level (.024). However, Suboxone users relapsed less on average than Vivitrol users. In Chapter 5, I interpret findings and discuss limitations of the study, recommendations, implications, and a conclusion.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this secondary data analysis was to compare the relative effectiveness of two MATs, Suboxone and Vivitrol. This analysis was conducted to determine which method was more effective in terms of reducing relapse among opioid users.

Opioids were and still are a major epidemic facing the entire world. This epidemic has struck all socioeconomic classes, races, genders, ethnicities, and religions. Due to the widespread destruction, it has caused, every area of society is affected. MATs are a type of treatment modality that can be useful to combat the opioid epidemic. This research served to explore MATs and help determine some benefits to its use in a drug court setting.

Results showed that the covariate of gender had no statistical significance; therefore, the covariate was dropped, and I used an ANOVA. I hypothesized that Vivitrol would reduce relapse to a greater degree than Suboxone, but after reviewing the data, that was not the case. Suboxone was found to reduce relapse to a greater degree than Vivitrol. The purpose of this chapter was to provide discussions, conclusions, and recommendations. I address interpretations of findings, limitations of the study, recommendations, implications, and a conclusion.

Interpretation of the Findings

In Chapter 2, I discussed strategies I used to look up peer-reviewed literature and discussed those findings. Overall, the research I conducted helped to extend knowledge in this discipline. I addressed court-imposed drug treatments, effectiveness of treatments,

effectiveness of MATs, effectiveness of Suboxone Vivitrol, and studies comparing Vivitrol and Suboxone.

Court-Imposed Drug Treatment

Individuals who participated in court-ordered drug treatment program relapsed and recidivated less than those who do not participate (Jewell et al., 2016; Logan et al., 2019). My research confirmed these findings. The court system using the criminal justice system to provide treatment for individuals with opioid addiction was a success as individuals relapsed at a lower rate, although there were limitations involving funding (O'Connor, 2019; Zierk, 2019). My research confirms these findings, that individuals relapsed at a lower rate when involved in treatment within a criminal justice system. Participants in the criminal justice system felt they were successful in completing the program in part because of the structure of the program (treatment in the criminal justice system), accountability among the court system, and the staff in the court system. Both quality of treatment providers and fair sanctioning could have made for a more successful program with a higher completion rate.

Effectiveness of Treatment

Cheesman, et al. (2016) looked at effectiveness and efficiency of drug courts in Virginia and found that the odds of committing another offense are less than fifty percent for drug court participants. Recidivism in the drug court in Virginia's respective views decreased by a little less than 50% by way of treatment. Skordas (2015) showed with more than 2000 graduates in Utah drug courts, 3 to 5 years after their first year out of the drug court program, 75%-85% were not rearrested. Kornhauser (2018) studied drug

courts in Australia and compared them to individuals on probation. He found that drug courts were more effective than probation as recidivism rates were much lower.

Brown (2011) found those in drug courts were less likely to commit new crimes, and the amount time before they committed a new crime differed, as those in drug court settings took an average of 614 versus 463 days. Gender as a covariate for my study was not statistically significant. Brown found that women and those over 35 had higher effectiveness, as they were less likely to commit crimes. They also had limitations, dropouts in the program, and atypical clients which were outside of the norm, which tend to be trends in drug court settings.

McCarthy and Waters (2003) found that a majority of those in drug court were able to be successful by way of their relapse prevention and graduation plans, as well as have significantly less criminal involvement compared to those who were not in drug court settings. Drug courts are effective. My study was able to fill a gap involving MATs.

Effectiveness of MATs

Moore et al. (2019) supported community use of MATs, showed an increase in community-based substance uses treatment engagement and decreased illicit opioid use and injection drug use upon release. Sanger et al. (2018) studied MATs in Canada and found that individuals who resided in Canada, who set their own outcomes were more likely to be successful with relapse rates. Boltaev et al. (2012) studied MATs in Kazakhstan and found that patients who used MAT self-reported decreases in heroin use, risky injection behavior, and criminal behavior, as well as improved overall health.

Effectiveness of Suboxone

Attwood (2012) studied the effectiveness of Suboxone and was able to find that using Suboxone in a drug court, inpatient or outpatient setting is the best way to utilize it. Based on the findings of the study, patients who have an opioid dependence are more likely to reduce their use of opioids after Suboxone. This finding matches up with my findings as well. Fudala et al. (2003) captured an article in The New England Journal of Medicine written in Alcoholism and Drug Abuse Weekly, that looked at the effectiveness of Suboxone in an office-based setting. They ran a double blind trial that was able to show that relapse was lower for those on Suboxone, than of those on a placebo. My study did not include a trial, but the data presented supports my findings. Ambekar et al. (2018) researched MAT which they refer to as Opioid Substitution Therapy (OST) in India. They were able to show that Suboxone was seven times more effective than simply using psychosocial interventions alone. All of these studies were able to prove the effectiveness of Suboxone. None were specifically based in a drug court setting, which allows my study to fill that gap. Since I also looked at Vivitrol, it is important to review studies related to the effectiveness of Vivitrol.

Effectiveness of Vivitrol

Krupitsky et al. (2013) studied the effectiveness of Vivitrol by way of a double-blind phase. They found that with Vivitrol only requiring a once-a-month injection, it was much less abused than Suboxone. They also found that it lasted longer and allowed an individual to have cravings less often. Although this research is what my hypothesis showed, unfortunately it is not what the research showed.

Roozen et al. (2006) studied the effectiveness of Vivitrol on both opioid addicts as well as alcoholics. It was determined that Vivitrol alone does not have a large effect on relapse reduction. When Vivitrol is combined with psychosocial interventions it is an effective approach. Since this study looked at alcohol addicted individuals as well, it added more than my study did.

Mouaffak et al. (2017) studied Naltrexone within randomized control trials. They found that Naltrexone is highly underutilized, but when used it was more effective than the placebo in reducing impulsivity. Impulsivity was not an outcome I measured. Nunes, et al. (2018) utilized a trial to study opioid addicts, which was split among those on Naltrexone and those on a placebo. This study showed many things, one being that short-term treatment for opioid addicts is unsuccessful, and two, in addition to any treatment MAT should be included to add effectiveness.

Lobmaier (2008) reviewed Naltrexone regarding opioid dependence. After reviewing the research, he found gaps in the literature. There was not enough research out there to provide conclusive evidence of its effectiveness. However, the research that did exist proved that Vivitrol is effective at high dosages. De Jong et al. (2007) conducted a study in the Netherlands that looked at opioid dependent individuals who were unsuccessful on Methadone maintenance. After being detoxed off, a physician administered dose of Naltrexone was used. After 16 months, they found they were more successful in several aspects: qualities of life, level of cravings, lower psychopathology, and lower relapse. Their outcomes measured many more areas than mine.

Bigelow et al. (2012) studied Vivitrols effectiveness, but specifically in Hydromorphone. This study was able to truly see the effects of Vivitrol on the mu receptor. This study took a very different path to show the effectiveness and it only focused on one drug, whereas my study generally looked at opioids. Since my research looked at both Suboxone and Vivitrol it is important to review the articles that compared the two.

Limitations of the Study

When this study was initially proposed there were a few areas that were of concern. The first area was due to this study only having data that was collected from one drug court. This was exactly how the study was conducted. The study obtained data from the St. Bernard Adult Drug Court. This was certainly a limitation, as it restricted generalizations from the data. The study also had a concern regarding a physician's effect. The physician's effect was due to each MAT being prescribed by a different physician. Fortunately, this limitation did not cause any concerns during the study. Drug screening which was used to detect drug use was another limitation. Currently drug screening is the only method in order to have the clearest picture as to whether or not someone has used drugs. Drug screening was conducted as frequently as possible. Top-of-the-line laboratories ran the analysis on the urine to limit any concerns with this method. The last limitation was the possible bias of how participants were able to enter the drug court program. By use of universal screening, it allowed all individuals interested in the program the opportunity to be screened for eligibility. This method decreased any chance of bias.

Recommendations

This study truly addressed areas in the field that lacked research. The ability to compare two widely used MATs was extremely important. For future research it would be extremely beneficial to widen the drug courts that are studied. It would be important to start within Louisiana and conduct a state-wide study comparing various MATs in a drug court setting. This change would allow for data to be collected on a much larger scale. Another recommendation would be to encompass all forms of MAT; Vivitrol, Suboxone, and Methadone. It would allow the field to get a much broader view as to what MAT is the most effective. The last recommendation would be to eventually span throughout the entire United States. Every state has their own way of running drug courts, and it would be interesting to see which treatment modalities work best with MAT.

Implications

To make a change in society is an accomplishment. To find a solution to a problem that has become an epidemic can have that much greater impact. This study can provide many different layers of society with information. That information can create waves of change. Society is affected by the opioid epidemic, finding treatment, and helping those addicted can help all. The study itself is informative to those who treat addicts in the field; judges, probation officers, treatment providers, and administrators. When information is provided that can be utilized, it will in turn help those addicted and have a domino effect on those around them. When individuals are able to overcome their addiction, their families, friends, and communities are able to heal as well. This study will have a large impact on societal change.

Conclusion

The opioid epidemic has yet to get better, it has yet to be solved, and it has yet to be extinguished. What the epidemic has done is it has created turmoil, it has broken families apart, it has murdered so many amazing people, and it has left this world torn. MAT is not the only solution. What MAT provides is options. It provides a way to help and a single fix to a much larger problem. When this study was conducted, it was done to hopefully be able to show people across all walks of life that there are ways out there to help people. Addiction does not have to take your loved one. Both Vivitrol and Suboxone are modalities that can be used in conjunction with treatment to help individuals struggling to get sober on their own.

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