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Urban And Rural Comparisons Of Attitudes Toward Medically Assisted Treatment For Pregnant And Postpartum Women With Oud In Appalachia

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BY

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DEDICATION

This thesis is dedicated to my late stepsister, Melissa Joy Carpenter, who lost her battle with addiction, and to her surviving children. Furthermore, I dedicate this thesis to those who have lost their lives to addiction, those who are currently fighting the battle to recover, and those who have fully recovered.

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My mother, grandmother, and therapist have uplifted me with their kind words and wisdom to persevere through the process of writing a thesis. It is with their help that I refused to give up when I could not see a light at the end of the tunnel.

When I could not see my own academic potential, professors at the College of Justice, Safety, and Military Science could. There are too many to name who positively impacted my life; however, I want to give special credit to Dr. Michael Land, my first academic advisor, Dr. Victoria Collins, Dr. Terry Cox, and Dr. Mike Collier who specifically encouraged me to pursue higher education beyond a baccalaureate degree.

I want to thank my committee chair, Dr. James Wells, and my committee members, Dr. Betsy Matthews, and Dr. Kristie Blevins, for their guidance throughout my academic career and my thesis-writing journey. I could not have written this thesis without them.

ABSTRACT

The opioid crisis has plagued the United States but disproportionately affects the often-overlooked Appalachian region. This area faces unique barriers preventing better access to quality Opioid Use Disorder (OUD) treatment facilities despite opioid-related deaths continuing to rise. An especially vulnerable population in this region are pregnant and postpartum women who face even more challenges acquiring proper drug treatment. Medically Assisted Treatment (MAT), also called Medications for Opioid Use Disorder (MOUD), is considered the standard of treatment for OUD and reduces the effects of NAS, yet it is heavily stigmatized and underutilized in populations who could benefit from the medication.

This study seeks to compare urban and rural attitudes towards MAT and the pregnant and postpartum women who use MAT to treat OUD. This study hypothesized that rural areas would show statistically higher levels of negative attitudes towards MAT and its clients. The following scales displayed statistically significant differences: Degree of Criticism Toward Drug Dependent Women, Degree of Negative Attitudes Toward Clients Using MAT, Degree of Positive Attitudes Toward Clients Using MAT, How Problematic Lack of Buy-In and Negative Views Are. Only one scale was not statistically significant: How Problematic Client-Specific Barriers Are. This study seeks to bridge the gap in the literature that overlooks rural areas in opioid research and hopes to increase awareness of a vulnerable population.

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Prologue

My nephews have already faced struggles that most people do not have to endure. The eldest needed surgery immediately the following birth due to a defect in his colon after his mother used drugs while pregnant. He spent several nights in the NICU while his mother and father went away to engage in drug activity. He also had an intellectual disability. The younger sibling had significant emotional problems and acted out quite frequently, especially after the boys were removed from their mother and father's home and left in the care of their abusive grandmother, who they called "mamaw." Their mother did well for a while after seeking treatment but eventually relapsed. The "treatment" she got was a bag of pills and left to her own devices with no counseling or observation from the practitioners. After her relapse, their mother left the small boys in a stranger's care while their parents did drugs. The youngest found and ingested a bottle of Vodka and almost died while in the stranger's care. Eventually, they were moved to different foster homes where the older child was treated with love, and the younger faced more abuse. Finally, they were moved to their aunt's house who dealt drugs from her home and verbally abused them. The two severely struggled when they learned of their mother's death, who had been discovered in a crack house in downtown Mt. Sterling.

The autopsy revealed that there was an elevated level of Tramadol, an opioid, in her system. Faced with this news, coupled with the consistent abuse, the youngest was subsequently sent to a mental health institution before he turned ten years old. The brothers were separated; the oldest went to another foster home while the youngest has spent much of his life in mental health facilities that try to help him with his severe emotional outbursts which make him too dangerous to be around family members. Ever

since the brothers were sent to foster homes, I have never seen my oldest nephew again. My youngest nephew was recently placed in the custody of my cousin who had us come visit when he settled in his new home. I thought it was likely that he would not remember Aunt Anna who helped his "grandma" (my mother) take care of him while his biological grandmother had custody of the two children. To my surprise, he did remember me and was very excited to see me, even laying his head on my shoulder when we sat down together before he had his birthday party. I felt a broken, yet full heart, knowing what all he had been through, and that he was finally with family again. However, he suffered a manic episode and destroyed a window and smashed the floor in a bout of rage, likely stemming from his troubled past. He is no longer with his family because they could not handle his violent episodes.

My stepsister, a former detoxification nurse who knew the effects of those drugs, became drug dependent because of severe adverse experiences. Rather than having a proper burial, she was cremated because of a lack of resources in the family. The grief from losing his daughter and never seeing his grandchildren again consumed my stepdad who passed away six months after my stepsister. We sold our trailer to afford his funeral because my dad could not afford life insurance, and we moved in with my grandmother. This is the true story of a family who has suffered and has been torn apart because a drug-dependent mother was not able to receive adequate treatment for her drug addictions. My family's story is just one in thousands across the country.

Introduction

The problem of opioid addiction has grown exponentially in recent years in the United States. It is fostered in part by the growing numbers of opioid addictions and overdoses. It is now more likely that someone will die of an opioid overdose than a car accident (National Safety Council, 2017). As of 2017, an average of 91 people died per day from opioid-related deaths (Georgetown Behavioral Health Institute, 2018). From these numbers, it does not appear that this nationwide opioid crisis is slowing down. To make matters worse, Carfentanil has been found among decedents of overdose deaths in several states including Kentucky. It is the most powerful sub-type of fentanyl that is used as a tranquilizer for large animals and possesses 10,000 times the potency of morphine (Center for Disease Control and Prevention, 2018). Heroin is often laced with this substance and is killing unsuspecting users (Sanburn, 2016). Sanburn (2016) reported roughly 300 deaths in four states were caused by either Carfentanil or its less powerful and addictive counterpart, Fentanyl, between mid-August to mid-September—just one month. Since 2018, fentanyl-related deaths have already begun to exceed major causes of death including suicide, cancer, and automobile accidents. It has become a leading cause of death for people aged 18-45 years old, even surpassing COVID-19 deaths. In this age group, there were more fentanyl-related deaths than suicides in both April 2019 (23,556 to 21,195) and April 2020 (37,087 to 21,441); in April 2021, there were more fentanyl-related deaths (40,010) than COVID deaths (21,335) (Jacobson, 2021).

The opioid crisis is especially prevalent in rural Appalachia with prescription opioid abuse exceeding national averages (Moody, Satterwhite, & Bickel, 2017). Multiple factors may lead to substance abuse in rural areas including, but not limited to,

low education, unemployment, poverty, isolation, and limited access to mental health facilities (Rural Health Information Hub, n.d.b). Monnat (2019) found that counties that rely on mining and other service sectors for economic growth have high exposure to prescription opioids, thus leading to disproportionate mortality rates. States which contain central Appalachia, including West Virginia, Virginia, Kentucky, Ohio, Tennessee, and North Carolina, are seeing the highest rates of use and overdoses of non-prescription opioids (Moody et al., 2017). Despite this fact, prescription opioids play a role in overdose deaths more than heroin and even synthetic opioids. Monnat and Rigg (2018) report that, of all overdose deaths in rural counties, 31 percent resulted from prescription opioids while synthetics accounted for 24 percent, and heroin 16 percent.

Medically Assisted Treatment (MAT), sometimes referred to as Medications for Opioid Use Disorder (MOUD), is a combination of drugs used to treat opioid dependency. MAT is known for its use in conjunction with counseling. Clayman, Salisbury-Afshar, DePatie, Ali, and Arnold (2020) state that the term MOUD is becoming more commonly used than the term MAT because of the medication's effectiveness on its own without the use of counseling. By calling it MOUD, the medication itself is the primary treatment of OUD and not an assistive treatment as the term MAT suggests. For this paper, I will use the acronym "MAT" since that term was used by the Substance Abuse and Mental Health Services Administration (SAMHSA) who funded the grant that made this study possible.

In general, access to MAT is limited and underutilized in populations that would qualify for MAT (Hsu, 2016). This underutilized population includes pregnant women who do not have adequate access to MAT. Not only does MAT help mothers overcome

their addictions, but it also helps their babies who suffer from NAS (Neonatal Abstinence Syndrome) have better outcomes while in the NICU (Newborn Intensive Care Unit) (Lund, Fischer, Welle-Strand, O'Grady, Debelak, Morrone, & Jones, 2013).

The rural areas of the United States face unique barriers preventing them from utilizing MAT; figuring out how to implement MAT programs in these areas requires a special understanding of this region. Physical barriers can include a lack of healthcare providers with training specific to MAT, and the lack of healthcare facilities to begin with (Moody et al., 2017). What few opioid drug centers exist could be several miles away from those who need the treatment (Sexton, Carlson, Leukefeld, & Booth, 2008). There is also a lack of public transportation in rural places, and patients drive an average of two or three times farther to gain medical treatment compared to their city-dwelling counterparts (Johnson, Mund, & Joudrey, 2018).

There are also contextual barriers that are specific to central Appalachia, including trust-building from non-locals and seeking treatment in areas with close-knit social networks mainly consisting of families who have lived in those places for several generations (Moody et al., 2017). Appalachian locals tend to keep their problems to themselves. Weisheit and Wells (1996) were outsiders to Appalachia and had to develop rapport with key stakeholders before they would divulge sensitive information, especially to outsiders. Even when treatment options are available, it is unlikely one will seek treatment because of their culture in rural areas. Since people keep problems to themselves and maintaining anonymity in a small town is relatively difficult, one may find it difficult to seek treatment, for fear that people will know about their issues (Weisheit & Wells, 1996).

Negative stigma surrounds MAT and those who use it (Sexton et al., 2008), and pregnant women are no exception (Lander, Marshalek, & Sullivan, 2016). The crux of the issue is that treatment providers are using an opioid to help one desist from using illicit opiates, such as heroin. In other words, the treatment drug is simply replacing the illicit drug. This belief, held by many non-medical practitioners, contradicts medical evidence supporting the efficacy of MAT. This line of reasoning, coupled with personal experiences and lack of education regarding MAT, is what drives local policies to decrease access to this kind of treatment (Hsu, 2016). There is even evidence that one of the drugs used for MAT, methadone, has even worse side effects than heroin itself (Bourgois & Schonberg, 2009). Nonetheless, there is sufficient evidence that MAT overall has decreased illicit drug dependency and even HIV-risky behaviors (Fullerton, Kim, Thomas, Lyman, Montejano, Dougherty, et al., 2014).

Opioid addiction and overdose are on the rise, and people who could benefit from MAT are not getting access to it whether through barriers created by stigma or living in rural geographical locations. If these barriers are not lifted, addictions and deaths could continue to rise. The purpose of this study is to show differences in attitudes towards pregnant and postpartum women with OUD who use MAT in rural vs urban areas in Appalachia. Stigma can influence policy-making decisions and motivation in clients to seek treatment. If there are significant differences in negative attitudes in rural areas, further efforts can be made to increase education in those areas on MAT's efficacy to decrease stigma and, therefore, potentially increase access to treatment.

The theory I am using to base my theoretical framework is Bandura's (1970) Theory of Social Learning. The crux of this theory is that people learn behaviors and

develop beliefs from those around them and through direct or indirect experiences. This theory can be used to explain the reason for the differences in negative attitudes towards MAT in rural regions compared to urban regions. I hypothesize that the rural region will have statistically significant higher scores than the urban region on the following measures: Degree of Criticism toward Drug Dependent Women and Degree of Negative Attitudes Toward Clients Using MAT because of the largely held conservative views regarding the character of people addicted to illicit substances and progressive treatments to help this population. I also hypothesize that the rural region will score lower in Degree of Positive Attitudes Toward Clients Using MAT, How Problematic Lack of Buy-In and Negative Views Are, and How Problematic Client-Specific Barriers Are because scoring higher on these scales displays higher levels of positive attitudes and higher education regarding the problems that people face who need treatment for drug dependence. The scope of this study will focus on comparing attitudes towards MAT for pregnant and postpartum women with OUD in rural and urban regions in the commonwealth of Kentucky.

Literature Review

This thesis will highlight positivity toward MAT by demonstrating the effectiveness of MAT and its use for pregnant and non-pregnant women, including how the medication affects the unborn, and how criticism towards drug-dependent women is pervasive despite literature demonstrating the efficacy of MAT. Next, it will introduce literature regarding client-specific barriers to treatment ranging from intrinsic motivations to environmental factors such as resource allocation and treatment availability in correctional institutions. This thesis will also highlight the lack of buy-in of MAT and the resulting negative stigma towards both the treatment and those who utilize the treatment for their opioid use disorders (OUD), and how this stigma can influence barriers to treatment. Furthermore, the abundance of opioids in the Appalachian region and its potential causes will be explained, and how the opioid epidemic has severely impacted this vulnerable region. Finally, this thesis will highlight urban and rural differences in treatment access and the lack thereof, and how the lack of treatment access in rural Appalachia will perpetuate the opioid epidemic if no measures are taken to provide treatment options to those who would qualify for MAT in the region.

Effectiveness of MAT

Opioid Use Disorder (OUD) is considered a chronic illness in the medical community. Long-term care is widely preferred over short-term treatment since long-term care assists the addict in living a normal, healthy life rather than only treating the symptoms of addiction (McMillan, Lapham, & Lackey, 2008). Opioid Use Disorder is defined as the "inability to control or limit use, increased tolerance, physical dependence including withdrawal symptoms upon cessation, and continued use in the face of negative

consequences…" (Peeler, Fiscella, Terplan, & Sufrin, 2019, p. 5). OUD has been shown to improve with the use of pharmacotherapy or referred to as Medication-Assisted Treatment (MAT). MAT consists of various drugs such as methadone, buprenorphine, and naloxone, and have been constituted as the standard to effectively treat OUD (Albizu-García, Caraballo, Caraballo-Correa, Hernández-Viver, & Román-Badenas, 2012; Anstice, Strike, & Brands, 2009; Donny, Walsh, Bigelow, Eissenberg, & Stitzer, 2002; Hedrich, Alves, Farrell, Stöver, Møller, & Mayet, 2012; Hewell, Vasquez, & Rivkin, 2017; Johansson, Berglund, & Lindgren, 2007; Lund et al., 2013; McMillan et al., 2008; Mitchell, Willet, Monico, James, Rudes, Viglioni, Schwartz, Gordon, & Friedmann, 2016; Saxon, Yih-Ing, Woody, & Ling, 2013). The National Survey on Drug Use and Health (NSDUH) provided by SAMHSA estimated that 21.1 million people aged 12 and over were identified as needing treatment for substance abuse (roughly 626,000 were addicted to heroin), and only 3.8 million received any kind of treatment in 2016 (National Survey on Drug Use and Health, 2016). In 2004, a gender disparity in treatment was identified where women comprised only 30 percent of treatment admissions (MacMaster, 2013).

While MAT combined with psychosocial treatment may be empirically effective at reducing withdrawal symptoms (Hewell et al., 2017), some studies show how MAT can be ineffective for some. According to Donny et al. (2002), some clients will continue to abuse opioids while engaging in medically assisted treatment. The Drug Abuse Treatment Outcome Study conducted in 1997 by Hubbard, Craddock, Flynn, Anderson, and Etheridge, after a one-year follow-up, found that 27.8 percent of outpatient clients used heroin either daily or weekly who were prescribed methadone. However, methadone

is considered a standard replacement therapy, and it has multiple purposes for treatment. These include: a decrease in withdrawal symptoms, reduction in opiate cravings, treatment retention, reduced engagement in risky behavior and use of heroin, improved social interactions, decreased criminality, and improved overall physiological function and health (Donny et al., 2002; Hedrich et al., 2012; Hewell et al., 2017; Johansson et al., 2007).

The efficacy of MAT is clear, but there is scant literature with explicit focuses on whether it benefitted clients in urban or rural settings. Many sources omit geographical details altogether, but it can be inferred from the existing literature that the benefits of MAT are mostly studied in urban settings. For example, three major federal databases measure drug trends including: Community Epidemiological Work Groups (CEWG) by the National Institute of Drug Abuse (NIDA); the Arrestee Drug Abuse Monitoring Program (ADAM) by the National Institute of Justice (NIJ); and SAMHSA's Drug Abuse Warning Network (DAWN). The issue is these sites focus primarily, or sometimes exclusively, on urban and/or urban-suburban areas (MacMaster, 2013).

Fortunately, there is some literature that explicitly focuses on rural areas that attempt to raise awareness of the rural struggle to access MAT. When treatment is made available in rural areas, it does seem to benefit the clients. Two rural counties in Colorado pilot-tested MAT programs that resulted in significantly less drug use including opioids and alcohol, improved physical and mental health, and improved employment status in those who remained in treatment for six months (Amura, Sorrell, Weber, Alvarez, Beste, Hollins, & Cook, 2022). The following two studies by Logan, Lavoie, Zwick, Kunz, Bumgardner, and Molina (2019) and Rawson, Rieckmann, Cousins, McCann, and Pearce

(2019) were conducted in rural areas of Hawaii and Vermont, respectively, and specifically focused on treatment options integrated into rural primary care facilities. The results found better treatment retention, improved mental health, minimal stigma, fewer treatment obstacles, and stronger relationships with prescribers. Unfortunately, these studies do not consider possible Appalachian-specific variables that may influence outcomes in treatment retention. Despite the geographical location, it seems that implementing OUD in rural communities shows promising results.

Treatment for Women with OUD

Generally, women are more likely to suffer from chronic pain and, therefore, are at a higher likelihood of being prescribed opioids for their pain (Peeler et al., 2019). To treat OUD in women, there are multiple factors to consider, including psychological as well as sociological factors, and the best evidence-based practice to treat OUD is MAT due to the coupling of behavioral and medicinal treatment. Interestingly, Albizu-García et al. (2012) found evidence that MAT was more effective for women when the treatment focused on issues with substance use disorders that were specific to women.

Diagnoses of OUD among pregnant women in the United States at the time of delivery have increased fourfold in the past ten years (Leiner, Cody, Mullins, Ramage, & Ostrach, 2021). Many complications can arise from substance use during pregnancy, including growth restriction during pregnancy, early delivery, decreased birth weight, smaller head circumference, and fetal death (Jones, O'Grady, Malfi, & Tuten, 2008). Many babies whose mothers with OUD during pregnancy may be diagnosed with Neonatal Abstinence Syndrome (NAS). Symptoms include blotchy coloring of the skin (mottling), diarrhea, excessive or high-pitched crying, excessive sucking, fever,

hyperactive reflexes, abnormally high muscle tone, irritability, poor feeding, increased breath rate, seizures, problems sleeping, abnormally slow weight gain, nasal congestion, sneezing, sweating, trembling (tremors), and vomiting (Medline Plus, 2019).

MAT is associated with positive in-hospital delivery and prenatal care; it is designed to prevent withdrawal symptoms, improve treatment retention, and decrease overdose or relapse risk. When used throughout pregnancy, MAT is appraised by the American Society of Addiction Medicine (ASAM), American College of Obstetricians and Gynecologists (ACOG), and the National Commission on Correctional Health Care (NCCHC) to be the best medicine to treat pregnant women with OUD (Peeler et al., 2019). Furthermore, the use of MAT can significantly reduce, or even eliminate, the costs accrued from NICU stays. The cost for one baby for one day in the NICU can cost at least $3,500 (Muraskas & Parsi, 2008) whereas buprenorphine or methadone can cost approximately $115 to $126 per week (National Institute on Drug Abuse, 2021).

Despite studies demonstrating the efficacy of methadone, some even calling it the gold standard of treatment, studies show that buprenorphine is the superior form of medically assisted treatment for pregnant women. It has been shown that infants suffer from NAS for shorter periods when the mother has taken buprenorphine and, therefore, spend fewer days in the hospital. (National Institute on Drug Abuse, 2016; Lund et al., 2013). Although research has mainly focused on buprenorphine intake alone, it is common for buprenorphine and naloxone to be prescribed simultaneously because the ability to abuse buprenorphine decreases with naloxone added (Lund et al., 2013). Among mothers who took buprenorphine and naloxone combined, neonatal growth parameters were within normal limits including better head circumference, body weight

and length, and fewer days needed to treat NAS (Czerkes, Blacstone, & Pulvino, 2010; Metz, Jagsch, Ebner, Würzl, Pribasnig, Aschauer, and Fischer, 2011).

One article was found that highlighted MAT implementation among pregnant and postpartum women in rural and urban areas. The authors found significantly higher rates of polysubstance use and lower rates of treatment retention among urban women compared to rural women (Baewert, Jagsch, Winklbaur, Kaiser, Thau, Unger, Aschauer, Weninger, and Metz, 2012). In contrast, Jarlenski, Paul, and Krans (2020), who solely concentrated on polysubstance use trends among rural and urban pregnant women, found higher rates of polysubstance use among rural women, namely tobacco and amphetamines. Unfortunately, there was no data in this article regarding retention in treatment centers. This highlights the need for more data regarding this topic since what little literature exists is mixed.

Establishing the research supporting the efficacy of MAT is crucial in understanding the Level of Positivity Towards Clients Using MAT scale—the survey questions used to create this scale were drawn from research supporting the effectiveness of MAT. It is also essential to highlight opposite scales here, including Degree of Criticism Towards Drug Dependent Women and Degree of Negative Attitudes Towards Clients Using MAT; the set of questions used for these scales directly oppose research that supports the use of MAT for pregnant women with OUD. These three scales tap into the aforementioned research.

Barriers to Treatment

The effectiveness of MAT has been established—it aids in recovery for many individuals to overcome their withdrawal symptoms, helps them remain in treatment, and

improves overall health. However, many barriers can prevent potential clients from gaining the treatment they need to overcome their addiction(s). Identified barriers include, but are not limited to: stigma, mis-attunement to client needs (such as a lack of gender-specific services); financial cost of treatment and income levels; cultural assumptions regarding treatment; allocation of resources; co-occurring illnesses; waiting lists; lack of transportation; dosage options; a program's treatment philosophy; and whether counseling is available and if patient-provider relationships are positive or not (Anstice et al., 2009; Fox, Jakubowski, & Giftos, 2019; Hewell et al., 2017; MacMaster, 2013; Witte, Jaiswal, Mumba, and Mugoya, 2021). These barriers heavily influence treatment-seeking behaviors in those who could benefit from treatment.

Psychological factors play a role in affecting treatment-seeking behaviors, such as whether one is mentally ready for treatment or not, and intrinsic motivation to seek treatment (MacMaster, 2013). For example, clients themselves can have mixed feelings concerning methadone consumption under supervision, citing feelings of embarrassment, intrusive, and demeaning while other clients believe they need the supervision to ensure they will comply with treatment (Anstice et al., 2009). Another element affecting intrinsic motivations are co-occurring mental disorders. It is common for many people with SUDs to meet the criteria of having a mental disorder (Albizu-García et al., 2012; Logan et al., 2019; National Institute of Drug Abuse, 2020). Unfortunately, people with SUDs and co-occurring mental disorders are more likely to be homeless, impoverished, incarcerated, unemployed, or have HIV (Hudson-Ferguson, 2014), making mental health treatment crucial while treating the SUD simultaneously (National Institute on Drug Abuse, 2020).

Pregnant women with OUD face a specific barrier to treatment—fear of Social Service involvement once they seek treatment for OUD. This fact rings true in Leiner et al.'s study (2021) which specifically focused on pregnant women in rural Appalachia. The authors found that these women assumed their infants would be removed from their care—not because of the substance abuse, but the treatment for their substance abuse. Substance use during pregnancy in the US is criminalized, and it is required to be reported if one is using illicit substances during pregnancy. Unfortunately, this deters patience from seeking prenatal care and substance use treatment (Leiner et al., 2021).

Even clinicians face barriers when providing MAT during pregnancies. Child Abuse Prevention and Treatment Act (CAPTA) laws are confusing to interpret by providers because there are no specific regulations as to which cases require a simple notification or a complete formal report which could remove an infant from the parent as soon as it is born. The lack of clarity in these laws also influences hospitals to create their own reporting criteria, often without including referrals to providers who can offer support to families (Leiner et al., 2021).

Policymakers need to allocate resources that will support microsystems from the bottom-up and foster positive intrinsic motivations in the individual. Policies could provide funding for rural areas, or any geographic location affected by the opioid crisis, or even create policies that would allow individual treatment programs to decide their own treatment options, including how many patients that provider will serve, instead of the requirement to meet federal standards. Furthermore, treatment providers can take this information and begin to focus on individual strengths which would serve as facilitators to recovery (Hewell et al., 2017). Leiner et al., (2021) call for more education for clients

and providers surrounding the involvement of Social Services so there is more clarity on what to expect at the time of delivery if the mother is on MAT.

Lack of Treatment in Corrections

Although the rhetoric surrounding OUD is becoming a public health issue, drug crimes are still heavily criminalized, and inmates within the United States criminal justice system are not receiving treatment for their addictions (Hedrich et al., 2012; McMillan et al., 2008; Mitchell et al., 2016; Wakeman & Rich, 2018). This is of great concern since inmates with OUD are disproportionately involved in the U.S. justice system and nearly half of U.S. state and federal prisoners meeting criteria for substance use disorders. MAT has FDA approval, the WHO advocates for its use in correctional facilities, other Westernized countries utilizes MAT in corrections, and there are long-term benefits from decreased opioid use, and recidivism rates are reduced (Albizu-García, et al., 2012; Csete, 2019; McMillan et al., 2008; National Institute on Drug Abuse, 2018). Nationally, less than 20 percent of people with OUD in correctional facilities receive treatment, but even fewer inmates in rural areas receive treatment largely because of a lack of availability in the area (Staton, Webster, Leukefeld, Tillson, Marks, Oser, Bush, Fanucchi, Fallin-Bennett, Garner, McCollister, Johnson, and Winston, 2021).

In Kentucky, incarceration of women has increased by at least 30 percent largely due to opioid-related offenses (Staton et al., 2021). According to Peeler et al. (2019), women who are incarcerated in federal or state correctional facilities make up the most vulnerable segment of society, and they are subject to higher rates of mental illness, trauma, and drug abuse compared to incarcerated men. Although few women are

pregnant upon intake, they present a unique situation in correctional facilities because of special needs for their pregnancies, especially if drug use occurred during pregnancy.

Inmates face a high risk of overdose once released if their addiction is left untreated (Staton et al., 2021) and are twelve times more likely to die of an overdose within the first two weeks of release, but post-release deaths decrease when MAT is utilized (National Institute on Drug Abuse, 2018). Total or near-total abstinence-only decreases the body's tolerance towards the drug, making re-exposer more likely to cause an overdose (Csete, 2019; National Institute on Drug Abuse, 2018). Pregnant women who do not receive MAT and are subjected to conventional detoxification methods experience birth loss and preterm births with no real positive effects on their pregnancies or relapse rates (Peeler et al., 2019). When OUDs are left untreated during incarceration, it is more likely that the person with the OUD will return to the same stressful environment that initially caused their drug abuse and criminality, and will resume criminal activity and risky behaviors that could spread bloodborne diseases such as HIV, hepatitis B and C (National Institute on Drug Abuse, 2018; Wakeman & Rich, 2018).

During incarceration, clients suffered from painful withdrawal from methadone and feared using MAT. They feared using MAT because they did not want to develop an opioid tolerance or have the same painful withdrawals they experienced during incarceration. Fox, Maradiaga, Weiss, Sanches, Starrels, and Cunningham (2015) believe changing policies in the criminal justice system will improve clients' views toward using MAT since the current common method of treatment is forced detoxification.

Even if an individual is under community supervision, they may face many of the same problems as those who are incarcerated. Regardless of a parole or probation agent's

attitudes towards MAT, they are bound by forces outside of their control regarding MAT referrals, including mandates by judges with little knowledge of MAT and addiction, department guidelines, and agreements with assessment agencies or specialized units (Mitchell et al., 2016).

Despite these problems existing, there is hope. There have been court cases involving the forced withdrawal from opioids and refusal to administer MAT in correctional settings to people who needed treatment or were already receiving treatment prior to incarceration. Plaintiffs in those cases argued that their 8th amendment and ADA rights were violated due to the severity of withdrawal symptoms and OUD being classified generally as a disability. Each case yielded successful outcomes where the correctional facilities were required to update their policies to provide MAT (Marton, 2019). In Kentucky, the KY Department of Corrections (DOC) received a grant in 2019 through the Kentucky Opioid Response Effort (KORE) to include buprenorphine at select pilot locations (Department of Corrections, n.d.). There is also group called the Kentucky Justice Community Opioid Innovation Network (JCOIN) that seeks to provide MAT to women in corrections, particularly in jails who are re-entering society, in urban and rural areas (Staton et al., 2021). This shows promise rural residents, especially women, are becoming the focus of more studies and MAT services are being written into more policies.

Negative Stigma Towards MAT

"Let them die. They chose to take those drugs, so why should I have to save them?" These are words I heard a law enforcement officer say on a ride-along for my internship. This statement reflects how strongly stigma has permeated into the minds of

those working in a field intended to help its citizens. Conner and Rosen (2008) define stigmatization as “an element of suffering accompanying the experience of having a condition that is devalued in society[.]” (p. 245). Stigma, which is built from perceptions, attitudes, and beliefs, allows society to place a mark on someone which dehumanizes them, preventing full acceptance into that society. This correlates with increased internalized stigma, lower self-esteem, isolation, less adaptation to society, even higher levels of substance abuse, and decreased likelihood to seek help (Conner & Rosen, 2008; Witte et al., 2021). One of the most pervasive barriers to help-seeking behaviors is stigma, unsurprisingly—people who have mental health issues and substance use disorders are highly negatively represented in media, leading to their rejection and discrimination in society (Conner & Rosen, 2008). Stigma is not only placed upon the person using the medication for their substance use disorder but the medication itself is stigmatized by society. This can influence MAT candidates' willingness to try the medication, including pregnant women with OUD (Leiner et al., 2021).

Places that are disproportionately affected by opioid addictions seemingly have higher levels of stigma. In rural Indiana, 69 percent of surveyed adults took prescription opioid drugs in ways not prescribed, whereas in metro counties, this number is 40 percent. Respondents in rural counties state that getting treatment for addiction would make someone an outsider in the community and cause loss of friendships and opportunities in that community. In rural Indiana, this stigma has led to a lack of harm reduction and MAT programs compared to urban counties, and there is even active pushback against MAT programs specifically (Indiana University, n.d.).

Four elements exist that influence stigma toward drug abuse and its treatment, including 1) the belief that addiction is a choice instead of a treatable disease; 2) lack of association with addiction treatment in conventional medical facilities; 3) terminology associated with addiction (such as medically *assisted* treatment rather than the notion that MAT is the treatment itself); 4) and the lack of medical approaches used in criminal justice systems toward people with SUDs. Criminal justice officials' aversion to MAT is rooted in politics and moral opposition stemming from unfounded ideas that MAT introduces drugs into correctional settings, decreases deterrent effects, and increases recidivism (McMillan et al., 2008). Furthermore, criminal justice officials' views can stem from confirmation bias based on successes or failures they see from those who utilize MAT (Mitchell et al., 2016).

Even the medical system stigmatizes those on MAT by refusing to care for anyone on those medications (Wakeman & Rich, 2018). Using terms such as "substance abuser" can affect a practitioner's willingness to support treatment for OUD, compared to referring to the client as someone with a "substance use disorder"—even terms like "dirty" urine were recorded in medical records (Logan et al., 2019, p. 953). Van Boekel, Brouwers, van Weeghel, and Garretsen (2021) found negative attitudes towards clients with SUDs among healthcare providers who perceived the clients as violent, manipulative, and lacking in motivation. These attitudes reduced the quality of healthcare the patients received. The power of stigma has reached so far as recovery programs themselves; although patients can have protections from the Americans with Disabilities Act and Fair Housing Act, they are still rejected from outpatient and residential substance

abuse clinics if they are on MAT due to "philosophical incompatibility" with the clinic (Logan et al., 2019, p. 958).

Having a personal relationship with someone who is addicted can decrease stigma. Unfortunately, if the relationship has been strained and has created a burden for the non-addicted person, stigma will unfortunately persist. It is key to establish meaningful and positive relationships with people who are stigmatized to mitigate the effects of stigma (Indiana University, n.d.).

Witte et al., (2021) call for higher levels of public education regarding MAT that target potential root causes of stigma towards MAT. The authors identify possible reasons for the stigma, including misunderstanding of agonist medications, viewing methadone as a substitute or quick fix instead of legitimate treatment, or the stigma towards MAT is a byproduct of stigma towards drug-using behaviors. If more citizens, providers, and MAT candidates are not educated, MAT will inevitably become less widely available to those who could benefit from the treatment (Witte et al., 2021). One area specifically that finds itself especially lacking in crucial MAT education and viable treatment options for OUD (Moody et al., 2017), yet could benefit the most from the treatment, is Rural Appalachia. Thankfully, Kentucky has launched a public health campaign called Unshame KY that aims to spread awareness about OUD and reduce addiction-related stigma throughout the state (Unshame KY, n.d.). This provides hope that the state will receive the education about OUD it desperately needs to reduce stigma.

The literature regarding barriers to treatment unsurprisingly coincides with the How Problematic Client Specific Barriers Are scale, but also relates to Degree of Criticism Towards Drug Dependent Women, Degree of Negative Attitudes Towards

Clients Using MAT, and How Problematic Lack of Buy-in and Negative Views Are. As highlighted in the literature, there are multiple causes for barriers including negative views towards MAT itself and those who could utilize the medicine and the clear lack of buy-in towards MAT that is likely caused by skewed beliefs fueled by stigma. These scales will measure whether respondents even know if barriers to treatment or lack of buy-in to MAT exist in their area. Furthermore, these scales will examine how critical respondents themselves are towards MAT and clients who use it, which is a barrier to treatment itself, as shown in the literature.

Opioid Crisis and Treatment Struggles in Appalachia

Central Appalachia is home to trades that require much physical labor, like mining and logging. The more physical laborers who abide in an area, the greater the need for pain medication, making Central Appalachia more prone to issues with chronic pain and injuries occurring in the workplace (Keyes, Cerdá, Brady, Havens, & Galea, 2014; Moody et al, 2017). Interestingly, rural populations contain more elderly people than urban areas, thereby contributing to the overall greater need for pain medication than urban areas. This wide availability of opioid prescriptions could open avenues for more illegal markets, and it is possible that close kinship in rural areas could lead to wider drug distribution which influences social capital (Keyes et al., 2014).

Furthermore, the absence of economic opportunity due to shifting demands from manufacturing and low-wage jobs to high-skilled work has fueled poverty and unemployment that can likely influence drug abuse. This economic downturn is not felt as harshly in urban areas with wider job markets (Keyes et al., 2014). Although opioid prescription rates have declined recently, states including West Virginia, Kentucky, Ohio,

and Pennsylvania are still seeing prescription rates that exceed the national average and result in opiate-related deaths (Soergel, 2018).

FDA-approved painkillers such as Vicodin, OxyContin, and Percocet were marketed in places like Appalachia because pharmaceutical companies knew there would be high demand for the drugs, and there was little regulation regarding marketing patterns around these prescription painkillers. Combining unregulated marketing, high rates of chronic pain and injuries, more elderly populations, little opportunity for economic growth, and little public health education about the risks associated with taking opioid medication, Central Appalachia became a hotbed for readily accessible prescription opioids and, consequently, the abuse of these drugs (Keyes et al., 2014; Moody et al, 2017).

The problem with overly prescribed opioids in the Appalachian region is so bad that a special task force was created to tackle the problem, appropriately named the Appalachian Region Prescription Opioid (ARPO) strike force (United States Department of Justice, 2019). Doctors prescribe opioids far too often, and many times for personal financial gain—when a doctor prescribes an opioid, they gain a certain sum of money for every prescription. The following stories are two headline examples of the lengths that doctors will go to gain profit and the resulting catastrophes.

Dr. Katherine Hoover prescribed an excess of 300,000 opioid prescriptions in Williamson, WV, bordering just north of South Williamson, KY, and was blamed for the opioid crisis that began in Williamson. When she knew that the federal government was on her trail, she fled to the Bahamas. Unfortunately, she was never prosecuted (Siemaszko, 2018). In South Shore, Kentucky, Dr. David Proctor was known as the

Godfather of the Pill Mill who would give opioid prescriptions with no official diagnosis. He was eventually prosecuted and spent eleven years in prison while his large mansion is now being used to house recovering patients from their addictions (James, 2016).

In 2019, there were at least 73 others who were prosecuted for overly prescribing opioids in the Appalachian region, 64 of them being medical professionals, including several physicians. An April takedown by the ARPO strike force resulted in the guilty pleas of seven physicians, and eleven physicians were charged from a September takedown. It is estimated that, between April and September of 2019, more than 23 million pills were illegally distributed (United States Department of Justice, 2019). In 2020, two doctors in Eastern Kentucky were sentenced to prison resulting from efforts of the ARPO strike force (United States Department of Justice, 2021).

It is difficult for rural residents to gain access to treatment, despite the overwhelming need for treatment in rural areas (Amura et al., 2022; MacMaster, 2013). The US-South has reported some of the highest prescription rates of opioids for women and high rates of OUD despite having significantly less access to MAT (Leiner et al., 2021). According to an opioid overdose map by the National Opinion Research Center (NORC) (n.d.) at the University of Chicago, over half of Kentucky's Appalachian counties alone have an overdose death rate of 35 to 60 per 100,000 county residents. Overdose rates in eight Kentucky counties are 60 and over per 100,000 residents. The problem is even direr in West Virginia and southern parts of Ohio. It is important to note that most of these counties are considered rural and do not contain metropolitan regions.

Rural America experiences unique barriers in dealing with substance use disorders, one of the most prominent includes long distances to find treatment. Some

MAT candidates must drive 30 miles or travel for over an hour just to find MAT treatment centers, an issue that many urban MAT clients do not face (Amura et al., 2022; Kiang, Barnett, Wakeman, Humphreys, and Tsai, 2021).

Other barriers include mental health care and drug treatment being too complicated to navigate, a shortage of facilities and personnel, no interagency coordination and communication, insufficient capacity in rural hospitals to treat SUDs, no harm reduction programs, stigma among family and communities, little anonymity, lack of trust in health professionals, inescapable poverty from lack of education and other opportunities for economic growth, and little to no insurance coverage of these treatments (Leiner et al., 2021; Moody et al., 2017; Monnat & Rigg, 2018; Rural Health Information Hub, n.d.a.). Pregnant women with OUD in rural areas especially suffer from a lack of insurance—most of this impoverished population relies on public insurance programs that may end abruptly after pregnancy (depending on the state), meaning that treatment for their OUD only lasts through pregnancy and ends after the delivery (Leiner et al., 2021). Logan et al. (2019) state that "[t]he need for services greatly outweighs treatment availability, and integrating care and initiating evidence-based programs remains challenging in clinical settings. While patients struggle with accessing specialized services, providers in rural communities face parallel challenges in obtaining specialized training, mentoring opportunities, and ancillary support services." (p. 958).

Measures tapping into the rural struggle to access treatment include How Problematic Client Specific Barriers Are scale, Degree of Negative Attitudes Towards Clients Using MAT, and How Problematic Lack of Buy-in and Negative Views Are. Negative views towards clients who could use MAT has become problematic with the

opioid epidemic in Appalachia, and over prescription of medications by doctors has not decreased negative views by any means. It would make sense that medical professionals partially fueling the opioid epidemic themselves could cause a lack of buy-in and increased negative views towards MAT and those who could utilize the treatment.

Addressing the Gap in Literature

What we can gather from the literature presented here is the stigma toward MAT is strong, it is underutilized in populations who could benefit from treatment, it does not contribute to criminal activity as some might imagine, and rural populations are especially suffering from barriers to receiving treatment. Despite the vast discourse surrounding MAT, this thesis covers a subject lacking in the literature, namely stigma toward pregnant and postpartum women with OUD in Appalachia. Only two authors were found who specifically focus on women with OUD in rural Appalachia: Leiner et al. (2021), studied fears among pregnant women with OUD in southern Appalachia, and Staton et al. (2021) focused on implementing a trial program to improve access to MAT for women with OUD in urban and rural Kentucky jails—this program is still in its trial phase and no data exists of its effectiveness yet.

The literature is clear that stigma exists toward clients receiving MAT—little is known about why the stigma exists, although authors postulate that it largely stems from lack of education (Witte et al., 2021). There is little literature specifically focusing on stigma in rural areas, although particularly strong stigma towards pregnant women with OUD has been identified in at least one study (Leiner et al., 2021), and differences in rural culture in Kentucky compared to urban areas are documented in at least two studies (Moody et al., 2017; Weisheit & Wells, 1996). Furthermore, there is a problem with the

lack of education in rural Appalachia (Moody et al., 2017). As we will see in Bandura's Social Learning Theory, people from different occupational and cultural backgrounds across many regions will have vastly different experiences and have access to many different levels of education which could potentially affect how attitudes, whether negative or positive, are formed. The combination of lack of education and possession of a different culture compared to other geographical locations can likely explain the negative stigma towards pregnant women with OUDs that was identified in Leiner et al.'s (2021) study.

Theory of Social Learning

Albert Bandura's (1970) Social Learning Theory can explain the independent variables I have chosen to measure in this study. Bandura posits that humans do not develop behaviors from inward desires and drives alone—he posited that the complexity of human society had influenced how people behaved differently in certain social settings with certain people at certain times. Humans can learn through direct experiences, either having experiences themselves or learning through watching others' behaviors (typically ones with whom a person associates themselves and will learn from the most) and observing the consequences that inevitably proceed with said behaviors. We can formulate symbolic meanings from our observations and make decisions on how to regulate our future behaviors—when one places value on certain desirable outcomes, he or she will mold their behavior to attain those outcomes.

In a nation with a diverse, complex society containing various mores, folkways, politics, religious practices, and educational levels, it becomes clear that desired outcomes from performing certain behaviors can highly become dependent on one's

geographical location in which they reside. Even in a nation that can culturally differ drastically geographically, Bandura states that television captures audiences' attention so effectively, we begin to model our behavior after some televised figures regardless of whether there is an extra incentive to behave a certain way or not if we feel that the figure possesses desirable attributes. I would argue, roughly fifty years after Bandura wrote this piece, that media influence has become drastically more influential in nearly everyone's lives with the rise of social media outlets such as Facebook and Twitter. Everywhere we look, something is trying to influence how we think. It would make sense that humans can develop certain attitudes towards anything, including attitudes towards something like MAT, depending on your region of origin, your workplace, and education level.

Purpose of Current Study

Kentucky is a predominantly rural state that has been particularly affected by the opioid epidemic, especially in those counties located in the Appalachian region. It is more likely that Kentucky residents in the Appalachian region will die from an opioid overdose than in central and western counties (Estep, 2018). According to overdose data by the National Opinion Research Center (n.d.) at the University of Chicago, many of the areas affected by the opioid crisis are in Central Appalachia, including southern Ohio, southern West Virginia, and Eastern Kentucky. Noting the intensity of the opioid crisis in this region, the current study has chosen to focus on Kentucky.

There is bountiful literature discussing stigma towards MAT and clients with OUD. Unfortunately, the literature is scant when comparing attitudes towards specifically pregnant women with OUDs in urban and rural areas—just one article (Leiner et al., 2021) mentions rural stigma towards pregnant women. The primary objective of this

study seeks to fill this gap in the literature to focus on differences in rural attitudes toward pregnant and postpartum women.

The treatment centers at the focus of our study, and to whom the Substance Abuse and Mental Health Services Administration (SAMHSA) allocated grant funds, are the Bluegrass Pregnancy and Addiction Network located in Lexington (the urban location), and the Independence House located in Corbin (the rural location). The dependent variables in this study include Degree of Criticism Toward Drug Dependent Women, Degree of Negative Attitudes Toward Clients Using MAT, Degree of Positive Attitudes Toward Clients Using MAT, How Problematic Lack of Buy-In and Negative Views Are, and How Problematic Client-Specific Barriers Are. The independent variable is whether the region is rural or urban.

I hypothesize that there will be significant differences between the urban and rural regions on scales measuring attitudes toward MAT, and the rural region will display higher levels of negativity and criticism. I hope this study will increase awareness of negative attitudes towards MAT and mitigate the effects of stigma, leading to better OUD treatment access everywhere, especially in rural areas.

Methodology

SAMSHA launched the initiative Supporting Mothers to Achieve Recovery through Treatment and Supports (SMARTS) in 2015. This initiative sought to sought to pave the way for policy development that would lead to the implementation of evidence-based practices and provide accessible MAT for pregnant and postpartum mothers who needed treatment for OUD and co-occurring mental health disorders in two vulnerable regions of Kentucky: the Cumberland Region and the Bluegrass Region. There were a series of Comprehensive Opioid Response with the 12 steps (COR-12) training sessions for health care professionals and community members on the effectiveness of MAT. The assumption before conducting this research was that education levels during COR-12 training on the use of MAT would increase the level of positivity towards MAT and towards the women with OUD. Over three years, we used a mixed-methods approach using both qualitative and quantitative data to measure attitudes towards MAT. However, the focus of this current study is only on quantitative measures.

Study Sample

There were six regions from which data was collected, and those six regions were categorized as rural or urban. Pikeville and Cumberland are defined as rural, and Bluegrass, Frankfort, and Richmond are defined as urban. Respondent types included members of the health care profession, licensed and non-licensed substance treatment providers, community-based services, members of a criminal justice organization, faith-based organization, concerned citizen, volunteer, clients, and others. Some surveys had more information for certain respondent types—health care providers took the generic

survey, stakeholders of the grant took the stakeholder survey, and general community members took the community survey, the simplest of the three survey types.

Data Collection

Baseline (PRE) data were collected at in-person COR-12 training sessions and treatment facilities during focus groups via paper surveys. Each attendee wrote their name and email on a sign-in sheet for us to send them the follow-up survey. The paper surveys contained no personally identifying information, therefore the participants' identities remained anonymous from the survey they took. After everyone was seated, the primary investigator gave verbal instructions on how to fill out the survey if they opted into taking it voluntarily. Once surveys were completed, they were given to the graduate assistant assigned to the primary investigator during the grant. The responses were then recorded into SPSS, and the paper surveys were organized by date, location, and respondent type in a locked filing cabinet.

Follow-up (POST) survey data were collected via email anonymously on SurveyMonkey. There were written instructions included in the email on how to fill out the online survey. Reminder emails were automatically sent weekly for six weeks to respondents who had not completed the survey. Once surveys were completed, the results were accessible online and could be downloaded into SPSS excluding any personally identifying information; e-mails were not associated with any of the responses. Exceptions to these identifiers, however, were the respondent type and area they took the baseline survey.

Measures

The Cumberland Region and Pikeville are measured as rural while Richmond, Frankfort, and Bluegrass are urban. Whether an area is urban or rural is our only independent variable. The following dependent variables were measured on five-point Likert scales (1 = strongly disagree/not a problem at all to 5 = strongly agree/big problem) Degree of Criticism Toward Drug Dependent Women, Degree of Negative Attitudes Toward Clients Using MAT, Degree of Positive Attitudes Toward Clients Using MAT, How Problematic Lack of Buy-In and Negative Views Are, and How Problematic Client-Specific Barriers Are. The null hypothesis posits that there are no statistically significant differences in the level of MAT negativity between urban and rural regions.

Limitations

A limitation of this study is the low follow-up response rate from the participants. Of the 836 respondents who took the initial survey, only 22.5 percent took the follow-up survey. Many factors could have played into this low number including bounced emails likely from worker turnover during the three years of our study, our emails being filtered into spam folders (this occurred frequently during a trial period of sending test emails from SurveyMonkey), and the possibility that our email was not seen because a secure link may have been required for certain employees.

Results

Factor analysis and reliability measures (Cronbach's alpha) were conducted to establish the reliability and validity of the items and scales used in the survey; these analyses were completed prior to this thesis. There is a total of five scales in this study. Independent group t-tests were run to measure the significance between the independent variable and dependent variables. Using an alpha of .01, the five t-tests were run with a Bonferroni adjusted alpha level of .002; the statistical significance of each scale did not change after running the Bonferroni correction. Cronbach's alpha reliability values were overall very high for all except one scale: Degree of Criticism Toward Drug Dependent Women with a minimally acceptable $\alpha = .69$. The remaining scales displayed higher reliability values as follows: Degree of Negative Attitudes Toward Clients Using MAT ($\alpha = .88$), Degree of Positive Attitudes Toward Clients Using MAT ($\alpha = .73$), How Problematic Lack of Buy-In and Negative Views Are ($\alpha = .89$), and How Problematic Client-Specific Barriers Are ($\alpha = .93$).

Of the six regions, the survey data is comprised of 44.3 percent urban (N=375) and 55.7 percent rural (449) respondents (total N=806). As of 2020, rural residents comprise nearly 41 percent of Kentucky's 4,505,836 total residents (U.S. Department of Agriculture Economic Research Service, 2022).

Degree of Criticism Toward Drug Dependent Women

Using a five-point Likert scale ranging from "strongly disagree" (1) to "strongly agree," (5) we asked respondents to indicate their level of agreement with various statements about the Degree of Criticism Toward Drug Dependent Women. The scale was comprised of six survey items which can be seen below in table 1 (Q20 through

Q25). Percentages of response distributions are located to the right of each survey item, proceeded by the total number (N) of respondents who answered that question, the average (mean) response, and the standard deviation of that item. Because Q20, Q24, and Q25 were worded positively, they were recoded for accurate analysis.

Table 1: Degree of Criticism Toward Drug Dependent Women

Item	Factor Loading	1 = Strongly Disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly Agree	N	Mean	Standard Deviation
Q20 = Drug addiction is a treatable illness.	.65	60.1	32.1	6.0	1.0	0.8	784	1.50	0.724
Q21 = A drug dependent woman who has relapsed several times probably cannot be treated.	.61	55.9	31.8	7.3	3.2	1.7	803	1.63	0.886
Q22 = Drug dependent women are unpleasant to work with as patients.	.61	25.1	26.2	40.1	6.7	1.9	802	2.34	0.987
Q23 = Drug dependent women cannot be helped until they have hit "rock bottom."	.59	42.3	35.9	15.1	5.1	1.6	802	1.88	0.954
Q24 = I am supportive and nonjudgmental about pregnant and postpartum women with opioid and other substance use disorders.	.60	35.0	32.8	19.9	8.4	4.0	801	2.14	1.107
Q25 = I believe in practices and policies that are designed to reduce stigma, minimize barriers, and improve access to services and outcomes for pregnant and postpartum women with opioid and other substance use disorders.	.61	63.0	28.4	5.4	1.6	1.6	803	1.50	0.806

According to analysis, when all survey items on the Degree of Criticism Toward Drug Dependent Women scale are averaged, the respondents' composite score is 1.83 (between "strongly disagree" and "disagree"). An independent-samples t-test was conducted to compare the Degree of Criticism Toward Drug Dependent Women in urban and rural regions. There is a statistically significant difference in the scores between

urban (M=1.71, SD=.58) and rural (M=1.93, SD=.56) regions; t(803)=-5.4, p=.000. The rural region's composite score of 1.93 is greater than the average score (1.83) and the urban region's composite score (1.71), indicating a higher Degree of Criticism Towards Drug Dependent Women. As previously indicated, the Cronbach's alpha for this scale is minimally acceptable ($\alpha = .69$).

Degree of Negative Attitudes Toward Clients Using MAT

Using a five-point Likert scale ranging from "strongly disagree" (1) to "strongly agree," (5) we asked respondents to indicate their level of agreement with various statements about the Degree of Negative Attitudes Toward Clients Using MAT. The scale was comprised of thirteen survey items which can be seen below in table 2 (Q26-31, Q33, Q35-36, Q38-40, and Q45). Percentages of response distributions are located to the right of each survey item, proceeded by the total number (N) of respondents who answered that question, the average (mean) response, and the standard deviation of that item.

Table 2: Degree of Negative Attitudes Toward Clients Using MAT

Item	Factor Loading	1 = Strongly Disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly Agree	N	Mean	Standard Deviation
Q26 = Medication-assisted treatment increases accidental opioid overdoses.	.47	18.6	28.7	33.3	15.1	4.3	800	2.58	1.084
Q27 = Medication-assisted treatment is used by opioid dependents to get high.	.70	10.8	25.3	37.7	21.8	4.5	799	2.84	1.028
Q28 = Medication-assisted treatment worsens the opioid epidemic.	.82	24.5	30.6	30.8	12.0	2.1	800	2.37	1.044
Q29 = Addicts use medication-assisted treatment to sample it.	.70	18.8	27.1	41.4	10.9	2.0	801	2.51	0.980
Q30 = Medication-assisted treatment discourages seeking professional help.	.70	25.1	39.3	24.8	8.3	2.5	797	2.24	1.000
Q31 = Medication-assisted treatment is used for self-treatment.	.56	14.6	21.9	36.3	22.9	4.3	800	2.84	1.518
Q33 = Medication-assisted treatment is used if clients cannot get drug of choice.	.71	16.3	29.1	31.5	19.3	3.9	800	2.65	1.082
Q35 = Medication-assisted treatment is used because it is cheaper than treatment.	.62	19.3	29.9	39.7	8.7	2.4	796	2.45	0.976
Q36 = Most addicts have tried medication-assisted treatment before.	.54	13.5	27.4	44.0	12.6	2.5	800	2.63	0.952
Q38 = Clients use medication-assisted treatment to network for better access to drugs.	.73	17.2	30.7	39.0	11.7	1.5	798	2.50	0.958
Q39 = Medication-assisted treatment is over used.	.74	15.9	28.6	32.4	16.9	6.3	800	2.69	1.116
Q40 = Clients that use medication-assisted treatment seem to have more physical problems and issues with detoxification.	.63	14.3	28.5	43.8	11.0	2.4	797	2.59	0.945
Q45 = The most effective way to treat opioid dependency is through an abstinence-based program.	.49	8.6	18.1	49.3	18.8	5.1	799	2.94	0.958

According to the analysis, when all survey items on the Degree of Negative Attitudes Toward Clients Using MAT scale are averaged, the respondents' composite score is 2.59 (between "disagree" and "neutral"). An independent-samples t-test was conducted to compare the Degree of Negative Attitudes Toward Clients Using MAT in

urban and rural regions. There is a statistically significant difference in the scores between urban (M=2.37, SD=.63) and rural (M=2.78, SD=.65) regions; t(803)=-9.1, p=.000. The rural region's composite score of 2.78 is greater than the average score (2.59) and the urban region's composite score (2.37), indicating a higher Degree of Negative Attitudes Towards Clients Using MAT. As previously indicated, the Cronbach's alpha for this scale is relatively high ($\alpha = .88$).

Degree of Positive Attitudes Toward Clients Using MAT

Using a five-point Likert scale ranging from "strongly disagree" (1) to "strongly agree," (5) we asked respondents to indicate their level of agreement with various statements about the Degree of Positive Attitudes Toward Clients Using MAT. The scale was comprised of seven survey items which can be seen below in table 3 (Q32, Q34, Q37, and Q41-44). Percentages of response distributions are located to the right of each survey item, proceeded by the total number (N) of respondents who answered that question, the average (mean) response, and the standard deviation of that item.

Table 3: Degree of Positive Attitudes Toward Clients Using MAT

Item	Factor Loading	1 = Strongly Disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly Agree	N	Mean	Standard Deviation
Q32 = Medication-assisted treatment is used to prevent withdrawal.	.26	2.9	8.5	20.7	52.3	15.6	799	3.69	0.932
Q34 = Medication-assisted treatment helps clients engage in recovery.	.71	0.9	5.8	19.5	50.1	23.8	799	3.90	0.856
Q37 = Clients need medication-assisted treatment to avoid cravings and other suffering that causes issues in treatment.	.61	2.5	8.9	28.2	47.8	12.6	800	3.16	0.907
Q41 = Medication-assisted treatment clients are easier to track toward abstinence.	.60	2.1	10.4	50.3	32.2	5.0	798	3.28	0.798
Q42 = Medication-assisted treatment is less likely to be abused.	.56	8.0	27.0	36.9	24.0	4.0	799	2.89	0.990
Q43 = Medication-assisted treatment offers a sense of normalcy to clients physically in a safe and monitored way.	.75	1.5	5.2	27.6	50.5	15.2	802	3.73	0.836
Q44 = The most effective way to treat opioid dependency is through medication-assisted treatment.	.73	4.4	12.8	50.4	27.1	5.4	800	3.16	0.873

According to analysis, when all survey items on the Degree of Positive Attitudes Toward Drug Dependent Women scale are averaged, the respondents' composite score is 3.46 (between "neutral" and "agree"). An independent-samples t-test was conducted to compare the Degree of Positive Attitudes Toward Clients Using MAT in urban and rural regions. There is a statistically significant difference in the scores between urban (M=3.58, SD=.52) and rural (M=3.36, SD=.55) regions; t(803)=5.7, p=.000. The urban region's composite score of 3.58 is greater than the average score (3.46) and the rural region's composite score (3.36), indicating a higher Degree of Positive Attitudes Toward

Clients Using MAT. As previously indicated, the Cronbach's alpha for this scale is relatively high ($\alpha = .73$).

How Problematic Lack of Buy-In and Negative Views Are

Using a five-point Likert scale ranging from "not a problem at all" (1) to "very big problem," (5) we asked respondents to indicate their level of agreement with various statements about How Problematic Lack of Buy-in and Negative Views are. The scale was comprised of seven survey items which can be seen below in table 4 (Q47 through Q53). Percentages of response distributions are located to the right of each survey item, proceeded by the total number (N) of respondents who answered that question, the average (mean) response, and the standard deviation of that item.

Table 4: How Problematic Lack of Buy-In and Negative Views Are

Item	Factor Loading	1 = Not a Problem at All	2 = Minor Problem	3 = Moderate Problem	4 = Big Problem	5 = Very Big Problem	N	Mean	Standard Deviation
Q47 = Lack of community awareness.	.80	5.5	7.3	22.8	35.3	29.2	798	3.75	1.116
Q48 = Lack of community buy-in.	.75	4.4	6.5	19.3	36.8	33.0	798	3.87	1.079
Q49 = Lack of buy-in from health care providers.	.82	9.3	11.8	33.6	31.2	14.1	797	3.29	1.132
Q50 = Lack of buy-in from substance abuse treatment providers.	.68	13.0	21.4	28.1	27.5	10.1	795	3.00	1.188
Q51 = Lack of buy-in from support services.	.86	9.9	14.7	34.1	28.2	13.0	797	3.20	1.145
Q52 = Lack of buy-in from others (please specify).	.65	24.2	7.1	29.6	20.4	18.8	496	3.02	1.413
Q53 = Negative views of medicated-assisted treatment.	.80	4.7	6.8	20.3	37.8	30.4	793	3.82	1.082

According to analysis, when all survey items on the How Problematic Lack of Buy-in and Negative Views Are scale are averaged, the respondents' composite score is 3.46 (between "moderate problem" and "big problem"). An independent-samples t-test was conducted to compare How Problematic the Lack of Buy-in and Negative Views Are in urban and rural regions. There is a significant difference in the scores between urban (M=3.58, SD=.84) and rural (M=3.36, SD=.89) regions; t(798)=3.5, p=.000. The urban region's composite score of 3.58 is greater than the average score (3.46) and the rural region's composite score (3.36), indicating higher levels of agreement with How Problematic Lack of Buy-in and Negative Views Are. As previously indicated, the Cronbach's alpha for this scale is relatively high ($\alpha = .89$).

How Problematic Client-Specific Barriers Are

Using a five-point Likert scale ranging from "not a problem at all" (1) to "very big problem," (5) we asked respondents to indicate their level of agreement with various statements about How Problematic Client-Specific Barriers Are. The scale was comprised of four survey items which can be seen below in table 5 (Q54 through Q57). Percentages of response distributions are located to the right of each survey item, proceeded by the total number (N) of respondents who answered that question, the average (mean) response, and the standard deviation of that item.

Table 5: How Problematic Client-Specific Barriers Are

Item	Factor Loading	1 = Not a Problem at All	2 = Minor Problem	3 = Moderate Problem	4 = Big Problem	5 = Very Big Problem	N	Mean	Standard Deviation
Q54 = Clients having transportation issues.	.92	5.0	6.8	20.9	33.2	34.2	799	3.85	1.118
Q55 = Clients having housing issues.	.95	5.1	5.4	21.5	37.8	30.2	797	3.83	1.080
Q56 = Clients having child care issues.	.94	5.1	5.3	19.1	38.8	31.7	799	3.87	1.079
Q57 = Clients lacking family support.	.89	4.4	3.9	14.9	38.8	38.0	797	4.02	1.040

According to analysis, when all survey items on the How Problematic Client-Specific Barriers Are scale are averaged, the respondents' composite score is 3.89 (between "moderate problem" and "big problem"). An independent-samples t-test was conducted to compare How Problematic Client-Specific Barriers Are in urban and rural regions. There is not a significant difference in the scores between urban (M=3.94, SD=.92) and rural (M=3.85, SD=1.02) regions; $t(797)=1.3$, $p=.205$. The urban region's composite score of 3.94 is greater than the average score (3.89) and the rural region's composite score (3.85). Although it cannot be said with a significant degree of certainty, these numbers indicate higher levels of agreement with How Problematic Client-Specific Barriers Are in the urban region. As previously indicated, the Cronbach's alpha for this scale is relatively high ($\alpha = .93$).

Discussion

As expected, results indicated that the null hypothesis should be rejected—there are significant differences between the urban and rural regions on scales concerning attitudes toward MAT, specifically regarding levels of criticism and MAT negativity. Rural regions displayed significantly higher levels of criticism and negativity while the urban region showed greater levels of positivity toward MAT and indicated higher levels of agreement that lack of buy-in regarding the use of MAT is problematic. There were no statistically significant differences between the two regions on how problematic client-specific barriers are.

Degree of Criticism Toward Drug Dependent Women ($p<.001$) lines up well with Leiner et al.'s 2021 study regarding stigma specifically toward pregnant women with OUDs in rural Appalachia. We see bountiful literature looking at the Degree of Negative Attitudes Toward Clients Using MAT ($p<.001$) where criminal justice officials (McMillan et al., 2008; Mitchell et al., 2016) and healthcare providers (Logan et al., 2019; Van Boekel et al., 2021; Wakeman & Rich, 2018) negatively view MAT and those on using the medication. Although there is not specific literature regarding the Degree of Positive Attitudes Toward Clients Using MAT ($p<.001$), multiple organizations such as the American College of Obstetricians and Gynecologists (ACOG) and the National Commission on Correctional Health Care (NCCHC) view MAT to be the best medicine to treat pregnant women with OUD (Peeler et al., 2019). Furthermore, Logan et al. (2019) and Rawson et al. (2019) both found decreased stigma and improved mental health in patients when treatment options for OUD were integrated into rural primary care settings. We can see in the literature How Problematic Lack of Buy-in and Negative Views Are

($p<.001$), especially in rural Indiana where there is pushback from community members who do not want MAT programs in their communities (Indiana University, n.d.). This can also be seen in community corrections where various criminal justice professionals refuse to allow the use of MAT (Mitchell et al., 2016).

Bandura's Social Learning Theory offers logical explanations that satisfy these results. Per the literature and survey responses, there is a lack of education on MAT, its efficacy, and the clients who can benefit from MAT, and this lack of education is largely what drives the controversy surrounding MAT. This lack of education can stem from many causes including, but not limited to, isolation (especially in rural areas); beliefs about addiction; and lack of resources for treatment (Hsu, 2016; Moody et al., 2017; Witte et al., 2021).

These barriers all heavily affect rural regions which further facilitates negative stigma towards MAT. Referencing Bandura, people learn societal norms through experiences either themselves or by observing others, seeing the consequences of those behaviors, and through television and arguably social media. Noting the heavy impact of illicit opioids in the Appalachian region, little funds for valid treatment centers, and overly prescribed opioids, it is easy to see how these factors promulgate personal or indirect negative experiences, generating negative attitudes towards MAT as reflected in the results.

Regarding the "How Problematic Client-Specific Barriers Are" scale, there were no significant differences between the urban and rural regions—this can be explained. There are problematic client barriers in both urban and rural settings, even though these barriers might look differently depending on the geographic location. Despite the

differences in what the barriers might look like, they still prevent potential candidates from gaining access to MAT who could greatly benefit from the medication and the accompanying mental health treatment. Furthermore, it is possible that respondents could be thinking of these barriers in a more general sense that affect most of the population, not just pregnant and postpartum women with OUD.

The analyses in this thesis provide evidence that negative attitudes towards MAT are prevalent in rural Appalachia; the implications of this evidence could lead to the knowledge that overwhelming work is required to reduce stigma through increased education of what OUDs are and how MAT can help overcome addiction, especially for pregnant and postpartum women. This research sheds light on a highly problematic yet overlooked issue and can be used to concentrate efforts in areas that desperately need policy changes to open more avenues for effective OUD treatment options.

Due to the low follow-up rate from respondents following the COR-12 trainings, this study cannot confirm with statistical significance that education improved negative views of MAT in either rural or urban areas of Appalachia. Had more respondents filled out follow-up surveys regarding their attitudes towards MAT, the findings could have added crucial discourse regarding education and stigma of MAT in rural and urban Appalachia. Furthermore, this study focused on pregnant and postpartum women with OUD and cannot be generalized to include attitudes towards all clients who use MAT. Further research is recommended on this topic to quantify whether battling stigma with education would benefit Appalachia and include more client types.

Summary

This thesis attempted to answer the question of whether rural areas of the Appalachian region held higher levels of negative attitudes towards MAT and those who utilize the medicine to treat OUD, specifically pregnant and postpartum women, and the short answer is yes. Findings displayed statistically significant differences between urban and rural areas ($p<0.001$) in all scales except for one, How Problematic Client Specific Barriers Are. While this thesis cannot identify the cause for these differences, it can speculate why these differences exist. Based on the current literature, the most logical explanation for these differences is that education levels and cultural beliefs based on inaccurate representations of MAT likely influence negative attitudes toward pregnant and postpartum women with OUD who use MAT, and MAT itself. This is highly problematic as prescription and illicit opioid abuse have disproportionately taken their toll in rural Appalachia that contain some of the highest rates of opioid prescriptions and deaths compared to the whole nation. This comes as no surprise given the demand for painkillers, the lack of access to healthcare facilities, poverty, isolation, and the barriers that come with living in a rural geographical location (Amura et al., 2022; Keyes et al., 2014; Leiner et al., 2021; Moody et al., 2017).

There are many barriers preventing populations who could benefit from MAT from accessing treatment, but Appalachia faces many unique infrastructural, economic, social, and educational barriers unique to the area. Per the findings of this study, it is evident that negative attitudes are especially prevalent in rural areas compared to urban areas. It can be speculated that part of this stigma stems from a lack of education on the

efficacy of MAT. Unfortunately, these are speculations based on literature and are not measured in this study.

Many people, including treatment providers, criminal justice professionals, and other citizens, dangerously view MAT as substituting one drug for another, despite the evidence supporting the efficacy of the medicine to prevent severe withdrawal symptoms (Hewell et al., 2017), decrease the severity of NAS in babies born to women with OUD (Lund et al., 2013), and overall being considered the best treatment for pregnant women with OUD (Peeler et al., 2019). If nothing is done to increase education about MAT and the people who could benefit from it, negative attitudes could continue to perpetuate the opioid epidemic and lead to unnecessary deaths resulting from untreated OUD. Future studies should explore predictors of these negative attitudes and whether increasing education on MAT and clients using MAT would help reduce this stigma or not. Furthermore, it is evident that mothers are fearful of seeking treatment due to CPS involvement; it is crucial to create policies that would alleviate this fear so mothers will seek treatment and break the cycle of addiction for their children. Additionally, it is vital to establish more MAT-specific clinits, or that MAT is offered in general clinics to increase access in highly rural areas without adequate transportation. Lastly, MAT needs to be covered by insurance so mothers and many others can afford treatment so their suffering will end.

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