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OPIOID USE TREATMENT WAITLIST EFFECTS ON ENGAGEMENT

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Abstract

Purpose of Project: Opioid use disorder is a chronically relapsing disorder requiring multiple attempts with treatment: that is why the ability to access treatment is so important. Barriers for accessing treatment directly impact outcomes due to higher risks for mortality and discouragement of seeking treatment. Wait time is a commonly studied barrier associated with unsuccessful treatment entry. Wait times can average a month or more for treatment entry. The purpose of this project was to explore the relationship between opioid use treatment waitlist experience and treatment outcomes.

Methodology: This correlational pilot project took place in a small outpatient medication assisted treatment program in an urban city in New Jersey. A total of 25 male and female participants at least 18 years of age were recruited. Participants engagement was recorded across 30 days. The outcome measures included waitlist, resilience, and engagement. A waitlist survey examined the number of waitlist occurrence, denial of treatment entry, and feelings of depression and anxiety. Self-esteem, self-efficacy, intellect, religiosity/spirituality, optimism, and family support were used as factors for measuring resilience. Treatment engagement included urine toxicology screens and group attendance.

Results: Due to the COVID-19 pandemic participant recruitment was halted and there was a decrease in participant engagement. Most of the participants had at least one experience of delayed treatment entry. Nearly all participants reported experiencing depression, anxiety, withdrawal, or no cessation of opioids while waiting to enter treatment.

Implications for Practice: In order to effectively improved outcomes as an Advanced Practice Nurse treating individuals with opioid use disorder the following nursing practices will be beneficial; obtaining a waiver to practice opioid dependency treatment, monitoring signs and

symptoms of anxiety and depression, targeting women in treatment for retention purposes, retraining resilience skills, and meeting individuals were they are by using harm reduction as a model for participants who are having difficulties with buprenorphine compliance.

Introduction

Nationally the opioid crisis has negatively impacted individuals by way of increased-prescriptions, illicit abuse, addiction, and overdoses (National Institute on Drug Abuse [NIDA], 2017). Opioid misuse is an ongoing concern due to continued misuse of prescription opioids and use of substances like heroin and fentanyl. This concern regarding opioid use has been linked to a rise in unsafe prescribing practice nationally of opioids dating back to the 1990's coupled with a lack of health systems and providers to identify and treat individuals with evidence-based treatment practices (NIDA, 2017). Prescription opioid misuse is important because a quarter of individuals with opioid prescriptions for chronic pain end up misusing them (NIDA, 2019a). In fact, 80% of individuals who use heroin started by misusing prescription opioids (NIDA, 2019a). Individuals from 25-54 years of age are the highest group affected by opioid overdoses. In the United State there is a steady increase in health care issues surrounding the opioid crisis such as neonatal syndrome, hepatitis C infections, opioid related emergency room visit, and overdoses (NIDA, 2017). One hundred and thirty people die daily in the United States due to opioid overdoses (NIDA, 2019a). The misuse of opioids is a major epidemic yet individuals with substance use disorders experience ongoing issues with treatment entry. One of the major issues surrounding treatment is the inability to identify and engage individuals in a way that provides high quality opioid addiction treatment (NIDA, 2017). This project will address one of the major barriers to treatment access: the treatment waitlist experience, which can last a month or more (Guitar, 2017; Redko, Rapp, & Carlson, 2016).

Background and Significance

There are about 21.7 million individuals suffering with substance use disorder who need treatment, but only 2.3 million of those individuals had received treatment (NIDA, 2019a). The Substance Abuse and Mental Health Services Administration [SAMHSA] similarly reported that 21.2 million people aged 12 and older needed substance use treatment, and a total of 3.7 million individuals had received treatment that year (SAMHSA, 2018). Of those individuals 2.4 million were treated at a specialty facility (SAMHSA, 2018). Of the individuals seeking treatment 70-80 % disengage during 1 of 3 phases of entering treatment (Loveland & Driscoll, 2014). Those three phases include, waiting to initiate an assessment appointment, waiting to be assessed for treatment and waiting to enter treatment (Loveland & Driscoll, 2014). With average wait times of 4- 44 days from initial request for services to actual treatment entry, it is clear why disengagement is 50% before individuals are connected to treatment services (Loveland & Driscoll, 2014; Abrahamsson, Westlake, & Wooten, 2015).

In 2018, a total of 2 million individuals 12 years of age and older were classified as having an opioid use disorder (SAMHSA, 2018). Of those individuals 19.7% had received specialty treatment (SAMHSA, 2018). With opioid use specifically, 47,000 people died of opioid related overdoses in 2018 (NIDA, 2019a). Understanding the severity of opioid use disorder regarding overdoses requires health care practitioners focus on treatment programming. Ninety-five percent of individuals who failed at seeking treatment believed they did not need treatment for their substance use (SAMHSA, 2015a). By acknowledging such a large percentage of individuals with substance use disorder not engaging in treatment, this project focus is on barriers for treatment linkage. The difference between the number of people who are getting treatment and those with substance use disorder suggests that there are not enough services

available (SAMHSA, 2015a). Which is a contributing factor for extended waiting times to enter treatment. Consequently, understanding this barrier associated with treatment entry is important for reaching this population suffering with opioid use disorder.

One major contribution to decreased treatment engagement is wait time for treatment entry. Some individuals may decrease use or become abstinent of opioid use and feel they do not need the treatment anymore; but a larger number of individuals become discouraged and fail to follow through with treatment, thereby continuing their substance use behavior when a wait time is required (Guitar, 2017). There are many contributing factors affecting treatment waiting experiences, such as motivation for treatment, retention, resilience, and availability of treatment options. This project will also focus on resilience which is defined as the ability to bounce back from adversity (Rudzinski, Mcdonough, Gartner, & Strike 2017). This is a valuable factor because when measuring resilience predictions can be made of treatment outcomes (Bonfilgio, Renati, Pessa, & Penna 2018).

This project will examine individuals in a city of New Jersey who are actively being treated for their opioid use disorder with medication-assisted treatment (MAT) in an outpatient setting. The goal is to explore the relationship between treatment wait time and treatment engagement. The ability to engage positively in treatment despite wait list experience reflects resilience. The project will measure resilience scores of the individuals who participate in this New Jersey outpatient medication assisted treatment program. Medication- assisted treatment is used to help individuals reduce or quit the use of heroin and other opiates. This project will focus on the use of buprenorphine-naloxone as the treatment option, due to the ability to be prescribed and administered outside of a structured clinic setting (SAMHSA, 2015a). It is offered in conjunction with a comprehensive treatment plan, which includes counseling and support

programs. The benefits of buprenorphine as a form of medication assisted treatment is that there is a lower risk of misusing the medication, while decreasing physical dependency of opioids, and acting as protection against overdose (SAMHSA, 2015a).

Needs Assessment

Substance use affects overall health and the economy. As mentioned previously, nearly 47,000 individuals died from an opioid related overdose in 2018 in the US (NIDA, 2019a). Different regions are impacted more than others. Drug related overdoses in the state of New Jersey is nearly 31 deaths per 100,000 people which is much higher than the national average of 21.7 deaths per 100,000 (NIDA, 2019b). Considering the high overdose averages for New Jersey, attention is needed regarding their addiction treatment services. In addition to the lives that are lost by overdose, there are other costs to consider which directly affect the economy. Those costs come in the form of loss productivity, cost of addiction treatment, and cost of criminal justice involvement, which adds up to nearly 80 billion dollars a year (NIDA, 2019a). Opioid use continues to be a problem of local and national importance.

The Centers for Disease Control and Prevention (CDC) has developed multiple programs to prevent misuse, overdose, and death at the state and local community levels (CDC, 2017). The implementation of drug monitoring programs and the regulation of controlled substances are in place throughout the country. Prescribers and associated health care systems carry the responsibility for encouraging safe and effective opioid prescribing protocols (CDC, 2017). There are campaigns educating consumers and prompting awareness of opioid misuse (CDC, 2017). There are also the partnerships with public safety individuals to decrease the use of illicit drugs. First responders have been trained on treating drug overdoses (CDC, 2017).

The United States Department of Health and Human Services (DHHS) have focused attention on 5 additional priorities of the opioid crisis. These priorities include: 1. Improving access to treatment and recovery resources; 2. Promoting use of overdose-reversing drugs; 3. Strengthening the understanding of the epidemic through better public health surveillance; 4. Providing support for research on pain and addiction; and 5. Advancing practices for pain management (NIDA, 2019a & NIDA, 2017). This project will focus on priority one; exploring access to treatment and recovery resources as they relate to the dilemma of treatment waitlist experience. With the implementation of the multisystem fight against the opioid crisis with attention to resources, education, research and management of treatment, there is still an issue with treatment access to wait times being a major barrier (Guitar, 2017).

To date there are a total of fifty-one opioid treatment programs in the state of New Jersey according to the SAMHSA treatment directory providing different forms of medication assisted treatment (SAMHSA, 2015b). A search of the SAMHSA opioid treatment program directory found two outpatient treatment programs in the city of interest for this project. This may not represent all the available programs in the city of interest because such information does not have to be publicly accessible, but this brings further attention to the ability to access treatment when a search for information is that limited (SAMHSA,2015b). Both programs advertised no waitlist. At thirty-five overdose related deaths per 100,000 people for a total of 390 opioid related overdose deaths in Essex county for 2018, 2 outpatient treatment programs are not enough for the city of interest in New Jersey (NJcares, 2019). No data is available about specific overdose related deaths in Newark, New Jersey, because such data is only available by county, but with limited resources for treatment, individuals will continue to use and continue to die of

overdose related deaths. Wait times cannot continue to function as a barrier into treatment for substance use disorders.

This project will explore participant engagement in a new outpatient program in an inner city of New Jersey. This outpatient program is significant because it is one of the few available outpatient programs offering medication assisted treatment in the city of interest. Medication assisted treatment is the use of medication to overcome the use of opioids while relieving withdrawal symptoms and stopping psychological cravings (SAMHSA, 2015b). Medication assisted treatment is effective because it combines medication with behavioral therapy to treat substance use disorders (SAMHSA, 2015b). Many of the medication assisted treatment options are controlled substances, the medications include methadone, buprenorphine, and naltrexone (SAMHSA, 2015b). Medication assisted treatment is a beneficial program because they can be easily accessible to the community. The outpatient clinic used for participant recruitment is a new program that is easily accessible. Due to the accessibility, the clinic is reaching capacity and enrollment has slowed significantly. This project will likely reflect the effectiveness on treatment engagement of the outpatient clinic, suggesting the continued need for similar programs. In the interim, there is a need to refer participants to other programs when availability is not present for current programs, which creates a waiting period for receiving addiction services. However, this clinic is effective with managing waitlist as it offers bridge treatment during the gap in services. As discussed, waiting for treatment is detrimental for individual's substance use behaviors. Understanding the strengths, weakness, opportunities, and threats discussed about this program will help guide this project. There is ongoing literature determining which individuals are at greater risk for waitlist drop- out, but more needs to be done to decrease

substance use treatment waiting experience altogether (Guitar, 2017). This project will look to nursing implications for improving the waitlist experience.

Problem Statement

At any moment one million people may be waiting for substance use treatment (Guitar, 2017). The number one reason why individuals fail to seek treatment has been related to wait-listing (Guitar, 2017). The first 24 hours of initiating the desire to get into treatment is a critical time (Redko, Rapp, & Carlson, 2016). Individuals who received same day access to an assessment or treatment were significantly more likely to follow through with the appointment (Loveland & Driscoll, 2014). However, the average wait time for treatment is one month; during that waiting period about 50% of the people who are on a wait list will remove themselves and not obtain substance use treatment during that attempt within the second week of waiting (Guitar, 2017). Patients seeking treatment will find that they often encounter waiting list and delays between the day treatment is requested and the day of entering treatment (Choi, Hoffman, Kim, & McCarty, 2013). This waiting period can occur in phases. Individuals may experience a waiting period prior to being assessed for treatment and then again once referred to a treatment program (Redko et al. 2016). Being forced to wait for treatment leads to psychosocial distress. This inhibition to access treatment can also result in discouraging patients from attending to their addiction treatment as they lose the desire to seek treatment at that time. (Choi et al. 2013). Consequently, failure to access treatment during that critical treatment readiness time is a major barrier. Those failures are missed opportunities for a decrease in opioid use or complete abstinence because the inability to access treatment is related to increased substance use (Guitar, 2017).

The Network for the Improvement of Addiction Treatment practices resulted in a reduction of days to enter treatment from 19.6 days to 12.4 days (Choi, et al 2013). An improvement in treatment retention also resulted from the NIATx practices (Choi, et al. 2013). That treatment retention also helped to improve long term engagement across outpatient and intensive outpatient settings (Choi, et al. 2013). This program was designed to improve access and retention for any behavioral health setting across the country. To promote these changes in practice, the program aims include: reducing wait times (that is the time between requesting treatment and that treatment session), reducing the number of patients that do not follow through with appointments, increasing admissions to treatment, and increasing treatment continuity (Network for the Improvement of Addiction Treatment National Program [NIATx], n.d). These are the practices for treatment services that may improve outcomes by targeting multiple treatment entry barriers. However, the focus of this project is on waitlist as a barrier for treatment entry.

PICOT Questions

In adults receiving treatment for opioid use disorder is there a relationship between treatment waitlist experience (number of waitlist occurrence, withdrawal symptoms, and treatment denial) and engagement (buprenorphine positive urine drug screens and group attendance) when measured for thirty- days?

In adults receiving treatment for opioid use disorder is there a relationship between treatment waitlist experience, resilience score, and engagement when measured for thirty-days?

Aims & Objectives

The aim of this project is to explore the relationship between substance use treatment access for participants with opioid use disorder and their experience with treatment wait times and resilience, which may influence treatment outcomes. The objectives of this project are:

1. To assess themes of substance use treatment waitlist experience.
2. To critically assess resilience as a protective factor against waitlist experiences.
3. To evaluate current opioid use treatment engagement in a New Jersey outpatient clinic setting.
4. Identify nursing implications to improve opioid treatment in NJ.

Review of Literature

The first step of the literature review search started by using Rutgers library database collection, including: CINAHL, Academic Premier, and PubMed. The key search phrase was, "substance use disorder treatment waiting times". To narrow down the search, peer reviewed, and publication dates from 2013-2019 was used. A return of 3145 articles came back for review. Four additional articles were retrieved from primary search articles references list. Fifty articles were screened of which 40 articles were excluded and 10 articles assessed as eligible. The PRISMA flow diagram below, Appendix A illustrates the search. An evidence table of articles used in the review can be found in Appendix B.

This project is interested in exploring the relationship between waitlist experience as a major barrier for treatment, resilience, and treatment engagement. Wait-listing is a problem largely due to issues with treatment availability (Guitar, 2017 & Choi et al. 2013). This section of the paper will discuss the issues related to treatment facilities accessibility. How limited resources and timely placement processes causes an increase in treatment waiting time will be explored. We will review ways that treatment has been made accessible when the waitlist barrier is present in the

form of interim treatment. With so many efforts to address the waitlist barrier this project will examine the relationship between the waitlist experience and treatment engagement. For this project, treatment engagement will be measured by individual's participation in treatment and will include group attendance and urine drug screens which are conducted at each group appointment. Demonstrating that waitlist experience may have a relationship with treatment engagement in ways that negatively impacts participants' recovery, this section will focus on the need for treatment programing such as rapid access, interim treatment, and especially outpatient programs like the clinic used for the current project.

Factors Contributing to the Wait

Facility availability. Lack of treatment availability is problematic for individuals dealing with substance use disorder. In fact, lack of outpatient availability for treatment has been linked to increased emergency room visits for substance use disorder related issues (Andrews et al. 2016). When two or more treatment facilities were accessible in a county in South Carolina, there was a decrease in the number of repeat Emergency Department (ED) visits for substance use disorder (Andrews et al. 2016). The findings illustrated the need for more addiction services. Some counties in this South Carolina study had 4 treatment programs that accepted Medicaid while others only had one, and with just one substance use treatment center in the county, the next safest place for help with substance use related crisis was the ED (Andrews et al. 2016). While the study did not directly measure treatment waitlist experience, it indirectly illustrated availability for treatment as an ongoing issue. Having fewer treatment facilities available forces patients into the ED when more substance use treatment is what is really needed.

As stated, there has been an increase in opioid related overdoses nationally in 2018 (NIDA, 2019a). Substance use related deaths in the state of New Jersey continues to increase,

averaging nearly 31 drug overdose related deaths per 100,000 in 2017 (NIDA, 2019b). In 2017 there were over 1000 related hospital visits for heroin use and prescription opioid related diagnosis in the state of New Jersey (Department of Health, n.d.a). Despite those hospital visits there were nearly 2737 opioid related deaths in the state of New Jersey in 2017. (Department of Health, n.d.b). Essex county of New Jersey had nearly 370 opioid related deaths in 2017 (Department of Health, n.d.b). No data is available for Newark, alone. Although there is a major concern with opioid use and related deaths in New Jersey, there is no literature specific to accessibility or waitlist experiences. This project will focus on this gap in the literature. Having fewer treatment facilities available is only one issue that influences waitlist experience. Increasing access to more treatment programs illustrates an effective way of combating treatment barriers; however, sometimes a lack of resources is not the only barrier.

Timely linkage. Hospital visits for substance use related concerns brings attention to the issue of timely access for treatment. The development and implementation of an online database granting accessible treatment venues to providers working with individuals seeking substance use disorder (SUD) treatment, can result in quicker and easier treatment placement experiences (Bunn et al. 2019). The rapid linkage to SUD treatment is important during that critical stage of readiness. With flexibility in locating treatment, health professionals were better equipped with necessary information which eliminated web searching and phone calls for seeking treatment programs (Bunn et al. 2019). Use of such databases can positively impacted wait times and views of treatment placement experiences (Bunn et al. 2019).

The waitlist and other characteristics. Waiting is a problematic experience for individuals seeking opioid treatment. Liebling et al. (2016) examined multiple factors that individuals seeking treatment reported to be barriers for accessing treatment. The most common

barriers for accessing treatment were identified as waitlist, insurance non-approval, and inability to pay. Fisher, Reynolds, D'Anna, Hosmer, & Hardan-Khalil (2017) examined individual characteristics that act as a barrier to accessing substance use treatment by measuring the relationship between failure to access treatment and; former treatment attempts, sex trading, homelessness, sexual orientation, income source, and personal characteristics. Possessing any of the following characteristics, lower income, homelessness, higher impulsivity, subsequent treatment attempts, were some of the factors that were less likely to get into treatment (Fisher et al. 2017). Yet, wait-listing was found to be the most frequently reported barrier associated with accessing treatment (Fisher et al. 2017). Other characteristics acting as barriers to treatment seeking behavior included age, unwillingness/lack of readiness, fear of negative opinions about use history, ability to handle the problem on their own, and lack of information on youth specific services (Liebling et al. 2016). On a provider level, perceived stigma and discrimination acted as a barrier to accessing treatment and at the institution level concerns regarding program structure, waiting times, and confidentiality acts as a barrier for treatment (Liebling et al. 2016). Waiting list acts as a critical barrier for accessing treatment across the literature (Libeling et al. 2016; Fisher et al. 2017; & Guitar, 2017). Understanding that all these factors influence treatment access can benefit patient outcomes by making treatment more accessible. Identifying a relationship between waitlist experience, which continues to be a number one barrier, with treatment engagement will also be beneficial to individuals with substance use disorders and that is the focus of this project.

Efforts to Overcome the Waitlist Barrier

Acknowledging and stopping treatment wait list occurrence for individuals seeking substance use disorder treatment is important for reducing the negative impact waiting may have

on outcomes in treatment. There is the theme that wait listing occurs often and that it is a major barrier for individuals seeking treatment. There have been attempts at overcoming this barrier to get individuals the treatment they need. An illustration of the treatment policies and practices already available targeting waitlist experiences will demonstrate that with over 21.7 million people needing treatment, and only 2.3 million having accessed treatment (National Institute on Drug Abuse [NIDA], 2019) the attempts to overcome this major barrier is not enough. Reviewing the efforts that have been made to overcome the wait list barrier in the literature is significant for understanding the severity surrounding substance use treatment accessibility. We can see how a reduction in the time an individual must wait for substance use treatment may have an impact and implications for nursing interventions.

Rapid enrollment. Rapid enrollment is the process in which individuals are enrolled in treatment quickly. Implementation of rapid treatment enrollment can have a positive impact on patient outcomes with treatment seeking experiences (Madden et al. 2018). By implementing rapid enrollment treatment, wait time decreased from 21 days to same day access, and there was an increase of treatment census by 183% (Madden et al. 2018). It is clear across the literature that treatment wait-listing is an issue. Rapid enrollment is one way to effectively overcome this barrier. The number of individuals with OUD increased over 200% between 2005 and 2012 but the number of opioid use treatment programs in the US increased by only 9% in that time frame (Madden et al. 2018). That suggests a disconnected between resources and patient needs. Although open access programs prove to be resourceful for consumers with opioid use disorder, it is very costly to implement such programs (Madden at al. 2018). Unfortunately, individuals continue to suffer with opiate use disorder as they fail at accessing treatment at critical times when they are ready and trying to receive treatment.

Interim Buprenorphine- Naloxone Treatment. Another useful program used to assist with the barrier of wait listing for treatment is interim buprenorphine-naloxone treatment (Abrahamsson, Westlake, & Wooten, 2015). In a study by Abrahamsson, Westlake, & Wooten (2015), individuals were given the option to take part in interim treatment where they received daily doses of buprenorphine-naloxone while waiting for full scale treatment to become available. With an average wait time of 44 days or more for transfer to full scale treatment programs, half of the participants were able to sustain abstinence of substances on interim medication assisted therapy. The ability to receive quick interim treatment to prevent withdrawal symptoms promoted illicit opioid abstinence for most of the participants. This demonstrates again the significant length of wait time for treatment, but also illustrates another way that treatment waitlist has been targeted, leading to better outcomes and treatment engagement for individuals who use opioids.

There has been the belief that individuals sustain abstinence during waiting periods and therefore do not feel they need further treatment (SAMHSA, 2015). Sigmon et al. (2016) found that participants wait listed for treatment programs did not sustain opioid abstinence and failed to follow- up for treatment after placement on a waitlist. Also, interim buprenorphine-naloxone was significantly more successful at producing negative urine drug screens when compared to the control groups not receiving medication- assisted therapy at each follow up and resulted in higher treatment satisfaction (Sigmon et al. 2016). Interim buprenorphine-naloxone treatment is effective for this patient population. In fact, buprenorphine treatment is thought to be safer than the traditional methadone treatment because there is less risk for overdose, and it is more flexible for office-based treatment of opioid use disorder (Abrahamsson et al. 2015).

Both treatment availability and enrollment timing act as contributing factors to the treatment waitlist barrier. While open access programs can be resourceful for consumers with opioid use disorder, they are costly to implement such programs (Madden at al. 2018). Although interim buprenorphine- naloxone treatment helped to decrease substance use during treatment entry waiting periods, important skills for sustaining abstinence are not taught (Abrahamsson et al. 2015). It is important to understand how waiting experiences influence outcomes positively and negatively. Some individuals, despite experiencing long waitlists and going through withdrawal while waiting for treatment, or being refused treatment, are not negatively impacted by the waitlist. These individuals can bounce back from those adverse experiences. That phenomenon is resilience (VanBreda, 2018). As mentioned, more than half the individuals who are wait-listed remove themselves. There are some individuals who will stay on a waitlist, some individuals who may abstain from using drugs while waiting for treatment; and some who keep seeking treatment day after day (Guitar, 2017). This ability to bounce back and seek treatment again despite facing adverse experiences like withdrawal and being turned away from treatment is the behavior of interest for this project, and that relationship between treatment engagement is what was explored.

Resilience

Resilience is the ability to bounce back from bad experiences. It can also be understood as a positive adaptation in the face of adversity (Rudzinski, McDonough, Gartner, & Strike, 2017) ... “a stable trajectory of healthy functioning after a highly adverse event” (Van Breda, 2018, p3). Adversity can be considered any type of hardship or misfortune (Rudzinski et al. 2017). Resilience is an important factor because, despite individuals’ experience with similar vulnerable stressful circumstances, not all individuals experience the same negative outcomes

(Van Breda, 2018). People can respond to traumatic or adverse events by having the ability to "dip and recover... little to no deterioration in function... higher levels of adaptation then they had before (Van Breda, 2018, p2)". That means, they can succumb, survive, continue to function, recover, and return to baseline, or thrive beyond baseline functioning (Van Breda, 2018). However, resilience is a complex phenomenon because it is inclusive of internal traits, skills, capabilities, resources, values, goals, and other external dynamics like environment (Rudzinski et al. 2017). Although complex, resilience can be summed up as the combination of biological, psychological, and social factors which enhances one's ability to adapt to stressors and adverse life experiences (Van Breda, 2018). As it relates to this project factors like; resources, personal relationships, supports, values, goals, and other dynamics will influence the way one perceives their waitlist experience. For example, the treatment waitlist experience for a homeless single mother will be experienced differently for a well-supported young adult. Those multidimensional factors will influence resilience which have an impact on treatment engagement. Measuring resilience is significant because this factor may predict treatment outcomes (Bonfilgio, Renati, Pessa, & Penna 2018).

Resilience in individuals with substance use disorders has been particularly difficult to define because, resilience has not only been viewed as abstinence but also has been associated with harm reduction which promotes reduced use (Rudzinski et al. 2017). The argument of whether to define resilience in an all- or- nothing way- whether one must be completely abstinent, or to accept less harmful use as resilience is important when defining resilience for the purpose of this project. The most common theme across the literature has been to define resilience by the absence of drug use, there by regarding substance use as maladaptive behaviors, and the ability to stay in recovery as resilience (Rudzinski et al. 2017). Resilience will be viewed

as a protective factor against the treatment waitlist experience for this project. For this project, we expect resilience to be associated with the ability to follow through with treatment engagement despite treatment waitlist experience. While resilience as a widely used term in general it tends to look at the *outcomes* in the face of adverse experiences, but it is important to identify this term as much more than an outcome (Van Breda, 2018). We will not just examine waitlist experience and treatment engagement and claim resilience because of good outcomes. We will use the Connor- Davidson Resilience Scale (CD-RISC), which is a measurement of many of the mediating processes which can predict one's level of resilience. There are other processes (mediating factors) that come between adversity and positive outcomes, which can be better reviewed in the resilience framework examined below (Van Breda, 2018).

Theoretical Framework

Resilience Framework

Resilience as a Process and Outcome is the theoretical framework that will be used for the purpose of this project (Van Breda, 2018). As illustrated in Appendix C *Resilience as a Process and Outcome framework* is a multilevel system linking together 3 components: adversity, mediating factors, and outcomes (Van Breda, 2018). The focus, however, is on the mediating factors, because this framework suggests that there is a process that will promote either a negative or positive outcome when facing adversity (Van Breda, 2018). Mediating factors can also be considered as protective factors and includes processes such as, having supportive relationships and hope for the future. These processes take part as a whole system which include the individual, the family, community, or environment, which may help individuals experience better than expected outcomes. Other protective factors that have been measured when determining presence of resilience include hardiness, coherence, self-efficacy,

grit, problem solving skills, motivation to succeed, faith and hope (Van Breda, 2018). To thoroughly understanding the multilevel system approach of this framework is to recognize that resilience is a not only a factor of individual mediating factors but also social, and environmental factors (Van Breda, 2018). Resilience then, is dependent on many things. This is significant because together these factors influence outcomes.

While this illustrates the complexity of resilience, we will use a tool that is successful in its ability to generalize resiliency scores. The Connor- Davidson Resilience Scale (CD-RISC) will be used to measure resilience for this project. This scale can measure resilience as components of those internal and external factors identified also as mediating factors including; self-esteem, self- efficacy, personal skills, intellectual ability, religiosity/spiritually, optimism and parental supervision, family management, family support, family bonding, and support from a partner (Rudzinski et al. 2017). The Connor- Davidson Resilience Scale (CD-RISC), uses questions which specifically ask about five different factors. These factors are important because they relate to other resilience screening tools measures.

> Factor 1. Reflects on the notion of personal competence, high standards, tenacity. Factor 2. Corresponds to trust in one's instincts, tolerance of negative affect, strengthening effects of stress. Factor 3 relates to the positive acceptance of change and secure relationships. Factor 4 was related to control and Factor 5 to spiritual influences (Connor & Davidson, 2003, p.80).

The CD-RISC scale will be used to illustrate if there is a relationship between participants' waitlist experience and resilience scores measured in the outpatient setting. The total score will be used as a function of resilience in this study. As this project relates to this framework, we

propose a positive relationship between resilience scores treatment engagement scores. The *Resilience as a Process and Outcome* Concept Map can be found in Appendix C.

Evidence Translation

This project was designed to benefit the service agency and the patient population served by filling the knowledge gap regarding the relationship between treatment waitlist experience, resilience, and treatment engagement. Participants treatment engagement in this project will be measured by tracking group attendance and buprenorphine positive UDS'. We hypothesized that there will be a relationship between treatment waitlist experience and engagement. While we expect that participants with poor treatment waitlist experience (i.e. more waitlist occurrences and more withdrawal symptoms) when seeking treatment may have poor treatment engagement (negative buprenorphine UDS and missed appointments), we understand that resilience may be a contributing factor of waitlist experience. For participants with positive treatment engagement despite poor treatment waitlist experiences, we hypothesized that resilience scores will be higher for these participants. We will be recruiting participants from an outpatient program and will monitor the participants' engagement, by reviewing UDS and attendance to groups in the program. By engaging in the outpatient treatment program participants follow up weekly or biweekly for groups and urine drug screens and then progress to monthly groups and urine drug screen sessions. If at any time during the monthly group appointments that the participant has a positive urine drug screen or misses a group, then they are required to return to the biweekly or weekly commitment.

By gathering this data, we hope to translate this information into practice by demonstrating the effectiveness of the outpatient program used. The outpatient program used for this project is a growing program due to the number of participants seeking services. While this program has

been at capacity prior to expansion, there have been participants who were referred out. That is an example of wait list experience which is a major focus of the project. With the project findings of engagement outcomes, it could present a need for further expansion of the outpatient program used or development of additional access to necessary treatment programs.

Methodology

Design

The pilot project used a correlational design with one electronic survey, the waitlist experience and one electronic questionnaire, the Conner-Davidson Resilience Scale 25 administered to volunteer participants at an outpatient medication- assisted treatment program for opioid use disorder. The project design aimed to explore current relationships of substance use treatment wait time on outcomes, which include attendance to medication groups/ appointments and buprenorphine compliance of urine drug screens. The project explored opioid use disorder treatment wait time in a low barrier entry setting, meaning treatment wait time was minimized. Treatment engagement was retrospectively reviewed by reviewing urine drug screens and group attendance of the participants after 30 days of participation in the project.

Setting

This project took place in a medium sized outpatient medication- assisted treatment program in an urban city of New Jersey. This practice sees approximately 200 patients for medication- assisted treatment in an outpatient setting. The patients are seen on a weekly to monthly base depending on current engagement rapport. Participant engagement was measured for 30 days of treatment. The population of interest was identified as individuals with opioid use disorder who were receiving buprenorphine-naloxone medication.

Study Population

The project consisted of the programs' general population of male and female participants receiving buprenorphine- naloxone therapy for opioid use disorder. Inclusion criteria for the purpose of the study included English speaking participants of any gender, 18 years of age and older. A convenience sampling of 50 participants was intended for use but due to COVID-19, only 25 were recruited. Individuals were recruited by a recruitment flyer. Flyer can be found in Appendix D.

Study Recruitment

Information about this project was shared via a recruitment flyer displayed in the office waiting area and the group meeting rooms. Access to potential participants was achieved through a practice- generated list provided by the clinical office staff identifying patients at least 18 years of age participating in the medication- assisted treatment program. Invitation letters were given to potential participants as a recruitment effort during the participant's office visit for the treatment program by the Co-Investigator. Recruitment took place in a consultation room by the team members after patients' scheduled office visit. Consent procedures were carried out in private at the clinical office. Recruitment lasted for 6 weeks at which time a total of 25 participants were recruited. Copies of the recruitment materials can be found in Appendix D.

Consent Procedure

After obtaining Institutional Review Board approval from Rutgers University, informed consent took place in a consultation room at the site. A detailed explanation of the purpose of the project took place prior to signing of the consent. Consent was obtained in person and participants were encouraged to ask questions. Handouts summarizing the project as well as contact information to reach the Co-Investigator (email: fsp21@sn.rutgers.edu) for any questions or concerns at any time were provided (Appendix E). Participation in the project was

voluntary and did not affect the usual care provided at the center. To maintain anonymity participants' name and personal health information necessary for this project, participants were assigned a random ID number. This process enabled data to be reviewed without linking data to participant names. Only the team member listed, and the Co-Investigator had access to the electronic data tool linking participants' name to data. To maintain confidentiality, study data was collected and managed using REDCap's electronic data capturing tools. REDCap is a secure, web-based application. The server is located at Rutgers University and data is stored on secure networks behind a managed firewall. The consent for this project participation can be found in Appendix E.

Risk/Harms

Participation in the project proposed no anticipated discomfort for participants. Questions asked may have cause participants to think about feelings or experiences that may have made participants sad or upset. If participants became upset the project was halted and participants were to be referred for follow up with the team member or the outpatient programs' primary psychiatrist. No participant experienced any distress at any time. Measures to protect personal health information were made and addressed in data maintenance and security sections.

Participant Costs and Compensation

There was no cost to participate in this project. All participation was completely voluntary. Participants received a ten-dollar visa gift card for their participation. At any point during the project participants could withdraw their consent for participation.

Study Interventions

Data collection took place after the participant signed informed consent for a sixty-day period during the treatment program. Participants completed a self-report survey to gather

information regarding substance use treatment waitlist experience and demographics, designed by the Co-Investigator and team members. Participants also completed the CD-RISC scale to measure their resilience scores.

During the initial interview, the co-investigator administered the instrument on resilience (CD-RISC 25) and the survey on waitlist by computer. After this the participants were monitored for sixty days following resilience and waitlist experience to measures treatment engagement. After participants' initial interview where resilience and waitlist experience were obtained, participants engagement was monitored for 30 days during which time attendance to program groups, and routine urine drug screens were collected and totaled. For each participant, the number of positive buprenorphine and negative buprenorphine urine drug screens were collected and totaled. In addition, the number of attended groups were counted and measured as treatment engagement.

Outcomes Measure

Waitlist experience. This questionnaire was developed by the Co-Investigatory as a self-reporting 14 question tool for self-report of personal demographics and waitlist experience. The first sex question gathers demographic data. The next eight questions will gather information of treatment waitlist experience to determine if there are any self-reported negative experiences with treatment waitlist occurrences like: depression, anxiety, and themes of treatment experiences among participants. Waitlist Survey can be found in Appendix F.

Connor-Davidson Resilience Scale (CD-RISC 25). The CD-RISC 25 is 25-item questionnaire. It is measure on a 4- point scale not true at all (0), rarely true (1), sometimes true (2), often true (3), true nearly all the time (4). The score on this scale ranges from 0 to 100. The higher the scores the more resilient the individual (Davidson, 2009). This questionnaire will be

clinician administered by way of a computer by service of REDCap's. The CD-RISC is a structured questionnaire used to measure the degree of resilience (Connor and Davidson, 2003). This scale has been adequately tested and validated. The CD-RISC has been tested in the general population and in clinical samples – it has demonstrated sound psychometric properties, with good internal consistency and test–retest reliability (Connor and Davidson, 2003). CD-RISC 25 has been tested across diverse populations (Davidson, 2019). Internal consistency using Cronbach's Alpha for the full scale was 0.89 suggestion that this scale is reliable (Connor and Davidson, 2003). The CD-RISC 25 also has shown a high level of agreement measuring test-retest reliability with an intraclass correlation coefficient equivalent to 0.87 (Connor and Davidson, 2003; Davidson, 2019). The CD-RISC has been compared to numerous other measures that in one way or another are related to aspects of resilience, such as hardiness, social support, stress-coping ability, self-esteem, life satisfaction, successful aging, positive and negative affect (Davidson, 2019). Using populations with psychiatric diagnosis to test validity with other perceived stress tools like Kobasa hardiness, Perceived Stress Scales and the Sheenhan Stress Vulnerability Scale with Pearson r of 0.83, -0.76, and –0.32 respectively (Connor and Davidson, 2003). Those values suggest that there is a significant positive correlation between CD-RISC and the Kobasa hardiness, a significant negative correlation between CD-RISC and the Perceived Stress Scales, and a similar relationship between the CD-RISC and the Sheenhan Stress Vulnerability Scale (Connor and Davidson, 2003). The CD-RISC 25 scale can be found in Appendix G.

Engagement. For this project engagement will be measured by tracking group attendance and urine drug screens. We will monitor participants group attendance and track their routine urine drug screens at each group appointment. The individuals' group appointment schedule is

individualized. Participants start out initially with biweekly appointments then transition to monthly appointments. For individuals struggling with positive engagement in the program (positive buprenorphine UDS and attending appointments), they are seen more routinely for weekly appointments. When participants attend all groups and provide all positive urine drug screens the result is a classification of positive treatment engagement. As the number of missed groups are tallied up and the number of negative buprenorphine urine drug screens increase, that reflects poor treatment engagement. This measure can be found in Appendix H as a part of the codebook.

Project Timeline

The project timeline is outlined in Appendix I.

Resources

The costs associated for the project were the sole responsibility of the graduate student, the Co-PI. Costs included recruitment materials, educational handouts, participant compensation and refreshments. Additionally, research expenses including statistician consultation and dissemination poster were included. The budget is outlined in Appendix J.

Results

The results section discusses data analysis including descriptive statistics and regression analysis to answer the project questions. Over the course of a 6-week recruitment period, which started on January 30, 2020, a total of 25 participants were recruited. The data collection started on February 14, 2020 and ended on May 11, 2020. The data was electronically transferred into the STATA analyzing software version 15. After the collection of demographic variables, participants completed surveys about substance use waitlist experience and resilience. Group attendance was compared between multiple variables, age, gender, race, education, treatment

history, waitlist experience, resilience score, and buprenorphine positive urine drug screen. Statistical variables were examined to determine significance of the relationships explored.

Descriptive statistics were used to describe the sample and the following outcome variables; demographics (Appendix K: Table 1), waitlist experience (Appendix L: Table 2), and treatment variables (Appendix: Table 2). The number of participants recruited for the study was twenty-five. One participant was lost to follow up after 30 days. That individual's data was not included in the regression analysis; however, it was included in the descriptive analysis. Another 5 participants did not have adequate data for UDS and attendance and therefore their data was not included in the regression analysis. Data were included for demographic purposes and waitlist descriptive analysis. The expected sample size at the beginning of the study was 50. Due to the COVID-19 pandemic participant recruitment was halted and there was a decrease in participant engagement. The primary endpoint of the study was changed from 60 day- post resilience and waitlist survey completion to 30-days post resilience and waitlist survey completion. That was due to the stay-at-home order that was issued nationwide for organizations. Clinical operations at the agency also changed during the study period which limited available data.

Participant Demographics.

The total number of participants recruited for the study was twenty-five. There were five questions obtained regarding demographics: age, gender, race, ethnicity, and education. In the project design the patient demographics are illustrated in Table 1. Sixteen (64%) participants were male, and 9 (36%) participants were women. Regarding race, twenty-one individuals (84 %) identified as African American, 1 individual (4%) as White, 1 individual (4%) as American Indian, and 2 individuals (8%) identified as other. Regarding educational attainment, 14 (58.3%)

participants reported less than a high school diploma, 7 participants (29.2%) reported a high school diploma or equivalent, and 3 participants (12.5%) reported completing some college or higher (Table 1).

Participant Waitlist Survey.

The waitlist experience comes from a population that is well experienced with treatment occurrence, with 22 participants (91.6%) having at least one treatment attempt and a total of 2 participants (8.3%) with no treatment history. More than half of the 22 participants who responded to the history of waitlist question (68.2%) self-reported at least one waitlist experience, a total of 15 participants. The participants waitlist experience ranged from 1-5 occurrences for 10 participants (66.67%), 6-10 occurrences (26.67%) for 4 participants, and more than 10 occurrences for 1 participant (6.67%). Of those 15 participants, 13 (86.7%) participants entered treatment after waiting. Additional, out of 15 participants a total of 9 participants (60%) reported experiencing withdrawal symptoms while waiting during an attempt to enter treatment. One participant (6.7%) did not experience any withdrawal during the waiting period to enter treatment. Another 5 (33.3%) participants reported that they did not stop using while waiting, therefore they did not experience withdrawal symptoms. Of the 15 participants, 14 participants (93.3%) reported experiencing anxiety during waiting periods trying to access treatment and 15 participants (100%) reported experiencing depressed mood when they were waitlisted for treatment (Table 2).

Participant Resilience Surveys.

The participant scores ranged from 22 to 99. The average resilience score was a 60.28 for the participants. The adjusted average which excluded five participants who had missed

questions was 60.125. Men in this project on average were more resilient among our participants with a mean score of 64.1 compared to women with a mean score of 53.4.

Participant engagement.

Of the 25 recruited participants five participants were withdrawn from analysis of engagement because there was no available data on engagement. The mean is the best description for averages, when data is evenly distributed however, the median is more typically used with skewed data (Brown, 2014). For this project, which included skewed data for the descriptive analysis, the interquartile range was used to describe the participants number of appointments and number of urine drug screens (Brown, 2014). The median number of appointments attended was 2.5 (IQR 2-3) and the median number of appointments missed was 0.5 (IQR 0-1). The median percentage of appointments attended was 75% (IQR 66.7-100%). One participant was lost to follow up within 30 days. Urine toxicology data was available for 19 participants. Regarding the urine drug screens, the median number of buprenorphine positive urine samples was 0 (IQR 0-1) and median number of buprenorphine negative samples was 2 (IQR 1-2) (Appendix M: Table 3).

Relationship between resilience, waitlist, and engagement.

To answer the project questions regarding the relationship between treatment waitlist status (waitlist experience vs. no waitlist experience) and treatment engagement; and the question regarding the relationship between resilience scores, and engagement, a bivariate regression and multivariate regression analysis was used to examine those relationships (Appendix N: Table 4 & Appendix O: Table 5). A regression analysis was used because this project was exploring the strength of the relationship between variables (Moran, Burson, & Conrad, 2017). The relationships of interest were between the waitlist, engagement, and resilience variables. There

was no statistically significant relationship found between appointments attended: and age, race, education, treatment history, waitlist history, denial for treatment, withdrawal related symptoms, or UDS positive for buprenorphine (Appendix N: Table 4). However, the linear regression analysis for females and appointments attended was nearing statistical significance at $p = 0.06$. A negative beta coefficient suggested that female participants attended less appointments. A multivariate regression analysis was completed to examine the relationship between resilience, waitlist history, and engagement and there was no statistically significant relationship found (Appendix O: Table 5).

Data Maintenance/Security

Patients were provided with a randomized ID number by the Co-PI used on both the PHI data collection and surveys. The master list linking the patient to the random ID code was kept on the secure data manager REDCaps. Surveys were stored electronically on the secure manager system REDCaps also. The RedCaps was password protected and required a link granting authorization to get access to the project design and data. Data from the chart audits (Attendance and UDS results) were logged with the same random ID number assigned and kept secure through the REDCaps secure network. All data retrieved for UDS and Attendance were on all password protect systems. The Co-PI was granted access by the site manager. Data was de-identified upon data collection and only de-identified data was used for analysis. Upon completion of the project, closure of the IRB, and final writing of the manuscript, all data will be destroyed in accordance with Rutgers University guidelines. Study data was collected and managed using REDCaps electronic data capture tools. REDCaps is a secure, web-based application. The server is located at Rutgers University and data is stored on secure networks behind a managed firewall.

Discussion

The aim of this project was to explore the relationship between waitlist occurrence and engagement in an outpatient medication assisted program. More specifically we were interested in exploring the relationship between substance use treatment entry for individuals with opioid use disorder and individuals experience with treatment wait time and treatment outcomes (group attendance and routine UDS). As wait listing occurs, negative views of treatment can develop so examining the relationship between waitlist occurrence and engagement in treatment becomes important (Bunn et al. 2019). Additionally, we were interested in exploring the relationship between resilience and the measures for waitlist and engagement. Resilience acts a protective factor for individuals with substance use disorder (Van Breda, 2018). Therefore, resilience could positively impact outcomes in the presence of significant waitlist experiences.

Although the results demonstrated no statistical significance, there was clinical significance associated with the female gender and treatment follow-up. The relationship between female gender and attendance of appointments over the 30-day period was nearing statistical significance. A negative beta coefficient suggested that female participants attended less appointments. This could be a result of women being in caregiving roles. In fact, women do worse in treatment center model because of many factors including parenting responsibilities, more psychiatric comorbidities, exposure to the drugs abused in treatment settings, and high rates of trauma and shame. (Jacobs & Cangiano, 2018). With those responsibilities' women may more likely miss their own appointments no matter how important because of their care giver roles. It is also important to note that women participants on average had lower resilience scores then men, an average score of 53 versus 64. Women need treatment that is more tailored to their needs. This relationship will be further discussed when discussing nursing implications.

Evaluation of current opioid use treatment engagement in a New Jersey outpatient center. Another major finding in this project was the lack of buprenorphine-naloxone compliance with the median number of buprenorphine positive UDS at 0. We identified that opiate use disorder, like other substance use disorders is a chronically relapsing disorder (Fleury, Djouini, Huynh, Tremblay, Ferland, Menard, & Belleville, 2016). In fact, the length of consumption before one may get into remission of a substance use disorder is 14 years (Fleury et al. 2016). With medication- assisted treatment there may be concerns for compliance with the medication. Individuals who were enrolled in the weekly medication groups are the ones who may have been struggling with their substance use more and therefore encouraged to come in more frequently for the medication support groups. Running recruitment for only 6 weeks made it more likely to recruit those who were experiencing compliance issues since those not experiencing compliance issues were transitioned from biweekly appointments/medication support groups to monthly appointments/medication support groups. It is likely that the population sampled were individuals who were not taking their buprenorphine regularly therefore the results show a median of 0 buprenorphine positive UDS. Additionally, our participants attended 75% of their appointments. This is compared to overall attrition rate of 75-80% for treatment seekers national who disengage from treatment within the first 30 days (Loveland, & Driscoll, 2014). This is from a population where 86.7% of those who experienced a waitlist had entered treatment when 50% of individuals disengage when waitlisted (Guitar, 2017; Abrahamsson, Westlake, & Wooten, 2015).

Recognizing the difficulty with compliance, care for this population should be inclusive of models like chronic care management, assertive community treatment and intensive case management for management (Fleury et al. 2016).

Critically assess resilience as a protective factor against waitlist experiences. Another important outcome from this project was the resilience measures. As a group the participants' resilience mean was much lower than national averages found in the CD-RISC literature (Davidson, 2009). While the mean averages for resilience in the US general population is 80.7 and the psychiatric outpatient population is 68, that can differ for individuals with opioid use disorder (Davidson, 2009). Resilience scores ranged from 30-60 for individuals with an opioid use related disorder using the CD-RISC literature (Davidson, 2009). The mean resilience score for the participants was 60.28 in this study. This could reflect resilience in this population in general which has been demonstrated to be much lower than national mean scores and should be further studied to explore the impact on treatment, resilience, and outcomes. Lower scores on the CD-RISC could represent themes in resilience for this population. While these scores are lower than the national averages it is important to identify that these are at the high end of the normal range for the population with opioid use disorder. This may indicate that there was a supportive established relationship that developed between participants and the clinic staff. Identifying such themes could influence policies and treatment protocols by specifically targeting resilience factors. Higher scores in resilience correlate with abstinence or harm reduction behavior and can be considered a method in the reduction in substance use (Rudzinski et al. 2017). Resilience skills development is one implication that can be recommended for practice from the findings of this project.

Themes of substance use treatment waitlist experience. Although there was no statistical significance demonstrated for the relationship between waitlist history and treatment engagement (attendance and UDS), more than half of the participants reported being waitlisted when attempting to access treatment. This project illustrates that waiting for treatment negatively

impacts individuals' mindset in the setting of seeking treatment by the self-reported survey responses. Nearly all our participants who self-reported waiting to enter treatment experienced anxiety, and all reported experiencing depressed mood. The results illustrated that being waitlisted for treatment negatively affected participants. This is important because it highlights that waiting for treatment is detrimental to the participants' treatment seeking experience. Nursing implications to address the anxiety and depression reported will be discussed in the implications section. As discussed previously, many individuals become discouraged and fail to follow through with treatment, thereby continuing their substance use behavior when a wait time is required (Guitar, 2017). It is not surprising that the participants reported withdrawal symptoms or reported not being abstinent while waiting for treatment.

In the self-report survey of treatment history, a total of 6 (37.3%) participants disclosed that they were denied treatment. Although this was not related to the project question, this is an important component of accessing addiction treatment experience. While this finding was not statistically significant, this area should be further studied. Being able to identify the negative conditions associated with accessing treatment could make entry into treatment a smoother process. Denial of addiction treatment is certainly a negative experience. This project attempted to explore the relationship between treatment accessibility, outcomes, and resilience. The waitlist questionnaire illustrates valuable raw data responses despite no statistical findings. Another nursing implication to be addressed is targeting the waiting period directly.

Key Facilitators

Key facilitators include the IRB and the IRB approval process, the supportive office staff members helping to recruit participants, participants, and the computer process used to complete the consent and project surveys. The IRB approval process aimed to serve as a key role to

provide safety for participants. There was adequate office space to consent participants and have them complete survey questions. The Co-PI was provided with an electronic computer to use for the consenting and surveying processes. The Co-PI was given multiple opportunities to recruit at the groups located at the center by making announcements before the groups started. Participants were eager to participate in the study. Participants were also satisfied with the consenting process and survey questions did not take long.

Project Limitations

Limitations. This section will discuss the limitations to the project design, data recruitment, collection methods and data analysis. There are several limitations to the project. The most glaring limitation is the relatively small sample size impacted by the COVID 19 pandemic. The inability to have more participants enrolled as planned for the project, due to the COVID 19 pandemic stay at home orders can be identified as a project limitation. COVID-19 caused a temporary reduction to the routine office visits, routine medication groups, and routine urine drug screens completed in the office. The site was closed for in person visits including groups and UDS, which limited the intended length for data collection. As a result, data was analyzed for 30 days instead of 60 days and was not a complete representation of engagement for the participants. Phone call encounters were counted for participants who enrolled late in the study, however UDS another measure could not accurately be represented after COVID 19 restrictions. Although there were no statically significant findings, that could change if replicated with a larger sample size

In addition to a larger sample size, this project could be redesigned to include participants newly enrolled into treatment instead of the sample used of individuals who had established care at a treatment program already. The ability to have treatment in place and have support could

have impacted the current presentation of our population's resilience scores, which we understand to be important in an individual's treatment outcomes. Recruitment for this project proved to be a major limitation for many reasons. Recruitment could not be continued due to the closure of the site to participants. In addition, the site early in the recruitment phase had to refer new participants out to other programs due to reaching its capacity. This fact resulted in data being collected from one site, which was not accepting new patients. Increasing the number of new participants would offer data that would better represent the project questions. Gathering data over a period longer than 4-weeks would also allow for more complete results. This is a valuable project, which could positively impact accessibility of opioid treatment. By addressing the project limitations to improve the design, this project could be replicated and produce statistically significant findings.

To improve the study, changes should be made to the project sample. Using a larger sample size would be more effective. Recruiting newly enrolled participants to not create bias in the resilience screenings would also improve data. There is a possibility that once participants are connected to the center for treatment, having the resources and a support system in place could impact the resilience results. Those survey results could differ for participants actively waiting for treatment, or newly enrolled into treatment. To also improve the study design, we could ensure that access to the center is available. Some participants traveled far to get to the center and bus fare became a deterrent for appointments. The recommendation would be to provide bus fare or another form of transportation to accurately represent engagement in treatment. This project assumed that resilience would be a protective factor against wait list experience, such that there would be a positive relationship between resilience, and engagement; however, there was no statistically significant relationship.

Opioid use disorder, like other substance use disorders, is rooted in many components which influence treatment. Examining treatment engagement is a complex area, as there are many factors that may influence one's ability to get to the clinic for appointments which can become a major barrier to participants. Some participants verbalized having to travel by bus up to two hours, others did not have bus fare and could not walk the distances required to get there. Being unable to get to the center for groups directly impacted the ability to produce the UDS results for participants because the UDS were completed during group appointments and one on one sessions. Using the IQR in the statistical analysis, illustrated that on average the sample population did not have many buprenorphine positive urine drug screens (0%), which was an unexpected finding. The finding of mostly 0 buprenorphine positive drug screens is considered a compliance issue which can be further evaluated in another project design. Despite not having statistically significant data, together the findings of this project indicate that when barriers like waitlists are presented, participants have negative experiences accessing treatment and are not taking their medication as prescribed. Further, the individuals are experiencing depressed and anxious mood that can be a target for interventions during the initial intake phase of the treatment process.

Barriers

There were a few unintended consequences during the implementation of this project. Joining the medication groups and sitting in during one on one sessions hindered the recruiting phase. It took time away from recruitment when the Co-PI joined the groups and one on one sessions. As a result, the first two weeks of recruiting were not successful. Although staff was aware of the Co-PI's presence related to the project, only one staff member assisted in the recruitment phase. Having just one office staff member, instead of all the 3 of the support staff

members assist in the distribution of recruitment flyers could have limited the recruitment for the project. If all the staff assisted in the recruitment phase more individuals could have been reached for enrollment into the project. At times participants from outside the program visited providers at the site although they were not a part of the program of which the sample was being recruited. The project site as a low barrier entry program often would complete assessments of individuals and bridge them to other programs in the same facility. Other times individuals were connected to therapists at the center but not enrolled in the groups or required to give UDS at the center. As a result, demographic and survey data was collected but engagement data was unavailable for one participant who was not a part of the centers' patient load. Another consequence was participants tried to re-enroll to complete the initial survey multiple times as an attempt to get another gift card.

Provider-Related Barriers

There was provider- related barriers noted with the project implementation. As discussed previously, joining groups and one on one session hindered the recruitment phase by limiting time on site initially. Another provider related barrier was the one on one encounters during the consenting process and the process of completing the survey. The time to complete the survey was participant dependent, but the Co-PI was present to assist with accessing the surveys on the computer. The Co-PI had to be present while the participant completed the survey for office security purposes, which could have made participants feel obligated to answer responses in a more positive manner. One participant made a statement that "ya'll have been so good to me here" as he was reflecting on a survey question. This indicated that the patient was using his current treatment experience to respond to survey questions instead of the past waitlist experience. The participants were reminded that survey responses were confidential and assured

by the seating arrangements in the office space used for survey completing. The Co-PI sat across from the participant and was unable to see any responses on the computer. Participants were also assured that responses would not interfere with their treatment received at the center

Patient-Related Barriers.

There were several patient-related barriers in this study. One barrier was the inability to operate a computer. Some participants needed assistance navigating the software when answering survey questions or when attempted to provide an electronic signature. Another patient- related barrier was reading level. Although it was required per the recruitment flyer that participants could read some participants (approximately 4 who were forthcoming) struggled with reading and comprehending some of the CD-RISC questions. The CD-RISC scale has been scored at a fifth-grade reading level (Davidson, 2009). More than half of the participants identified as completing less than a high school diploma, which could have been a patient barrier for completing the scale accurately. During the completion of the resilience scale participants were encouraged to answer the questions how they best understood them.

System-related Barriers

A system-related barrier was that recruitment came from participants already enrolled in treatment. These participants therefore had to recall waitlist experience instead of more recently experiencing it as they tried to enroll into treatment. That could have altered their responses to the waitlist survey. This site had a low barrier to entry, although that was a good thing for participants, for the purpose of the project that could have alter the participants' responses to survey questions. Participants could have reported the lack of waitlist experience for accessing treatment at the project site and answered responses according to the one experience and not their other waitlist experiences. This project could have benefited if designed to include newly

enrolled participants as the targeted group instead, because that may have better represented waitlist experience and resilience levels.

Implications/Recommendations for Practice

The results of this pilot project demonstrated that barriers to treatment negatively impact experiences with accessing treatment. Although the findings failed to demonstrate statistical significance the project is consist of important project findings. Having the ability to operate as a low barrier to treatment center is one recommendation for clinical practice identified from the project designed. Low barrier programs have the potential to grant faster access to opioid use disorder treatment. That would consist of programs which offer intake appointments, bridge buprenorphine prescriptions, and linkage for individuals to another provider for treatment by calling to schedule another intake appointment. Also, access should be available to both scheduled appointments and walk-in appointments for intakes as well. Using a low barrier entry program demonstrates that lower barrier treatment programs are possible and highly utilized. After all, being capable of providing interim buprenorphine is effective for retaining individuals in treatment who are being bridged to permanent resources and encourages a reduction of substance used or abstinence during the waiting periods (Abrahamsson et al. 2015).

The raw data from the project also provide valuable data about patients' views, and experiences accessing treatment. It is true that waitlist experience is present in the population and has negative impact based on self-reported information on their experience with accessing treatment. Although a statistically significant relationship was not found for this project, this does not imply that there is not a relationship between the waitlist experience and engagement in treatment because the low sample size may have impacted the findings. The findings of this project support that there need to be more research on this topic.

Also, resilience skills are important to individuals experiencing substance abuse and seeking treatment (Abrahamsson et al. 2015). Resilience can be learned (Roustsei, Bakhshipoor, Doostian, Goodiny, Koohyar, & Massah, 2017). Resilience training can be effective when responding to difficult circumstances (Roustsei, 2017). Effective resilience training can promote use off effective behaviors to overcome the need to use. Resilience training works by improving skills in the following areas: controlling emotions, delay gratification, flexibility, effective communication, partnership, self-efficiency, problem solving, and spiritual expectations (Roustsei et al. 2017). Utilizing methods to improve resilience in addiction treatment centers can be useful on outcomes for this population. Roustsei et al. (2017) implemented 10 sessions of resilience training resulting in improved resilience measures. The CD-RISC subfactors 2,3, 4 and 5 which measure, tolerance of negative affect, strengthening effects of stress, the positive acceptance of change and secure relationships, control and spiritual influences are included in the areas that Rosetsi et al. (2017) found improvements in. Those improvements were noted in the ability to control emotions, delay gratification, flexibility, effective communication, partnership, self-efficiency, problem solving, and spiritual expectations with resilience training. This suggests a similar training could result in increased CD-RISC scores and higher measures of resilience. Additionally, implementation of combined cognitive behavioral therapy with methadone maintenance as a form of medication assisted treatment has been shown to be effective with improving resilience, emotion regulation, and relapse prevention (Hosein, Jadidi, Habiballah Nataj, & Saberi-Zafarghandi 2015). Cognitive behavioral group therapy is also significantly associated with buprenorphine adherence and therefore should also be implemented in the outpatient program curriculums (Kumari, Manalai, Leong, Wooditch, Malik, Lawson, & 2016)

Recognizing the difference in treatment engagement and resilience scores in our women participants compared to men was an interested finding, in which nursing implications can positively impact outcomes. Jacobs, & Cangiano (2017) identify women as a more vulnerable population. That is due to the link between opioid use disorder and adverse childhood experiences, which is common among most women who develop opioid addiction (Jacobs, & Cangiano, 2017). Therefore, treatment that promotes the best outcomes for women with opiate use disorder should be gender specific, trauma informed, connected to psychiatric services, integrated in primary care treatment, and use the harm reduction model (Jacobs & Cangiano, 2018). Women do worse in treatment center model because of parenting responsibilities, more psychiatric comorbidities, exposure to the drugs abused, and high rates of trauma and shame. (Jacobs & Cangiano, 2018) Clinical practices recommendation for treatment for women with opioid use disorder can include screening women patients in treatment for trauma, being trained to provide trauma informed care, offering women only groups, and providing services in a way that can integrate treatment in the primary care programs as these improve outcomes in women (Jacobs & Cangiano, 2018)

Another area of interest was the low compliance levels among participants taking their buprenorphine. Which was evident by the median of 0 positive buprenorphine UDS. One study found that only 48% of participants were adherent to buprenorphine and those who are noncompliant to buprenorphine are more likely to relapse (Kumari et al. 2016). Polysubstance use and comorbid psychiatric disorders were associated with nonadherence (Kumari et al. 2016). Polysubstance use and psychiatric diagnosis were not screened for the purpose of the project; however, these factors could have negatively impacted the adherence results. As mentioned, policies which will enforce the addition of resilience skills, and CBT for treatment programs are

likely to improve adherence to buprenorphine (Hoseiny et al. 2015; Kumari et al. 2016). Despite the low level of adherence to buprenorphine, the sample had good attendance to scheduled medication groups with 75% attendance adherence. In addition to special therapy and resilience training, nursing implications to address these low levels of compliance should include adapting the harm reduction model because opioid use disorder is a chronic relapsing disease. This means that treatment lapses and nonadherence is a part of the recovery process (Jacobs & Cangiano, 2018) Being capable of viewing opioid use disorder as a chronic disease can lead to best outcomes (Jacobs & Cangiano, 2018).

The project also illustrated that participants were more likely to experiences anxiety and depression during the waiting period when trying to access treatment. In clinical practice it is important for the APN to screen and treat ongoing symptoms of depression and anxiety. As an APN, a nursing implication for treatment is to ensure that screenings are conducted routinely at office visits. Use of screening tools from the public domain can monitor for changes in symptoms of depression and anxiety such as the Patient Health Questionnaire 9 and the Generalized Anxiety Disorder 7, respectively. If the anxiety and depression remain when opioid treatment has been successfully accessed, then it is important as the APN to further manage. At which time psychotherapy is a possible nursing implication for the findings associated with high reports of anxiety and depression among the project participants receiving opioid agonist therapy (Hassan, Howe, Samokhvalov, Foll, & George, 2017). Psychopharmacotherapy that is first line for treating depression and anxiety are SSRI’s.

Suggestions for Improvement

The key to improving patients' outcomes in treatment is to improve the ability to access treatment when the individual is ready to seek treatment. This project hoped to demonstrate

that the there was a relationship between being waitlisted when attempting to access treatment, participants' engagement in treatment (compliance to Buprenorphine and routine appointments), and resilience. To improve this project a larger sample size, recruiting participants newly enrolled, or even recruiting participants who were waitlisted prior to entering a program would help to better represent the population of interest. This will ensure that the relationship with wait listing is better represented in the project.

Healthcare Policy and Funding. Recommendations for policy changes can occur at the organizational level and at the national level. National efforts to assist with the opioid crisis have been ongoing. Policies have been implemented at the primary prevention level by educating individuals in school and community settings. Policies also include consistent monitoring of the Prescription Drug Monitoring Program. There is also the education of overdose prevention and overdose prevention medication distribution of Naloxone. There are also policies which focus on abuse deterrent types of opioid analgesics. A major policy that relates to the purpose of this project is the expansion of access to medication assisted treatment. Those policies are implemented and what that means for New Jersey is; twenty-four-hour referral hot line, opioid reduction options, office based addiction treatment, reduced insurance barriers to access MAT, MAT in state prisons, and county jails, harm reductions centers, emergency medical services as a linkage to care, peer supports and navigators, employment programs, housing resources, and data infrastructure. A 1.67-million-dollar grant for 2020 fiscal year as a part of the County Innovation Awards to Address the Opioid Epidemic, was distributed by the Department of Human Services to 12 counties in New Jersey (NJ gov, n.d). The county where the project took place was not included and would benefit from future funding for such policies and programs to aid in the assistance of the opioid crisis as it relates to the area.

Individuals with opioid use disorder seek treatment through multiple channels like the emergency room, primary care settings, outpatient addiction treatment programs and inpatient addiction treatment programs (SAMHSA, 2018). The barrier for all settings is waiting. For individuals with opioid use disorder, waiting for treatment can mean a long list of withdrawal symptoms, experiencing cravings, and the high likelihood of not accessing treatment at the time. Creating policies and programs for treatment centers ensures that participants are seen, evaluated, and given bridge medication when a higher level of care is not necessary would mean better outcomes for this population. That means there will certainly need to be more funding to provide services in facilities like emergency departments, primary care settings, and more outpatient programs that can act as low barrier entry treatment options. Policies should be enforced to speed up inpatient placements as well. From a national perspective, making policy changes for low barrier treatment options will be an excellent intervention to address the opioid epidemic, which can affect this large population suffering with the opioid crisis nationwide.

Quality & Safety. This pilot project focused on improving the quality of services provided to the patient population living with opioid use disorder. Identifying a relationship between waitlist experience for opioid use treatment and engagement in treatment will impact outcomes because appropriate changes can be made to improve treatment accessibility. The literature identified multiple barriers to treatment entry however, there is a gap in the literature regarding the relationship between that waiting period and individuals' outcomes. Barriers to accessing treatment results in continued opioid use. Understanding that one hundred and thirty people die daily in the United States due to opioid overdoses, speaks to the safety component related to this project (NIDA, 2019a). This project speaks to patient safety due to potentially improving outcomes, because decreasing barriers for accessing treatment can save lives.

Education. This project demonstrates the education needed for providers and patients alike on the treatment process. Providers should be educated on the risk associated with delaying treatment so that they can be patient advocates with helping to gain treatment entry. Patients should be educated about waitlist processes so they understand what may be expected so they can better prepare. The literature demonstrates that training to utilize a fast-tracking system was effective on patient views of experiences accessing treatment (Madden et al. 2018). If patients and providers are educated on the impact that treatment barriers have on treatment outlook and treatment engagement together, they can improve the experience. This project presents knowledge that supports the importance of understanding the barriers that are faced with accessing treatment. It also identifies the usefulness of a low barrier medication assisted treatment program, while at capacity served to bridge individuals to providers at a very vulnerable time while seeking treatment. This indicates that programs like this work. In addition, APN's should be educated about opioid use disorder and obtain a waiver to prescribe buprenorphine to improve the treatment experience for individuals (SAMHSA, 2020).

Economic. As demonstrated in the literature review, opioid use disorder is very costly. The costs come in the form of loss productivity, cost of addiction treatment, and cost of criminal justice involvement, adding up to nearly 80 billion dollars a year (NIDA, 2019a). In the United States, there have been steady increases in health care issues surrounding the opioid crisis which is also costly, and includes conditions like- neonatal syndrome, hepatitis C infections, opioid related emergency room visits, and fatal overdoses (NIDA, 2017). These are all costly and can improve with removing barriers to accessing treatment, which may improve outcomes.

Sustainability

Dissemination. At the completion of the project, findings will be presented in accordance with Rutgers University DNP requirements. This project will be disseminated internally to the chair, project mentor, content expert and student colleagues. I have met several times with my project mentor as the results were being analyzed.

Professional/Reporting/Plans for Future Scholarship. The project is not publishable currently. Future scholarship would be to replicate the study with a bigger sample size and recruitment of participants from other centers to get a more representative sample of individuals experiencing recent waitlist. After replicating the study with improvements, the new findings could be published. Publication in various journals would work as an effective way to make this important project data available. Another option for reporting of these findings would involve a manuscript submission. The journal *American Journal of Addictions Medicine* welcomes submissions for publication. Also, for reporting and professional purposes a poster will be presented as part of Rutgers University DNP requirement.

Conclusion

In summary, the literature illustrates that waitlists are a commonly reported barrier for treatment- seeking individuals with substance use disorders. What has been done to address the barrier includes the use of a main availability tracking system, use of interim Buprenorphine-Naloxone treatment, and rapid placement. With those programs available, individuals seeking treatment used the additional services, had more positive views of the treatment experience, and wait time drastically decreased. The relationship of interest is between waitlist experience and opioid use disorder treatment engagement.

This project supports that waitlist is a commonly reported barrier in the population recruited. Also noted from this project is that with waitlist comes negative experiences

including withdrawal, anxiety, depression, and continued opioid use. Although the exploration of the relationship between waitlist experience, resilience, and treatment engagement was not statistically significant, this project highlights the importance of these issues for populations living with opioid use disorder.

Individuals with opiate use disorders are at higher risk for mortality during the waiting period for treatment (Peles, et al. 2013). Opiate use disorder is a chronic relapsing disorder and requires multiple attempts with detox and residential treatment before individuals can sustain from substance use long term. Treatment is most effective when using substitution treatment. While Peles et al. 2013, identify an urgent need for more methadone treatment facilities, accessibility of substance use treatment programming in general is problematic. This major issue with waitlist experience for individuals seeking treatment is a matter of life or death. Being wait-listed for opioid use disorder treatment cannot continue being an expectation of the treatment seeking process. It is obvious being wait-listed is detrimental to individuals' outcomes due to the risk of continued use, increasing the risk of overdose and death. Treatment centers cannot continue to fail individuals at these important moments of readiness when they are seeking treatment for their substance use disorders, especially in the face of the opiate crisis, and not with the rise in use and overdose related deaths.

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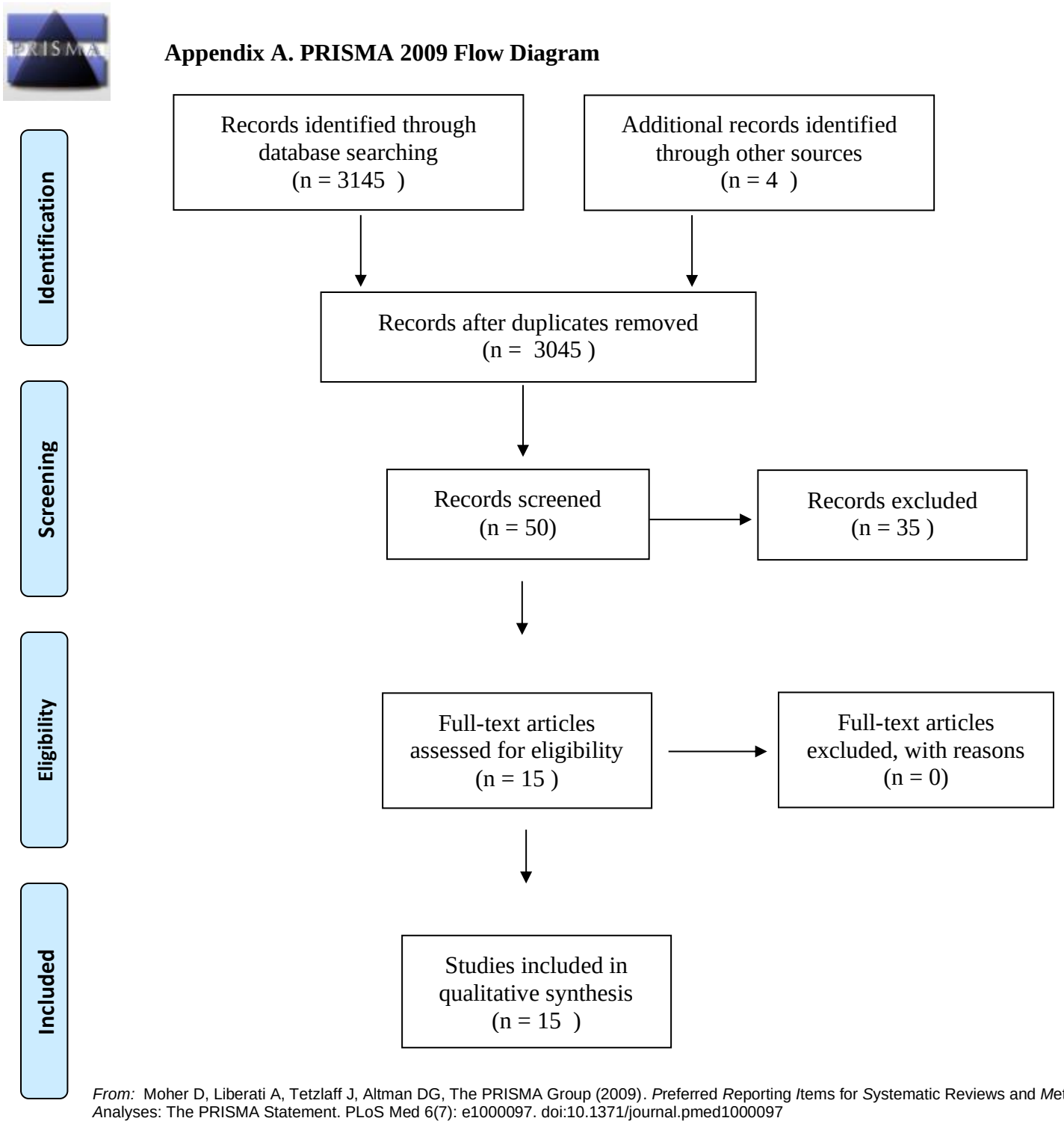
Appendices

Appendix A. PRISMA 2009 Flow Diagram



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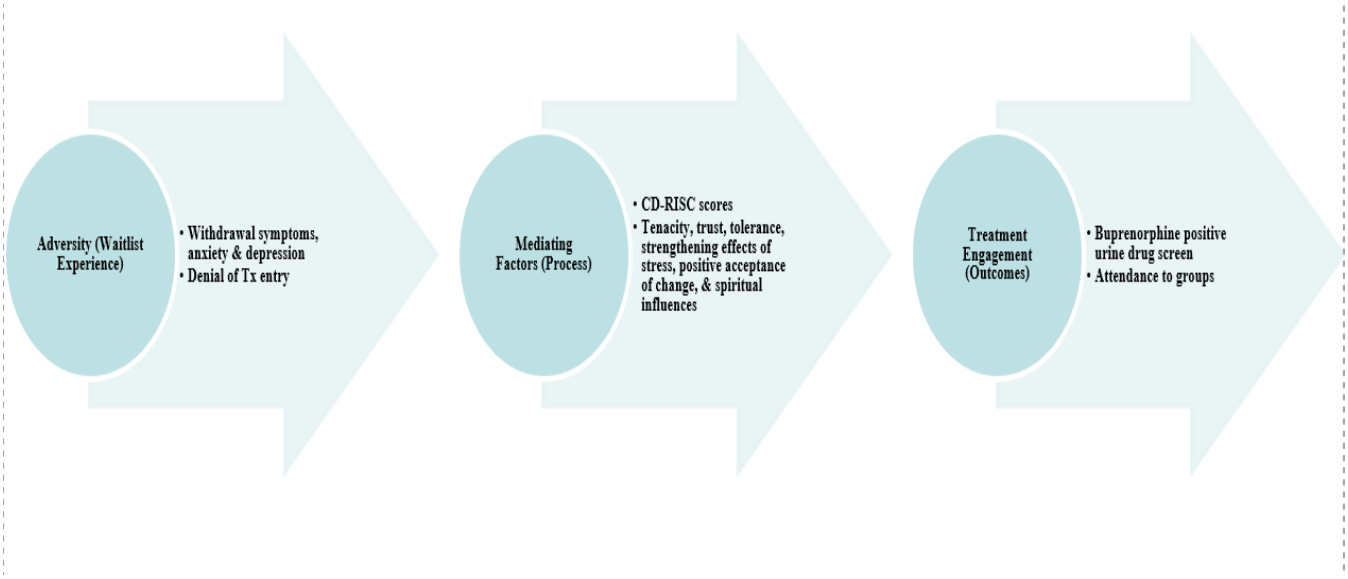
Appendix B. Evidence Table

Evidence Table						
Article Author & Date		Evidence	Sample, Size, & Setting	Study Findings	Limitations	Evidence Level & Quality
1	Abrahmasson et al. (2016)	Prospective Cohort Pilot Study	N=44 Sweden Opiate Maintenance Treatment	Interim Buprenorphine treatment assisted with staying drug free during wait time	Pilot study with small sample size	III Good quality
2	Andrews et al. (2019)	Cohort Study	N= 2041 North Carolina Medicaid enrollees with Emergency Room (ER) addiction related visits	More frequent ER visits was associated with fewer addiction treatment programs in the county	Data only on participants who visited the ER. Unable to access if programs were taking new patients Generalizable only with NC	III Good quality
3	Bonfilgio et al. (2018)	Experimental Longitudinal	N= 82 Participants from a residential addictions program	Stress and resilience factors are important when treating substance use disorder. Both can predict treatment outcomes.	Pilot study with a small same size	I Good quality
4	Bunn et al (2019)	Longitudinal Study	N= 503 treatment facilities in Kentucky	Implementation of an online substance treatment finder, made placement easier and quicker	No other website system to compare to.	III Good quality
5	Fisher et al. (2017)	Retrospective Non randomized control	N= 2646 Community research population	Major personal barriers for treatment entry; former treatment, sex trading, homelessness, sexual orientation, and income source	No measure of substance use to time of treatment attempt. No other psychopatholog y was review	II Good quality
6	Liebling et al. (2016)	Non-randomized control pilot study	N= 200 Rhode Island	Most common barriers for unsuccessful enrollment was waitlist. No bed availability and long wait list leading reason for being unable to access treatment	Pilot study	II Good quality
7	Madden et al. (2018)	Uncontrolled trail study	N=2954 Methadone Maintenance Treatment Center in Connecticut	Most common barrier to accessing treat was wait list. Improved census, retention, illicit opioid use, mortality, and wait times	Generalizable only to Connecticut	I Good quality

Article Author & Date		Evidence	Sample, Size, & Setting	Study Findings	Limitations	Evidence Level & Quality
8	Peles et al. (2013)	Longitudinal cohort study	N= 608 Methadone Maintenance Treatment Clinic	Higher mortality for individuals with opiate use disorder when on MMT wait list	Unable to be sure if physical health contributed to participants death	II Good quality
9	Rudzinski et al (2017)	Scoping Review	Review of 77 articles	Resilience conceptualization are narrow, difficult to use in the lives of individuals who use drugs	Difficult to using concept of resilience in this field	II Good quality
10	Sigmon et al. (2016)	Randomized pilot study	N= 50 Opioid use disorder	More likely to remain opiate free with interim Buprenorphine treatment	Same sample size	I Good quality

Appendix C. Resilience as a Process and Outcome Concept Map (Van Breda, 2018)



Appendix D: Recruitment Flyer

VOLUNTEER FOR RESEARCH ON PATIENT TREATMENT ENTRY EXPERIENCE

Research project title: Opioid Use Treatment Waitlist Effects on Engagement

Principal Investigator: Barbara Caldwell, PhD, APN, SSB 1144 65 Bergen Ave, Newark, NJ

Study location: The CARE Center, 183 South Orange Ave, F-Level, Newark, NJ

What is the purpose of this research study?

The purpose of this research study is to determine if there is a relationship between past treatment entry experience and engagement in treatment among patients attending The CARE Center or The Lighthouse.

Who is eligible to participate?

Those attending The CARE Center or The Lighthouse who are 18 years or older and able to read and write in English.

What will I be asked to do and how long will it take?

Complete two surveys which will take about 30 minutes. Following the survey completion, a review of your medical records for program engagement will take place for a total of 2 months.

How will participating in this study benefit me?

There is no direct benefit to participation. A better understanding of engagement and treatment entry experience among The CARE Center and The Lighthouse patients will help to improve services.

How will I be compensated?

There will be a 10-dollar gift card compensation for participation in this research study.

If you have questions or are interested in participating, please contact the co-investigator,

Faith Pettyjohn RN-BC, (fsp21@sn.rutgers.edu , 267-275-1755).

Appendix E: CONSENT TO TAKE PART IN CONFIDENTIAL RESEARCH

TITLE OF STUDY: Opioid Use Treatment Waitlist Effects on Engagement
Principal Investigator: Barbara Caldwell PhD APN-BC

This consent form is part of an informed consent process for a research study and it will provide information that will help you decide whether you want to take part in this study. It is your choice to take part or not. After all your questions have been answered and you wish to take part in the research study, you will be asked to sign this consent form. You will be given a copy of the signed form to keep. Your alternative to taking part in the research is not to take part in it.

You are invited to take part in a research study that is being conducted by Faith Pettyjohn, who is a student, in the Graduate School of Nursing at Rutgers University. The purpose of the research is to investigate substance use treatment experiences. Dr. Caldwell may be reached at caldweba@sn.rutgers.edu

We anticipate approximately fifty subjects will take part in the research. You will be asked to complete 2 short questionnaires. We will also collect demographic information about yourself, your treatment history, and current medication-assisted treatment program compliance. Your participation in the study will be about a four-month period post recruitment phase. Initial visit should last approximately 90minutes to allow completion of questionnaires and demographic information. After initial visit group attendance and substance use will be monitored for two months. Subjects will not be videotaped, or voice recorded. All questionnaires will be completed on a computer.

We do not foresee risks to subjects participating in this study.
The benefits of taking part in this study may be understand the influence treatment waitlist has on individuals' outcomes with substance use disorder. We hope to decrease wait list experiences by promoting the need for more programs and rapid enrollment policies. However, it is possible that you may receive no direct benefit from taking part in this study.
You will not be paid to take part in this study. Light refreshments will be offered during initial visit.

The research plans to collect the following types of information about; substance use history, treatment history, current medication assisted treatment received, outpatient group attendance, and urine drug screening collected during outpatient group visit. This information will be retrieved by accessing your medical records. This information will be stored in such a manner that a link between your identity and the data collected will exist. You will be provided with a randomized ID number by the PI to use with Protected Health Information collected, medical records, and questionnaire responses. We have plans in place to secure the data in ways that minimize the risk of a data breach. The master list linking the patient to the random ID code will be kept separately from the actual questionnaires. Questionnaires will be stored within the project site, in a locked cabinet. Date from charts will be logged with the same random ID number assigned and will also be kept in a locked cabinet. Data will then be de-identified upon completion of the date collection and only de-identified data will be used for analysis. Upon completion of the project, closure of the Institutional Review Board, and final writing of the

manuscript, all project data will be kept for 6 years and then destroyed in accordance with Rutgers University guidelines.

After the study is over the information collected for this research will not be used or distributed to investigators for another research. After information that could identify you has been removed, de-identified information collected for this research may be used by or distributed to investigators for other research without obtaining additional permission from you.
The research team and the Institutional Review Board at Rutgers University are the only parties that may see the data, except as may be required by law. If the findings of this research are professionally presented or published, only group results will be stated.

It is your choice whether you take part in the research. You may choose to take part, not to take part or you may change your mind and withdraw from the study at any time. If you do not want to enter the study or decide to stop taking part, your relationship with the study staff will not change, and you may do so without penalty and without loss of benefits to which you are otherwise entitled.

You may also withdraw your consent for the use of data already collected about you, but you must do this in writing to Dr. Caldwell at Rutgers University Newark Health Sciences SSB 1144 Newark, NJ.

If you have questions about your rights as a research subject, you can call the IRB Director at: *Newark Health Sci (973)-972-3608* or the Rutgers Human Subjects Protection Program at (973) 972-1149.

AGREEMENT TO PARTICIPATE

1. Participant consent:

I have read this entire form, or it has been read to me, and I believe that I understand what has been discussed. All my questions about this form or this study have been answered. I agree to take part in this research study.

Participant Name: _____ Date: _____

Participant Signature: _____ Date: _____

2. Signature of Investigator/Individual Obtaining Consent:

To the best of my ability, I have explained and discussed the full contents of the study including all the information contained in this consent form. All questions of the research participant and those of his/her parent or legally authorized representative have been accurately answered.

Investigator/Person Obtaining Consent _____

Signature: _____ Date: _____

Appendix F: Waitlist Survey

Confidential

Page 1

Experiences with Waitlists for Opioid Use Disorder Treatment

You are being invited to participate in our research study because you receive care at the CARE Center. The research study requires you to complete a survey that will take 10 minutes to fill out. Your answers to the survey will be made anonymous and providers at the CARE Center will not know your answers to the research survey. Your participation will help us better understand the experiences of people who have to wait for opioid addiction treatment. Please complete the survey below. If the questions make you uncomfortable or you do not wish to complete the survey, you may stop at any time. Thank you for your willingness to participate.

What is your age?	_____
What is your gender?	◯ Male ◯ Female ◯ Transwoman ◯ Transman ◯ Genderqueer ◯ Intersex
What is your race? (select all that apply)	☐ American Indian or Alaska Native ☐ Asian / Pacific Islander ☐ Black or African American ☐ White ☐ Other
What is your ethnicity	◯ Hispanic or Latinx ◯ No ◯ Prefer not to disclose
What is the highest degree or level of school you completed	◯ Less than a high school diploma ◯ High school degree or equivalent (e.g. GED) ◯ Trade school or certificate ◯ Some college, no degree ◯ Associate degree ◯ Bachelor's degree ◯ Master's degree ◯ Professional degree or Doctorate
Before attending the CARE Center, how many treatment programs have you been in?	◯ 0 ◯ 1-5 ◯ 6-10 ◯ More than 10
Have you ever had to wait to enter into an addiction treatment program or clinic because the program was full?	◯ Yes ◯ No
How many times have you had to wait to enter into an addiction treatment program or clinic?	◯ 1-5 ◯ 6-10 ◯ More than 10
Were you eventually able to enter into the addiction treatment program?	◯ Yes ◯ No
How many times have you been denied addiction treatment?	◯ 0 ◯ 1-5 ◯ 6-10 ◯ More than 10

Confidential

While waiting for treatment did you stop using drugs and experience withdrawal symptoms?	○ Yes ○ No, I never experienced withdrawal ○ No, I never stopped using drugs
While waiting for treatment did you experience anxiety?	○ Yes ○ No ○ Unsure
While waiting for treatment did you experience depressed mood?	○ Yes ○ No ○ Unsure

For each item, check the box the best indicates how much you agree with the following statements as they apply to you over the last month. If a particular situation has not occurred recently, answer according to how you think you would have felt.

	Not true at all	Rarely true	Sometimes true	Often true	True nearly all the time
I am able to adapt when changes occur.	○	○	○	○	○
I have at least one close and secure relationship that helps me when I am stressed.	○	○	○	○	○
When there are no clear solutions to my problems, sometimes fate or God can help.	○	○	○	○	○
I can deal with whatever comes my way.	○	○	○	○	○
Past successes give me confidence in dealing with new challenges and difficulties.	○	○	○	○	○
I try to see the humorous side of things when I am faced with problems.	○	○	○	○	○
Having to cope with stress can make me stronger.	○	○	○	○	○
I tend to bounce back after illness, injury, or other hardships.	○	○	○	○	○
Good or bad, I believe that most things happen for a reason	○	○	○	○	○
I give my best effort no matter what the outcome may be.	○	○	○	○	○
I believe I can achieve my goals, even if there are obstacles.	○	○	○	○	○
Even when things look hopeless, I don't give up.	○	○	○	○	○

Confidential

During times of stress/crisis, I know where to turn for help.	○	○	○	○	○
Under pressure, I stay focused and think clearly.	○	○	○	○	○
I prefer to take the lead in solving problems rather than letting others make all the decisions	○	○	○	○	○
I am not easily discouraged by failure.	○	○	○	○	○
I think of myself as a strong person when dealing with life's challenges and difficulties.	○	○	○	○	○
I can make unpopular or difficult decisions that affect other people, if it is necessary.	○	○	○	○	○
I am able to handle unpleasant or painful feelings like sadness, fear, and anger	○	○	○	○	○
In dealing with life's problems, sometimes you have to act on a hunch without knowing why.	○	○	○	○	○
I have a strong sense of purpose in life.	○	○	○	○	○
I feel in control of my life.	○	○	○	○	○
I like challenges.	○	○	○	○	○
I work to attain my goals no matter what roadblocks I encounter along the way.	○	○	○	○	○
I take pride in my achievements.	○	○	○	○	○

Appendix G: Connor-Davidson Resilience Scale (CD-RISC)

Connor-Davidson Resilience Scale 25 (CD-RISC-25) ©

For each item, please mark an "x" in the box below that best indicates how much you agree with the following statements as they apply to you over the last month. If a particular situation has not occurred recently, answer according to how you think you would have felt.

		not true at all (0)	rarely true (1)	sometimes true (2)	often true (3)	true nearly all the time (4)
1.	I am able to adapt when changes occur.	☐	☐	☐	☐	☐
2.	I have at least one close and secure relationship that helps me when I am stressed.	☐	☐	☐	☐	☐
3.	When there are no clear solutions to my problems, sometimes fate or God can help.	☐	☐	☐	☐	☐
4.	I can deal with whatever comes my way.	☐	☐	☐	☐	☐
5.	Past successes give me confidence in dealing with new challenges and difficulties.	☐	☐	☐	☐	☐
6.	I try to see the humorous side of things when I am faced with problems.	☐	☐	☐	☐	☐
7.	Having to cope with stress can make me stronger.	☐	☐	☐	☐	☐
8.	I tend to bounce back after illness, injury, or other hardships.	☐	☐	☐	☐	☐
9.	Good or bad, I believe that most things happen for a reason.	☐	☐	☐	☐	☐
10.	I give my best effort no matter what the outcome may be.	☐	☐	☐	☐	☐
11.	I believe I can achieve my goals, even if there are obstacles.	☐	☐	☐	☐	☐
12.	Even when things look hopeless, I don't give up.	☐	☐	☐	☐	☐
13.	During times of stress/crisis, I know where to turn for help.	☐	☐	☐	☐	☐
14.	Under pressure, I stay focused and think clearly.	☐	☐	☐	☐	☐
15.	I prefer to take the lead in solving problems rather than letting others make all the decisions.	☐	☐	☐	☐	☐
16.	I am not easily discouraged by failure.	☐	☐	☐	☐	☐
17.	I think of myself as a strong person when dealing with life's challenges and difficulties.	☐	☐	☐	☐	☐
18.	I can make unpopular or difficult decisions that affect other people, if it is necessary.	☐	☐	☐	☐	☐
19.	I am able to handle unpleasant or painful feelings like sadness, fear, and anger.	☐	☐	☐	☐	☐
20.	In dealing with life's problems, sometimes you have to act on a hunch without knowing why.	☐	☐	☐	☐	☐
21.	I have a strong sense of purpose in life.	☐	☐	☐	☐	☐
22.	I feel in control of my life.	☐	☐	☐	☐	☐
23.	I like challenges.	☐	☐	☐	☐	☐
24.	I work to attain my goals no matter what roadblocks I encounter along the way.	☐	☐	☐	☐	☐
25.	I take pride in my achievements.	☐	☐	☐	☐	☐

Add up your score for each column 0 + ____ + ____ + ____ + ____

Add each of the column totals to obtain CD-RISC score = _____

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01-01-19

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Appendix H: Codebook

#	Variable / Field Name	Field Label *Field Note*	Field Attributes (Field Type, Validation, Choices, Calculations, etc.)
Instrument:eConsent(econsent)			
Instrument:Survey(survey)			
10	age	What is your age?	text
11	dob	What is your date of birth?	text (date_mdy)
12	gender	What is your gender?	radio 1 Male 2 Female 3 Transwoman 4 Transman 5 Genderqueer 6 Intersex
13	race	What is your race? (select all that apply)	checkbox 4 race___4 American Indian or Alaska Native 5 race___5 Asian / Pacific Islander 1 race___1 Black or African American 2 race___2 White 6 race___6 Other
14	ethnicity	What is your ethnicity	radio 1 Hispanic or Latinx

				2 No 3 Prefer not to disclose
	15	education	What is the highest degree or level of school you completed	radio 1 Less than a high school diploma 2 High school degree or equivalent (e.g. GED) 3 Trade school or certificate 4 Some college, no degree 5 Associate degree 6 Bachelor's degree 7 Master's degree 8 Professional degree or Doctorate
	16	treatment_hx	Before attending the CARE Center, how many treatment programs have you been in?	radio 0 0 1 1-5 2 6-10 3 More than 10
	17	waitlist_ever Show the field ONLY if: [treatment_hx] = '1' or [treatment_hx] = '2' or [treatment_hx] = '3'	Have you ever had to wait to enter into an addiction treatment program or clinic because the program was full?	yesno 1 Yes 0 No
	18	waitlist_hx Show the field ONLY if: [waitlist_ever] = '1'	How many times have you had to wait to enter into an addiction treatment program or clinic?	radio 1 1-5 2 6-10 3 More than 10

	19	waitlist_entertx Show the field ONLY if: [waitlist_ever] = '1'	Were you eventually able to enter into the addiction treatment program?	yesno 1 Yes 0 No
	20	deniedtx_hx Show the field ONLY if: [treatment_hx] = '1' or [treatment_hx] = '2' or [treatment_hx] = '3'	How many times have you been denied addiction treatment?	radio 0 0 1 1-5 2 6-10 3 More than 10
	21	withdrawal Show the field ONLY if: [waitlist_ever] = '1'	While waiting for treatment did you stop using drugs and experience withdrawal symptoms?	radio 1 Yes 2 No, I never experienced withdrawal 3 No, I never stopped using drugs
	22	anxiety Show the field ONLY if: [waitlist_ever] = '1'	While waiting for treatment did you experience anxiety?	radio 1 Yes 0 No 2 Unsure
	23	depressed Show the field ONLY if: [waitlist_ever] = '1'	While waiting for treatment did you experience depressed mood?	radio 1 Yes 0 No 2 Unsure
	24	resilience_adapt	Section Header: *For each item, check the box the best indicates how much you agree with the following statements as they apply to you over the last month. If a particular situation has not occurred recently, answer*	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true

			according to how you think you would have felt. I am able to adapt when changes occur.	4 True nearly all the time
	25	resilience_relationship	I have at least one close and secure relationship that helps me when I am stressed.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true 4 True nearly all the time
	26	resilence_faith	When there are no clear solutions to my problems, sometimes fate or God can help.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true 4 True nearly all the time
	27	resilence_endure	I can deal with whatever comes my way.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true 4 True nearly all the time
	28	resilence_confidence	Past successes give me confidence in dealing with new challenges and difficulties.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true

				3 Often true 4 True nearly all the time
	29	resilence_humor	I try to see the humorous side of things when I am faced with problems.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true 4 True nearly all the time
	30	resilence_cope	Having to cope with stress can make me stronger.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true 4 True nearly all the time
	31	resilence_recover	I tend to bounce back after illness, injury, or other hardships.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true 4 True nearly all the time
	32	resilence_fate	Good or bad, I believe that most things happen for a reason	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true

				4 True nearly all the time
	33	resilience_besteffort	I give my best effort no matter what the outcome may be.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true 4 True nearly all the time
	34	resilience_believe	I believe I can achieve my goals, even if there are obstacles.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true 4 True nearly all the time
	35	resilience_losehope	Even when things look hopeless, I don't give up.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true 4 True nearly all the time
	36	resilience_help	During times of stress/crisis, I know where to turn for help.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true

				4 True nearly all the time
	37	resilience_focus	Under pressure, I stay focused and think clearly.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true 4 True nearly all the time
	38	resilience_ownboss	I prefer to take the lead in solving problems rather than letting others make all the decisions	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true 4 True nearly all the time
	39	resilience_discouraged	I am not easily discouraged by failure.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true 4 True nearly all the time
	40	resilience_strong	I think of myself as a strong person when dealing with life's challenges and difficulties.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true

				4 True nearly all the time
	41	resilience_harddecisions	I can make unpopular or difficult decisions that affect other people, if it is necessary.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true 4 True nearly all the time
	42	resilience_emotion	I am able to handle unpleasant or painful feelings like sadness, fear, and anger	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true 4 True nearly all the time
	43	resilience_intuition	In dealing with life's problems, sometimes you have to act on a hunch without knowing why.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true 4 True nearly all the time
	44	resilience_purpose	I have a strong sense of purpose in life.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true

				4 True nearly all the time
	45	resilience_control	I feel in control of my life.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true 4 True nearly all the time
	46	resilience_challenge	I like challenges.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true 4 True nearly all the time
	47	resilience_perserve	I work to attain my goals no matter what roadblocks I encounter along the way.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true 4 True nearly all the time
	48	resilience_pride	I take pride in my achievements.	radio (Matrix) 0 Not true at all 1 Rarely true 2 Sometimes true 3 Often true

Appendix I: Project Timeline

Activity	Plan Start	Plan Duration	Periods
			Oct 19 · Nov 19 · Dec 19 · Jan 19 · Feb 19 · March 19 · April 19 · May 19 · Jun 20 · Jul 20 · Aug 20 · Sept 20 · Oct 20
Presentation of Proposal to Team	10-Oct	1	
IRB Submission	17-Dec	1	
Participant Recruitment &Data Collection	29-Jan	4	
Data Analysis	13-May	1	
Evaluation &Writing	13-June	1	
Presentation of Final Project	20-July	2	
Graduation	Oct	1	

Appendix J: Project Budget

	Cost	Total Cost
CD-RISC questionnaire	$10	$10.00
Recruitment Fliers	30 @ $ 0.15	$4.50
Light refreshments	$20* 6 sessions	$120.00
Compensation (gift card)	$10*25	$250.00
Statistician Consultant	$50/hr* 2 hrs	$100.00
Dissemination Posters	$75.00	$75.00
TOTAL BUDGET		$559.50

Appendix K: Table 1.

Demographic Descriptive Statistics

Demographic Category	Percentage	n
Gender		
Male	64 %	16
Female	36 %	9
Race		
African American	84 %	21
White	4 %	1
American Indian	4 %	1
Other	8%	2
Ethnicity		
Hispanic/Latino	13 %	3
No	69.6 %	16
Prefer not to disclose	17.4 %	4
Education		
< High School Diploma	58.3 %	14
= High School Diploma	29.2 %	7
Associates Degree	8.3 %	2
Bachelor's Degree	4.2 %	1

Notes. n= number of participants

Appendix L: Table 2

Treatment Experience Descriptive Statistics

Treatment Category	Percentage	n
Treatment Hx		24
0	8.3%	2
1-5	58.3%	14
6-10	25%	6
>10	8.3%	2
Waitlist Hx		22
Yes	68.2%	15
No	31.8%	7
Number of waitlist occurrence		15
1-5	66.67%	10
6-10	26.67%	4
>10	6.67%	1
Entry into Tx after waiting		15
No	13.3%	2
Yes	86.7%	13
Denied Tx		22
0	72.7%	16
1-5	22.7%	5
6-10	4.6%	1
Withdrawal Sx while waiting		15
Yes	60%	9
No	6.7%	1
Did not stop using	33.3%	5
Anxiety while waiting	100%	15
Yes	93.3%	14
Unsure	6.7%	1
Depression while waiting	100%	15

Notes. n= number of participants

Appendix M: Table 3.

Treatment Engagement Summary

Category	(Median)	n
Appts. attended in 30 days	2.5	24
Appts. missed in 30 days	0.5	24
UDS with Buprenorphine over 30 days	0	19
UDS w/out Buprenorphine over 30 days	2	19

Notes. n= number of participants

Appendix N: Table 4.
Bivariate Regression Analysis on Engagement

Variables	Beta	Std. Err	*t*	*p*	n
Age	0.0084792	0.0071079	1.19	0.246	24
Gender (Female)	-0.25625	0.1289641	-1.99	0.060	24
Race					24
Black/African American	-0.03	0.1770465	-0.17	0.867	
White	0.2869565	0.3246953	0.88	0.386	
American Indian/Alaska Native	0.2869565	0.3246953	0.88	0.386	
Other	-0.2454546	0.2330828	-1.05	0.304	
Education					23
High School or Equivalent	0.1560439	0.1560258	1.00	0.330	
Associate Degree	0.0012821	0.2527906	0.01	0.996	
Bachelor's Degree	0.3346154	0.3453777	0.97	0.345	
Treatment Hx					23
1-5	0.0326923	0.2615188	0.13	0.902	
6-10	0.0388889	0.2811242	-0.14	0.891	
More then 10	0.125	0.3443055	0.36	0.721	
Waitlist Hx					
No	0.0103704	0.1363614	0.08	0.940	24
Yes	-0.0130952	0.1608145	-0.08	0.935	21
6-10	0.1259259	0.2211288	0.57	0.580	14
More than 10	-0.0240741	0.3878855	-0.06	0.952	14
Waitlist w/ Entry	-0.2041667	0.2669188	-0.76	0.459	14
Denied Treatment					21
1-5	-0.1633333	0.180064	-0.91	0.376	
6-10	0.0333333	0.360128	0.09	0.927	
Withdrawal					14
No, never experience	-0.05	0.3955721	-0.13	0.902	
No, never stopped	0.3333333	0.2126136	0.16	0.878	
Anxiety	0.2961538	0.3614339	0.82	0.429	14
Resilience Score	0.0004096	0.0046968	0.09	0.931	24
UDS Buprenorphine Pos	0.0504721	0.1728202	0.29	0.774	19

Notes. n= number of patients

Appendix O Table 5.

Multivariate Regression Analysis: Resilience, Waitlist, Engagement & Gender

	Model 1				**Model 2**			
Variable	Beta	Std. Err	*t*	p	Beta	Std. Err	*t*	p
Female	-0.2697337	0.1357123	-1.99	0.060				
Resilience	-0.0018283	0.0045518	-0.40	0.692	0.0003861	0.004819	0.08	0.937
No Waitlist Hx					0.0095725	0.139904	0.07	0.946