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THE EFFECTS OF FAMILY FUNCTIONING AND TANGIBLE SUPPORT ON TREATMENT OUTCOMES IN AN OPIOID ADDICTED POPULATION

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctorate of Philosophy at Virginia Commonwealth University

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Masters of Science, Virginia Commonwealth University, May 2014

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Abstract

THE EFFECTS OF FAMILY FUNCTIONING AND TANGIBLE SUPPORT ON TREATMENT OUTCOMES IN AN OPIOID ADDICTED POPULATION

By Nathasha C. Hahn, M.S.

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctorate of Philosophy at Virginia Commonwealth University

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The effects of family functioning and tangible support from family members are examined in an opiate addicted population. The study specifically assessed drug use, self-efficacy, and quality of life as treatment outcomes of interest. There have been mixed findings in the literature in regards to how families influence rehabilitation from substance use. Specially, previous research has shown that families can further patients' recovery, while other findings have shown that families can impede patients' recovery from substance use. The aim of this study was to analyze potentially contributing factors related to the family system, to gain a stronger understanding of how families influence recovery for patients receiving treatment for their opiate addiction. The study included 110 participants who were patients from a medically assisted recovery facility. The participants took survey measures regarding beliefs about their self-efficacy, quality of life, family functioning, and tangible support received from family members. The participant's drug use information was verified through facility databases of current urine screens and prescription use.

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Survey results did not substantiate the hypotheses that tangible support influences treatment outcomes. However, hypotheses that family functioning would positively influence self-efficacy and quality of life were supported. The belief that family functioning would have a negative relationship with the participant's drug usage was not corroborated by the data, as there was no relationship found between these variables. Finally, there was no moderating relationship observed between family functioning, tangible support, and treatment outcomes. This was contrary to expectations that a moderating relationship would be present. Implications of how the study's findings can inform research and clinical interventions in an opiate addicted population are discussed.

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Statement of the Problem

The United Nations World Drug Report of 2012 revealed that over 230 million people worldwide use illegal drugs at least once a year. Of these, 27 million are addicted to unlawful substances. The report showed that approximately 11.8 million people experienced a disability attributable to illegal drug use in the year prior, and around 200,000 people die annually from drug use. In the United States, about 22 million people will be suffering from substance abuse at a given time (U.S.D.H.H.S., 2003). In 2003, it was revealed that around 94% of substance abusers were not in treatment (U.S.D.H.H.S., 2003). More recent reports showed that no more than one-third of substance abusers are receiving treatment (Compton, Thomas, Stinson, & Grant, 2007). The drop-out rate is between 21 to 50% for those who do engage in detoxification treatment and outpatient programs (Gilchrist, Langohr, Fonseca, Muga, & Torrens, 2012; McHugh, Murray, Hearon, Pratt, Pollack, Safren, 2013; Santonja-Gómez, Sánchez-Hervás, Secades-Villa, Zacarés-Romaguera, García-Rodríguez, & García-Fernández, 2010; Specka, Buchholz, Kuhlmann, Rist, & Scherbaum, 2011).

There are macro and micro level benefits when addicts engage in and complete substance abuse treatment. On a societal level, those who remain in treatment programs longer report less indiscriminant sexual and injecting behaviors, as well as lower seroconversion infection rates. HIV infection and hepatitis risk reduction are also associated with completed treatment and lengthier stays in treatment (Bertschy, 1995; Caddow, 1974; Langendam, van Brussel, Coutinho, & van Ameijden, 2000; Metzger, Navaline, & Woody, 1998; Ponizovsky & Grinshpoon, 2007). Involvement in the work force, engaging in abstinence, and lower crime rate are also societal benefits for individuals recovering from addiction as they participate in and complete therapy

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(APA, 2007; He, Wang, Xia, Mandel, Chen, Zhao, Han, & Ling, 2011; Stark, 1992). Individual level benefits include improved relationships with family members, increased personal income, overall improved quality of life, and fewer relapses (He, Wang, Xia, Mandel, Chen, Zhao, Han, & Ling, 2011; Stark, 1992).

On the contrary, when recovering addicts engage in treatment then leave prematurely there are consequences both for themselves and society as whole. Patients who drop out of treatment experience poorer health, legal and financial troubles that increase difficulty of taking care of their health, higher crime involvement, and increased spreading of HIV. On a micro level treatment drop out has shown to impair relationships with loved ones, greater risk of relapse, and higher association with severe levels of depression (Brewer, Catalano, Haggerty, Gainey, & Fleming, 1998; Curran, Kirchner, Worley, Rookey, & Booth, 2002; Levin, Evans, Vosburg, Horton, Brooks, & Ng, 2004; Moos, Pettit, & Gruber, 1995; Stark, 1992; UNODC, 2012).

There are a variety of terms used in substance abuse and family system research that need to be identified and defined to have a greater understanding of the literature. Portions of the paper will discuss an *identified patient*. This term is in reference to the individual whose problems are causing distress in their family system (Day, 2008). Despite this distress, many families are accustomed to the identifying patient producing discord in the family as this maintains their familial homeostasis. *Homeostasis* is the self-regulation of the family system that includes norms and expectations to which the family has been conditioned to adapt to. Families are usually resistant to anything that could change their homeostasis, as it would interfere with their normative family operations, and their individual roles and expectations (Day, 2008; Jackson & Weakland, 1961; Nichols & Schwartz, 2004). There are several drugs that are used to provide medical assistance with opioid use reduction. These include medications such as methadone,

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buprenorphine (which includes Suboxone), Naltrexone, and Naloxone (Buprenorphine, 2014). Methadone is the most widely used opioid medical treatment. Thus for the purposes of maintaining authors' terms from cited research, populations and facilities will often be referred to as "methadone facility" or "methadone population," which is used to reference the full class of substances designed to treat opioid addiction. When receiving treatment for substance abuse, it is not uncommon for identified patients to experience a relapse. A r*elapse* is specifically defined as "any use of alcohol or drugs other than nicotine" (Ellis, Bernichon, Yu, Roberts, Herrell, 2004, pg. 213). Continued use of the problem substance after relapse can lead to dropping out of treatment, which would be considered failure to compete treatment (Brorson, Arnevik, Rand-Hendriksen, Duckert, 2013).

Chronic Opioid Use

Opium comes from a poppy plant and is a chemical that can reduce pain symptoms. *Opiates* are the class of drugs used for pain treatment (Melemis, 2014). Prescription opiates include Oxycontin (oxycodone), Vicodin (hydrocodone and acetaminophen), Dilaudid (hydromorphone), and morphine. Heroin is an illegal drug that also falls under the opiate classification (Case-Lo, 2012). *Opioid* is the formal term for synthetic opiate drugs, but is now officially used to refer to all forms of opium-based substances which included any natural, synthetic, and semi- synthetic forms. (Opiates/Opioids, 2014).

Individuals use opioids to manage their pain symptoms, however, there are a variety of consequences that are produced from long term opioid use. Side effects of long term opioid use include hypersensitivity to certain pain in the body. Disordered breathing patterns can develop in the opioid user during periods of slumber or alertness (Walker, Farney, Rhondeau, Boyle,

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Valentine, Cloward. & Shilling, 2007). Opioid users who are older in age may experience excess dizziness and sedation, which is associated with a greater possibility of bone fractures from falling (Saunders, Dunn, Merrill, Sullivan, Weisner, Braden, Brennan, Psaty, & Von Korff, 2010). Consequences of opioid use include loss of libido, infertility, fatigue, depression, anxiety, loss of muscle strength and mass, osteoporosis, and compression fractures (Katz & Mazer, 2009). Neuropsychological consequences such as attention deficits, concentration difficulty, recall challenges, and decreased visuospatial skills and psychomotor speed are side effects that have been found in both short term and long term opioid using populations (Gruber, Silveri, & Yurgelun-Todd, 2007). Irregular and decreased hormone levels are endocrine consequences of chronic opioid use. Female opioid users have lower progesterone levels and men have lower testosterone levels. Both men and women are susceptible to developing hypogonadotropic hypogonadism, which is when the body is under producing the appropriate sex hormone. Women can also develop amenorrhea, which is an irregular menstrual cycle. Both sexes can experience a decrease in cortisol levels (Abs, Verhelst, Maeyaert, Van Buyten, Opsomer, Adriaensen, Verlooy, Van Havenbergh, Smet, & Van Acker, 2000).

A major consequence of chronic use of opioid drugs is that this usage can lead to chemical dependence. Thus attempts to discontinue use of the opium based substances brings about severe withdrawals symptoms including low energy, irritability, anxiety, agitation, insomnia, runny nose, lacrimation, hot and cold sweats, goose bumps, yawning, muscle twitching and aches and pains, abdominal cramping, nausea, vomiting, diarrhea, strong opioid cravings, drug-seeking behavior, anorexia, or increased respiratory rate or blood pressure (Gruber et al., 2007; White, 2004; Melemis, 2014).

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Methadone Treatment

For individuals who desire to end their opioid dependence but do not want to endure withdrawal symptoms, they may choose to receive medically assisted treatment from facilities such as a methadone clinic. Methadone is a synthetic long lasting opioid that is used to treat withdrawal symptoms in opioid addicts (Broekhuysen, 2000; Case-Lo, 2012; Ramer, Zaslove, Langan, 1971). Methadone works as an opioid receptor agonist as a part of the long term detoxification process (Prus, 2013). They bind to the opioid receptors and send signals to the brain that mirror the effects of the drug such as improved mood and emotions, slowed breathing, and decreased pain symptoms (Case-Lo, 2012; Opioid/Opiate, 2014).

The detoxification process is approximately 180 days of daily methadone dosage, but often times the process can last for a longer period if so desired by the patient or their medical treatment provider (Prus, 2013). Being that it is the patient's goal to recover from opioid dependency, they should discontinue all use when enrolled in detoxification treatment. The methadone clinic staff conduct periodic drug testing to monitor the patients' drug use, as using the methadone with another opioid can be fatal (Prus, 2013). Methadone clinics are regulated by the Food and Drug Administration (Zarkin, Dunlap, & Homsi, 2006). Treatment from these facilities are both federally funded and private-fee-for-service regimens (Douglas, Speckart, Booth, & Ryan, 1989). In addition to providing medically assisted treatment for recovery from opioid abuse, methadone clinics provide other rehabilitation services such as counseling and welfare services (Bell, Burrell, Indig, & Gilmour, 2006).

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Factors that Influence Medically-Assisted Treatment Outcomes

Risk Factors. Given the heavy consequences when addicts do not seek or complete treatment, it is important to have an understanding of the factors that affect their matriculation to and through treatment. As reviewed by Gyarmarthy and Latkin (2008), risk factors against beginning and completing treatment include lack of motivation, homelessness, continuous substance use, child care barriers, transportation barriers, and severe depressive symptomology. Emotional issues, interpersonal relationship challenges, and unsupportive social networks and environments are also risk factors for treatment attrition (Booth, Cook, & Blow, 1992; Curran, Kirchner, Worley, Rookey, & Booth, 2002; Doumas, Blasey, & Thacker, 2005; FalsStewart & Lucente, 1994; Haller, Miles, & Dawson, 2002; Luo, Pang, Wu, Mi, Wang, Li, 2007; Ravndal & Vaglum, 1994; Roffman, Klepsch, Wertz, Simpson, & Stephens, 1993; Williams & Roberts, 1991; Yang, Lin, Long, He, Li, Liu, Wang, 2008). Brorson et al. (2013) revealed that the most consistent risk factor across the reviewed studies was younger age. Other frequent risk factors included cognitive deficits, low treatment alliance, and personality disorder; but findings around these variables has mixed outcomes in the literature.

Protective Factors. Protective factors of treatment effectiveness, on the other hand, include being an intravenous user, being female, an older patient, previous attempts to rehabilitate, having a higher education, having a small drug using social network, HIV positive status, ethnic community membership, and religious group membership (Appel, Ellison, Jansky, & Oldak, 2004; Beardsley, Wish, Fitzelle, O'Grady, & Arria, 2003; Booth, Corsi, & Mikulich, 2003; Curran et al., 2002; Laudet, 2003; Schutz, Rapiti, Vlahov, & Anthony, 1994; Levin, Evans, Vosburg, Horton, Brooks, & Ng, 2004; Shah Celentano, Vlahov, Stambolis, Johnson, Nelson, et al., 2000; Stevens-Watkins, Perry, Harp, & Oser, 2012; Vaughn, Sarrazin, Saleh, Huber, & Hall, 2002).

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Maintained contact with their families or having a permanent residence of the family are highly supported protective factors for recovering addicts. According to Stanton's (1997) review, it has been long established that substance abusers reside and rely on their family members. Studies have shown that ranges between 40 to 90 % of substance abusers lived with their family members; mostly mothers, grandmothers, and sisters (Perzel & Lamon, 1979; Vaillant, 1966). Ross (1972) discovered that many addicts had a drug related address and a family related address. When it was time to provide emergency contact information, patients often provided a parent or relative's information. Goldstein, Abbott, Paige, Sobel, and Soto (1977) hypothesized that having a household, in most cases a parent's household which addicts can always go to, serves as a point of reference for those in recovery. These households are often the stability in a world and lifestyle that lacks stability. Stanton (1982) found that about 86% of their approximately 700 patients, saw their parent(s) on a weekly basis in a face-to-face setting. Daily telephone contact with a parent was made with 64% of the heroin addicts in research conducted by Perzel and Lamon (1979). The percentages for familial contact correlate with younger adulthood (ages 18 to 35), but is a pattern seen through various age cohorts (Perzel & Lamon, 1979; Stanton 1982; Vaillant, 1966). Stanton's review also substantiated that addicts living with their parents is a phenomena internationally. Percentages within this pattern include: England—62%; Italy—80%; Puerto Rico—67%; Thailand—80 % (Stanton, 1982).

Other protective factors once in rehabilitation are treatment completion or the length of stay in treatment. Mulder, Frampton, Peka, Hampton, and Marsters (2009) determined that patients who were in substance abuse treatment for at least three months did better in the program and had a greater reduction of drug use. They found that those who had a better mental health status at baseline, a higher prevalence of lifetime depression, less stimulant dependence, as well as a higher

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sedative dependence were more likely to remain in the program for at least 3 months. The Drug Abuse Treatment Outcome Studies (DATOS) project produced similar findings to that of Mulder and colleagues (2009). The National Institute of Drug Abuse (NIDA) conducted a national evaluation of substance abuse treatment effectiveness for those over the age of 18. The evaluation included 96 community based programs from 11 cities. Over the two year evaluation there were over 10,000 patient admissions that were included in the assessment. They established that consistently across all treatment programs that patients who received three or more months of treatment had the greatest degree of drug use reduction (Hubbard, Craddock, Flynn, Patrick, Anderson, & Etheridge, 1997). When NIDA conducted a one year follow up to the DATOS study, they assessed approximately 3,000 patients and examined the treatment facility modality in regards to treatment efficacy. In consideration of patients treated through an outpatient methadone clinic, those who were currently in treatment used heroin less frequently compared to those who dropped out. For those in outpatient drug free programs and long term residential programs, at least 6 months of treatment enrollment was associated with drug use reductions. Long term residential patients, specifically, saw reductions in crime related activity and an increase in full time employment (Hubbard et al., 1997).

A literature assessment conducted by Brorson and colleagues in 2013, revealed that the actual treatment completion was most associated with positive outcomes after treatment. Their review included almost 200,000 patients derived from a total of 122 studies conducted over the past 20 years. According to their review, most studies examined demographic variables of patients in relation to treatment outcomes, and reported that because of the current saturation in the literature any more studies on demographic variables would be of little value. They encouraged future researchers, alternatively, to examine the treatment programs, the focus of the treatment,

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and the treatment processes to continue to assess risk factors of treatment attrition. (Brorson et al., 2013).

Gender Specific Factors. In regards to gender specific pre-cursors, women who have previous sexual or physical abuse, comorbid mental health presentations, and undiagnosed mental illnesses are susceptible of not entering or completing treatment (Dodge & Potocky, 2000; Kang, Magura, Laudet, & Whitney, 1999; Newmann & Sallmann, 2004). Gender specific literature reviews of 280 substance abuse articles revealed that women with substance abuse history are less likely to enter treatment compared to men. Aside from this finding, there were no other salient gender based differences regarding treatment retention, completion, or outcomes in this study. History of abuse was not related to treatment outcomes for either gender, but was related to positive drug screens for women and not for men (Messina, Wish, & Nemes, 2000). Domestic violence victimization was related to hours in treatment for men but not for women (Green, Polen, Dickinson, Lynch, & Bennett, 2002). However, treatments that focused on shared issues of women in recovery have shown some signs of greater effectiveness (Greenfield, Brooks, Gordon, Green, Kropp, McHugh, Lincoln, Hieng, & Mieleh, 2007). Work from Cocozza, Jackson, Hennigan, Morrissey, Reed, Fallot, & Banks (2005) found that for women mental health status, lifetime and current exposure to interpersonal abuse and other stressful events predicted treatment intervention outcomes. Compared to typical substance abuse treatment modalities, the comprehensive trauma informed service improved mental health systems as well as brought about a reduction in drug use. Data shows that compared to men, drug abuse treatment is more effective for women when they are seeking both mental health and substance abuse treatment (Fiorentine, Anglin, Gil-Rivas, & Taylor, 1997; McKay, Rutherford, Cacciola, Kabasakalian-McKay, & Alterman, 1996; Schuckit, Daeppen, Tipp, Hesselbrock, & Bucholz, 1998; Simpson & Tucker, 2002; Tate, Mrnak-Meyer,

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Shriver, Atkinson, Robinson, & Brown, 2011). Other studies examining the benefits of increasing mental health counseling along with substance abuse found that in a population of Black, Hispanic, and White opioid addicted populations that pretreatment motivation, program engagement, and therapeutic relationship presented as the most salient predictors of effective treatment (Simpson, Joe, Rowan-Szal, & Greener, 1997).

As noted, there has been a call among substance abuse experts to bring consistency to the substance abuse treatment evaluation literature (Brorson et al., 2013, Bühringer, Kraplin, & Behrendt, 2012; Tiffany, Friedman, Greenfield, Hasin, & Jackson, 2012; Donovan, Bigelow, Brigham, Carroll, Cohen, Gardin, Hamilton, Huestis, Hughes, Lindblad, Marlatt, Preston, Selzer, Somoza, Wakim, & Wells, 2012**).** Tiffany and colleagues (2012) noted almost 25 different treatment outcomes evaluated in the literature. These authors highlighted that these varied treatment outcomes will make it difficult to consolidate the literature to provide clear and succinct information about how to treat this population and monitor if the treatment has been effective. The authors supported measures of drug use as an assessment of treatment quality, but suggested that comprehensive treatment evaluation must extend beyond drug use. They proposed that patients are not in recovery because of the drug use itself, but more so due to the consequences of substance use in their social environments. Upon reviewing the substance abuse treatment evaluation literature, they produced five outcomes that had the soundest empirical support to continue using within the field. Those five factors included self-efficacy, cravings, quality of life, psychosocial functioning, and social network/social support. Self-efficacy is a unique outcome variable as one's belief in their ability to make behavioral and life style changes is the foundation of substance abuse rehabilitation (Tiffany et al., 2012). Having a strong comprehension of opioid use and treatment,

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the relevant terms in the literature, the risk and protective factors, as well as the future directions of the literature will be beneficial in understanding the merit of this research project.

Literature Review

Family Systems Theory

When examining how familial relationships influence treatment outcomes in a medically assisted treatment population, knowledge about family systems theory and attachment are fundamental. Family systems theory is a prominent clinical conceptualization used by a variety of researchers and clinicians. This theory views families as a system, and the individuals within it as smaller units or parts of the system. Within this theory is the concept of circular causality, which posits that each individual within the system affects the functioning of the other individuals, and the functioning of the entire system (Day, 2008). The relationships among these individuals also affect the family's functioning (Nichols & Schwartz, 2004). Family system theorists are proponents for assessing and treating the familial system in which the identified patient is a part of, in order to make an effective change (Day, 1995). Understanding the family system involves identifying the structure of the family. The family structure outlines the family expectations. These expectations are well understood by each member of the system, and can be recognized through the family's interpersonal patterns (Nichols & Schwartz, 2004). One person's behavior could be the product of relationships within the family that have been set by family expectations and rules.

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Rules are set by boundaries, which are barriers that regulate family and unit level interactions. Systems theory focuses on the inputs and outputs of the system, thus there is a lot of attention given to communication styles and the behavior of the family (Nichols & Schwartz, 2004). Communication and behaviors are set by rules that are both explicit and implicit within the system (Day, 2008). These expectations set into familial norms over time. Children understand their family's norms through examples from their adult caregivers (Day, 2008). Families respond with resistance when confronted with any threats to the stability of the family norms, which is characterized as family homeostasis (Day, 2008; Nichols & Schwartz, 2004). Individuals and the relationships between them (subsystems) are conditioned through experiences with the family. These subsystems could be pairings characterized as healthy, ally-based relationships or unhealthy conflict-based relationships. Another common subsystem is the triangular subsystem. Triangular relationships involve two family members whose relationship is strengthened by bonding over or out casting a third member of the family (Day, 2008). In unhealthy family subsystems it becomes very easy for the allied subsystems to focus on negative issues that may arise with another member of the family. Consequently, these subsystems give little to no resources towards addressing underlying chronic issues that are present in the family system (Nichols & Schwartz, 2004).

Attachment

A fundamental concept that overlaps with family systems is Bowlby's Attachment Theory. Attachment, as defined by Bowlby (2005), is the behavior that obtains a desired proximity to another person. He establishes that relationships within families are all based on attachment. The person of interest within the attachment theory is noted as the attachment figure and is most often a parent or the person in the parental role. The attachment within the parent-child relationships begin while the child is an infant; and the remnants of their attachment style are present far into

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adulthood (Bowlby, 1973). Healthy attachment styles are characterized as secure attachments, where there is a maintained bond with an attachment figure. Secure attachments provide relationships that allow emotions to be expressed in a way that feels safe and supportive (Nichols & Schwartz, 2004). Unhealthy attachment styles are brought about when there was no identified attachment figure or when the relationship with the attachment figure was not a secure relationship. These individuals often question their attachment figures and relationships in their life, lack confidence, and feel insecure about the safety of their world and environments. Specifically, it feels unsafe for them to express true emotions, due to the fear of being vulnerable, and thus they usually respond with anger, protest, or withdrawal (Nichols & Schwartz, 2004). As noted in family systems theory, foundational attachments establish expectations of how to interact in future relationships. This is especially true in regards to beliefs about supportiveness and the ability to create new healthy attachments. Thus, attachments equip individuals with schemas of themselves and others that navigate their interpersonal relationships into adulthood (Doumas, Blasey, & Mitchell, 2007).

Attachment Styles. Attachment styles are further understood by attachment categories: secure, anxious-resistant/ambivalent, anxious-avoidant and disorganized (Ainsworth, Blehar, Waters, & Wall, 1978; Main & Hesse, 1990; Main & Solomon, 1990). Secure attachment styles are categorized as safe relationships, where the child feels secure and knows that their attachment figure will be responsive to their needs. Those who developed anxious attachment styles, usually had relationships with attachment figures who had low caregiver sensitivity. Anxious-resistant relationships are described as those where the child wanted to be close to the attachment figure, but had a caretaker who was low in knowledge and understanding of the needs of their children (Sroufe, Egeland, Carlson, & Collins, 2009). These ambivalent relationships show a child reluctant

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to leave the presence of the caregiver, but resistant during attempts of interaction from the caregiver (McLeod, 2008). Anxious-resistant children are not easy to comfort during the attachment figure's attempt at responsiveness, which is attributed to the inconsistent levels of responsiveness to the child. Anxious-avoidant attachment styles are notably characterized as children who actively ignore their attachment figures. This is consequential of caretakers who seem to lack affection and interest in the child, rejected physical contact, and are low in responsiveness (Sroufe et al., 2009). As these children develop they no longer seek their attachment figures during their times of distress, as their figures have proven to be unavailable for comfort. Anxious-avoidant individuals become independent of their attachment figure physically and emotionally (Behrens, Hesse, & Main, 2007). The fourth type of attachment style is the disorganized attachment pattern. Attachment figures of these types of children display incoherent behavior, where interactions with the caretaker is seen as confusing or the caretaker is seen as a threat (Sroufe et al., 2009). These children received maltreatment in the form of chronic emotional availability, from a figure that was insensitive and intrusive (Carlson, 1998). Children with disorganized attachment usually seem in conflict, as they constantly desire to flee both away and towards their caregiver. These insecure attachments often result in psychological pathology in later development (Sroufe et al., 2009).

Adult Model of Attachment. These attachment categories were later developed into an adult attachment model by Bartholomew and Horowitz (1991). This model assessed the intersections of the individual's perception of self and perceptions of others. According to Bartholomew's and Horowitz's (1991) model, those who developed a positive view of themselves as well as a positive view of others, become securely attached individuals. They are able to operate on their own and are comfortable with intimacy. Individuals who formed a negative self-view, but

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maintained a positive self-view of others are conceptualized as having a preoccupied style of attachment. This type of attachment shows a preoccupation with relationships, where the person's self-value is contingent on how others view them. This adult attachment style is consistent with the anxious-resistant/ambivalent category (Bartholomew & Horowitz, 1991). The third quadrant of the adult attachment model results from the avoidant attachment style, where the person has a negative view of themselves and a negative view of other people. These fearful-avoidant individuals overall feel unlovable and expect to be rejected by others. They respond to their fear by being socially avoidant, in order to protect themselves from actualized rejection. The fourth kind of adult attachment according to Bartholomew and Horowitz (1991) also derives from avoidant attachment styles, in which the person has a positive view of self but a negative view of others. Labeled as dismissive, they feel that they are worthy of love but have a negative disposition towards others. This disposition makes them less vulnerable, thus less likely to be disappointed in relationships. They do not fear intimacy, as do fearful-avoidant types. They dismiss intimacy and operate in a realm of interpersonal independence.

Attachment and Trauma. Trauma greatly affects attachment styles due to the mistrust of attachment figures or other figures, and becomes a barrier for developing secure attachments with those figures or in one's future relationships (Allen, 2001). Maltreatment experienced in developmental relationships affects ones view of others and view of self. This results in great difficulty in understanding how to properly get one's emotional needs met (Charuvastra & Cloitre, 2008). These individuals tend to have a smaller interpersonal network, because this mistrust leads them to behave in ways that push others way (Min, Tracy, & Park, 2014).

Conceptualization of Families and Addiction. Steinglass's (1989**)** research argued that substance abuse should be conceptualized in the context of family systems. He identified that

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substance abuse is chronic in nature, thus understanding addiction in the context of the family will help decipher what contextual mechanisms are in place to perpetuate the addiction. The presence of the drug in the system of the addict, allows the substance to become present in the system of the family as well. When an identified patient is under the use of an illicit substance, this alters how they interact with others. Additionally, given that addiction is cyclical, it is possible to observe the family amidst and in between the patterns of drug intoxication. The family develops behavior around these patterns, and the family's behavior becomes scripted and predictable (Stelle & Scott, 2007). The addict of the family is a symptom of the family dysfunction, thus this person plays a major role in the family narrative. They allow the family to become a problem determined system, where everyone shares the idea that a particular issue or person is the problem of the family (Anderson, Goolishian, & Windermand, 1986). This removes any focus that could be placed on other members' anxieties or attention that could go onto the family's underlying dysfunction (Papero, 1995). Addiction has a developmental trajectory of growth and maintenance, as do family systems, which allows addiction to fester in the family over time (Stelle & Scott, 2007).

There are rules that govern the family system of an addict. Explicit rules for children are either nonexistent, unpredictable, or strict. However, implicit rules do exist. It is clearly understood that the addict's drug use is the most important mechanism sustaining the family's system. All family members are to recognize that the addict's behaviors are not addict's fault and that the substance use did not cause the family's issues. Thirdly, every family member must play a role in enabling the disease, to uphold addiction as it is the focal principle of the family's system. In order to maintain this system, family members are not allowed to talk about their feelings or the addiction, trust their feelings or each other, nor are they allowed to have any feelings at all. By limiting conversation about the disease, this sustains the system, which is important for the family

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structure (Brooks & Rice, 1997). These maintenance mechanisms can still be in play if family members are solicited to assist the addict with recovery. Recognizing these mechanisms may not only benefit treatment outcomes but could assist in preventing these maladaptive patterns from being passed on to future generations.

It is vital to fully recognize how the family, attachment styles, and addiction interact with one another. Individuals with insecure attachment styles experience greater difficulty with separating their behaviors and cognitions from family processes. Thus, they are less likely to understand how their family processes contribute to their behaviors and cognitions in regards to substance use. Subsequent of this unawareness, they are more likely to re-enact these dysfunctional familial patterns and develop substance addiction. A part of the focus of substance abuse treatment is to illuminate these processes to patients (Zweben, 1991).

Turning to substance abuse is a realistic fear for some children of these addicted systems. There are children of addicts who are concerned about a predisposition of dependency, and are even more concerned about passing this trait to their own offspring (Worthington, Scherer, & Cooke, 2006). They are fearful of the true possibility that addiction will continue through their family system (Ackerman, 1983). However, for other children in addicted families, coping through substance abuse is a natural progression. According to Worthington Scherer, and Cooke (2006) the substance abuse literature identifies five ways that children of addicts begin using. It is likely that the children of addicts begin to adopt their parents coping strategies and behaviors (Chassin & Ritter, 2001; Kilpatrick Acierno, Baunders, Resnick, Best, & Schnurr, 2000), there are illicit substances available in the home, these children developed resentment towards their parents for neglect or not protecting them, there was low parental monitoring providing more opportunity to

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experiment with substances, or they are coping with being the objects of abuse (Windom & Hiller-Sturmhofel, 2001).

Families in addiction are housed in a larger community systems, which in some ways can and does contribute to the addiction. In many cases, patients struggling with addiction come from low-income communities. These adults have seen generations of poverty stricken and powerless family members, and experience a sense of helplessness as a result (Mikesell, Lusterman, & McDaniel, 1995). In addition to environmental stressors such as poverty, crime, and low access to resources that would sustain a moderate quality of life, these families also have to manage how culture affects their family system. Coping with societal stereotypes and discrimination from race and ethnic minority membership, social class standing, and gender stereotypes also impact the self-esteem and self-efficacy of those who live in these environments (Brooks & Rice, 1997; Menicucci & Wermuth, 1989).

Family Based Interventions

Given the familial influence on the addict's recovery, many researchers and clinicians have sought to include families in treatment, in order to improve substance abuse treatment outcomes. Brown (1985) defined addiction as a family disease. She states that "all family members suffer the consequences of one member's addiction, and all play a role in maintaining the destructive interactional patterns that result from addiction" (pg. 235). Whether the disease is sustained by providing the substance of choice, causing distress for which substance abuse is used to cope, or by doing nothing but accommodating it in the family system, all family members contribute to addiction. Given this realization, family members are thus equally important in the treatment of the disease. Family members can positively influence recovery in that they could be encouraging

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and engaging in positive activities with the identified patient. Research shows that support from families who get along well decrease the likelihood of relapse (Ellis et al., 2004). However, families that are low on cohesion, high in conflict, produce a stressful environment, or are substance abusers themselves increase the likelihood of relapse for an identified patient (Ellis et al., 2004; Rhodes & Jason, 1990). When familial social support is not adequate, this is attributed to families having a lack of education about the importance of their role during the recovery process (McAlpine, 2013). In the case of families with an identified patient addicted to heroin, there is evidence that their family systems differ from other dysfunctional families (Stanton, 1978). Common characteristics of these families include generational addiction, prenatal exposure to heroin, and social networks around the family who are drug users. These families are often differentiated with marital problems between the mother and father. The father figure is usually distant, the mother is overinvolved with the children, and the children begin to engage in substance abuse as a form of attention seeking (Stanton, 1978). For clinicians, if a methadone patient is the product of an opioid addicted family system this could provide an informative background around the family's influence on addiction, and subsequent potential treatment outcomes.

Although the negative presence of family members can prove challenging for recovery, the presence of positive family members in the lives of recovering addicts has shown to be indispensable. When a part of the recovery process, families communicate their values, strengthen attachments, and provide needed support (Rhodes & Jason, 1990). Families can provide tangible support such as a place to live while in recovery, or they can demonstrate the worth of the individual to the family through emotional support; both of which improve substance recovery behaviors (Booth, Russell, Soucek, & Laughlin, 1992; Tracy, Munson, Peterson, & Floersch, 2010). Lloyd and colleagues (2005) found that addicts who lived with family members were about

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three times more likely to enter methadone treatment. Replacing a social network of drug users to positive family members is recommended by the substance abuse researchers as it predicts better treatment outcomes (Ellis et al., 2004). A review conducted by Stanton (1997) showed that the benefits of family involvement in recovery include high commitment to family therapy, lower dropout rates compared to other psychotherapy treatment modalities (Edwards & Steinglass, 1995; Liddle, 2004), improved treatment effectiveness, decreased problems associated with addiction (Lin, Wu, & Detels, 2011; Peters, Pontin, Lobban, & Morris, 2011), and the patients feeling that they were better partners and family members (Marshall, Kimball, Shumway, Miller, Jefferies, & Arredondo, 2008). The success of the family interventions on treatment are attributed to gender factors, relationship investments, and perceived social support from an abstinent family member (Edwards & Steinglass, 1995; Stanton & Shadish, 1997).

For those who include their families in their rehabilitation, they include their parents or their parental figures as a part of their social support network in family therapy (Salmon, Joseph, Saylor, & Mann, 2000). Adult siblings are often involved, especially if childhood relationships were described as warm and chose. Siblings who had relationships with the identified patient that were high in conflict or high in indifference, were usually less obligated to be a part of family based interventions (McAlpine, 2013). Spousal support is highly valued and very prevalent in substance abuse recovery. Kidorf, King, Neufeld, Stoller, Peirce, and Brooner (2005) identified that spousal involvement in addiction treatment enhances treatment adherence, reduces substance use, improved spousal relationships, and maintained drug abstinence after treatment. The literature heavily substantiates a relationship between family support and relationships to treatment outcomes, for families high in cohesiveness and those low in cohesiveness.

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Relationship Quality

As noted, relationships in between family members are just as influential to the family system as the members themselves (Day, 2008; Nichols & Schwartz, 2004). Healthy relationships exist where a loved one is predictable (Ainsworth et al., 1978). Negative relationships, on the other hand, may serve some minimal functions; however if the necessary emotional support is not present then the relationship is not healthy. Consistency, nurturance, empathy, and bonding are all elements for a healthy relationship (Ainsworth et al., 1978; Bowlby, 1958; Stern, Hofer, Haft, & Dore, 1985**).** Relationship quality stems from the perception that one is understood by, valued, and supported by the person with whom they have a relationship with (Reis, Clark, & Holmes, 2004). High relationship quality is characterized by one's satisfaction with the commitment and affection within the relationship. Low relationship quality is influenced by a person's ability to regulate their affect (Martini & Busseri, 2012). Those who are recovering from addiction, may be struggling to forgive or accept themselves, and often experience shame and guilt (Worthington, 2013). These addicts often inflict pain on those around them, which decrease the quality of their relationships. As a result, the addict's supporters may have a difficult time providing their continued support (Worthingon, Scherer, & Cooke, 2008).

The family's adaptability and cohesion have been strongly associated with one's perception of relationship quality with their family members (Costantini , Wermuth, Sorensen, & Lyons, 1992), as well as support in times of high need (Dickerson & Crase, 2005). The construct of relationship quality is unique as it is relevant irrespective of the number of social supporters. This is demonstrated in a study by Min, Tracy, and Park (2014), showing that recovery from trauma was not related to the amount of social supporters of recovery, but that the quality of the relationships between the addict and their supporters led to greater recovery.

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Negative Relationships. Many unhealthy relationships are portrayed with anger, fear, shame, and guilt, where a loved one is not predictable. Environments characterized with anger and fear, produce children who are not allowed to display this anger or any type of affect (Brooks & Rice, 1997). However, these feelings do not dissipate, instead these emotions manifest themselves in behaviors overtime. Parental transgressions experienced during their childhood can result in unforgiving feelings, and can also produce anger and fear (Worthington, Scherer, & Cooke, 2006). Children are further dejected in homes where they are taught to feel shame and guilt around the family's experiences and private matters. Shame comes with feelings of isolation and alienation from others. Brooks and Rice (1997) postulated that shame is used to control, manipulate, and destroy someone. Those who wish to gain power and control over others will try take to control of a lesser powered party through shaming them. An individual's social shame combined with their family's shame creates a toxic environment for the offspring of drug addicts. Negative relationships can be developed in the home as a result of the child experiencing feelings of grief or loss towards a parent who is physically present but not emotionally present. This is the case in situations when the parent is preoccupied with over parenting or tending to an addicted spouse, and the parent is subsequently neglecting their child caretaking duties (Brooks & Rice, 1997).

There are significant mental health consequences for children who are developing in neglected environments who encounter mental, emotional, and at times physical abuse. These children experience an increased amount mental illness diagnoses, use more outpatient treatment services, have a higher number of psychiatric hospitalizations, and greater instances of drug abuse (Greenfield et al., 2007). Consequences of negative relationships go beyond mental health, and have been associated with outcomes including higher BMI as well as heart disease (De Vogli,

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Chandola, & Marmot, 2007; Kouvonen, Stafford, De Vogli, Shipley, Marmot, Cox, Vahtera, Vaananen, Heponiemi, Singh-Manoux, & Kivimaki, 2011; Krause, 2005).

The consequence of growing up in a family system with negative relationships is the possibility of developing negative relationships outside of the biological family. A major relational unit impacted by the presence of addiction, is the relationships between partners and spouses. Most couples, regardless of addiction status, fall into one of three conflict styles: they either avoid or minimize their problems, they are validating and solution oriented, or they are volatile by actively and passionately disputing each other (Gottman & Levenson, 2000). When one or both partners are engaging in substance abuse this exacerbates their conflict style as a couple. It is not uncharacteristic of opioid abusing patients to be uninvolved or in unstable relationships (Kauffman, 1985; Kidorf, Brooner, & King, 1997). This could be another one of the many consequences of substance abuse, especially when difficulty with emotion regulation was present prior to addiction. Unhealthy partnerships riddled with addiction of one or both partners, often find one partner purposely intervening with recovery of the other (Thomas, Yoshioka, Ager, 1996). Negative relationships affect members of the family system of all ages and at different subsystem levels. The impacts of the relationships can be seen in psychopathology and substance use, and can influence substance use treatment.

Social Support

Social support is another heavily cited construct that influences treatment outcomes in addiction populations. Social support is defined by four constructs presented by Gottlieb (1983) and Barrera and Ainlay (1983). Social support encompasses receiving verbal or nonverbal information or advice, tangible aid, or a behavior that includes one's physical presence. These

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constructs must have perceived emotional and behavioral benefits to be considered support by the recipient (Brown & Riley, 2005; Tracy et al., 2010). A social support network (in the context of recovery) are the individuals and systems in place to reinforce efforts to obtain abstinence (Tracy et al., 2010).

In regards to measuring social support, the concept is often broken down into smaller definitive constructs. Some theorists conceptualize social support as either structural (quantitative measure of the amount of resources available), or functional (the quality of actual or perceived instrumental and emotional support) (Beattie, Longabaugh, Elliott, Stout, Fava, & Noel, 1993; Brown & Riley, 2005; Goehl, Nunes, Quitkin, & Hilton, 1993; Huselid, Self, & Gutierres, 1991; Rychtarik, Foy, Scott, Lokey, & Prue, 1987; Strug & Hyman 1981). There are other theorists who consider the perceived quality of support separate from the functional concept, and conceptualize the quality of support as its own construct (Brown, Vik, Patterson, Grant, & Schuckit, 1995; Gordon & Zrull 1991; Humphreys, Moos, & Cohen, 1997). The concept of functional support is further broken down into informational support, emotional support, and tangible support (Tracy et al., 2010).

Positive Social Support. Support was measured generally in a study by Salmon, Joseph, Saylor, and Mann (2000). The authors found that social support was increased once patients entered recovery, that there were inevitably some family and friends who doubted their recovery, and that social support was of value to them while they were working on their abstinence. Social support has proven beneficial for drug use, as social support networks will often highlight problem usage to the identified patient before an addiction is developed (Gyarmarthy & Latkin, 2008). Treatment entry, maintenance of behavioral change, lower rates of drug initiation, less illicit drug

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use, fewer relapses, and successful alcohol and drug treatment outcomes were also associated with positive social support networks (Booth et al., 2003; Brown & Riley, 2005; Wasserman, Stewart, Delucchi, 2001). Length of time to readmission in substance abuse treatment was associated with perceptions of worth from the patient's family (Booth et al., 1992). Perceptions of family pressure to enter substance abuse treatment was greater from spouses for older high-income adults, and greater from family members by those with lower incomes (Room, Matzger, & Weisner, 2004). Family supportiveness and cohesiveness have been associated with less drug, family, and psychological problems within the three months after treatment (Kelly, O'Grady, Schwartz, Peterson, Wilson, & Brown, 2010). There are also fewer relapse experiences when the family is involved with the recovery (Ellis et al., 2004; Kelly et al., 2010). The patient's partner's support of substance abstinence also predicted lower risk of substance abuse (Havassy, Hall, & Wasserman, 1991). Research on the relationship between functional social support and stress revealed that greater functional support was associated with reductions of stress during recovery (Dobkin, De Civita, Paraherakis, & Gill, 2002).

The literature cites several benefits of social support which could be an advantage to those in substance abuse recovery. Social support has been linked to increased mental and physical health, longevity, and improved quality of life (Dobkin et al., 2002). Support has been found to buffer the deleterious effects of poverty and financial hardships, as well as crisis outcomes (Brown & Riley, 2005; De Maeyer, Vanderplasschen, Camfield, Vanheule, Sabbe, & Broekaert, 2011). Drug use has been found to vary based on social networks that are in the patient's environment. It is important to acknowledge that while in recovery abstinence can fluctuate based on the context of the social support.

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Negative Social Support. Given that addiction is a family disease (Brown, 1985), family members are influential to the recovery process. Family discourse during and after recovery, as well as hostility and criticalness from partners can lead to relapse (Ellis et al., 2004; O'Farrell, Hooley, Fals-Stewart, & Cutter, 1998). Women found that interpersonal conflicts with partners and family members were typical precursors to relapse (Tracy et al., 2010). Women with trauma histories often had smaller social support networks and reported less relationship quality (Min, Tracy, & Park, 2014). In a focus group conducted by (Tracy et al., 2010), almost 30% of the women reported that they did not have a relationship with someone in their lives who would want to help them discontinue their drug use. In a study of women in methadone treatment by El-Bassel, Chen, and Cooper (1998), 18% of their social support networks were substance users and 10% of this social network provided drugs to them while they were in recovery.

Not all social networks that provide social support will reinforce positive abstinence-based behaviors (Tracy et al., 2010). Some peers aid rehabilitation by giving a patient a place to stay or agreeing to watch their children. However, in the same instance they impede one's recovery by offering a drink, a sniff, or a hit of one's choice substance. The effects of having current drug users in one's social network had a larger impact on treatment outcomes than did positive family support (Ribisl & Luke, 1993). Patients acknowledge that there is tension between their "recovery supportive" and their "substance use supportive" networks. Treatment outcomes were highly correlated with which networks patients spent the most time with (Ellis et al., 2004; Kidorf et al., 2005). In order to support addiction behaviors, the drug supportive networks will provide free drugs, in an attempt to help the patient with drug costs (Gyarmarthy & Latkin, 2008). Challenges of accepting free drugs were especially salient for women who were low-income and had nothing tangible to give in return. Although providers encourage patients to sever ties with drug using

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peers, they often enter new relationships with different drug users in their communities or at the rehabilitation clinics (Kelly et al., 2010). Conclusively, there is an overwhelming amount of support in the substance abuse literature substantiating that association with substance using social networks will negatively impact treatment and likely lead to relapse (Brown & Riley, 2005; Havassy, Hall, & Wasserman, 1991; Goehl et al., 1993; Gyarmarthy & Latkin, 2008; Rosen, 2004).

Tangible Support. Those in substance abuse recovery share that negative social networks can affect recovery by providing unsupportive messages and being insensitive due to their lack of understanding of the treatment process (Tracy et al., 2010). However, these patients also regarded tangible support from negative social networks as very helpful. Tangible support is functional concrete aid (Gottlieb, 1983). Examples of tangible support include providing money, transportation, a place to stay, child care, or providing needed items such as clothes, blankets, shoes, cigarettes, stamps, and food (Tracy et al., 2010). Much of this type of assistance was highly valued, as in many cases this support was essential to receive treatment for their drug abuse (Moos & King, 1997; Tracy et al., 2010). However, treatment completion was predicted by perceived emotional support more so than tangible support from their family or governmental systems and social agencies (Tracy et al., 2010). This may have been because tangible support could also lead to negative influences on recovery. For example, if a patient felt that it was best to reduce interactions with a social support who is in their drug using network but this person babysits their children while they are at work, this produces a dilemma for the patient (Tracy et al., 2010).

Social Isolation. Social isolation is a correlate of treatment attrition (Brorson et al., 2013). The fewer members in one's social network, the higher the possibility of negative health outcomes (Brown & Riley, 2005). Certain populations have been found to be more vulnerable to social isolation. Older methadone users are noted to attribute their lack of trust as the reason for their lack

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of interest in establishing and engaging with a social network. This mistrust stemmed from traumatic experiences and past maladaptive interpersonal relationships. This is consistent with literature that states social isolation from family especially, is indicative of severely damaged attachments affected by abuse (Panchanadeswaran, Johnson, Sivaram, Srikrishnan, Latkin, Bentley, ... & Celentano, 2008; Pearlman & Courtois, 2005). Another population that leans to social isolation are women with trauma histories. Grella (2008) hypothesizes that this isolation stems from a combination of these women pushing social networks away, as well as networks pulling themselves back as they have found their chronic assistance to the patient cumbersome. Populations at risk of social isolation miss the opportunity to benefit from the advantages that come with a social network, especially in the context of recovery (Smith & Rosen, 2009). Kelly et al. (2010) shares that there are some benefits of having a smaller social network, in that this leaves these recovering addicts protected from additional negative influences.

Self-Efficacy

Self-efficacy is the belief that one has the ability to achieve a desired outcome (Bandura, 1977; Bandura & Locke, 2003; Dolan, Martin, & Rohsenow, 2008). Per a review by Kadden and Litt (2011) self-efficacy has been employed to measure outcomes in education, sports, chronic medical conditions, work-related performance, psychosocial functioning, and health functioning. In regards to treatment outcomes for addictive behaviors, self-efficacy has been used to assess smoking, alcohol abuse, amphetamine use, cocaine use, and gambling (Baer, Holt, & Lichtenstein, 1986; Burling, Reilly, Moltzen, & Ziff, 1989; Demmel & Rist, 2005; Feeney, Connor, Young, Tucker, & McPherson, 2005; Hodgins, Peden, & Makarchuk, 2004; Solomon & Annis, 1990). Several different measures have been created to assess self-efficacy in a variety of problem areas of specific substance abuse (Annis, 1982; Bach, Brown, & Barlow, 1999; Young & Wei, 1996).

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Much attention has been given to self-efficacy as an outcome variable in substance abuse treatment research, as it has been shown to be more effective than global rating, psychiatric outcomes, and other general measures of successful treatment outcome (Annis & Graham, 1988; Sklar & Turner, 1999; Tiffany et al., 2012). Predictors and correlates of self-efficacy of treatment success in a substance abuse population include readiness to change, motivation, age, cognitive functioning, increased education, recent substance use, less intense or lengthy past substance use, focus on treatment benefit, having or observing a series of successful recoveries, and being persuaded about the positive effects of abstaining. (Demmel, Beck, Richter, & Reker, 2004; Dolan et al., 2007; Majer, Jason, & Olson, 2004). Relapses and attrition in treatment have also been predicted by self-efficacy (Allsop, Saunders, & Phillips, 2000; Ilgen, McKellar, & Tiet, 2005; Maisto, Connors, & Zywiak, 2000). Self- efficacy has been found to be a predictor of performance levels, coping behavior, and resilience (Kadden & Litt, 2011). Depressive symptoms have been found to be associated with reduced self-efficacy (Abrams & Niaura, 1987; Dolan et al., 2007). Patients who are high in self-efficacy are more likely to attribute drug use while in recovery as a slip up, while patients who are low in self-efficacy are more likely to completely relapse (Bandura, 1986). When conceptualized as an intervention target, self-efficacy was found to increase access to emotional and sobriety support from those in close relationships with the identified patients (Min, Tracy, & Park, 2014). Assessing self-efficacy is also essential in substance recovery because it has been found to serve as the mediating variable between treatment approaches and successful outcomes (Aase, Jason, & Robinson 2008; Litt, Kadden, & Stephens, 2005). In a comparison of five empirically supported mediators, self-efficacy emerged as the strongest in measuring outcome of substance abuse treatment (LaChance, Ewing, Bryan, & Hutchison, 2009). It is with little doubt

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that self-efficacy is an important construct to include when examining the experiences of those in substance abuse treatment.

Quality of Life

Quality of life is defined as one's overall wellbeing and perceived satisfaction in a variety of areas in their life. These domains of satisfaction include health related (i.e. physical, emotional, and cognitive health) and non-health related areas (i.e. social and professional roles) (Gill & Feinstein, 1994; Laudet, 2011; Laudet, Becker, & White, 2009; World Health Organization, 1948). Some substance treatment programs posit that improved quality of life is essential for recovery (Welsh, Buchsbaum, & Kaplan, 1993). One's quality of life prior to their recovery is often lower because of issues such as incarceration, homelessness, family conflict, and untreated mental illness (Bellack & Gearon, 1998; Havassy & Arns, 1998; Rach Beisel, Scott, Dixon, 1999; Russo, Roy-Byrne, Reeder, Alexander, Dwyer-O'connor, Dagadakis, ... & Patrick, 1997).

Individuals with substance use disorders often have comorbid psychological issues. Due to this comorbidity, they may be more vulnerable to a lower quality of life (Drake, Mueser, & Brunette, 2007). When solely assessing the impact of substance use on quality of life, it has been found that maintained abstinence from substances considerably improves one's quality of life (Picci, Oliva, Zuffranieri, Vizzuso, Ostacoli, Jaretti, & Furlan, 2014). Also, those who undergo treatment but do not achieve abstinence did not have a significant change in their quality of life. This is likely because relapses can cause greater distress and interfere with their treatment (Urbanoski, Cairney, Adlaf, & Rush, 2007). The severity of psychological distress, however, has actually been found to have a stronger effect on quality of life the than severity of substance use (Rudolph & Watts, 2000). It has been substantiated that psychological distress can lead to lower

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quality of life, which can be further exacerbated by substance use (Urbanoski et al., 2007). For patients whose life satisfaction has been lowered by these comorbid issues, it has been recommended that they seek additional resources and support in order to achieve a greater quality of life. For example, many methadone programs acknowledge the needs of their patient population and aim to provide social, psychological, and occupational resources for their patients (Carpentier, Krabbe, van Gogh, Knapen, Buitelaar, & de Jong, 2009; Millson, Challacombe, Villeneuve, Strike, Fischer, Myers, ..., 2006; Vanagas, Padaiga, & Bagdonas, 2006). Methadone treatment has been found to improve quality of life by reducing patients' drug use as well as related stressors (Maremmani, Pani, Pacini, Perugi, 2007; De Maeyer, Vanderplasschen, Lammertyn, van Nieuwenhuizen, Sabbe, Broekaert, 2011).

As a variable of note, quality of life has been viewed as essential to assess one's progress in treatment and creating successful treatment goals (De Maeyer et al., 2011; Lehman, 1988; Packer, Husted, Cohen, et al., 1997; Smith & Larson, 2003). It is also often considered a treatment outcome of interest for substance abuse studies (Karow, Verthein, Krausz, & Schafer, 2008; Malet, Llorca, Beringuier, Lehert, & Falissard, 2006; Picci, Oliva, Zuffranieri, Vizzuso, Ostacoli, Sodano, & Furlan, 2014). Understanding the improvement of patients' quality of life in comparison to non-substance using populations, has been found to be a good measure to determine treatment efficacy (De Maeyer, Vanderplasschen, & Broekaert, 2009; Ribeiro, 2010).

To augment the benefits of abstinence provided by methadone treatment, other factors influencing quality of life are considered. There is a substantial amount of evidence that positive social support groups, especially those who can deter drug usage, are advantageous for one's quality of life (Dobkin, De Civita, Paraherakis, & Gill, 2002; Garmendia, Alvarado, Montenegro, & Pino, 2008; Mizuno, Purcell, Dawson-Rose, Parsons, & Team, The S. U. D. I. S., 2003).

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Essentially, individuals without necessary social support for their recovery, may have a lower quality of life. Those who are entering substance abuse treatment are more likely to attribute poor finances and inadequate living situations to their overall poor quality of life. In turn, they may need to rely on social support from family members for financial and housing support while they are in treatment (Bebout, Drake, Xie, McHugo, & Harris, 1997; Conroy, Kimber, Dolan, & Day, 2008; Information Services, 2007). Quality of life is an outcome of importance because it encapsulates factors that can lead to drug abuse prior to treatment and relapse after treatment. There is ample evidence that in order to sustain one's recovery that their quality of life must be improved in conjunction with their treatment (Picci et al., 2014).

Pathway from Insecure Attachment to Methadone Use

Upon review of how family systems theory, attachment mechanisms, social support, self-efficacy, and quality of life each contribute to treatment outcomes, it is essential to identify the unique developmental trajectory of the impact of family relationships to methadone treatment. Building on the attachment discussion, hundreds of studies have sought to examine the relationships between insecure attachments and psychopathology (Mikulincer & Shaver, 2007). As originally conceptualized by Bowlby (1958) many researchers theorize that disruptions in attachment and emotional capacity begin during infancy. Affect regulation and self-organization are facilitated by interactions with maternal figures during this nascent stage. When maternal figures are responsive, consistent and supportive, this benefits infant's self-organization process. They imitate their mother figure's affect while learning how to regulate their own. Disruptions in affect regulation and self-organization occur when the mother figure is unresponsive, inconsistent, or unsupportive when caring for the child. This affect deficiency can later exhibit itself in various forms of mental illness (Fonagy & Target, 2003).

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This insufficient care from attachment figures then continue into toddlerhood. This is the period where the child begins to experience exploration and independence, while still having a great need for security and attachment. Essentially, they desire to create distance from their caregivers while still being close enough to maintain a feeling of safety. Through this period of seeking individuation the child aims to display their competency, which in healthy attachments is facilitated by reassurance and encouragement from their attachment figure (Brooks & Rice, 1997). Toddlers whose attachment figures provide incompetent care or are over bearing of the child are not able to master their doubts and insecurities during this stage. Children at this age undergo "trial and error" exploration of their world and relationships, and are able develop a sense of "good and bad." During this stage, they are socialized into the larger world, learning how to share, to regulate their bowels, and to use their words instead of throwing tantrums. This independence can be intimidating and bring about anxiety in toddlers. They need routines to have predictability and to understand that the new world they are exploring is safe. Anxiety is also consequential of this period while trying to understand right and wrong in order to please their caregivers (Brooks & Rice, 1997).

Toddlers who have poor attachments with their parental figures are not able to master their doubts and insecurities. Despite their frustrating transitional period, they may get cues from their attachment figures that the expression of emotions is wrong; leaving them confused about the proper way to express their affect (Brooks & Rice, 1997). Consequentially, problems in emotional development occur, and they may get stuck during this period of development instead of moving successfully to the next stage of individual growth. Toddlers who matriculate successfully from this stage develop frustration tolerance, increase individuation, and are able to integrate the good and bad aspects of their attachment figures as well as themselves (Isaacson, 1991).

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The next stage in development are the preschool years. This period is characterized with difficulty differentiating between fantasy and reality, inaccurate or illogical conclusions, and feeling that they are at the center of the world where everything that does (and does not) happen are consequential of their doings. A healthy relationship with the attachment figure helps them make sense of their curiosities and experiences. As evidenced in role play during playtime with peers, children imitate and emulate what they see adults do. When children are expressing angry emotions, examples of patience, tolerance, guidance, and modeling from the attachment figure can guide the child towards a healthier expression of anger. During this stage, children want to be adults but understand that their bodies are not big enough to engage in adult tasks. This frustration also needs assistance being regulated by adult guidance (Brooks & Rice, 1997).

Children who have poor attachment with their caregiver easily develop a sense of "false self," which is who they believe their attachment figure would like them to be. They initiate behavior but are constantly focused on the response from their environment, this then causes a separation between their cognition and their affect. Given that illogical thinking is characteristic of this stage of development, when there is an inadequate cognitive facilitation from a caregiver, children do not properly develop out of this developmental stage, and their illogical thinking continues (Brooks, 1997; Isaacson, 1991).

Negative attachments with parental figures can lead to unsuccessful development out of the infancy, toddlerhood, or preschooler stages, and can have many psychosocial consequences. Poor affect regulation skills and lack of proper adult guidance can manifest in low self-esteem, problems in self-identification, deficient impulse control, poor ego functioning, or inability to reality test. These lead to intensified feelings of anger, depression, shame, and guilt (Isaacson, 1991; Khantzian, 1997; Levin, 1987). Defenses against these negative affective states include rage,

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isolation, denial, rationalization, projection, and emotional splitting. Dysfunctional families with low intimacy and little opportunities to express anger, create deeply rooted pain that can lead to psychopathology, trigger substance use, and addiction later in development (Brooks & Rice, 1997; Isaacson, 1991; Khantzian, 1997; Levin, 1987).

Concerns about substance abuse and addiction become problematic during adolescence. This is the stage when the individual begins to engage in more intense relationships outside of the primary family system. They are still exploring their world, but are doing so within the context of peer relationships. The literature shows that parent-child attachment has a relationship with earlier onset of substance abuse (Kosterman, Hawkins, Guo, Catalano, & Abbott, 2000). As products of poor attachment relationships with parental figures, these individuals are usually seeking to manage pain and frustration from their ill-completion of previous developmental stages. During this period, adolescents are exposed to experiments of substance use by their peers (Steinberg, Fletcher, & Darling, 1994). Unknowingly to them, they seek substances that fill the emotional void that they are experiencing (Khantzian, 1985).

Application of the Self-Medication Hypothesis. The Self-Medication Hypothesis proposed by Khantzian (1985), conceptualizes drug use as a match between the physiological needs subsequent of one's affect with the substances' psychopharmacologic properties. Individuals use drugs as a defense against unwanted feelings and to embrace emotions that are usually suppressed due to emotional defenses (Khantzian, 1985). The Self-Medication Hypothesis elucidates why some individuals transition from substance use to substance abuse. Given their lack of affect regulation, substance abusers are able to use substances to cope with their specific experience of emotional distress, and obtain psychological stability. The ability for the emotionally

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distressed person to regulate their affect is appealing, and an experience that they want maintained (Khantzian, 1997; Schindler, Thomasius, & Petersen Sack, 2009).

There are an array of substances hypothesized under the self-medication model that address the particular socioemotional needs of those that use them. Those who specifically use opioids to self-medicate have unique characteristics and physiological needs. Opioid users are described as angry, aggressive, and having a critical self-view (Blatt, Rounsaville, Eyre, & Wilber, 1984). When there is no proper affective outlet, the mismanaged anger of children from poor attachment relationships can develop into rage and aggression. Heroin is a substance that soothes the experiences of anger, and prevents impulsive demonstrations of anger (Blatt et al., 1984; Khantzian, 1985). Cynicism, defined as a high level of anger towards others, predicted heroin use in a study conducted by Suh, Ruffins, Robins, Albanese, & Khantzian (2008). Although opioids are often taken for their somatic pain reducing qualities (Dodgen & Shea, 2000), they also regulate the painful affect expressed through rage and aggression (Khantzian, 1985; Khantzian, Mack, & Schatzberg, 1974). This deeply rooted painful affect stemming from childhood experiences is assuaged by opioids that provide a feeling of euphoria, as they produce a sensation similar to the symbiotic attachment with the mother attachment figure experienced during infancy (Cassidy, 1999; Julien, 2000; Schindler et al., 2009; Stanton, Todd, Heard, Kirschner, Kleiman, Mowatt, ... & Van Deusen, 1978). Heroin blunts the anxiety created by the unresolved desire to be independent from their attachment figures and family. The desire to be close but distant is enhanced by opioids' sensation of cognitive inhibition and isolation, where users can be mentally and emotionally distant but still be physically present with their families. Opioids are seen as being attractive to users because of the ability to activate and deactivate emotions, and to resolve the

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dissonance between feelings of closeness seeking and distancing from attachment figures (Schindler, Thomasius, Petersen, & Sack, 2009).

There is convincing evidence for the self-medicating hypothesis in opioid using populations; as the strongest relationship between a specific attachment style and a substance is between fearful avoidant attachment and opioids (Finzi-Dottan, Cohen, Iwaniec, Sapir, & Weizman, 2003; Schindler, Thomasius, Sack, Gemeinhardt, Kustner, & Eckert, 2005; Schindler, Thomasius, & Petersen Sack, 2009). As noted earlier, fearful avoidance attachment is the desire for relationships but the behavior of distancing in fear of social rejection (Bartholomew & Horowitz, 1991). These individuals have negative views of themselves and others which is the consequence of inadequate relationships with attachment figures during childhood, and is characteristic of the upbringing of many addicts (Brooks, 1997). Research shows that opioid users utilize the substance as an emotional substitute for social attachment, as it assists with their desire to withdraw from others (Insel, 2003; Zimmer-Hofler & Kooyman, 1996).

Opioid users have been described as a troubling group who have the lowest levels of psychosocial functioning and the highest level of daily life disruptions, compared to ecstasy and cannabis using groups (Schindler, Thomasius, & Petersen Sack, 2009). Markou, Kosten, and Koob (1998) compared non-clinical samples as well as substance users of opioids, alcohol, and cocaine. They found that major depressive disorder had a much higher prevalence in opioid users compared to the aforementioned groups. Their review provided support that opioids were the most powerful and preferred substance for those who lacked functional coping strategies and had attachment related distress. In regards to the debate of whether negative affect is subsequent of drug use or if drug use is subsequent to the negative affect, recommended treatment of the comorbid conditions aimed to illuminate this. Thorberg and Lyvers (2005) provided evidence that even after abstinence

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from drug use patients still had difficulties with regulating their emotions. Suh, Ruffins, Robins, Albanese, and Khantzian (2008) posited that abstinence can be maintained once the patient's aggression is managed. These researchers are eluding to negative affect being the primary issue, and the substance abuse serving as a consequence of this affect. Based on Bandura's self-efficacy theory (Bandura, 1977), the development of substance use disorder stems from the belief that there are pain reducing benefits of the drug use, as well as the disbelief that one would be able to regulate the pain related affect without the use of drugs (Hersen, Rurner, & Beidel, 2007).

Neurobiology of Affect and Substance Use. According to Young, Lawford, Nutting, and Noble (2004) drug addiction is not only the association of environmental cues and substances, but it is also the ability to continually activate the dopamine system. There have been numerous studies that have sought to connect addiction of substances and negative affect to the dopamine system (Shaffer, LaPlante, LaBrie, Kidman, Donato, & Stanton, 2004). Markou and colleagues (1998) established some similarities between depression and drug use. They identified that both clinical presentations bring about neurobiological changes in the human reward and motivational processes, both express similar neurobiological abnormalities, that antidepressants improve both mood and substance abuse, and that there is a high comorbidity between the two disorders which both have theoretical grounding in familial aggregation etiology. In the specific case of opioids, decreases in the neurotransmission of dopamine, and increases in norepinephrine and the corticotropin-releasing factors, are all altered functions of neurotransmitters in the experience of depression and opioid withdrawal. Blockage of the opiate receptors and the dopamine receptors in the nucleus accumbens both produce signs of opioid withdrawal. The nucleus accumbens is the part of the limbic system that involves rewards, pleasure, and addiction (Shaffer et al., 2004). The limbic system manages motivational and affective processes (Markou, Kosten, & Koob, 1998),

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and has the greatest amount of opiate receptors in the brain (Schindler, Thomasius, & Petersen Sack, 2009).

A review by Schindler and colleagues (2009), identified connections between the opiate system and attachment in various animal subjects. When rats separated from their mothers were given opioids their expressions of distress decreased; but then increased when they were administered opioid antagonists (Panksepp, 1998). An escalation in the motivation for care and closeness was apparent in young and adult primates when they were given opiate receptor antagonists (Martel, Nevison, Simpson, & Keverne, 1995; Graves, Wallen, & Maestripieri, 2002; Keverne, Martensz, & Tuite, 1989). Conclusively, Schindler et al.'s (2009) review found that opioid use relieves attachment related distress and decreases the need for social engagement, but lack of opiate agonists showed greater need for social attention and care.

The conditioning of the opioid system is also connected to attachment. Positive interactions with an attachment figure produces a calming effect by releasing endorphins during these interactions. Endorphins are neurotransmitters that cause a feeling of euphoria in the brain. Repeated experiences with the attachment figure, create a conditioning of the opioid system to release endorphins whenever there is a stimulus of the attachment figure or when the figure is present. When the early interactions with the attachment figure are less pleasant, there are less endorphins released and less conditioning that takes place in the opioid system. Consequentially, pleasure from social interactions are not as easily derived because it is more difficult for the opioid system to respond during interactions. An increase of opioids in the system help rectify this imbalance, and become more attractive to those who have insecure attachment styles (Insel, 2003; MacLean, 1990; Zimmer-Hofler & Kooyman, 1996).

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Co-morbidities between negative affects (such as depression) and substance abuse are highly substantiated in the literature (Shaffer et al., 2004). It is vital to recognize that these clinical presentations have striking neurobiological mechanism similarities. Thus, it is intuitive that where there is a chemical deficit in affect, that the individual would be attracted to using opioids as a means to balance this deficit and better regulate their emotions, especially in regards to experiences with their attachment figures.

Methadone Using Populations. As previously noted, opioid users experience great dysfunction in their daily lives in regards to relationships, work, and school (Schindler et al., 2009). Many users will seek treatment to enhance their quality of life (Torrens, Domingo-Salvany, Alonso, Castillo, & San, 1999). Being that they want to prevent withdrawal symptoms but still manage their physical dependence on opioids, users may enroll in a medically assisted facility such as a methadone clinic. The frequent, in most cases daily, methadone dosing provides a sense of structure in the lives of those whose lives may have lacked structure since their childhood. These users create a community amongst themselves, which create a sense of independence through the social connections outside of their families (Stanton et al., 1978). Independence is a long time goal of users, especially those who did not properly resolve their individuation phase in toddlerhood (Brooks & Rice, 1997). Opioid users are said to be attracted to methadone treatment in order to transfer their addiction from their opioid of choice to the methadone medication. To these criticisms, it is important to acknowledge that the primary goal of these facilities is to reduce dependency on any opioids, methadone included (Prus, 2013). Furthermore, many medically assisted treatment facilities provide psychosocial counseling to help their patients manage their affect based difficulties (Bell, Burrell, Indig, & Gilmore, 2006). This comprehensive treatment is necessary because if patients were previously regulating their emotions by using opioids, they

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could return to using if they were not given the coping skills needed to handle the stress of experiencing affect without opioid regulation (Brewer, Catalano, Haggerty, Gainey, & Fleming, 1998). Understanding how ruptures in early development can lead an individual to addiction and later methadone treatment, provides the foundation necessary to connect the variables of interest of this study and how they influence substance abuse treatment outcomes.

Purpose of the Study

Bowlby (1973), Ainsworth (1989), Bartholomew and Horowitz (1991) established that damaged attachments create interpersonal styles that continue in relationships throughout life. The literature shows that addicts may have developed insecure attachments likely due to neglect, trauma, or familial substance abuse during their childhood (Windom & Hiller-Sturmhofel, 2001). Patients who are in substance abuse recovery may have family members who respond to their tangible needs, but are still lacking in the emotional support and care that is needed for rehabilitation (Tracy et al., 2010). Family systems literature posits that families operate under a homeostasis, and that this homeostasis could include addiction (Day, 2008; Jackson & Weakland, 1961; Nichols & Schwartz, 2004). Given this conceptualization family members unknowingly rely on the identified patient remaining in addiction, as their recovery would cause disruptions to the family narrative. Roles that family members have been operating in would need to change, and the family system may not be able to or willing to undergo such reconstruction.

Thus addicts in recovery with the support of a poorly functioning family and damaged attachments, may be receiving help from a system that is not fully committed to their improvement (Anderson, Goolishian, & Windermand, 1986; Papero, 1995). These patients may be re-exposing themselves to the rejection and discouragement that they experienced during their development; whether this is via biological relatives or replicative patterns in a new relationship (Bartholomew

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& Horowitz, 1991). They may still be receiving messages that they are "no good" and incapable (Ackerman, 1983; Brooks & Rice, 1997; Brown, 1985). For this reason this study sought to assess if these patients had a decreased ability to resist substance use, a perceived lowered satisfaction in life or lower self-efficacy in regards to meeting the goals of their substance abuse treatment.

It is pivotal to deepen the understanding of the role played by family members, as well as the level of functioning of the family system in order to inform treatment approaches. Mental health providers could strengthen clinical work with substance abuse patients by assessing the specificity of a patient's social support beyond reported concrete assistance. Such information could help identify the social network needs of the patient or highlight interventions that otherwise may not have been considered.

Hypotheses

A review of the literature identified several inquiries to be addressed through this research. There is evidence that tangible support and positive relationships from a support network can be predictive of positive substance abuse treatment outcomes (Beattie et al.,1993; Broome, Knight, Knight, Hiller, & Simpson, 1997; Brown, O'Grady, Battjes, & Katz, 2004; Costantini, Wermuth, Sorensen, & Lyons, 1992; Gruber & Fleetwood, 2004; Havassy, Wasserman, & Hall, 1991; Huselid, Self, & Gutierres, 1991; Moore & Finkelstein, 2001; O'Farrell & Feehan, 1999; Westreich, Heitner, Cooper, Galanter, & Gued, 1997). However not all types of support, including tangible support, served as beneficial for one's recovery (Tracy et al., 2010). This was especially salient if there were negative aspects of the relationship between the identified patient and their social support (Tracy et al., 2010). Assessing patient's drug use obtained by biological measures, in combination with secondary outcomes such as self-efficacy and quality of life is the recommended way to measure substance abuse treatment efficacy (Tiffany et al., 2012). In interest

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of self-efficacy, close relationships and greater emotional support have been found to improve self-efficacy in substance use interventions. In consideration of quality of life, social support enhances one's ability to recover and enriches their satisfaction in life to sustain the progress made after undergoing treatment (Dobkin, De Civita, Paraherakis, & Gill, 2002; Garmendia, Alvarado, Montenegro, & Pino, 2008).

Given these cumulative findings, my first research aim sought to establish if *differences in tangible support affected treatment outcomes.* Specifically, I hypothesized that *tangible support* would have a positive relationship with both *self-efficacy (hypothesis 1)* and *quality of life (hypothesis 2),* and a negative relationship with *drug use (hypothesis 3).* My second research aim was to determine if the *level of family functioning affected treatment outcomes.* I distinctly theorized that *family functioning* would have a positive relationship with both *self-efficacy (hypothesis 4)* and *quality of life (hypothesis 5),* and a negative relationship with *drug use (hypothesis 6).* See figure 1 for an illustration of hypotheses one through six.

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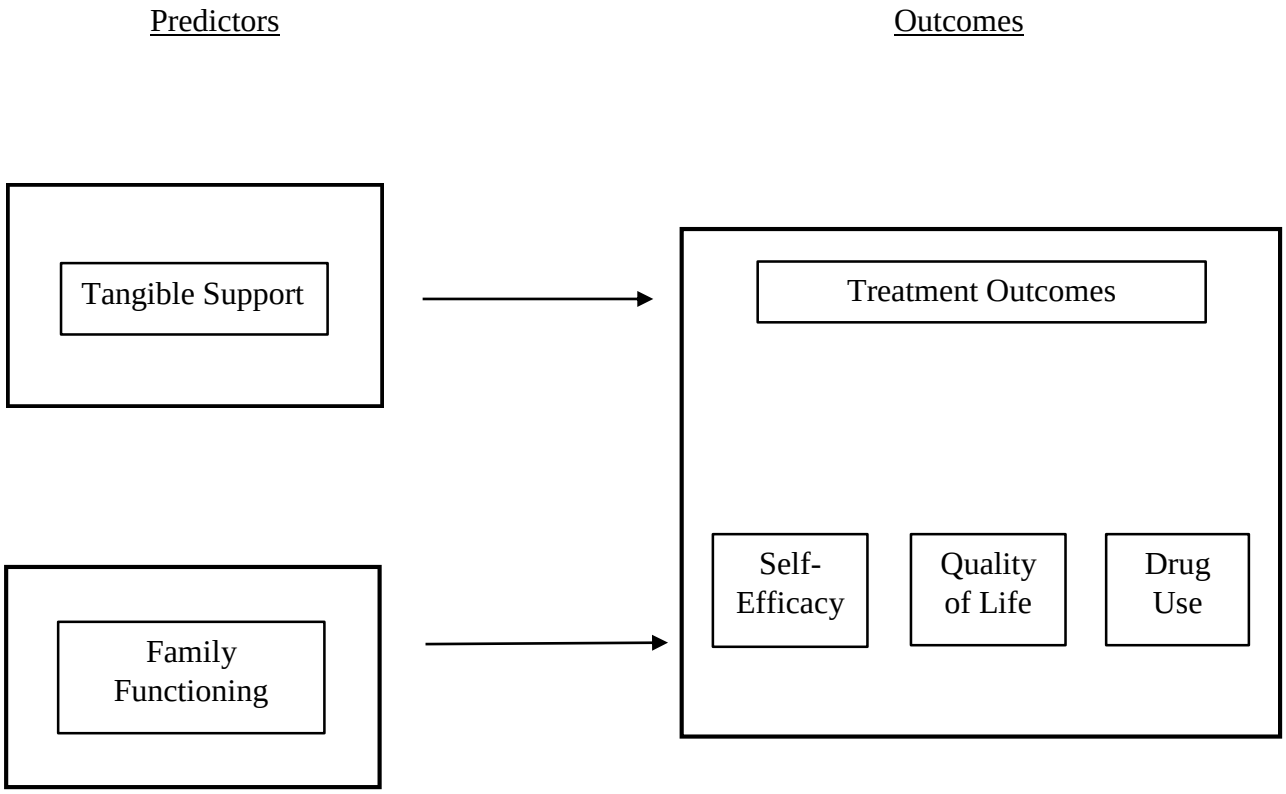

Figure 1. Hypotheses one through six demonstrating the relationship between tangible support and family functioning on treatment outcomes: self-efficacy, quality of life, and drug use.

My final hypotheses stemmed from literature that established a relationship between familial support and treatment outcomes (Min, Tracy, & Park, 2014). More specifically, that family functioning determines the family's ability to be supportive during times of substance use recovery (Ellis et al., 2004; O'Farrell, et al., 1998; Tracy et al., 2010). For this reason, my third aim was *to determine if there would be a positive relationship between tangible support and treatment outcomes, but that this relationship would vary based on level of family functioning*. Within this aim, it was hypothesized that *family functioning would moderate the relationship between tangible support and self-efficacy (hypothesis 7), quality of life (hypothesis 8), and drug*

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use (hypothesis 9) as treatment outcomes. At higher levels of family functioning, tangible support would have a positive relationship with self-efficacy and quality of life, and a negative relationship with drug use. However at lower levels of family functioning, tangible support would reduce or even eliminate the relationships with self-efficacy and quality of life, and increase the relationship with drug use. See figure 2 for illustration of hypotheses seven through nine. Identifying family functioning as an underlying construct of support received from one's family, could help explain mixed findings in the literature in regards to how social support affects the recovery of those in substance abuse treatment (De Vogli, Chandola, & Marmot, 2007; Tracy et al., 2010; Trulsson & Hedin, 2004), specifically in regards to the family system.

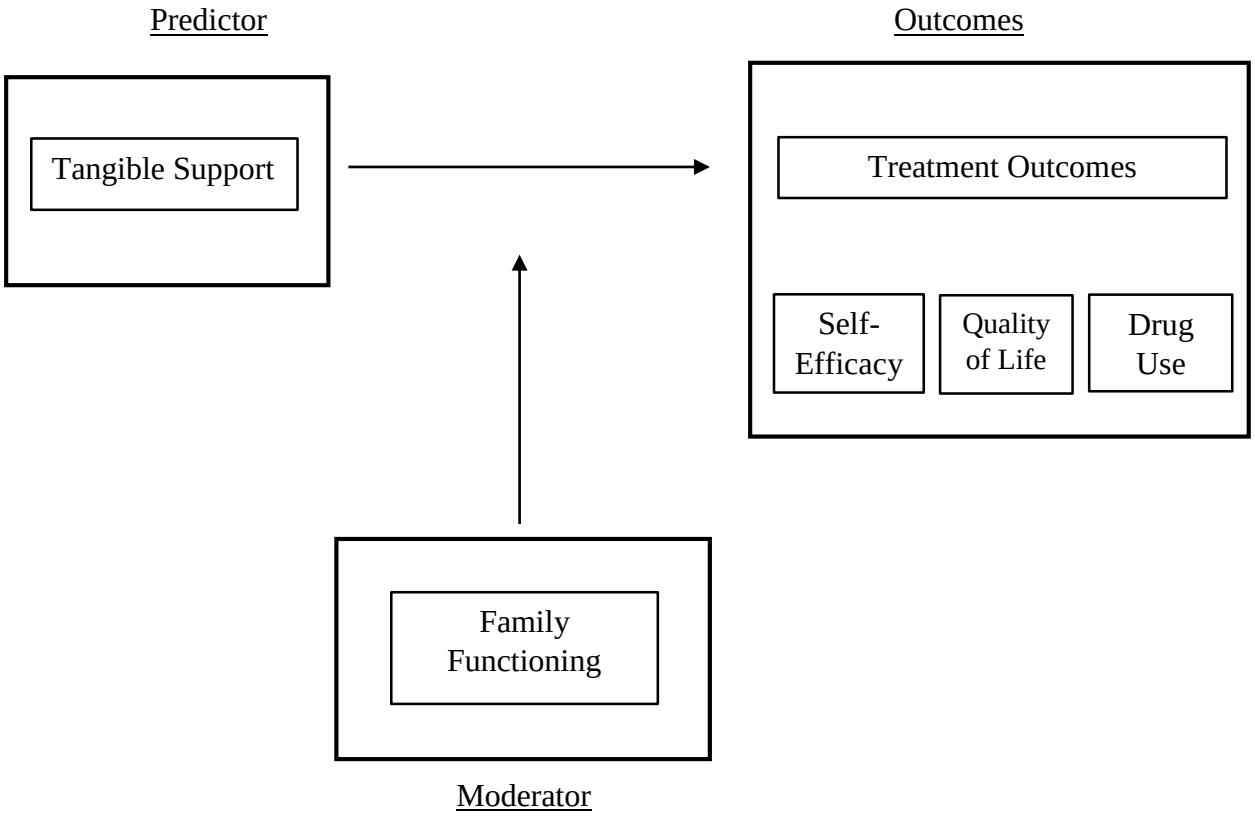

Figure 2. Hypotheses seven through nine demonstrating family functioning's moderating relationship between tangible support and treatment outcomes: self-efficacy, quality of life, drug use.

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Methods

Participants

Participants were patients at a medically assisted treatment clinic in downtown Richmond, Virginia. Inclusion criteria were: be at least 18 years of age and currently enrolled in the clinic. The exclusion criterion was: enrollment in the program for three months or less (to allow time for treatment response). Data was collected from 125 participants, but 110 participants were included due to the study exclusion criteria. The facility's enrollment population was approximately 63.63% females and 36.6% males. Around 74% of the population identified as African American, and 24% identified as Caucasian. The average age of the population was 45 years old. Approximately 91.6% of their patients were being medically treated for opioid abuse with Methadone, and 6.29% were being treated with Suboxone. Participants were recruited via a flyer advertisement and through word-of-mouth. The study advertisement was posted in the pharmacy department of the clinic, which is the patient entrance of the facility. The flyer included information about the study as well as inclusion criteria and instructed potential participants to contact the primary researcher through the agency's primary phone line. Referral strategies utilized facility patients and a facility liaison to refer interested participants to the primary researcher.

Measures

Family Functioning. The Family Assessment Device is a scale that was created using the McMaster Model of Family Functioning (MMFF) (Epstein, Baldwin, & Bishop, 1983). This measurement contains seven different subscales, however, the General Functioning Subscale (FAD-GS) was used for the purposes of this study. There was robust support in the literature that demonstrated that this 12-item subscale adequately captures family functioning, by assessing

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problem solving, communication, family roles, affective responsiveness, affective involvement, and behavioral control (Ridenour, Daley, & Reich, 1999). The survey asked participants to answer questions about their family, using response options that included "*Strongly Agree*" "*Agree*" "*Disagree*" and "*Strongly Disagree*." Examples from this measure included, "*We avoid discussing our fears and concerns,"* and "*We are able to make decisions about how to solve problems."* The alpha coefficient for the general functioning subscale is .91. The subscale's averages were obtained to calculate family functioning scores. The higher the score, the greater the indication of family dysfunction. Any mean subscale scores 1.68 or above are considered dysfunctional and stressed families. Subscale scores below 1.49 are considered well-functioning and non-stressed family units.

Tangible Support. The Inventory of Socially Supportive Behaviors (ISSB; Barrera, Sandler & Ramsay, 1981) assessed tangible and emotional aspects of perceived support. This measure asked participants to consider the past four weeks and to respond with the frequency of social support behaviors received by family members. Example items included, "*Looked after a family member when you were away,*" "*Provided you with a place to stay*," and "*Loaned you over $25*." The item responses included "*Not at all*," "*Once or twice*," "*About once a week*," "*Several times a week*," and "*About every day*." The tangible support scale was used in the data analysis. The alpha coefficient for this measure is .926. Scores from the responses were averaged to obtain a scale score to be included in the data analysis. Larger scores signified a greater amount of tangible support received from family members.

Self-Efficacy. The patient's self-efficacy was assessed using the shortened version of the Drug Taking Confidence Questionnaire (DTCQ-8; Sklar & Turner, 1999). This measure provided a few brief scenarios, and queried participants about their level of confidence that they could resist

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using their drug of choice during a relapse crisis situation. This confidence percentage scale, ranged from 0 (not at all confident that they could resist) to 100 (very confident that they could resist) in increments of 20. Examples of questions included, "*I would be able to resist the urge to use heavily: If other people treated me unfairly or interfered with my plans*;" or "*I would be able to resist the urge to use heavily: If I had trouble sleeping.*" Annis and Martin (1985), the creators of the original Drug Taking Confidence Questionnaire (DTCQ), sought to consider relapse crisis scenarios that feature unpleasant emotions, physical discomfort, pleasant emotions, testing personal control, urges and temptations to use, conflict with others, social pressures to use, and pleasant times with others. The questions on the DTCQ-8 account for 95% of the variance of the DTCQ total. The alpha coefficient for the DTCQ-8 is .89. The DTCQ has also been used in previous studies examining self-efficacy in an opioid recovery population (Reilly, Sees, Shopshire, Hall, Delucchi, & Tusel, 1995). The global self-efficacy score was obtained by calculating the mean of the eight responses. Higher scores on the DCTQ-8 meant that the participant had a higher degree of self-efficacy to not use opioids.

Quality of Life. Perceptions of quality of life were assessed with the World Health Organization Quality of Life-BREF (WHOQOL-BREF) measure. This brief measure is a 26-item survey adapted from the original 100 question WHOQOL-100 assessment (WHOQoL Group, 1998). The WHOQOL-BREF evaluates four domains: physical health, psychological wellness, social relationships, and environment. In addition to these domains, there are two specific questions that assess for overall quality of life and general health. Participant responses were rated on a 5-point Likert scale, where the responses varied by the nature of the item. Example items included, "*How well are you able to get around*," "*How satisfied are you with your capacity to work*," and "*How often do you have negative feelings such as blue mood, despair, anxiety,*

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depression?" The alpha coefficient of the measure is 0.701 (Najafi, Sheikhvatan, Montazeri, & Sheikhfathollahi, 2009). The total rating score on the survey was indicative of the participant's score on this measure. Essentially, the higher the total score the greater the perceived quality of life by the participant.

Current Drug Use. The methadone facility conducts patient urine screens once a month, and they corroborate this information through the prescription drug monitoring program (PDMP). According to the expert panel assembled by NIDA to establish standardized outcomes of treatment, biological measures of drug use are a necessary way to capture evidence of any substance use in addiction populations (Bühringer, Kraplin, & Behrendt, 2012). The PDMP is utilized by medical providers to monitor prescription information in efforts to minimize illegal use of substances (Orr, 2015). To have a fortifiable confirmation of patient's drug use, it is considered best practice to utilize the PDMP to verify that substances detected in patients' urine are all medically prescribed (Owen, Burton, Schade, & Passik, 2012). The participants' urine screen results and PDMP information from the month prior to their involvement in the study were used to establish patient drug use in the past month. If urine screens revealed any positive results of opioid usage in the past month, outside of medical dosage and prescriptions, the participant was identified as engaging in opioid use in the past month.

Demographic Questions. Participants were queried about general demographic information (i.e. age, race, employment status, marital status, etc.). There were a few demographic questions that were of interest to the study that were included. In a self-efficacy study conducted by Dolan, Martin, and Rohsenow in 2008, specific drug related inquiries were presented with demographic questions to discriminate participants' risk of relapse. Subsequently, the present study included questions such as "*Length of time in treatment*," "*Drug of Choice*," "*Age of initial*

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use," and "*Number of enrollments in substance abuse treatment*." Substance abuse history for the family members of the participant were included through brief inquiries. These persons were identified solely by their relationship to the participant and by no other identifiers. These inquiries included, "*Did your_____ (mother/father/other family member) use during your childhood? If so, which substances?*"

Procedure

Surveys were made available to participants by the primary researcher, upon their request, during facility visits when they were scheduled to receive services (i.e. dosing, counseling, or other medical services). The purpose of the study was explained to interested participants one at a time by the primary researcher in a private room at the facility. After reading the consent document, interested participants agreed to partake by signing their names via the consent form. During this time the primary researcher assessed for participant literacy. Consent forms also asked permission to access their drug use information via the facility databases. Then participants received an assessment packet labeled with a participant number. The primary researcher retained the names of participants and assessment packet numbers in a confidential database.

After providing written consent, they began the assessment by answering demographic and substance abuse history questions. The participants then completed the DTCQ-8, the ISSB, the FAD-GS, and the WHOQOL-BREF questionnaires. Upon completion of the measures, study participants' consents forms and survey responses were collected by the researcher and placed into the designated "survey" and "consent form" collection boxes. The purpose of keeping these documents separate was to maintain participant confidentiality. The patients were compensated with $10 in cash immediately after completing the study. After the participant completed the study,

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the primary researcher subsequently reviewed the drug use information of each participant for the past month using the facility databases. These data were de-identified and kept with the participant's assessment responses for the data analysis. Only the primary researcher had access to the master list of the patient's participation numbers, and this document was electronically stored and password protected.

Results

Data Analytic Strategy

Cohen's statistical power guidelines (Cohen, 1988; Cohen, 1992) were used to determine the sample size needed to achieve a medium effect size. In order to produce a medium effect size ($r = .3$), Cohen's statistical power guidelines advised that I obtain at least 85 participants to include in the analysis. Given the possibility that missing participant responses could reduce the power of the data analysis, I collected more than the Cohen guidelines advised, by collecting 125 participants (Tabachnick & Fidell, 2007). The motivation of my sample amount also ensured that I met the 10 cases per variable rule (Concato, Peduzzi, Holford, Feinstein, 1995; Peduzzi, Concato, Feinstein, & Holford, 1995).

SPSS Version 22 was used for the data analyses in my study. All of the collected data was assessed for missing values and inconsistent data values that could have affected my analyses. No scales were missing 20% of the responses to qualify for removal from the analysis. However where missing responses existed, a scale score was created in order for the participant's responses to be included (Tabachnick & Fidell, 2007). Before conducting my analyses, the study data was assessed for normality, linearity, univariate and multivariate outliers, missing data, homogeneity of

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variance, and multicollinearity. Prior to assessing the fit of my models, the data underwent a descriptive analysis including a calculation of means, standard deviations, and an assessment of the correlation between the study measures. See tables 1 and 2. Scale computations were done for self-efficacy, social support, family functioning, and quality of life. Also, the continuous predictor variables (tangible support and family functioning) were centered in preparation for the moderation analysis to reduce the potential for multicollinearity. There was an interaction term that was created between tangible support and family functioning; also for the moderation analyses.

Table 1. *Mean, Standard Deviation, Range, Skewness and Kurtosis*

	Mean	SD	Minimum	Maximum	Skewness	Kurtosis
DTCQ	77.23	22.32	15.00	100.00	-.805	-.413
ISSB	2.20	1.08	1.00	5.00	.816	.020
FADGS	2.13	.57	1.00	3.75	.201	-.170
WHOQOLB	86.16	16.66	40.00	120.00	-.279	-.241

Note: DTCQ = Drug Taking Confidence Questionnaire (self-efficacy); ISSB = The Inventory of Socially Supportive Behaviors (tangible support); FADGS = Family Assessment Device General Functioning Scale (family functioning); WHOQOLB = World Health Organization Quality of Life-BREF (quality of life); Minimum and Maximum values of participant responses

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Table 2. *Correlations among study measures*

Study Measures	1	2	3	4	5
1. DTCQ	--				
2. ISSB	-.004	--			
3. FADGS	-.269**	-.245**	--		
4. WHOQOLB	.252**	.122	-.300**	--	
5. Opioid Drug Use	-.239*	.004	-.071	-.094	--

Note: ***p < .05. **p < .01.**

Note: DTCQ = Drug Taking Confidence Questionnaire (self-efficacy); ISSB = The Inventory of Socially Supportive Behaviors (tangible support); FADGS = Family Assessment Device General Functioning Scale (family functioning); WHOQOLB = World Health Organization Quality of Life-BREF (quality of life)

Descriptive Statistics

Women were 68.2% of the sample; males were 30.9%, and 0.9% of the sample identified as transgender. In regard to age, 22.2% of the sample was between 20 to 35 years of age, 41.7% of the sample was between 30 to 45 years old, 34.3% of the sample was between 50 to 65 years old, 1.8% was 65 years of age and older, and two participants did not provide their age. Approximately 40% of the sample had some high school level education, another 42.7% reported having a high school degree or GED, 13.5.% had some college education, about 0.9% had a bachelor's degree, 2.7% of the sample had a professional or graduate degree, and .9% of the sample did not report their education level.

As far as the sample's socioeconomic status (SES), 44.5% identified as lower SES, 50.0% identified as having middle SES, 1.8% identified as upper SES, and about 3.6% did not report their

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socioeconomic status. Black participants comprised 82.7% of the sample, white participants made up 13.6%, and 3.6% identified as another race (i.e. mixed race or Hispanic). In consideration of participants' relationship status, 49.1% identified a single and not in a relationship, 12.7% reported that they were in a relationship but not engaged or married, 16.4% reported that they were engaged, 8.2% shared that they were married, 1.8% said that they were separated, 4.5% were divorced, and 7.3% reported an "other" status (i.e. widow or widower). Participants' parental status included having no children (8.2%), being the biological primary caretaker (56.4%), having biological children but not being the primary caretaker or having adult children (26.4%), having step children (2.7%), 5.5% identified being in an "other" category (i.e. primary guardian of grandchildren), and 0.9% did not respond regarding their parental status.

The majority of the sample preferred heroin (80%), 12.7% favored opiate pills, and 7.3% said that their drug of choice was both heroin and pills. When queried about the age of their first opioid use, 38.5% of the sample said that they began using opioids during their teenage years or younger, 44.5% shared that they began using opiates between 20 to 29 years old, 9.1% of the participants disclosed that they began using between 30 to 39 years of age, 5.5% began using opioids during the ages of 40 to 49, 1.8% first engaged in opiate use in their 50's, and 0.9% chose not to report their age of first use.

The participants in the study sample varied as far as their length of treatment at the facility. About 22.7% had been enrolled for more than 3 months but less than a year 1 year, 35.5% had been enrolled for 2-3 years, 14.5% had been enrolled for 3-5 years, 13.6% had been enrolled between 5-10 years, and about 11.8% had been enrolled for 10 or more years. Approximately 26.4% of the patients' reported that this was their first time in a substance abuse treatment program. About 18.2% of the sample were experiencing their second substance abuse treatment enrollment,

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24.5% were in their third enrollment, 12.7% were in their fourth enrollment, 8.2% were in their fifth enrollment, and 4.5% have been in enrolled in a substance abuse treatment program six or more times.

Participants' current level of family communication included 53.6% who had daily communication, 22.7% are in communication with their family a few times a week, 11.8% communicate with their family a few times a month, 5.5% are in communication with their family members a few times a year, 5.5% were also in communication with their families once a year or less, and .9% did not respond to the inquiry.

Upon review of the participant's urine screens and prescription drug monitoring program information, it was found that 79.1% of the sample did not use opioids in the past month and 20.9% used opioids in the past month. When participants' use of non-opioid drugs was assessed, it was revealed that 69.1% of the sample did not use any non-opioid drugs in the past month, and 30.9% of the sample were found to have used non-opioid drugs in the past month. In regard to the patients who were positive for opioid and/or non-opioids drugs, 77.55% of them did not have a prescription on file for the substance found in the urine, 16.32% did have prescriptions, and 6.12% of them had prescriptions for some of the substances found in their urine but not all. More descriptive statistics can be found detailed in Table 3.

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Table 3. *Descriptive Statistics of Participant Sample*

Descriptive Variables	Participant Number (N=110)
Gender	
Female	75
Male	34
Transgender	1
Age	
20-35	24
36-50	45
51-65	37
65 and over	2
Education	
Some high school	43
High school degree or GED	47
Some College	11
Bachelors Degree	1
Graduate School or Professional Degree	3
Socioeconomic Status	
Lower SES	49
Middle SES	55
Upper SES	2
Race	
Black	91
White	15
Other	4
Relationship Status	
Single	54
Dating	14
Engaged	18
Married	9
Separated	2
Divorced	5
Other	8
Parental Status	
No children	9
Biological Primary caretaker	62
Biological Not Primary Caretaker	29
Step Children Primary Caretaker	3
Other	6

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Opioid of Choice	
Heroin	88
Pills	14
Both	8
Age that Participant Started Use	
10-19	42
20-29	49
30-39	10
40-49	6
50-59	2
Length of time in treatment at current facility	
Over 3 months to 1 year	25
2-3 years	39
3-5 years	16
5-10 years	15
10 or more years	13
Enrollments in Substance Abuse Treatments	
One	29
Two	20
Three	27
Four	14
Five	9
Six or more	7
Level of Family Communication	
Daily	59
A few times a week	25
A few times a month	13
A few times a year	6
Once a year or less	6
Opioid Use	
No Opioid Use in the past month	87
Opioid Use in the past month	23
Non-Opioid Drug Use	
No Non-Opioid Use in the past month	76
Non-Opioid Use in the past month	34
Prescription Status (n=49)	
No prescription on file	38
Prescription on file	98
Prescription on file for some but not all drugs in urine	3

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Assumptions

Multiple Linear Regression Assumptions. The first assumption was that the predictor variables were quantitative or categorical, and that the outcome variable is continuous. The variables included in my linear regression analyses met this assumption. It was also established that the outcome variables were independent of one another. None of the predictors have variances of 0, and none were related to external variables. After assessing for correlations between the variables, it was determined that there was no multicollinearity between any of the predictor and outcome variables. Additionally, the tolerance was <1 and the VIF was below 10 for each variable, thus meeting the assumptions of no multicollinearity among the predictor variables.

Univariate outliers were assessed by calculating z-scores of the variables, and evaluating if there were any responses that were two standard deviations away from the mean. The minimum and maximum values showed that none of the variables exceeded this critical value, thus meeting this assumption (Tabachnick & Fidell, 2007). Mahalanobis distance was examined for each variable and then compared with the critical value (Tabachnick & Fidell, 2007). Consequential of this, it was concluded that there were no multivariate outliers. Through assessment of the Durbin Watson test, the variables were found to have independent errors as the calculated values were >1 but < 3 and close to 2, meaning that the residuals were uncorrelated. There was homoscedasticity among the predictor variables, and the mean values of the outcome variable were linear.

Binary Logistic Regression Assumptions. Dichotomy of the outcome variable was determined, and the dependent variable was coded to reflect that (1) indicated the probability that the expected event occurred. After meeting those assumptions, it was established that the analyses would include at least 10 cases per independent variable. The linearity of the logit and multicollinearity assumptions of the binary logistic regression were also assessed prior to the

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analysis. Interaction terms were created between the predictor variables and the log of themselves, and assessed for significance. Upon examination, it was determined that each of the predictor variables met this assumption. Additionally, each case derived from a onetime measured response from an individual participant. Multicollinearity among the predictor variables was ensured by assessing the tolerance, VIF, and eigenvalues. For each predictor the tolerance was <1, the VIF was below 10, and no two predictors had high values of variance proportions in the same dimension of eigenvalues. It was concluded that there was no multicollinearity among the variables. A stepwise method was used to ensure the model fit with meaningful variables. Upon confirming these criteria, it was determined that the data was appropriate for the binary logistic regression analysis. Prior to beginning the analyses, I also assessed for any possible confounding variables of the model.

Tangible Support and Family Functioning Effects on Self-Efficacy

Hypothesis one and two theorized that tangible support would have a relationship with self-efficacy. To address these hypotheses, a multiple linear regression analysis was conducted. Covariates were assessed to see if any needed to be added to the model to control for their influence on the outcome variable. This included age, gender, SES, relationship status, length of time in treatment, and length of addiction. Gender was the only variable found to have a significant correlation with the outcome variable, thus this variable was included in the analysis. The initial model featuring only the controlled variable was significant, F (1, 106) = 12.185, p = .001, R^2 = .172. Gender was a significant predictor of self-efficacy as a treatment outcome, β = -.321, t (106) = -3.491, p = .001. Results of the linear regression analysis that included tangible support and family functioning showed that these variables significantly improved the prediction ΔR2 = .172, ΔF (2, 104) = 4.307, p = .016. This finding demonstrates tangible support and family functioning

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and gender, as a set, can predict a patient's self-efficacy. The model was significant, F (2, 104) = 7.186, p < .001, R^2 = .172, accounting for 17.2% of the variance. Although, tangible support did not significantly predict self-efficacy, β = .005, t (107) = -.052, p = .959, family functioning was a significant predictor of self-efficacy, β = -.261, t (107) = -2.794, p = .006. Hypothesis one was not supported as tangible support did not have a significant relationship with self-efficacy. Hypothesis two was supported as family functioning did have a significant relationship with self-efficacy. These results are reported in Table 4.

Tangible Support and Family Functioning Effects on Quality Of Life

Hypotheses four and five posited that family functioning would have a relationship with both self-efficacy and quality of life. A multiple linear regression analysis was used to assess these hypotheses. Covariates were examined by a correlational analysis to assess for any possible influence on the outcome variable. This included age, gender, education, socioeconomic status, race, relationship status, length of time in treatment, and length of addiction. Socioeconomic status was significantly correlated with quality of life, thus this variable was included in the model. The initial model featuring only the controlled variable was significant, F (1, 104) = 16.965, p < .001, R^2 = .140. Socioeconomic status was a significant predictor, β = .374, t (104) = 4.119, p < .001. The addition of tangible support and family functioning slightly improved the model, ΔR^2 = .063, ΔF (2, 102) = 4.011, p = .021. The results of the full model featuring the predictor variables of interest was significant, F (3, 102) = 8.656, p < .001, R^2 = .203, accounting for 20.3% of the model variance. This indicates that tangible support, family functioning, and socioeconomic status, as a set, can predict a patient's perception of their quality of life. Tangible support was not able to significantly predict quality of life, β = .002, t (102) = .026, p = .979. Family functioning, on the other hand, was found to be a significant predictor of quality of life, β = -.252, t (102) = -2.752, p

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= .007. In the final model, socioeconomic status maintained its significance as a variable, β = .339, t (102) = 3.759, p < .001. Hypothesis four was not supported as tangible support did not have a significant relationship with quality of life. Hypothesis five was supported as family functioning did have a significant relationship with quality of life. These results are reported in Table 4.

Table 4. *Multiple Linear Regression Analyses*

Outcome and *Predictor* Variables	**B**	**SE B**	**B**	**t**	**R2Δ**
Self-Efficacy F (3, 104) = 7.186, p < .000, R^2 = .172					
Step 1					.103
Gender	-14.223**	4.075	-.321	-3.491	
Step 2					.172
Gender	-13.841**	3.965	-.312	-3.491	
Tangible Support	.105	2.025	.005	-.052	
Family Functioning	-9.933*	3.556	-.261	-2.794	
Quality of Life *F* (3, 102) = 8.656, *p* < .001, R^2 = .203					
Step 1					.140
Socioeconomic Status	11.643**	2.827	.374	4.119	
Step 2					.063
Socioeconomic Status	10.539**	2.804	.339	3.759	
Tangible Support	.037	1.419	.002	-.026	
Family Functioning	-7.403*	2.690	-.252	-2.752	
Note: *p < .05. **p < .001.					

Tangible Support and Family Functioning Effects on Opioid Use

Hypotheses three and six aimed to determine if tangible support and family functioning influence patients' drug use. A logistic regression was used to examine these hypotheses. Prior to running the model, age, gender, parental status, addiction length, treatment length, and non-opioid drug use were assessed as potential confounding variables. Non-opioid drug use was significantly correlated with opioid drug use as the outcome variable, thus it was included in subsequent analyses. Due to its categorical nature, the analysis ran non-opioid drug use with both internal

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categories: no non-opioid drug use in the past month (category 0) and non-opioid drug use in the past month (category 1). The analysis only featuring non-opioid drug use as a Step 1 predictor, was significant, χ^2 (1, N = 110) = 23.690, p < .001. No non-opioid drug use as a predictor (category 1) was significant, $\chi^2(1) = 20.213$, p < .001; OR = .086 (CI = .029 – .250). In Step 2, a test of the full model against the constant-only model was significant, χ^2 (3, N = 110) = 24.410, p = .001. However, tangible support was not a significant predictor of opioid use, χ^2 (1) = .321, p = .571; OR = .866 (CI = .547 – 1.423). Family functioning was also unable to significantly predict opioid use, χ^2 (1) = .532, p = .466; OR = .695 (CI = .262 – 1.846). These results illustrated that hypotheses three and six were not supported by the study's data.

Subsequently, the model was able to differentiate between those who used opioids outside of their methadone dose and prescriptions, and those who did not use opioids outside of their methadone dose. This finding, however, could not be attributed to the influence of tangible support or one's family functioning as predictor variables. The variable with the greatest significant impact on the model was participant's use of non-opioid drugs, specifically those who did not use non-opioid drugs in the past month, χ^2 (1) = 20.206, p < .001; OR = .083 (CI = .028 – .246). The accurate classification of cases from the predictor was high for the prediction of those who did not use opioids outside of their medical prescriptions and facility dose (90.8%), and moderately low for those who did use opioids outside of their medical prescriptions and facility dose (47.8%). Overall, the model was able to reliably discern between individuals who used opioids in the past month from those who did not use opioids in the past month (81.8%). Data from the logistic regression analyses can be found in Table 6.

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Family Functioning as a Moderator between Tangible Support and Self-Efficacy

Hypotheses seven sought to understand if family functioning moderated the relationship between tangible support and self-efficacy. A step-wise hierarchical method was used to run a multiple linear regression to assess this hypothesis. The variables age, gender, socioeconomic status, relationship status, length of addiction, and length of time in treatment were assessed for a correlational relationship with self-efficacy as an outcome variable. None of the possible covariates were found to have a significant relationship with self-efficacy, thus none were added to the analysis to assess third variable influence. The predictor variable tangible support was centered and entered into the step-wise hierarchical multiple regression analysis. There was no significant improvement from the constant only model, $\Delta R^2 = .000$, ΔF (1, 108) = 0.002, $p = .967$. Findings from this step revealed that the model was not a significant predictor of self-efficacy, F (1, 108) = 0.002, p = .967, $R^2 = .000$.

The centered tangible support predictor was not found to be a significant predictor of self-efficacy in this model, β = -.004, t (108) = -.041, p =.967. Family functioning was then centered and added to the model. This addition improved the model, $\Delta R^2 = .076$, ΔF (1, 107) = 8.834, p = .004; and this model was significant, F (2, 107) = 4.418, p = .014, $R^2 = .076$. The centered family functioning predictor was found to be a significant predictor of self-efficacy in this model, β = -.285, t (107) = -2.972, p =.004. For the final step, the interaction term between family functioning and tangible support was entered to test the full model against a constant-only model.

Although it approached significance, the interaction term did not significantly improve the model, $\Delta R^2 = .032$, ΔF (1, 106) = 3.812, p =.054. However, the overall model was significant, F (3, 106) = 4.293, p = .007, $R^2 = .108$, and accounted for 10.8% of the variance on the outcome variable. This indicates that as a set, the predictors (tangible support and family functioning) were

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reliably able to discern participants' self-efficacy in treatment. When the interaction term of family functioning and tangible support was assessed, it was not shown to be a predictor of self-efficacy, β = .181, t (106) = 1.953, p =.054. Thus, one's family functioning considered with the tangible support received from their family, does not serve as a predictor of their self-efficacy in treatment. Hypotheses seven was not supported. These results are reported in table 5.

Family Functioning as a Moderator between Tangible Support and Quality Of Life

A step-wise hierarchical method was used to run a multiple linear regression to assess hypothesis eight. This hypothesis sought to understand if family functioning moderated the relationship between tangible support and quality of life. Prior to running the analysis, the following variables were examined for possible inclusion in the model: age, gender, socioeconomic status, education, race, relationship status, length of addiction, and length of time in treatment. Socioeconomic status was correlated with the outcome variable, and thus included in the model to be examined as a potential covariate. A test of the covariate against a constant-only model showed a significant change, $\Delta R^2 = .140$, ΔF (1, 104) = 16.965, $p < .001$, and the model was significant, F (1, 104) = 16.965, $p < .001$, $R^2 = .140$. Socioeconomic status was found to be a significant predictor of the outcome variable, β = .374, t (104) = 4.119, p <.001.

The predictor variable tangible support was centered and entered into the step-wise hierarchical multiple regression analysis. Findings from this step revealed that the model was a significant predictor of quality of life, F (2, 103) = 8.645, $p < .001$, $R^2 = .144$, although it did not significantly improve the model $\Delta R^2 = .003$, ΔF (1, 103) = .177, $p = .518$. The centered tangible support predictor was not found to be a significant predictor of quality of life in this model, β = -.060, t (103) = -.648, $p = .518$. Family functioning was then centered and added to the model. The

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model was significant, F (3, 102) = 8.656, p < .001, R^2 = .203, and was found to be an improvement upon the previous step, ΔR^2 = .059, ΔF (1, 102) = 7.575, p < 0.10. The centered family functioning predictor was found to be a significant predictor of quality of life in this model, β = -.252, t (102) = -2.752, p =.007. For the final step, the interaction term between family functioning and tangible support was entered to test the full model against a constant-only model. The model was significant, F (4, 101) = 6.767, p < .001, R^2 = .212. This model accounted for 21.2% of the variance on the outcome variable, but was not an improvement from the previous step ΔR^2 = .009, ΔF (1, 101) = 1.175, p = .281. This indicates that as a set, the predictors were reliably able to discern participants' perceptions of their quality of life.

When the interaction term of family functioning and tangible support was assessed, this was not shown to be a predictor of quality of life, β = .097, t (101) = 1.084, p =.281. Thus, one's family functioning along with the tangible support that they receive from their family does not serve as a predictor of their quality of life. Socioeconomic status was a predictor controlled for in the model, which seemed to have the greatest influence on the model's significant value β = .337, t (101) = 3.734, p < .001. Hypothesis eight was not supported by the data. The results from this analysis can be found in table 5.

Table 5. *Moderations for Multiple Linear Regression*

Outcome and *Predictor* Variables	**B**	**SE B**	**B**	**t**	**R2Δ**
Self-Efficacy *F (3, 106) = 4.293, p = .007, R^2 = .108*					
Step1					.000
Tangible Support_Cent	-.082	1.986	-.004	-.041	
Step 2					.076
Tangible Support_Cent	-1.361	1.979	-.066	-.688	
Family Functioning_Cent	-11.200*	3.768	-.285	-2.972	

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Step 3					.032
Tangible Support_Cent	-1.515	1.955	.073	.775	
Family Functioning_Cent	-12.381*	3.769	-.315	-3.285	
Tangible Support_Cent x *Family Functioning_Cent*	7.071	3.622	.181	-1.953	

	B	**SE B**	**B**	**T**	**R2Δ**
Quality of Life *F (4, 101) = 6.767, p < .001, R^2 = .212*					
Step 1					<.001
Socioeconomic Status	11.643**	2.827	.374	4.119	
Step 2					.518
Socioeconomic Status	11.326**	2.877	.364	3.937	
Tangible Support_Cent	-.924	1.426	.060	-.648	
Step 3					.007
Socioeconomic Status	10.539**	2.804	.339	3.759	
Tangible Support_Cent	-.037	1.419	-.002	-.026	
Family Functioning_Cent	-7.403*	2.690	-.252	-2.752	
Step 4					.281
Socioeconomic Status	10.463**	2.802	.337	3.734	
Tangible Support_Cent	-.019	1.419	.001	.014	
Family Functioning_Cent	-7.882*	2.724	-.269	-2.894	
Tangible Support_Cent x *Family Functioning_Cent*	2.822	2.604	.097	1.084	

Note: *p < .05. **p < .001.; Cent: Centered predictor variables

Family Functioning as a Moderator between Tangible Support and Opioid Use

Hypothesis nine theorized that family functioning would moderate the relationship between tangible support and opioid use. A step-wise hierarchical method was used to run a binary logistic regression to assess this hypothesis. The analysis controlled for non-opioid drug use. Due to its categorical nature, the analysis ran non-opioid drug use with both internal categories: no non-opioid drug use in the past month (category 0) and non-opioid drug use in the past month (category 1). A test of the covariate against a constant-only model was significant, χ^2 (1, N = 110) = 23.690,

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$p < .001$. Non-opioid drug usage was significant $\chi^2(1) = 20.213$, $p < .001$; OR = .086 (CI = .029 – .250); specifically the category no non-opioid drug use in the past month.

The predictor variable tangible support was centered and entered into the step-wise hierarchical multiple regression model. Findings from this step revealed that the model was a significant predictor of opioid drug use, χ^2 (2, N = 110) = 23.870, $p < .001$. The centered tangible support predictor was not found to be a significant predictor of opioid use in this model, tangible support $\chi^2(1) = 0.178$, $p = .673$; OR = 1.109 (CI = .686 – 1.792). Family functioning was then centered and added to the model, and the model was significant, χ^2 (3, N = 110) = 24.410, $p < .001$. However, the centered family functioning predictor was not found to be a significant predictor of opioid use in this model, family functioning $\chi^2(1) = .532$, $p = .466$; OR = .695 (CI = .262 – 1.846).

For the final step, the interaction term between family functioning and tangible support was entered to test the full model against a constant-only model, and the model was significant, χ^2 (4, N = 110) = 25.685, $p < .001$. This indicates that as a set, the predictors reliably discerned between those who engaged in opioid use outside of their methadone done and medical prescriptions and those who did not. When the interaction term of family functioning and tangible support was assessed, this was not shown to be a predictor of opioid use, $\chi^2(1) = 1.273$, $p = .259$; OR = 1.723 (CI = .670 – 4.433). Thus, one's family functioning along with the tangible support that they receive from their family does not serve as a predictor of opioids use outside of their methadone dose and prescriptions. Subsequently, hypothesis nine was not supported.

No non-opioid drug use was a predictor controlled for in the model, which seemed to have the greatest influence on the model's significant value, $\chi^2(1) = 20.447$, $p < .001$; OR = .080 (CI =

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.027 – .239). The classification of cases was high for the predication of those who did not use opioids outside of their medical prescriptions and facility dose (89.7%), and moderate low for those who did use opioids outside of their medical prescriptions and facility dose (52.2%). Overall, the model was able to somewhat reliably discern between individuals who are used opioids in the past month from those who did not use opioids in the past month (81.8%). Data from the binary logistic regression analyses can be found on Table 6.

Table 6. *Binary Logistic Regression Analyses*

Outcome and *Predictor* Variables	***B***	**SE**	**Wald**	***OR***	***CI***
Opioid Drug Use $\chi 2$ (3, N = 124) = 0.200, p = .001					
Step 1					
Non-opioid Drug Use	-2.457**	.546	20.213	.086	.029 – .250
Step 2					
Non-opioid Drug Use	-2.486**	.553	20.206	.083	.028 – .246
Tangible Support	-.143	.253	.321	.866	.262 – 1.423
Family Functioning	-.364	.498	.532	.695	.262 – 1.846
Tangible Support x *Family Functioning* $\chi 2$ (1) = 0.020, p = .603					
Step 1:					
Non-opioid Drug Use	-2.457**	.546	20.213	<.001	.029 – .250
Step 2:					
Non-opioid Drug Use	-2.482**	.551	20.259	<.001	.062 – .380
Tangible Support_Cent	.103	.245	.178	1.109	.686 – 1.792
Step 3:					
Non-opioid Drug Use	-2.486**	.553	20.206	.083	.028 – .246
Tangible Support_Cent	.143	.253	.321	1.154	.703 – 1.896
Family Functioning_Cent	-.364	.498	.532	.695	.262 – 1.846
Step 4:					
Non-opioid Drug Use	-2.528**	.559	20.447	.080	.027 – .239
Tangible Support_Cent	.160	.263	.370	1.174	.700 – 1.967
Family Functioning_Cent	-.395	.496	.633	.674	.255 – 1.782
*Tangible Support_Cent*Family Functioning_Cent*	.544	.482	1.273	1.723	.670 – 4.433

Note: *p < .05. **p < .001.
Note: SE: Standard Error; OR: Odds Ratio; CI: Confidence Interval; Cent: Centered predictor variables

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Discussion

The current study sought to understand how the support and functioning of one's family influences recovery from opiate addiction. Findings established that tangible support had no relationship with patient self-efficacy, quality of life, or drug use as treatment outcomes. Family functioning was found to have a positive relationship with patient self-efficacy and perceptions of quality of life; however, there was no relationship with drug use as a treatment outcome. Furthermore, family functioning did not moderate the relationship between tangible support and treatment outcomes.

Analyses were conducted to assess if there was a relationship between tangible support and treatment outcomes (Hypotheses 1, 2, 3). It was hypothesized that tangible support would have a positive relationship with treatment outcomes; however, none of these hypotheses were supported. The social support literature demonstrates that tangible support can be either helpful or harmful, depending on the relationship quality with the giver of the support (Tracy et al., 2010). Previous research substantiates that tangible support, even if helpful, does not influence the completion of substance abuse treatment (Tracy et al., 2010). The findings of the current research add to the literature that tangible support does not have an influence on treatment outcomes, notably abstinence self-efficacy, perceived quality of life, and drug use. Specifically assessing tangible support as a treatment outcome, if someone responded to the ISSB measure (Barrera, Sandler & Ramsay, 1981) that they received assistance such as childcare or borrowing money, this does not translate to patient confidence in their ability to not use drugs. Tangible support may increase treatment compliance or keep recovering addicts out of legal trouble. However, as far as the addict's internal beliefs about what they are capable of, these beliefs are not strongly influenced by concrete assistance from those around them.

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If someone in recovery receives tangible help, this support would likely be perceived as beneficial for the treatment progress. However, it is important to acknowledge that some forms of tangible support can be detrimental. This is particularly true if patients feel that they are stuck in a situation where they must rely on the assistance (i.e. food and shelter), but feel hindered by those providing the support (i.e. being in conflict-ridden relationships, exacerbating patient's guilt, and/or using substances around patient) (Tracy et al., 2010). Thus receiving tangible support, in some cases, may not translate into a reason why a recovering addict would feel that they are experiencing an overall better quality of life.

Irrespective of the tangible support received, results of the current study suggest that this help does not influence actual drug use patterns while one is in recovery. Dependency and addiction have biological and psychological foundations, respectively (Dependency, 2012). It is comprehensible that these internal mechanisms may permeate deeper than what can be influenced by an external factor such as tangible support. Tangible support alone may not make a strong enough impact to influence someone in recovery to refrain from drug use. These findings imply that variables with greater psychological underpinnings should be examined for their influence on treatment outcomes.

Hypotheses four and five were supported. As theorized, family functioning had a relationship with self-efficacy and quality of life. Although the results showed a negative relationship between family functioning as a predictor and the outcome variables self-efficacy and quality of life, the directional scoring of the family functioning scale is important to assess. Ridenour, Daley, and Reich (1999) explained that lower scores on this scale represent functional family operations, and higher scores indicated dysfunctional family operations. Thus according to the study findings, lower levels of family dysfunction increase scores on patient self-efficacy and

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quality of life scales. These results are consistent with support in the literature that families can improve treatment outcomes for those in recovery (Edwards & Steinglass, 1995; Liddle, 2004; Lin, Wu, & Detels, 2011; Peters, Pontin, Lobban, & Morris, 2011).

As previously noted, self-efficacy is when someone believes that they have the ability and resources to achieve a preferred result (Bandura, 1977; Bandura & Locke, 2003; Dolan, Martin, & Rohsenow, 2008). A well-functioning family according to Ridenour, Daley, and Reich (1999) is a system that can engage in problem solving, have good communication, well-established family roles, appropriate affective responsiveness and affective involvement, as well as behavioral control. It is plausible that someone would be more confident in their ability to reach a goal when they are supported by a system that engages well with problem solving, has healthy behavioral and affective responses, and good communication skills. Well-functioning family systems likely motivate the recovering addicts to achieve sobriety through forms of encouragement. Indeed, motivation has been found to be a predictor of self-efficacy in the substance abuse population (Dolan et al., 2007).

Further, the substance abuse literature shows that many recovering addicts seek sobriety because of their family members (Booth et al., 1992; Room, Matzger, & Weisner, 2004). Thus if a patient has quality support, these family members may also be perceived as objects of motivation, and patients may want to make changes to maintain their strong connections with their family members. Beyond the ability to motivate patients in substance abuse treatments, family systems also emulate each other's coping mechanisms (Chassin & Ritter, 2001; Kilpatrick Acierno, Baunders, Resnick, Best, & Schnurr, 2000). It is possible that family members who are well functioning could also model examples of healthy coping mechanisms for recovering patients. Overall, results show that having healthy attachments where one feels connected and supported by

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others, can lead to greater self-efficacy in substance abuse treatment. The findings from this study are consistent with previous research that highlights the impact of families in treatment (Ellis et al., 2004; Rhodes & Jason, 1990) and emphasizes that the functioning of the family is essential to one's recovery more so than general tangible support.

The finding that family functioning positively predicts quality of life for those in substance abuse recovery was also comprehensible. Referring to the current study's "pathway from insecure attachment to methadone treatment" theory, early attachments can influence the quality of relationships. The quality of relationships influences the family system and the family's overall functioning (Day, 2008; Nichols & Schwartz, 2004). A well-functioning family with healthy relationships could enhance a recovering addict's quality of life in a variety of ways.

Many changes take place when someone is rehabilitating from opiate addiction. This includes finding stable shelter and employment, improving their health, obtaining transportation to receive methadone treatment, taking care of their bodies and appearance, experiencing emotions, and managing social interactions and damaged relationships (Nettleton, Neale, & Pickering, 2011). Given the myriad of life adjustments that must be made while in recovery, receiving support from family members who can help problem solve with the patient would likely make a difference in how much they are able to benefit from treatment. Healthy family functioning is indicated by effective problem solving (Ridenour, Daley, & Reich, 1999). To expand on this, consider the family system characteristics of a person who may have a higher satisfaction with their health. Their satisfaction with their health may be attributed to having people in their lives who they could have communicated with about their health concerns, and then engage in problem solving with to reach more optimal outcomes. Additionally, it may be easier to communicate quality of life concerns with family members who display appropriate affective responsiveness

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and involvement; which are also responses reflective of good family functioning (Ridenour, Daley, & Reich, 1999). Ultimately, this research indicates that healthy family functioning can influence a patient's quality of life while in substance abuse treatment.

Results show that being connected to a healthy family system with supportive relationships is of greater value than tangible support to patients, and that the presence of these healthy relationships are enough to improve one's treatment response. Furthermore, because families are systems that influence one another (Day, 1995; Day, 2008; Nichols & Schwartz, 2004), once an addict is in recovery not only could this improve their quality of life, but this could improve the quality of life of their family members as well. According to the WHOQOL-B Group (1998), quality of life includes feelings of life enjoyment, feelings of purpose, and relationship satisfaction. If family members were involved and helpful in the addiction treatment, it is possible that this would improve the quality of life for the addict as well as the family members. This connects back to the concept of circular causality (Day, 2008). Essentially as the patient's quality of life improves, so does their family system's quality of life, which in turn further bolsters the patient's quality of life. Research shows that family members could be either helpful or detrimental to a patient's substance abuse recovery (Tracey et al., 2010). The findings from this study demonstrate that family functioning is a key variable in understanding how families can contribute to substance abuse treatment outcomes.

It is important to also conceptualize the mechanisms underlying family functioning, and how this adversely influences feelings of self-efficacy and quality of life perceptions. Families have a homeostasis that requires the expectations and roles of each member to be fulfilled in order to maintain an internal balance within the family (Day, 2008). In the family dynamic literature, addiction can be conceptualized as a symptom of family dysfunction (Anderson, Goolishian, &

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Windermand, 1986). For the member who is dependent on opioids, being an "addict" is their role in the family. For poorly functioning families, this subsequently sows the belief in the other family members that this person is the problem in the family. Family roles then emerge around this belief in order to manage the problem (Anderson, Goolishian, & Windermand, 1986). The formation of these roles due to the presence of addiction, consequentially diverts attention from underlying issues of the family's dysfunction of which the addiction is a symptom (i.e. overinvolved mother, under involved father, trauma and abuse in the home, etc.) (Papero, 1995).

As long as the "problem" family member is engaged in their addiction, everyone understands and maintains their roles, and the family sustains their homeostasis (Stelle & Scott, 2007). Disequilibrium of the homeostasis can occur once the addict is in recovery (Stelle & Scott, 2007). Families that are poorly functioning may not know how to adjust in response to the recovering addict's new functioning level. Specifically, the addict's previous enablers or former criticizers may not want to or know how to readjust. They may continue their avoidant, enabling, or ridiculing behavior as these are the scripts that they have been accustomed to following. As such, adjusting responses toward the patient while they are in recovery can be challenging for their family (Buchman & Reiner, 2009).

As previously noted, many opiate addicted persons are the products of insecure attachment and possibly abusive relationships (Kang et al., 1999; Krausz, Saddichha, Strehlau, Taplin, Li, Al-desouki, Schuetz, 2014; Stanton, 1978). In these systems, it is plausible that those in recovery may still be coping with self-pity or negative self-associations developed prior or during their addiction (Elgersma, Glashouwer, Penninx, Bockting, & Jong, 2013; White, 2001). Thus, self-efficacious beliefs may be very difficult to achieve. Aside from damaging self-perceptions, family systems with unhealthy attachments and poor relationships, may prove as discouraging or triggering for

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patients (Brown, 1985; Ellis et al., 2004; O'Farrell et al., 1998; Tracey et al., 2010). These poorly functioning families could be triggering negative affect for recovering addicts, thus the patient's belief in their abilities to abstain from drug use and to do well in treatment are understandably not very high. Additionally, those in recovery who feel that they are unsupported by family members and/or whose families may be adding stressors to the patient's sobriety goals, may find it more challenging to reach satisfaction in other areas of their life. In consequence, if a patient's family's response is reflective of poor family functioning, this could impair self-efficacy and perceptions of quality of life while in recovery.

Hypotheses seven, eight, and nine assessed if family functioning moderated the relationship between tangible support and the three treatment outcomes (self-efficacy, quality of life, and drug use). These three hypotheses were not substantiated by the data. When family functioning was entered into the moderating models assessing self-efficacy and quality of life as outcomes, family functioning showed to be significant. However, when the product variable was entered, these models were no longer significant. Being that the study's data already demonstrated that tangible support did not have any significant bearing on one's self-efficacy, quality of life, or drug use, there was no relationship for family functioning to moderate. As stated previously, dependency and addiction have biological and psychological influences (Dependency, 2012). Thus an external variable such as tangible support may not be substantial enough to influence these mechanisms. These analyses showed that when tangible support is given, no matter how well one's family is functioning, that tangible support continues to have no effect on the treatment outcomes.

Hypotheses three, six, and nine indicated that neither of the predictors (tangible support or family functioning) had a significant relationship with drug use as a treatment outcome. Although these hypotheses were not supported, this was an interesting finding because it illuminated that

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family functioning and tangible support do not influence the addict's drug use behaviors. Due to the fact that reducing drug use behavior is one of the target goals of many treatment programs, understanding what factors may or may not influence drug use is essential (Tiffany et al., 2012). Even though these findings are contradictory to previous literature that says social support is helpful for abstinence (Klingemann & Efionayi-Mäder, 1994), and that family problems predict opiate use (Scherbaum & Specka, 2008), a logical notion can still be deduced from the results of the current study.

Opiate addiction is a disease that is chronic and cyclical. Drug relapses are common and considered a part of the recovery from opiate addiction (Scherbaum & Specka, 2008). Although society expects recovery to be a linear pattern, it is not (Witkiewitz, & Marlatt, 2007). Even if someone has been clean for many years, a relapse can still occur (Scherbaum & Specka, 2008). Also when looking specifically at an opioid treatment population, it is known that people in treatment are those who have been experiencing greater psychological difficulty and life distress (Rounsaville & Kleber, 1985) or have had challenges with stopping on their own (Scherbaum & Specka, 2008). Thus receiving support, as well as coming from a well-functioning family, could be helpful for someone who is wishing to end their illicit opiate addiction (with or without treatment). However, for those who utilize assistance from a treatment program, their needs may be more severe in which they had to enlist additional help.

It is also important to understand that not all patients are in treatment solely because they want to be clean and live a recovered lifestyle. For some, they've entered treatment for medical reasons or to meet the terms of their probation or to retain custody of their children (Scherbaum & Specka, 2008). Their motivation to be in treatment may not relate to a true desire to reduce drug

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use, thus factors such as tangible support and family functioning would not have a relationship with whether or not they decided to use drugs.

Irrespective of one's motivations, an individual's behaviors are also essential for a successful recovery. Opiate use is just one of many behaviors that would need to be changed to have a successful recovery. Thus, if patients don't change their behaviors and environment, they can easily slide back into the habit of drug use when all other maintained behaviors and environments are so familiar (Padgett, Henwood, Abrams, & Drake, 2008). Also, recovering addicts have reported that they feel they want to take the drug to feel "complete" (Nettleton, Neale, Pickering, 2011). Even though enrollment in a methadone program reduces heroin or pill dependency, the psychological addiction to the drug taking behavior may still be active. If a family member was providing social support for the primary reason that they would like to see a reduction in the patient's drug use, it is plausible that there would not be a relationship between those two variables because drug use is just one of many behaviors exhibited in heroin addiction. It seems that it does not matter how well someone's family is functioning, if other factors are in line for patients to permit themselves to use substances—there is a greater likelihood that they will use substances. Given these reasons, it is understandable that hypotheses three, six, and nine were not supported because tangible support and family functioning were not able to predict drug use behavior in this treatment population.

Limitations and Future Directions

There were a few limitations to the study, and several of these limitations highlight possibilities for future directions. One of the first limitations of this study, is that although family functioning was found to have a significant relationship with self-efficacy and quality of life as

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treatment outcomes, family functioning has a smaller beta as a predictor. This shows that there are other variables that are accounting for these treatment outcomes. Although family functioning does impact self-efficacy and quality of life, it does not seem that these treatment outcomes are fully reliant on the patient's family functioning.

The quantitative measures used in the study had their benefits, however, qualitative measures could have provided more information; especially regarding a topic as complex as family relationships in an addicted population. A qualitative measure could encompass a holistic view of their relationships with their family. As according to patient feedback in debriefings, the Family Assessment Device-GS and the level of familial communication inquiry did not seem to be comprehensive enough to capture the sample's relationships with their families. The patients felt limited in sharing their experiences via a few categories. Furthermore, through participant feedback most patients appeared as if they were answering questions about their peer or older adult family members. However, in some cases they could have been speaking about their children. It was important to not define who or what "family" was, to allow for the participants to share their experiences with who they considered family despite researcher bias of how a family system should be defined. However, this makes it challenging to know which relationships had the greatest influence or impairment for the participant, because they were not required to identify which relationships were addressed in their responses. Moreover, understanding which family members a participant was referring to in their question would have been helpful especially for those who reported that they have well-functioning families. Considering the "pathway from insecure attachment to methadone use," belonging to a well-functioning family would be inconsistent with this theory. Without the definition of family it may be difficult for the researcher to obtain the picture of the entire family system. For example, patients' insecure attachment could originate

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from a missing father and an overinvolved mother who provided some support, or raised by grandparents because their parents were not active in their parental roles, or patients could have had caring parents who were often not home due to work (i.e. they provided tangible support but did not have as great of relationships). It is possible that some of these patient's parents were not involved when they were growing up but are involved with them now in their adult lives. Any of these aforementioned scenarios could have fostered insecure attachment in a family system, while still leaving the possibility that a participant could currently report their family as well functioning. Ultimately, qualitative assessments and understanding which family members participants are referencing in their responses would be helpful in future assessments of family functioning in this population.

The study's findings opened the door for new inquiries regarding patients' family functioning. In future studies, it may be beneficial to assess subsystem relationships between the patient and some of their respective family members. This would be opposed to solely assessing the functioning of the whole family system, as done in the current study. Using an assessment that specifically focuses on attachment in relationships such as the Relationship Style Questionnaire (Brennan, 1998), would also strengthen the study's "pathway from insecure attachment to methadone use" theory. Another assessment that would be valuable would be a measure that specifically examines expectations from the family system and subsystems. The influence of family functioning on treatment outcomes could be different for someone whose family has high expectations of them but are low functioning compared to someone whose family has low expectations but are also low functioning. Comprehending the expectations of family members within the context of the family functioning could sharpen our understanding of how the family functioning influences treatment outcomes. This would give us more information about which

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impaired relationships are having a greater influence on the patient's self-efficacy and perceptions of quality of life.

Even though this was a diverse population, there were enough similarities that would make some between group designs appealing for future research. The results showed that socioeconomic status (SES), included as a covariate, and was a strong positive predictor of quality of life. Substance abuse treatment can improve quality of life (Maremmani, Pani, Pacini, Perugi, 2007; De Maeyer, Vanderplasschen, Lammertyn, van Nieuwenhuizen, Sabbe, Broekaert, 2011), hence why quality of life is commonly as a treatment outcome. So although managing substance dependency is an important part of recovery, ensuring that resources are available to combat SES challenges are also important, and should be a co-occurring resource with treatment (McLellan, Hagan, Levine, Gould, Meyers, Bencivengo, & Durell, 1998). A study that compares treatment outcomes for patients enrolled in a treatment program for a higher SES population with greater resources (i.e. private pay) to patients enrolled in a treatment program for a lower SES population with less resources (i.e. Medicaid) would be of value. It is known that people do not want to identify as "lower class," even when according to government data this would be the economic class that they would be categorized in (Class Matters, 2013). Having participants clearly identify their household income range, would make studies looking into SES more accurate.

It would also be useful to run a comparison between genders. The analysis demonstrated that gender, included as a covariate, was a predictor of patient self-efficacy. The literature demonstrates that social support can influence the recovery process differently for women and men (Davis & Jason, 2005). It is plausible that the varied impact of social support by gender could reflect in varied perceptions of self-efficacy. Thus, this should also be further explored in future studies. Additional groups that would be beneficial to comparatively examine would be those

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whose participants who are younger in age or groups with a broader range of racial diversity. Also, being that the sample was a treatment population, this could be limiting in understanding recovering addicts as a whole. Greater insight could be provided if a population receiving treatment resources was compared to a population who were active users but not in a medically assisted treatment (MAT) program yet. This comparison would illuminate if matriculation in treatment makes patients more susceptible to the influence of family functioning, or if the two populations are similar when it comes to these predictors.

Another variable, included as a covariate, that showed to be influential in the analyses was non-opioid drug use as a predictor of opioid drug use. Being that non-opioid use was a categorical variable, the study findings showed that the category "no non-opioid drug usage" was specifically a great predictor of whether or not one used opioids in the past month. This demonstrates that treatment programs can focus on how any drug use can be indicative of the likelihood to use opiates. If a patient allows themselves to use some drugs, it is not unlikely that they will engage in using their drug of choice at some point in their recovery as well. Seven percent of the patients in this population did not use opiate drugs in the past month, but were found to still be using non-opiate drugs (i.e. cocaine, marijuana, benzodiazepines, etc.). This shows that some patients may still be in the pattern of making excuses for their behavior, and possibly not being honest with themselves about where they are in their recovery. Essentially, a person's actual mindset is what appears to be important. Recovering addicts' beliefs about drug use overall is very critical, more so than the use of the preferred drug itself. How committed a patient is to not use any drugs is an indicator of adherence to treatment.

Even though this study looked primarily at opiate drug use through the self-medication hypothesis, it would be important for future studies to consider how poly-drug use factors into this

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theory. Many heroin users are poly drug users as well, however, the methadone treatment only treats their opiate addiction (Darke & Ross 1997). It is vital to know what emotional needs are assuaged by poly drug use, which then continue to drive the use of these non-opioid drugs even after they began opiate substance abuse treatment. Understanding contributing factors to poly drug use, may help researchers understand what mechanisms are still static in the lives of recovering addicts. It is critical to comprehend the mechanisms that maintain non-opioid drug usage, being that the ability to abstain from non-opiate drugs is also a predictor of abstention from opiates. Hence, replications of this study should expand the self-medication theory to poly drug usage as well.

A final statement about a current limitation that should be accounted for in future studies is allowing participants to report their reasoning for entering treatment. For example, those who are entering treatment in order to have better relationships with their families, would likely be more influenced by their family functioning than someone who entered treatment as a condition of their probation. Discerning these factors would shed light on patient motivations, and in turn what factors would be more predicative of their treatment outcomes.

Strengths and Implications

One of the strengths of this study is that it adds to the growing methadone literature. Given the rising drug use population and the burdening costs associated with drug use, our nation's interest in efficacious substance treatment remains strong (Nationwide Trends, 2015; Tiffany, 2012). The findings of this study stem from an area in substance abuse that has not been specifically assessed in the literature, which is understanding how tangible support and family functioning specifically influence treatment outcomes. It is now known that tangible support does

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not influence treatment outcomes, and that family functioning is an important underlying construct to achieve self-efficacy and quality of life while in treatments. Due to the uniqueness of these concepts, these findings have not been seen in the substance abuse literature and could add a great deal to how the field can conceptualize family support and influence. These results highlight overlooked mechanisms during the recovery from substance use that need more attention.

Additional strengths of this study include that it featured a heavily ethnic minority participant sample. Similar to the growing national interest in drug using populations, there is also interest in the field of strengthening our understanding of underserved and under examined populations; especially ethnic minorities (Betancourt & Lopez, 1993; Henrich, Heine, & Norenzayan, 2010; Medin, & Lee, 2012). Furthermore, this study featured a good sized sample that was above the minimum sample size requirement to reach the desired effect size originally set out in the research proposal.

Other implications of this research are that it provided a clear development of a theory that demonstrates the pathway from insecure attachment to methadone treatment. This pathway incorporated attachment literature, personal development and family dynamic themes, the biological mechanisms underlying attachment to addiction, and how methadone treatment is an attempt to resolve the issues consequential of the processes that develop over time. The lucidity of this theory would be helpful in training the many professionals and paraprofessionals who work directly with these populations in understanding the foundations of their addiction, and understanding the chronic psychological pain that is present with these patients that must be addressed through treatment.

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Clinicians can use findings from this study to inform the treatment of addicted patients and their families. For family therapy practices who see families where addiction is in the system, or for substance abuse treatment facilities who work with the families of their patients, it would be essential to understand that patient's self-efficacy and the perception of their quality of life are influenced by their family members. Therapists could use this knowledge to inform their interventions such as dispelling the patient's negative self-perceptions, strengthening their cognitive association skills, and working with families towards role readjustment in order to be more supportive of the patient. Future studies could look at the efficacy of such interventions inspired by the current research, and perhaps develop treatment modules or programs around these findings. Also, counselors may be working with families who believe that they can provide tangible support and that this support is solely going to make a considerable difference for the recovery of their loved one. Therapists can inform these families that this is an unsubstantiated assumption, and direct them to more effective interventions or ways to support the patient. Given the findings of this study, when working with addicted patients clinicians should make sure to inquire about patients' family functioning. Treatment programs know that quality of life must be improved with treatment (Picci et al., 2014). So if family dysfunction is adversely influencing a patient's perceptions of their quality of life, it would be important for the facility to address through individual or group therapy, or support through additional resources.

Finally, this study provides a great foundation for future directions with an opiate using population. In regards to how family influences treatment, future researchers can use qualitative measures, they can look at family expectations, caregiver attachment, as well as clearly identified sub-system relationships. Comparisons with different populations, such as SES, race, age, and treatment matriculation could provide specific information about which groups are most affected

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by family functioning through the various treatment outcomes. Incorporating poly drug usage in the self-medicating hypothesis of an opiate addicted population, would help with the understanding of the factors that influence relapse. Also, understanding the implications of when someone in recovery is able to take a step back from any and all drug usage, and what that means for their opiate use recovery.

Conclusion

This study aimed to examine an understudied area of the substance abuse literature, which was the influence of tangible support and family functioning on treatment outcomes. The results showed that tangible support has no influence on treatment outcomes, and that neither tangible support nor family functioning were able to predict drug use behavior while in treatment. Family functioning was found to be a positive predictor of patient self-efficacy and quality of life. Even though some of the hypotheses were not supported, the hypotheses that were supported still reinforced the "pathway from insecure attachment to methadone use" theory. The findings were able to illustrate that how these foundational relationships could influence drug use, but that family functioning can also shape one's recovery from drug use. The current research brought new findings to the literature and opened the door for exciting future directions to be explored.

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References

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References

Aase, D. M., Jason, L. A., & Robinson, W. L. (2008). 12-step participation among dually-diagnosed individuals: A review of individual and contextual factors. *Clinical Psychology Review, 28*(7), 1235-1248.

Abrams, D. B., & Niaura, R. S. (1987). Social learning theory. *Psychological theories of drinking and alcoholism, 1*, 131-178.

Abs, R., Verhelst, J., Maeyaert, J., Van Buyten, J. P., Opsomer, F., Adriaensen, H., Verlooy, J., Van Havenbergh, T., Smet, M., & Van Acker, K. (2000). *Endocrine Consequences of Long-Term Intrathecal Administration of Opioids, 85(6).*

Acker, K. (2000). Endocrine consequences of long-term intrathecal administration of opioids. *The Journal of Clinical Endocrinology & Metabolism, 85*(6), 2215-2222.

Ackerman, R. J. (1983). Children of alcoholics: A guidebook for educators, therapists, and parents. Holmes Beach, FL: Learning Publications.

Ainsworth, M. D., Blehar, M. C., Waters, E., & Wall, S. (1978). Patterns of attachment: Assessed in the strange situation and at home.

Ainsworth, M. D. S. (1989). Attachments beyond infancy. American Psychologist, 44, 709-716

Allen, J.G., 2001. Traumatic Relationships and Serious Mental Disorders. Wiley, Chichester/New York.

Allsop, S., Saunders, B., & Phillips, M. (2000). The process of relapse in severely dependent male problem drinkers. *Addiction, 95*(1), 95-106.

Alexander, B. K., & Dibb, G. S. (1975). Opiate addicts and their parents. *Family Process, 14*(4), 499-514.

American Psychiatric Association (2007). Treatment of patients with substance use disorders. American Psychiatric Association (Retrieved from http://www. bmchealthplans.com/app_assets/bmc-healthnet-plan-clinical-guidelines-forsubstance-abuse_20130403t161926_en_web_e3dc3396d56440c080301722934dbbe2. pdf).

Anderson, H., Goolishian, H. A., & Windermand, L. (1986). Problem determined systems: Towards transformation in family therapy. *Journal of Strategic & Systemic Therapies.*

Annis, H. M. (1982). Situational Confidence Questionnaire. *Toronto, Ontario, Canada: Addiction Research Foundation.*

Annis, H. M., & Graham, J. M. (1988). The Situational Confidence Questionnaire (SCQ-39) User's Guide. *Ontario, Canada: Addiction Research Foundation of Ontario.*

Annis, H. M., & Martin, G. (1985). Inventory of drug-taking situations. *Toronto: Addiction Research Foundation.*

www.manaraa.com

Appel, P. W., Ellison, A. A., Jansky, H. K., & Oldak, R. (2004). Barriers to enrollment in drug abuse treatment and suggestions for reducing them: opinions of drug injecting street outreach clients and other system stakeholders. *The American journal of drug and alcohol abuse*, *30*(1), 129-153.

Bach, A. K., Brown, T. A., & Barlow, D. H. (2000). The effects of false negative feedback on efficacy expectancies and sexual arousal in sexually functional males. *Behavior Therapy*, *30*(1), 79-95.

Baer, J. S., Holt, C. S., & Lichtenstein, E. (1986). Self-efficacy and smoking reexamined: construct validity and clinical utility. *Journal of consulting and clinical psychology*, *54*(6), 846.

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological review*, *84*(2), 191.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall, Inc.

Bandura, A., & Locke, E. A. (2003). Negative self-efficacy and goal effects revisited. *Journal of applied psychology*, *88*(1), 87.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, *51*(6), 1173.

Barrera, M., & Ainlay, S. L. (1983). The structure of social support: A conceptual and empirical analysis. *Journal of community psychology*, *11*(2), 133-143.

Barrera, M., Sandler, I. N., & Ramsay, T. B. (1981). Preliminary development of a scale of social support: Studies on college students. *American Journal of Community Psychology*, *9*(4), 435-447.

Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: a test of a four-category model. *Journal of personality and social psychology*, *61*(2), 226.

Bebout, R. R., Drake, R. E., Xie, H., McHugo, G. J., & Harris, M. (1997). Housing status among formerly homeless dually diagnosed adults. *Treatment of Mental Illness and Substance Abuse: A Compendium of Articles from Psychiatric Services*, *50*.

Beardsley, K., Wish, E. D., Fitzelle, D. B., O'Grady, K., & Arria, A. M. (2003). Distance traveled to outpatient drug treatment and client retention. *Journal of Substance Abuse Treatment*, *25*(4), 279-285.

Beattie, M. C., Longabaugh, R., Elliott, G., Stout, R. L., Fava, J. & Noel, N. E. (1993) Effect of the social environment on alcohol involvement and subjective well-being prior to alcoholism treatment. *Journal of Studies on Alcohol*, *54*, 283–296.

Behrens, K. Y., Hesse, E., & Main, M. (2007). Mothers' attachment status as determined by the Adult Attachment Interview predicts their 6-year-olds' reunion responses: A study conducted in Japan. *Developmental Psychology*, *43*(6), 1553.

Bell, J., Burrell, T., Indig, D., & Gilmour, S. (2006). Cycling in and out of treatment; participation in methadone treatment in NSW, 1990–2002. *Drug and alcohol dependence*, *81*(1), 55-61.

Bellack, A. S., & Gearon, J. S. (1998). Substance abuse treatment for people with schizophrenia. *Addictive behaviors*, *23*(6), 749-766.

Berkman, L. F. (1985). The relationship of social networks and social support to morbidity and mortality.

Bertschy, G. (1995). Methadone maintenance treatment: an update. *European archives of psychiatry and clinical neuroscience*, *245(2)*, 114-124.

www.manaraa.com

Best, D., Lehmann, P., Gossop, M., Harris, J., Noble, A., & Strang, J. (1998). Eating too little, smoking and drinking too much: wider lifestyle problems among methadone maintenance patients. *Addiction Research & Theory*, *6*(6), 489-498.

Betancourt, H., & Lopez, S. R. (1993). The study of culture, ethnicity, and race in American psychology. *American Psychologist*, *48*(6), 629.

Blatt, S. J., Rounsaville, B., Eyre, S. L., & Wilber, C. (1984). The psychodynamics of opiate addiction. *The Journal of nervous and mental disease*, *172(*6), 342-352.

Booth, B. M., Cook, C. A. L., & Blow, F. C. (1992). Comorbid mental disorders in patients with AMA discharges from alcoholism treatment. *Psychiatric Services*, *43*(7), 730-731.

Booth, B. M., Russell, D. W., Soucek, S., & Laughlin, P. R. (1992). Social support and outcome of alcoholism treatment: An exploratory analysis. *The American journal of drug and alcohol abuse*, *18*(1), 87-101.

Booth, R. E., Corsi, K. F., & Mikulich, S. K. (2003). Improving entry to methadone maintenance among out-of-treatment injection drug users. *Journal of substance abuse treatment*, *24*(4), 305-311.

Bowlby, J. (1958). The nature of the child's to his mother. *International Journal of Psycho-Analysis*, *XXXIX*, 1-23.

Bowlby, J. (1973). Attachment and Loss, Volume 2, Separation, Basic Books, New York.

Bowlby, J. (2005). *A secure base: Clinical applications of attachment theory* (Vol. 393). Taylor & Francis.

Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. *Attachment theory and close relationships*, 46-76.

Brewer, D. D., Catalano, R. F., Haggerty, K., Gainey, R. R., & Fleming, C. B. (1998). RESEARCH REPORT A meta-analysis of predictors of continued drug use during and after treatment for opiate addiction. *Addiction*, *93*(1), 73-92.

Broekhuysen, E. S. (2000). Methadone fact sheet: White House Office of National Drug Control Policy. Retrieved from http://www.whitehousedrugpolicy.gov/publications/factsht/methadone/.

Brooks, C. S., & Rice, K. F. (1997). *Families in recovery: Coming full circle*. Paul H Brookes Publishing Company.

Broome, K. M., Knight, D. K., Knight, K., Hiller, M. L., & Simpson, D. D. (1997). Peer, family, and motivational influences on drug treatment process and recidivism for probationers. *Journal of Clinical Psychology*, *53*(4), 387-397.

Brorson, H. H., Arnevik, E. A., Rand-Hendriksen, K., & Duckert, F. (2013). Drop-out from addiction treatment: A systematic review of risk factors. *Clinical psychology review*, *33*(8), 1010-1024.

Brooks, C. S., & Rice, K. F. (1997). *Families in recovery: Coming full circle*. Paul H Brookes Publishing Company.

Brown, B. S., O'Grady, K. E., Battjes, R. J., & Katz, E. C. (2004). The Community Assessment Inventory—Client views of supports to drug abuse treatment. *Journal of substance abuse treatment*, *27*(3), 241-251.

Brown, S. (1985). *Treating the alcoholic: A developmental model of recovery* (Vol. 109). Wiley-Interscience.

Brown, S. A., Vik, P. W., Patterson, T. L., Grant, I. & Schuckit, M. A. (1995) Stress, vulnerability and adult alcohol relapse. *Journal of Studies on Alcohol*, *56*, 538–545.

www.manaraa.com

Brown, V. L., & Riley, M. A. (2005). Social support, drug use, and employment among low-income women. *The American journal of drug and alcohol abuse, 31*(2), 203-223.
Buchman, D., & Reiner, P. B. (2009). Stigma and addiction: Being and becoming. *The American Journal of Bioethics*, *9*(9), 18-19.
Bugental, D. B., Shennum, W. A. and Sahver, P. (1984). "Difficult" children as elicitors and targets of adult communication patterns: an attributional-behavioral transactional analysis. *Monographs of the Society for Research in Child Development, 49,* 1–81.
Bühringer, G., Kräplin, A., & Behrendt, S. (2012). Universal characteristics and consequences of the addiction syndrome.
Buprenorphine. (2014). Retrieved September 2, 2014 from http://www.naabt.org/faqs.cfm
Burling, T. A., Reilly, P. M., Moltzen, J. O., & Ziff, D. C. (1989). Self-efficacy and relapse among inpatient drug and alcohol abusers: A predictor of outcome. *Journal of Studies on Alcohol, 50*, 354−360.
Caddow, H. G. (1974). Low dosage methadone treatment of narcotic dependents in Hong Kong. *Nursing mirror and midwives journal*, *139*(3), 66-70.
Carlson, E. A. (1998). A prospective longitudinal study of attachment disorganization/disorientation. *Child development*, *69*(4), 1107-1128.
Carnes, P. J., Murray, R. E., & Charpentier, L. (2005). Bargains with chaos: Sex addicts and addiction interaction disorder. *Sexual Addiction & Compulsivity*, *12*(2-3), 79-120.
Carpentier, P. J., Krabbe, P. F., Van Gogh, M. T., Knapen, L. J., Buitelaar, J. K., & De Jong, C. A. (2009). Psychiatric comorbidity reduces quality of life in chronic methadone maintained patients. *The American Journal on Addictions*, *18*(6), 470-480.
Case-Lo, A. (2012, September 10). Opiate Withdrawal. Retrieved from http://www.healthline.com/health/opiate-withdrawal#Overview1
Cassidy, J. (1999). The nature of the child's ties. In J. Cassidy & P.R. Shaver (Eds.), Handbook of attachment (pp. 3–20). New York: Guilford.
Charuvastra, A., Cloitre, M. (2008). Social bonds and posttraumatic stress disorder. *Annu. Rev. Psychol. 59*, 301–328.
Chassin, L., & Ritter, J. (2001). Vulnerability to substance use disorders in childhood and adolescence. *Vulnerability to psychopathology: Risk across the lifespan*, *2*, 113-140.
Class Matters. (2003). National Opinion Research Center. Retrieved from http://www.classmatters.org/working_definitions2.php
Cocozza, J. J., Jackson, E. W., Hennigan, K., Morrissey, J. P., Reed, B. G., Fallot, R., & Banks, S. (2005). Outcomes for women with co-occurring disorders and trauma: Program-level effects. *Journal of Substance Abuse Treatment*, *28*(2), 109-119.
Cohen, J. (1988). Statistical power analysis for the behavioral sciences. Routledge Academic.
Cohen, J. (1992). A primer on power. *Psychological Bulletin, 112*(1), 155-159.
Cohen, S. (1988). Psychosocial models of the role of social support in the etiology of physical disease. *Health psychology*, *7*(3), 269.
Compton, W. M., Thomas, Y. F., Stinson, F. S., & Grant, B. F. (2007). Prevalence, correlates, disability, and comorbidity of DSM-IV drug abuse and dependence in the United States: results from the national epidemiologic survey on alcohol and related conditions. *Archives of general psychiatry*, *64*(5), 566-576.
Concato, J., Peduzzi, P., Holford, T. R., & Feinstein, A. R. (1995). Importance of events per independent variable in proportional hazards analysis I. Background, goals, and general strategy. *Journal of Clinical Epidemiology*, *48*(12), 1495-1501.

www.manaraa.com

Conroy, E., Kimber, J., Dolan, K., & Day, C. (2008). An examination of the quality of life among rural and outer metropolitan injecting drug users in NSW, Australia. *Addiction Research & Theory, 16*(6), 607-617.

Corrigan, P. W., Kuwabara, S. A., & O'Shaughnessy, J. (2009). The public stigma of mental illness and drug addiction findings from a stratified random sample. *Journal of Social Work, 9*(2), 139-147.

Costantini, M. F., Wermuth, L., Sorensen, J. L., & Lyons, J. S. (1992). Family functioning as a predictor of progress in substance abuse treatment. *Journal of substance abuse treatment, 9*(4), 331-335.

Curran, G. M., Kirchner, J. E., Worley, M., Rookey, C., & Booth, B. M. (2002). Depressive symptomatology and early attrition from intensive outpatient substance use treatment. The *Journal of Behavioral Health Services & Research, 29*(2), 138–143.

Davis, M. I., & Jason, L. A. (2005). Sex differences in social support and self-efficacy within a recovery community. *American journal of community psychology*, *36*(3-4), 259-274.

Day, R. (1995). Family systems theory. In R. Day, K. Gilbert, B. Settles & W. Day (Eds.), *Research and theory in family science* (pp. 91-101). Pacific Grove, CA: Brooks/Cole.

Day, S. (2008). *Theory and design in counseling and psychotherapy* (pp. 174-202). Lahaska Press, Houghton Mifflin Company.

De Maeyer, J., Vanderplasschen, W., & Broekaert, E. (2009). Exploratory study on drug Users' perspectives on quality of life: more than health-related quality of life?. *Social Indicators Research, 90*(1), 107-126.

De Maeyer, J., Vanderplasschen, W., Lammertyn, J., van Nieuwenhuizen, C., Sabbe, B., & Broekaert, E. (2011). Current quality of life and its determinants among opiate-dependent individuals five years after starting methadone treatment. *Quality of life research, 20*(1), 139-150.

De Maeyer, J., Vanderplasschen, W., Camfield, L., Vanheule, S., Sabbe, B., & Broekaert, E. (2011). A good quality of life under the influence of methadone: A qualitative study among opiate-dependent individuals. *International Journal of Nursing Studies, 48*(10), 1244-1257.

De Vogli, R., Chandola, T., & Marmot, M. G. (2007). Negative aspects of close relationships and heart disease. *Archives of Internal Medicine, 167*(18), 1951-1957.

Demmel, R., Beck, B., Richter, D., & Reker, T. (2004). Readiness to change in a clinical sample of problem drinkers: Relation to alcohol use, self-efficacy, and treatment outcome. *European addiction research, 10*(3), 133-138.

Demmel, R., & Rist, F. (2005). Prediction of treatment outcome in a clinical sample of problem drinkers: self-efficacy and coping style. *Addictive Disorders and Their Treatment, 4,* 5−10.

Dependency. (2012). Is there a difference between physical dependence and addiction? Principles of Drug Addiction Treatment: A Research-Based Guide (Third Edition). Retrieved from http://www.drugabuse.gov/publications/principles-drug-addiction-treatment-research-based-guide-third-edition/frequently-asked-questions/there-difference-between-physical-dependence

Dickerson, A. D., & Crase, S. J. (2005). Parent-adolescent relationships: The influence of multi-family therapy group on communication and closeness. *The American Journal of Family Therapy, 33*(1), 45-59.

www.manaraa.com

Dobkin, P. L., Civita, M. D., Paraherakis, A., & Gill, K. (2002). The role of functional social support in treatment retention and outcomes among outpatient adult substance abusers. *Addiction, 97*(3), 347-356.

Dodge, K., & Potocky, M. (2000). Female substance abuse characteristics and correlates in a sample of inpatient clients. *Journal of Substance Abuse Treatment, 18*(1), 59-64.

Dodgen, C. E., & Shea, W. M. (2000). *Substance use disorders: Assessment and treatment*. Elsevier.

Dolan, S. L., Martin, R. A., & Rohsenow, D. J. (2008). Self-efficacy for cocaine abstinence: Pretreatment correlates and relationship to outcomes. *Addictive behaviors, 33*(5), 675-688.

Donovan, D. M., Bigelow, G. E., Brigham, G. S., Carroll, K. M., Cohen, A. J., Gardin, J. G., Hamilton, J. A., Huestis, M. A., Hughes, J. R., Lindblad, R., Marlatt, A., Preston, K. L., Selzer, J. A., Somoza, E. C., Wakim, P. G., & Wells, E. A. (2012). Primary outcome indices in illicit drug dependence treatment research: systematic approach to selection and measurement of drug use end-points in clinical trials. *Addiction, 107*(4), 694-708.

Douglas Anglin, M., Speckart, G. R., Booth, M. W., & Ryan, T. M. (1989). Consequences and costs of shutting off methadone. *Addictive Behaviors, 14*(3), 307-326.

Doumas, D. M., Blasey, C. M., & Mitchell, S. (2007). Adult attachment, emotional distress, and interpersonal problems in alcohol and drug dependency treatment. *Alcoholism Treatment Quarterly, 24*(4), 41-54.

Doumas, D. M., Blasey, C. M., & Thacker, C. L. (2005). Attrition from alcohol and drug outpatient treatment: Psychological distress and interpersonal problems as indicators. *Alcoholism Treatment Quarterly, 23*(4), 55-67.

Darke, S., & Ross, J. (1997). Polydrug dependence and psychiatric comorbidity among heroin injectors. *Drug and Alcohol Dependence, 48*(2), 135-141.

Darke, S., & Ross, J. (2001). The relationship between suicide and heroin overdose among methadone maintenance patients in Sydney, Australia. *Addiction, 96*(10), 1443-1453.

Darke, S., & Ross, J. (2002). Suicide among heroin users: rates, risk factors and methods. *Addiction, 97*(11), 1383-1394.

Drake, R. E., T MUESER, K. I. M., & Brunette, M. F. (2007). Management of persons with co-occurring severe mental illness and substance use disorder: program implications. *World Psychiatry, 6*(3), 131.

Davoli, M., Perucci, C. A., Forastiere, F., Doyle, P., Rapiti, E., Zaccarelli, M., & D Abeni, D. A. M. I. A. N. O. (1993). Risk factors for overdose mortality: a case-control study within a cohort of intravenous drug users. *International Journal of Epidemiology, 22*(2), 273-277.

Edwards, M. E., & Steinglass, P. (1995). Family therapy treatment outcomes for alcoholism. *Journal of Marital and Family Therapy, 21*(4), 475-509.

El-Bassel, N., Chen, D. R., & Cooper, D. (1998). Social support and social network profiles among women on methadone. *Social Service Review, 72*(3), 379-491.

Elgersma, H. J., Glashouwer, K. A., Bockting, C. L., Penninx, B. W., & de Jong, P. J. (2013). Hidden scars in depression? Implicit and explicit self-associations following recurrent depressive episodes. *Journal of abnormal psychology, 122*(4), 951.

Ellis, B., Bernichon, T., Yu, P., Roberts, T., & Herrell, J. M. (2004). Effect of social support on substance abuse relapse in a residential treatment setting for women. *Evaluation and Program Planning, 27*(2), 213-221.

Epstein, N. B., Baldwin, L. M., & Bishop, D. S. (1983). The McMaster Family Assessment Device*. *Journal of marital and family therapy, 9*(2), 171-180.

www.manaraa.com

Fals-Stewart, W., & Lucente, S. (1994). Effect of neurocognitive status and personality functioning on length of stay in residential substance abuse treatment: An integrative study. *Psychology of Addictive Behaviors*, *8*(3), 179.

Farb, N. A., Irving, J. A., Anderson, A. K., & Segal, Z. V. (2015). A two-factor model of relapse/recurrence vulnerability in unipolar depression. *Journal of abnormal psychology*, *124*(1), 38.

Farrell, M., Ward, J., Mattick, R., Hall, W., Stimson, G. V., Des Jarlais, D., ... & Strang, J. (1994). Methadone maintenance treatment in opiate dependence: a review. *BMJ: British Medical Journal*, *309*(6960), 997.

Feeney, G. F. X., Connor, J. P., Young, R. M., Tucker, J., & McPherson, A. (2005). Cannabis dependence and mental health perception amongst people diverted by police after arrest for cannabis-related offending behaviour in Australia. *Criminal Behaviour and Mental Health*, *15*(4), 249-260.

Finzi-Dottan, R., Cohen, O., Iwaniec, D., Sapir, Y., & Weizman, A. (2003). The drug-user husband and his wife: attachment styles, family cohesion and adaptability. *Substance Use and Misuse*, *38*(2), 271–292.

Fiorentine, R., Anglin, M. D., Gil-Rivas, V., & Taylor, E. (1997). Drug treatment: explaining the gender paradox. *Substance Use & Misuse*, *32*(6), 653-678.

Fonagy, P., & Target, M. (2003). *Psychoanalytic theories: Perspectives from developmental psychopathology*. Whurr publishers.

Frischknecht, U., Beckmann, B., Heinrich, M., Kniest, A., Nakovics, H., Kiefer, F., ... & Hermann, D. (2011). The vicious circle of perceived stigmatization, depressiveness, anxiety, and low quality of life in substituted heroin addicts. *European addiction research*, *17*(5), 241-249.

Garmendia, M. L., Alvarado, M. E., Montenegro, M., & Pino, P. (2008). [Social support as a protective factor of recurrence after drug addiction treatment]. *Revista medica de Chile*, *136*(2), 169-178.

Gilchrist, G., Langohr, K., Fonseca, F., Muga, R., & Torrens, M. (2012). Factors associated with discharge against medical advice from an inpatient alcohol and drug detoxification unit in Barcelona during 1993-2006. *Heroin Addiction and Related Clinical Problems*, *14*(1), 35-44.

Gill, T. M., & Feinstein, A. R. (1994). A critical appraisal of the quality of quality-of-life measurements. *Jama*, *272*(8), 619-626.

Goehl, L., Nunes, E. F., Quitkin, F. & Hilton, I. (1993) Social networks and methadone treatment outcome: the costs and benefits of social ties. *American Journal of Drug and Alcohol Abuse*, *19*, 251–262.

Goldstein, P. J., Abbott, W., Paige, W., Sobel, I., & Soto, F. (1977). Tracking procedures in follow-up studies of drug abusers. *The American journal of drug and alcohol abuse*, *4*(1), 21-30.

Gordon, A. J., & Zrull, M. (1991). Social networks and recovery: One year after inpatient treatment. *Journal of Substance Abuse Treatment*, *8*(3), 143-152.

Gossop, M., Marsden, J., Stewart, D., Lehmann, P., Edwards, C., Wilson, A., & Segar, G. (1998). Substance use, health and social problems of service users at 54 drug treatment agencies. Intake data from the National Treatment Outcome Research Study. *The British Journal of Psychiatry*, *173*(2), 166-171.

Gottlieb, B. H. (1983). *Social support strategies: Guidelines for mental health practice* (Vol. 7). Sage Publications, Inc.

www.manaraa.com

Gottman, J. M., & Levenson, R. W. (2000). The timing of divorce: Predicting when a couple will divorce over a 14-year period. *Journal of Marriage and Family, 62*(3), 737-745.

Graves, F.C., Wallen, K., & Maestripieri, D. (2002). Opioids and attachment in rhesus macaque abusive mothers. *Behavioral Neuroscience, 116,* 489–493.

Green, C. A., Polen, M. R., Dickinson, D. M., Lynch, F. L., & Bennett, M. D. (2002). Gender differences in predictors of initiation, retention, and completion in an HMO-based substance abuse treatment program. *Journal of substance abuse treatment, 23*(4), 285-295.

Greenfield, S. F., Brooks, A. J., Gordon, S. M., Green, C. A., Kropp, F., McHugh, R. K., Lincoln, M., Hien, D., & Miele, G. M. (2007). Substance abuse treatment entry, retention, and outcome in women: A review of the literature. *Drug and alcohol dependence, 86*(1), 1-21.

Grella, C. E. (2008). From generic to gender-responsive treatment: changes in social policies, treatment services, and outcomes of women in substance abuse treatment. *Journal of Psychoactive Drugs, 40*(sup5), 327-343.

Gruber, K. J., & Fleetwood, T. W. (2004). In-home continuing care services for substance use affected families. *Substance use & misuse, 39*(9), 1379-1403.

Gruber, S. A., Silveri, M. M., & Yurgelun-Todd, D. A. (2007). Neuropsychological consequences of opiate use. *Neuropsychology review, 17*(3), 299-315.

Gyarmathy, V. A., & Latkin, C. A. (2008). Individual and social factors associated with participation in treatment programs for drug users. *Substance use & misuse, 43*(12-13). 1865-1881.

Haller, D. L., Miles, D. R., & Dawson, K. S. (2002). Psychopathology influences treatment retention among drug-dependent women. *Journal of Substance Abuse Treatment, 23*(4), 431-436.

Harlow, K. C. (1990) Patterns of rates of mortality from narcotics and cocaine overdose in Texas, 1976–87. *Public Health Reports, 1990*, 455–462.

Havassy, B. E., Hall, S. M., & Wasserman, D. A. (1991). Social support and relapse: Commonalities among alcoholics, opiate users, and cigarette smokers. *Addictive Behaviors, 16*(5), 235-246.

Havassy, B.E., & Arns, P.G. (1998), Relationship of cocaine and other substance dependence to well-being of high-risk psychiatric patients. *Psychiatry Services, 49* pp. 935–940

He, Q., Wang, X., Xia, Y., Mandel, J. S., Chen, A., Zhao, L., ... & Ling, L. (2011). New community-based methadone maintenance treatment programs in Guangdong, China, and their impact on patient quality of life. *Substance use & misuse, 46*(6), 749-757.

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). Most people are not WEIRD. *Nature, 466*, 29.

Hersen, M., Turner, S. M., & Beidel, D. C. (Eds.). (2011). *Adult psychopathology and diagnosis*. John Wiley & Sons.

Hodgins, D. C., Peden, N., & Makarchuk, K. (2004). Self-efficacy in pathological gambling treatment outcome: Development of a gambling abstinence self-efficacy scale (GASS). *International Gambling Studies, 4*, 99−108.

House, J. S., Landis, K. R., & Umberson, D. (1988). Social relationships and health. *Science, 241(4865)*, 540-545.

Hser, Y. I., Hoffman, V., Grella, C. E., & Anglin, M. D. (2001). A 33-year follow-up of narcotics addicts. *Archives of general psychiatry, 58*(5), 503-508.

Hubbard, R. L., Craddock, S. G., Flynn, P. M., Anderson, J., & Etheridge, R. M. (1997). Overview of 1-year follow-up outcomes in the Drug Abuse Treatment Outcome Study (DATOS). *Psychology of Addictive Behaviors, 11*(4), 261.

www.manaraa.com

Huselid, R. F., Self, E. A., & Gutierres, S. E. (1991). Predictors of Successful Completion of a Halfway-House Program for Chemically-Dependent Women. *The American Journal of Drug and Alcohol Abuse: Encompassing All Addictive Disorders, 17*(1), 89-101.

Humphreys, K., Moos, R. H., & Cohen, C. (1997). Social and community resources and long-term recovery from treated and untreated alcoholism. *Journal of studies on alcohol, 58*(3), 231-238.

Ilgen, M., McKellar, J., & Tiet, Q. (2005). Abstinence self-efficacy and abstinence 1 year after substance use disorder treatment. *Journal of Consulting and Clinical Psychology, 73*(6), 1175.

Information Services. (2007). Drug misuse statistics 2007. Edinburgh: ISD Publications.

Insel, T.R. (2003). Is social attachment an addictive disorder? *Physiology & Behavior, 79,* 351–357.

Isaacson, E. B. (1991). *Chemical dependency: Theoretical approaches and strategies working with individuals and families* (Vol. 4). Psychology Press.

Jackson, D. D., & Weakland, J. H. (1961). Conjoint family therapy: Some considerations on theory, technique, and results. *Psychiatry, 24*(sup2), 30-45.

Joe, G. W., Lehman, W., & Simpson, D. D. (1982). Addict death rates during a four-year posttreatment follow-up. *American Journal of Public Health, 72*(7), 703-709.

Julien, R. M. (1995). *A primer of drug action: A concise, nontechnical guide to the actions, uses, and side effects of psychoactive drugs*. WH Freeman/Times Books/Henry Holt & Co.

Kadden, R. M., & Litt, M. D. (2011). The role of self-efficacy in the treatment of substance use disorders. *Addictive behaviors, 36*(12), 1120-1126.

Kang, S. Y., Magura, S., Laudet, A., & Whitney, S. (1999). Adverse effect of child abuse victimization among substance-using women in treatment. *Journal of Interpersonal Violence, 14*(6), 657-670.

Karow, A., Verthein, U., Krausz, M., & Schäfer, I. (2008). Association of personality disorders, family conflicts and treatment with quality of life in opiate addiction. *European Addiction Research, 14*(1), 38-46.

Katz, N., & Mazer, N. A. (2009). The impact of opioids on the endocrine system. *The Clinical journal of pain, 25*(2), 170-175.

Kauffman, E. (1985). Family systems and family therapy of substance abuse: An overview of two decades of research and clinical experience. *International Journal of the Addictions, 20,* 897–916.

Kelly, S. M., O'Grady, K. E., Schwartz, R. P., Peterson, J. A., Wilson, M. E., & Brown, B. S. (2010). The relationship of social support to treatment entry and engagement: The Community Assessment Inventory. *Substance Abuse, 31*(1), 43-52.

Kidorf, M., Brooner, R. K., & King, V. L. (1997). Motivating methadone patients to include drug-free significant others in treatment: A behavioral intervention. *Journal of substance abuse treatment, 14*(1), 23-28.

Kidorf, M., King, V. L., Neufeld, K., Stoller, K. B., Peirce, J., & Brooner, R. K. (2005). Involving significant others in the care of opioid-dependent patients receiving methadone. *Journal of Substance Abuse Treatment, 29*(1), 19-27.

Keverne, E.B., Martensz, N.D., & Tuite, B. (1989). Beta-endorphin concentrations in cerebrospinal fluid of monkeys are influenced by grooming relationships. *Psychoneuroendocrinology, 14*(1–2), 155–161.

www.manaraa.com

Khantzian, E. J., Mack, J. E., & Schatzberg, A. F. (1974). Heroin use as an attempt to cope: Clinical observations. *American Journal of Psychiatry, 131*(2), 160-164.
Khantzian, E. J. (1985). The self-medication hypothesis of addictive disorders: focus on heroin and cocaine dependence. *American Journal of Psychiatry, 142*(11), 1259-1264.
Khantzian, E. J. (1997). The self-medication hypothesis of substance use disorders: a reconsideration and recent applications. *Harvard review of psychiatry, 4*(5), 231-244.
Kilpatrick, D.G., Acierno, R., Baunders, B., Resnick, H., Best, C.L., & Schnurr, P.P. (2000). Risk factors for adolescent substance abuse and dependence: Data from a national sample. *Journal of Consulting and Clinical Psychology, 68*, 19-30.
Klingemann, K. H. & Efionayi-Mader, D. (1994). How much treatment does a person need? Addiction, spontaneous remission and "family" as biographical as leitmotiv. *Europe PubMeb, 83*(34), 937-949.
Kosterman, R., Hawkins, J. D., Guo, J., Catalano, R. F., & Abbott, R. D. (2000). The dynamics of alcohol and marijuana initiation: patterns and predictors of first use in adolescence. *American Journal of Public Health, 90*(3), 360.
Kouvonen, A., Stafford, M., De Vogli, R., Shipley, M. J., Marmot, M. G., Cox, T., ... & Kivimäki, M. (2011). Negative aspects of close relationships as a predictor of increased body mass index and waist circumference: the Whitehall II study. *Journal Information, 101*(8).
Krause, N. (2005). Negative interaction and heart disease in late life exploring variations by socioeconomic status. *Journal of Aging and Health, 17*(1), 28-55.
Krausz, M. R., Saddichha, S., Strehlau, V., Taplin, C., Li, K., Al-desouki, M., & Schuetz, C. (2014). Is exposure to childhood maltreatment associated with adult psychological distress among adult intravenous drug user?. *Mental Health and Substance Use, 7*(3), 207-216.
LaChance, H., Feldstein Ewing, S. W., Bryan, A. D., & Hutchison, K. E. (2009). What makes group MET work? A randomized controlled trial of college student drinkers in mandated alcohol diversion. *Psychology of Addictive Behaviors, 23*(4), 598.
Langendam, M. W., Van Brussel, G. H., Coutinho, R. A., & Van Ameijden, E. J. (2000). Methadone maintenance and cessation of injecting drug use: results from the Amsterdam Cohort Study. *Addiction, 95*(4), 591-600.
Laudet, A. B. (2003). Attitudes and beliefs about 12-step groups among addiction treatment clients and clinicians: Toward identifying obstacles to participation. *Substance use & misuse, 38*(14), 2017-2047.
Laudet, A. B., Becker, J. B., & White, W. L. (2009). Don't wanna go through that madness no more: quality of life satisfaction as predictor of sustained remission from illicit drug misuse. *Substance use & misuse, 44*(2), 227-252.
Laudet, A. B. (2011). The case for considering quality of life in addiction research and clinical practice. *Addiction Science & Clinical Practice, 6*(1), 44.
Lehman, A. F. (1988). A quality of life interview for the chronically mentally ill. *Evaluation and program planning, 11*(1), 51-62.
Levin, F. R., Evans, S. M., Vosburg, S. K., Horton, T., Brooks, D., & Ng, J. (2004). Impact of attention-deficit hyperactivity disorder and other psychopathology on treatment retention among cocaine abusers in a therapeutic community. *Addictive Behaviors, 29*(9), 1875–1882. http://dx.doi.org/10.1016/j.addbeh.2004.03.041.
Levin, J. D. (1987). *Treatment of alcoholism and other addictions: A self-psychology approach*. Jason Aronson.

www.manaraa.com

Liddle, H. A. (2004). Family-based therapies for adolescent alcohol and drug use: research contributions and future research needs. *Addiction, 99*(s2), 76-92.

Lin, C., Wu, Z., & Detels, R. (2011). Family support, quality of life and concurrent substance use among methadone maintenance therapy clients in China. *Public health, 125*(5), 269-274.

Litt, M. D., Kadden, R. M., & Stephens, R. S. (2005). Coping and self-efficacy in marijuana treatment: results from the marijuana treatment project. *Journal of consulting and clinical psychology, 73*(6), 1015.

Lloyd, J. J., Ricketts, E. P., Strathdee, S. A., Cornelius, L. J., Bishai, D., Huettner, S., ... & Latkin, C. (2005). Social contextual factors associated with entry into opiate agonist treatment among injection drug users. *The American journal of drug and alcohol abuse, 31*(4), 555-570.

Luo, W., Pang, L., Wu, Z., Mi, G., Wang, C., & Li, J. (2007). Enrollment and retention rate of patients in the first batch of methadone maintenance clinics in China. *Chinese Mental Health Journal, 21*, 3.

Luttmer, E. F. (2004). *Neighbors as negatives: Relative earnings and well-being* (No. w10667). National Bureau of Economic Research.

MacLean, P.D. (1990). *The triune brain in evolution: role in paleocerebral functions.* New York: First Plenum.

Main, M., & Hesse, E. (1990). Parents' unresolved traumatic experiences are related to infant disorganized attachment status: Is frightened and/or frightening parental behavior the linking mechanism?.

Main, M., & Solomon, J. (1990). Procedures for identifying infants as disorganized/disoriented during the Ainsworth Strange Situation. *Attachment in the preschool years: Theory, research, and intervention, 1*, 121-160.

Maisto, S. A., Connors, G. J., & Zywiak, W. H. (2000). Alcohol treatment changes in coping skills, self-efficacy, and levels of alcohol use and related problems 1 year following treatment initiation. *Psychology of Addictive Behaviors, 14*(3), 257.

Majer, J. M., Jason, L. A., & Olson, B. D. (2004). Optimism, Abstinence Self-Efficacy, and Self-Mastery A Comparative Analysis of Cognitive Resources. *Assessment, 11*(1), 57-63.

Malet, L., Llorca, P. M., Beringuier, B., Lehert, P., & Falissard, B. (2006). AlQoL 9 for measuring quality of life in alcohol dependence. *Alcohol and Alcoholism, 41*(2), 181-187.

Maremmani, I., Pani, P. P., Pacini, M., & Perugi, G. (2007). Substance use and quality of life over 12 months among buprenorphine maintenance-treated and methadone maintenance-treated heroin-addicted patients. *Journal of substance abuse treatment, 33*(1), 91-98.

Markou, A., Kosten, T. R., & Koob, G. F. (1998). Neurobiological similarities in depression and drug dependence: a self-medication hypothesis. *Neuropsychopharmacology, 18*(3), 135-174.

Marshall, J. P., Kimball, T. G., Shumway, S. T., Miller, M. M., Jeffries, V., & Arredondo, R. (2005). Outcomes of a structured family group in an outpatient alcohol/other drug treatment setting. *Alcoholism Treatment Quarterly, 23*(4), 39-53.

Martel, F.L., Nevison, C.M., Simpson, M.J., & Keverne, E.B. (1995). Effects of opioid receptor blockade on the social behavior of rhesus monkeys living in large family groups. *Developmental Psychobiology, 28*(2), 71–84.

Martini, T. S., & Busseri, M. A. (2012). Emotion regulation and relationship quality in mother–young adult child dyads. *Journal of Social and Personal Relationships, 29*(2), 185-205.

www.manaraa.com

Marx, A., Schick, M. T., Minder, C. E. (1994) Drug-related mortality in Switzerland from 1987 to 1989 in comparison to other countries. *International Journal of the Addictions, 29,* 837–860.

Mayo Clinic Staff (2014). Drug Addiction: Symptoms. Retrieved by: http://www.mayoclinic.org/diseases-conditions/drug-addiction/basics/symptoms/con-20020970

McAlpine, A. (2013). Experiences of adult siblings of illicit drug users. Retrieved from http://ro.ecu.edu.au/theses/60

McHugh, R. K., Murray, H. W., Hearon, B. A., Pratt, E. M., Pollack, M. H., Safren, S. A., & Otto, M. W. (2013). Predictors of Dropout from Psychosocial Treatment in Opioid-Dependent Outpatients. *The American Journal on Addictions, 22*(1), 18-22.

McKay, J. R., Rutherford, M. J., Cacciola, J. S., Kabasakalian-McKay, R., & Alterman, A. I. (1996). Gender differences in the relapse experiences of cocaine patients. *The Journal of nervous and mental disease, 184*(10), 616-622.

McLellan, A. T., Hagan, T. A., Levine, M., Gould, F., Meyers, K., Bencivengo, M., & Durell, J. (1998). Supplemental social services improve outcomes in public addiction treatment. *Addiction, 93*(10), 1489-1499.

McLeod, S. A. (2008). Mary Ainsworth. Retrieved from http://www.simplypsychology.org/mary-ainsworth.html

Medin, D. L., & Lee, C. D. (2012). Diversity makes better science. *Association for Psychological Science Observer*.

Melemis, S.M. (2014, August 26). Opiates (Narcotics): Addiction, Withdrawal and Recovery. Retrieved fromhttp://www.addictionsandrecovery.org/opiates-narcotics-recovery.htm

Menicucci, L. D., & Wermuth, L. (1989). Expanding the family systems approach: Cultural, class, developmental and gender influences in drug abuse. *American Journal of family therapy, 17*(2), 129-142.

Messina, N., Wish, E., & Nemes, S. (2000). Predictors of treatment outcomes in men and women admitted to a therapeutic community. *The American journal of drug and alcohol abuse, 26*(2), 207-227.

Metzger, D. S., Navaline, H., Woody, G. E. (1998). Drug abuse treatment as AIDS prevention. *Public Health Reports, 113*(Suppl. 1):97–106.

Millson, P. E., Challacombe, L., Villeneuve, P. J., Fischer, B.,Strike, C. J., Myers, T., et al. (2004). Self-perceived health among Canadian opiate users. A comparison to the general population and to other chronic disease populations. *Canadian Journal of Public Health, 95*(2), 99–103.

Millson, P., Challacombe, L., Villeneuve, P. J., Strike, C. J., Fischer, B., Myers, T., ... & Hopkins, S. (2006). Determinants of health-related quality of life of opiate users at entry to low-threshold methadone programs. *European addiction research*, *12*(2), 74-82.

Mikesell, R. H., Lusterman, D. D. E., & McDaniel, S. H. (1995). *Integrating family therapy: Handbook of family psychology and systems theory.* American Psychological Association.

Mikulincer, M., & Shaver, P. R. (2007). Boosting attachment security to promote mental health, prosocial values, and inter-group tolerance. *Psychological Inquiry*, *18*(3), 139-156.

Min, M. O., Tracy, E. M., & Park, H. (2014). Impact of trauma symptomatology on personal networks among substance using women. *Drug and alcohol dependence*, *142*, 277-282.

www.manaraa.com

Mizuno, Y., Purcell, D. W., Dawson-Rose, C., Parsons, J. T., & The SUDIS team. (2003). Correlates of depressive symptoms among HIV-positive injection drug users: the role of social support. *AIDS care*, *15*(5), 689-698.

Moore, J., & Finkelstein, N. (2001). Parenting services for families affected by substance abuse. *CHILD WELFARE-NEW YORK-*, *80*(2), 221-238.

Moos, R. H., & King, M. J. (1997). Participation in community residential treatment and substance abuse patients' outcomes at discharge. *Journal of Substance Abuse Treatment*, *14*(1), 71-80.

Moos, R. H., Pettit, B., & Gruber, V. (1995). Longer episodes of community residential care reduce substance abuse patients' readmission rates. *Journal of Studies on Alcohol and Drugs*, *56*(4), 433.

Mulder, R. T., Frampton, C., Peka, H., Hampton, G., & Marsters, T. (2009). Predictors of 3-month retention in a drug treatment therapeutic community. *Drug and alcohol review*, *28*(4), 366-371.

Najafi, M., Sheikhvatan, M., Montazeri, A., & Sheikhfathollahi, M. (2009). Reliability of World Health Organization's Quality of Life-BREF versus Short Form 36 Health Survey questionnaires for assessment of quality of life in patients with coronary artery disease. *Journal of Cardiovascular Medicine*, *10*(4), 316-321.

Nationwide Trends. (2015). DrugFacts: Nationwide Trends. Retrieved from http://www.drugabuse.gov/publications/drugfacts/nationwide-trends

Neale, J., Nettleton, S., & Pickering, L. (2013). Does recovery-oriented treatment prompt heroin users prematurely into detoxification and abstinence programmes? Qualitative study. *Drug and alcohol dependence*, *127*(1), 163-169.

Nettleton, S., Neale, J., & Pickering, L. (2011). 'I don't think there's much of a rational mind in a drug addict when they are in the thick of it': towards an embodied analysis of recovering heroin users. *Sociology of health & illness*, *33*(3), 341-355.

Newmann, J. P., & Sallmann, J. (2004). Women, Trauma Histories, and Co-occurring Disorders: Assessing the Scope of the Problem. *Social Service Review*, *78*(3), 466-000.

Nichols, M. P., & Schwartz, R. C. (2004). *Family therapy: Concepts and methods.* Allyn & Bacon.

No authorship indicated. (N.D.). World Health Organization Quality of Life–BREF [Database record]. Retrieved from PsycTESTS. doi: http://dx.doi.org/10.1037/t01408-000

O'Farrell, T. J., Hooley, J., Fals-Stewart, W., & Cutter, H. S. (1998). Expressed emotion and relapse in alcoholic patients. *Journal of consulting and clinical psychology*, *66*(5), 744.

O'Farrell, T. J., & Feehan, M. (1999). Alcoholism treatment and the family: do family and individual treatments for alcoholic adults have preventive effects for children?. *Journal of Studies on Alcohol and Drugs*, (13), 125.

Opiates/Opioids. (2014). Retrieved September 2, 2014 from http://www.naabt.org/education/opiates_opioids.cfm

Orr, R.A. (2015). Virginia Prescription Monitoring Program: Description of Program. Retrieved by: https://www.dhp.virginia.gov/dhp_programs/pmp/pmp_desc.asp

Owen, G. T., Burton, A. W., Schade, C. M., & Passik, S. (2012). Urine drug testing: current recommendations and best practices. *Pain Physician*, *15*(3 Suppl), ES119-33.

Packer, S., Husted, J., Cohen, S., & G Tomlinson. Psychopathology and quality of life in schizophrenia. J. Psychiatry. *Neuroscience.*, *22* (4) (1997), pp. 231–234

www.manaraa.com

Padgett, D. K., Henwood, B., Abrams, C., & Drake, R. E. (2008). Social relationships among persons who have experienced serious mental illness, substance abuse, and homelessness: Implications for recovery. *American journal of orthopsychiatry*, *78*(3), 333-339.

Panksepp, J. (1998). Affective neuroscience: the foundations of human and animal emotions. Oxford: Oxford University Press

Panchanadeswaran, S., Johnson, S. C., Sivaram, S., Srikrishnan, A. K., Latkin, C., Bentley, M. E., ... & Celentano, D. (2008). Intimate partner violence is as important as client violence in increasing street-based female sex workers' vulnerability to HIV in India. International *Journal of Drug Policy*, *19*(2), 106-112.

Papero, D. V. (1995). *Bowen family systems and marriage*. Clinical handbook of couple therapy, 11-30.

Pearlman, L. A., & Courtois, C. A. (2005). Clinical applications of the attachment framework: Relational treatment of complex trauma. *Journal of Traumatic Stress*, *18*(5), 449-459.

Peduzzi, P., Concato, J., Feinstein, A. R., & Holford, T. R. (1995). Importance of events per independent variable in proportional hazards regression analysis II. Accuracy and precision of regression estimates. *Journal of clinical epidemiology*, *48*(12), 1503-1510.

Perzel, J. F., & Lamon, S. (1979, August). Enmeshment within families of polydrug abusers. In National Drug Abuse Conference, New Orleans.

Peters, S., Pontin, E., Lobban, F., & Morriss, R. (2011). Involving relatives in relapse prevention for bipolar disorder: a multi-perspective qualitative study of value and barriers. *BMC psychiatry*, *11*(1), 172.

Picci, R. L., Oliva, F., Zuffranieri, M., Vizzuso, P., Ostacoli, L., Sodano, A. J., & Furlan, P. M. (2014). Quality of life, alcohol detoxification and relapse: Is quality of life a predictor of relapse or only a secondary outcome measure?. *Quality of Life Research*, *23*(10), 2757-2767.

Pickering, L., Neale, J., & Nettleton, S. (2013). Recovering a Fecal Habitus: Analyzing Heroin Users' Toilet Talk. *Medical anthropology*, *32*(2), 95-108.

Platt, J. J., & Metzger, D. S. (1987). Cognitive interpersonal problem-solving skills and the maintenance of treatment success in heroin addicts. *Psychology of Addictive Behaviors*, *1*(1), 5.

Ponizovsky, A. M., & Grinshpoon, A. (2007). Quality of life among heroin users on buprenorphine versus methadone maintenance. *American Journal of Drug and Alcohol Abuse, 33*, 631–642.

Prus, A. (2013). *An Introduction to Drugs and the Neuroscience of Behavior*. Cengage Learning.

RachBeisel, J., Scott, J., & Dixon, L. (1999). Co-occurring severe mental illness and substance use disorders: a review of recent research. *Psychiatric services*, *50*(11), 1427-1434.

Ramer, B. S., Zaslove, M. O., & Langan, J. (1971). Is methadone enough? The use of ancillary treatment during methadone maintenance. *American Journal of Psychiatry, 127*(8), 1040-1044.

Reilly, P. M., Sees, K. L., Shopshire, M. S., Hall, S. M., Delucchi, K. L., Tusel, D. J., ... & Piotrowski, N. A. (1995). Self-efficacy and illicit opioid use in a 180-day methadone detoxification treatment. *Journal of Consulting and Clinical Psychology*, *63*(1), 158.

Reis, H. T., Clark, M. S., & Holmes, J. G. (2004). *Perceived partner responsiveness as an organizing construct in the study of intimacy and closeness.* Handbook of closeness and intimacy, 201-225.

www.manaraa.com

Ravndal, E., & Vaglum, P. (1994). Self-reported depression as a predictor of dropout in a hierarchical therapeutic community. *Journal of substance abuse treatment, 11*(5), 471-479.

Rhodes, J. E., & Jason, L. A. (1990). A social stress model of substance abuse. *Journal of consulting and clinical psychology, 58*(4), 395.

Ribeiro, M. S. (2010) . Service organizations treatment for dependency ~ qu 'ımica . In R. Orange, NB Figlie , & Bordin S. (Eds.), Counseling dependence qu 'ımica (pp. 588-624). Sao Paulo, Brazil : Roca.~Ribisl, K., & Luke, D. A. (1993). Social network characteristics of persons with dual diagnosis. *The Community Psychologist, 27*(1), 44-45.

Ridenour, T. A., Daley, J., & Reich, W. (1999). Factor analyses of the family assessment device. *Family Process, 38*(4), 497-510.

Roffman, R. A., Klepsch, R., Wertz, J. S., Simpson, E. E., & Stephens, R. S. (1993). Predictors of attrition from an outpatient marijuana-dependence counseling program. *Addictive Behaviors, 18,* 553-566.

Room, R., Matzger, H., & Weisner, C. (2004). Sources of informal pressure on problematic drinkers to cut down or seek treatment. *Journal of Substance Use, 9*(6), 280-295.

Rounsaville, B. J., & Kleber, H. D. (1985). Untreated opiate addicts: how do they differ from those seeking treatment?. *Archives of General Psychiatry, 42*(11), 1072-1077.

Rosen, D. (2004). Factors associated with illegal drug use among older methadone clients. *The Gerontologist, 44*(4), 543-547.

Ross, S. (1972, December). A study of living and residence patterns of former heroin addicts as a result of their participation in a methadone treatment program. In *Proceedings. National Conference on Methadone Treatment* (Vol. 1, pp. 554-561).

Rudolf, H., & Watts, J. (2002). Quality of life in substance abuse and dependency. *International Review of Psychiatry, 14*(3), 190-197.

Russo, J., Roy-Byrne, P., Reeder, D., Alexander, M., Dwyer-O'connor, E. D., Dagadakis, C., ... & Patrick, D. (1997). Longitudinal assessment of quality of life in acute psychiatric inpatients: reliability and validity. *The Journal of nervous and mental disease, 185*(3), 166-175.

Rychtarik, R. G., Foy, D. W., Scott, T., Lokey, L., & Prue, D. M. (1987). Five–six-year follow-up of broad-spectrum behavioral treatment for alcoholism: Effects of training controlled drinking skills. *Journal of consulting and clinical psychology, 55*(1), 106.

Saeland, M., Haugen, M., Eriksen, F. L., Smehaugen, A., Wandel, M., Böhmer, T., & Oshaug, A. (2009). Living as a drug addict in Oslo, Norway–a study focusing on nutrition and health. *Public health nutrition, 12*(05), 630-636.

Salmon, M. M., Joseph, B. M., Saylor, C., & Mann, R. J. (2000). Women's perception of provider, social, and program support in an outpatient drug treatment program. *Journal of substance abuse treatment, 19*(3), 239-246.

Santonja-Gómez, F. J., Sánchez-Hervás, E., Secades-Villa, R., Zacarés-Romaguera, F., García-Rodríguez, O., & García-Fernández, G. (2010). Pretreatment characteristics as predictors of retention in cocaine-dependent outpatients. *Addictive Disorders & Their Treatment, 9*(2), 93-98.

Saunders, Kathleen W., Dunn, Kate M., Merrill, Joseph O., Sullivan, Mark, Weisner, Constance, Braden, Jennifer Brennan, Psaty, Bruce M., & Von Korff, Michael. (2010). *Relationship of Opioid Use and Dosage Levels to Fractures in Older Chronic Pain Patients. 25(4),* pp 310-315.

www.manaraa.com

Scherbaum, N., & Specka, M. (2008). Factors influencing the course of opiate addiction. *International Journal of Methods in Psychiatric Research, 17*(S1), S39-S44.

Schindler, A., Thomasius, R., Sack, P.M., Gemeinhardt, B., Ku¨ stner, U.J., & Eckert, J. (2005). Attachment and substance use disorders: a review of the literature and a study in drug dependent adolescents. *Attachment & Human Development, 7(*3), 207–228.

Schindler, A., Thomasius, R., Petersen, K., & Sack, P. M. (2009). Heroin as an attachment substitute? Differences in attachment representations between opioid, ecstasy and cannabis abusers. *Attachment & human development,11*(3), 307-330.

Schuckit, M. A., Daeppen, J. B., Tipp, J. E., Hesselbrock, M., & Bucholz, K. K. (1998). The clinical course of alcohol-related problems in alcohol dependent and nonalcohol dependent drinking women and men. *Journal of Studies on Alcohol and Drugs, 59*(5), 581.

Schütz, C. G., Rapiti, E., Vlahov, D., & Anthony, J. C. (1994). Suspected determinants of enrollment into detoxification and methadone maintenance treatment among injecting drug users. *Drug and alcohol dependence, 36*(2), 129-138.

Segest, E., Mygind, O., & Bay, H. (1990). The influence of prolonged stable methadone maintenance treatment on mortality and employment: an 8-year follow-up. *Substance Use & Misuse, 25*(1), 53-63.

Shaffer, H. J., LaPlante, D. A., LaBrie, R. A., Kidman, R. C., Donato, A. N., & Stanton, M. V. (2004). Toward a syndrome model of addiction: Multiple expressions, common etiology. *Harvard review of psychiatry, 12*(6), 367-374.

Shah, N. G., Celentano, D. D., Vlahov, D., Stambolis, V., Johnson, L., Nelson, K. E., & Strathdee, S. A. (2000). Correlates of enrollment in methadone maintenance treatment programs differ by HIV-serostatus. *Aids, 14*(13), 2035-2043.

Simpson, C. A., & Tucker, J. A. (2002). Temporal sequencing of alcohol-related problems, problem recognition, and help-seeking episodes. Addictive Behaviors, 27(5), 659-674.

Simpson, D. D., Joe, G. W., Rowan-Szal, G. A., & Greener, J. M. (1997). Drug abuse treatment process components that improve retention. *Journal of Substance Abuse Treatment, 14*(6), 565-572.

Sklar, S. M., & Turner, N. E. (1999). A brief measure for the assessment of coping self-efficacy among alcohol and other drug users. *Addiction, 94*(5), 723-729.

Smith*, K. W., & Larson, M. J. (2003). Quality of life assessments by adult substance abusers receiving publicly funded treatment in Massachusetts. *The American Journal of Drug and Alcohol Abuse, 29*(2), 323-335.

Smith, M. L., & Rosen, D. (2009). Mistrust and self-isolation: Barriers to social support for older adult methadone clients. *Journal of gerontological social work, 52*(7), 653-667.

Solomon, K. E., & Annis, H. M. (1990). Outcome and efficacy expectancy in the prediction of post-treatment drinking behaviour. *British Journal of Addiction, 85*(5), 659-665.

Specka, M., Buchholz, A., Kuhlmann, T., Rist, F., & Scherbaum, N. (2011). Prediction of the outcome of inpatient opiate detoxification treatment: results from a multicenter study. *European Addiction Research, 17*(4), 178-184.

Sroufe, L. A., Egeland, B., Carlson, E. A., & Collins, W. A. (2009). *The development of the person: The Minnesota study of risk and adaptation from birth to adulthood.* Guilford Press.

Stanton, M. D. (1997). The role of family and significant others in the engagement and retention of drug dependent individuals. *LS Onken, JD Blaine & JJ Boren. Beyond the Therapeutic Alliance: Keeping the Drug Dependent Individual in Treatment. USA: NIDA.*

www.manaraa.com

Stanton, M. D. (1982). Appendix A: Review of reports on drug abusers' family living arrangements and frequency of family contact. *The family therapy of drug abuse and addiction.*

Stanton, M. D., & Shadish, W. R. (1997). Outcome, attrition, and family–couples treatment for drug abuse: A meta-analysis and review of the controlled, comparative studies. *Psychological bulletin, 122*(2), 170.

Stanton, M. D., Todd, T. C., Heard, D. B., Kirschner, S., Kleiman, J. I., Mowatt, D. T., Riley, P., Scott, S. M., & Van Deusen, J. M. (1978). Heroin addiction as a family phenomenon: A new conceptual model. *The American journal of drug and alcohol abuse, 5*(2), 125-150.

Stark, M. J. (1992). Dropping out of substance abuse treatment: A clinically oriented review. *Clinical Psychology Review, 12*(1), 93–116. http://dx.doi.org/10.1016/0272-7358 (92) 90092-M.

Steinberg, L., Fletcher, A., & Darling, N. (1994). Parental monitoring and peer influences on adolescent substance use. *Pediatrics, 93*(6), 1060-1064.

Steinglass, P. (1989). *Alcohol and the family system.* In C. Ramsey Jr. (Ed.), Family systems in medicine (pp. 519-535). New York, NY: Guilford.

Stelle, C. D., & Scott, J. P. (2007). Alcohol abuse by older family members: A family systems analysis of assessment and intervention. *Alcoholism Treatment Quarterly, 25*(1-2), 43-63.

Stern, D. N. (2000). Interpersonal world of the infant: A view from psychoanalysis and development psychology. Basic books.

Stern, D. N., Hofer, L., Haft, W., & Dore, J. (1985). Affect attunement: The sharing of feeling states between mother and infant by means of inter-modal fluency. *Social perception in infants*, 249-268.

Stevens-Watkins, D., Perry, B., Harp, K. L., & Oser, C. B. (2012). Racism and illicit drug use among African American women: The protective effects of ethnic identity, affirmation, and behavior. *Journal of Black Psychology*, 0095798412438395.

Strug, D. L., & Hyman, M. M. (1981). Social networks of alcoholics. *Journal of Studies on Alcohol and Drugs, 42*(09), 855.

Suh, J. J., Ruffins, S., Robins, C. E., Albanese, M. J., & Khantzian, E. J. (2008). Self-medication hypothesis: Connecting affective experience and drug choice. *Psychoanalytic psychology, 25*(3), 518.

Tabachnick, B. G., & Fidell, L. S. (2007). *Experimental designs using ANOVA*. Thomson/Brooks/Cole.

Tate, S. R., Mrnak-Meyer, J., Shriver, C. L., Atkinson, J. H., Robinson, S. K., & Brown, S. A. (2011). Predictors of Treatment Retention for Substance-Dependent Adults with Co-occurring Depression. *The American Journal on Addictions, 20*(4), 357-365.

Thomas, E. J., Yoshioka, M., & Ager, R. D. (1996). Spouse enabling of alcohol abuse: Conception, assessment, and modification. *Journal of Substance Abuse, 8*(1), 61-80.

Thorberg, F. A., & Lyvers, M. (2005). Negative mood regulation (NMR) expectancies, mood, and affect intensity among clients in substance disorder treatment facilities. *Additive Behaviors, 31*, 811–820.

Tiffany, S. T., Friedman, L., Greenfield, S. F., Hasin, D. S., & Jackson, R. (2012). Beyond drug use: a systematic consideration of other outcomes in evaluations of treatments for substance use disorders. *Addiction, 107*(4), 709-718.

Torrens, M., Domingo-Salvany, A., Alonso, J., Castillo, C., & San, L. (1999). Methadone and quality of life. *The Lancet, 353*(9158), 1101.

www.manaraa.com

Tracy, E. M., Munson, M. R., Peterson, L. T., & Floersch, J. E. (2010). Social support: A mixed blessing for women in substance abuse treatment. *Journal of social work practice in the addictions, 10*(3), 257-282.

Trulsson, K., & Hedin, U. C. (2004). The role of social support when giving up drug abuse: A female perspective. *International Journal of Social Welfare, 13*(2), 145-157.

UNODC (2012). World Drug Report 2012. Austria: United Nations (Retrieved from http:// www.unodc.org/unodc/en/data-and-analysis/WDR-2012.html).

Urbanoski, K. A., Cairney, J., Adlaf, E., & Rush, B. (2007). Substance abuse and quality of life among severely mentally ill consumers. *Social psychiatry and psychiatric epidemiology, 42*(10), 810-818.

U.S. Department of Health and Human Services. (2003, September 5). 22 Million in U.S. suffer from substance dependence of abuse. Retrieved October 25, 2003 from http://www.hhs.gov/news/press/2003pres/20030905.html.

Vaillant, G. E. (1966). A twelve-year follow-up of New York narcotic addicts: I. The relation of treatment to outcome. *American Journal of Psychiatry, 122*(7), 727-737.

Vanagas, G., Padaiga, Z., & Bagdonas, E. (2006). Cost-utility analysis of methadone maintenance treatment: A methodological approach. *Substance use & misuse, 41*(1), 87-101.

Vaughn, T., Sarrazin, M. V., Saleh, S. S., Huber, D. L., Hall, J. A. (2002). Participation and retention in drug abuse treatment services research. *Journal of Substance Abuse Treatment 23*:387–397.

Villeneuve, P. J., Challacombe, L., Strike, C. J., Myers, T., Fischer, B., Shore, R., ... & Millson, P. E. (2006). Change in health-related quality of life of opiate users in low-threshold methadone programs. *Journal of Substance Use, 11*(2), 137-149.

Walker, J. M., Farney, R. J., Rhondeau, S. M., Boyle, K. M., Valentine, K., Cloward, T. V., & Shilling, K. C. (2007). Chronic opioid use is a risk factor for the development of central sleep apnea and ataxic breathing. *Journal of clinical sleep medicine: JCSM: official publication of the American Academy of Sleep Medicine, 3*(5), 455.

Wasserman, D. A., Stewart, A. L., Delucchi, K. L. (2001). Social support and abstinence from opiates and cocaine during opioid maintenance treatment. *Drug and Alcohol Dependence 65*:65–75.

Weaver, T., Madden, P., Charles, V., Stimson, G., Renton, A., Tyrer, P., Barnes, T., Bench, C., Middleton, H., Wright, N., Paterson, S., Shanahan, W., Seivewright, N., & Ford, C. (2003). Comorbidity of substance misuse and mental illness in community mental health and substance misuse services. *The British Journal of Psychiatry, 183*(4), 304-313.

Weiner, H. D., Wallen, M. C., & Zankowski, G. L. (1990). Culture and social class as intervening variables in relapse prevention with chemically dependent women. *Journal of Psychoactive Drugs*, *22*(2), 239-248.

Welsh, J. A., Buchsbaum, D. G., & Kaplan, C. B. (1993). Quality of life of alcoholics and non-alcoholics: does excessive drinking make a difference in the urban setting?. *Quality of Life Research, 2*(5), 335-340.

Westreich, L., Heitner, C., Cooper, M., Galanter, M., & Guedj, P. (1997). Perceived social support and treatment retention on an inpatient addiction treatment unit. *The American Journal on Addictions, 6*(2), 144-149.

White, J. M. (2004). Pleasure into pain: the consequences of long-term opioid use. *Addictive behaviors, 29*(7), 1311-1324.

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White, W. L. (2001). The rhetoric of recovery advocacy: An essay on the power of language. *Let's go make some history: Chronicles of the new addiction recovery advocacy movement*, 37-76.

WHOQoL Group. (1998). Development of the World Health Organization WHOQOL-BREF quality of life assessment. *Psychological medicine*, *28*(03), 551-558.

World Health Organization. (1948). World health organization constitution. Basic documents, 1.

Williams, M. T., & Roberts, C. S. (1991). Predicting length of stay in long-term treatment for chemically dependent females. *Substance Use & Misuse*, *26*(5), 605-613.

Windom, C.S., & Hiller-Sturmhofel, S. (2001). Alcohol abuse as a risk factor for and consequence of child abuse. *Alcohol Research and Health, 25*, 52-57.

Witkiewitz, K., & Marlatt, G. A. (2007). Modeling the complexity of post-treatment drinking: It's a rocky road to relapse. *Clinical Psychology Review*, *27*(6), 724-738.

Worthington Jr, E. (2013). *Moving forward: Six steps to forgiving yourself and breaking free from the past.* Random House LLC.

Worthington Jr, E. L., Scherer, M., & Cooke, K. L. (2006). Forgiveness in the treatment of persons with alcohol problems. *Alcoholism Treatment Quarterly*, *24*(1-2), 125-145.

Yang, F., Lin, P., Long, Q. S., He, Q., Li, Y., Liu, Y. Y., & Wang, Y. (2008). Qualitative analysis on attendees in methadone maintenance treatment clinics of opiate addicts in Guangdong. *South China Journal of Preventive Medicine*, *34*, 15-22.

Young, R. M., & Wei, T. P. S. (1996). *Drinking expectancy profile: test manual.* Australia: Behavior Research and Therapy Centre, University of Queensland.

Young, R. M., Lawford, B. R., Nutting, A., & Noble, E. P. (2004). Advances in molecular genetics and the prevention and treatment of substance misuse: Implications of association studies of the A_1 allele of the D_2 dopamine receptor gene. *Addictive Behaviors*, *29*(7), 1275-1294.

Zarkin, G. A., Dunlap, L. J., & Homsi, G. (2006). The Costs of Pursuing Accreditation for Methadone Treatment Sites Results From a National Study. *Evaluation review*, *30*(2), 119-138.

Zimmer-Hofler, D., & Kooyman, M. (1996). Attachment transition, addiction and therapeutic bonding–an integrative approach. *Journal of Substance Abuse Treatment, 13*(6), 511–519.

Zweben, J. E. (1991). Counseling issues in methadone maintenance treatment. *Journal of psychoactive drugs*, *23*(2), 177-190.

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Appendix A

DTCQ-8

Shortened Version of The Drug-Taking Confidence Questionnaire

Listed below are a number of situations or events in which some people experience an opioid abuse problem.

Imagine yourself as you are right now in each of these situations. Indicate on the scale provided how confident you are that you will be able to resist the urge to use opioids heavily in that situation.

Circle 100 if you are 100% confident right now that you could resist the urge to use opioids heavily, 80 if you are 80% confident; 60 if you are 60% confident. If you are more unconfident than confident, circle 40 to indicate that you are only 40% confident that you could resist the urge to use heavily; 20 for 20% confident; 0 if you have no confidence at all about that situation.

I would be able to resist the urge to use my opioid of choice heavily:

	Not at all Confident					**Very Confident**
1. If I were angry at the way things had turned out.	0	20	40	60	80	100
2. If I had trouble sleeping.	0	20	40	60	80	100
3. If I remembered something good that had happened.	0	20	40	60	80	100
4. If I wanted to find out whether I could use opioids occasionally without getting hooked.	0	20	40	60	80	100
5. If I unexpectedly found some opioids or happened to see something that reminded me of using opioids.	0	20	40	60	80	100
6. If other people treated me unfairly or interfered with my plans.	0	20	40	60	80	100
7. If I were out with friends and they kept suggesting we go somewhere and use opioids.	0	20	40	60	80	100
8. If I wanted to celebrate with a friend.	0	20	40	60	80	100

Office Use Only: Global Self-Efficacy Score: _____ or _____%

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Appendix B

Inventory of Socially Supportive Behaviors (ISSB)

INSTRUCTIONS

We are interested in learning about some of the ways that you feel your family has helped you or tried to make life more pleasant for you over the *past four weeks.* Below you will find a list of activities that family members might have done for you, to you, or with you in recent weeks. Please read each item carefully and indicate how often these activities happened to you during the *past four weeks.*

Please read each item carefully and select the rating that you think is the most accurate

During the past four weeks, how often did your family do these activities for you, to you, or with you:

	Not at all	Once or twice	About once a	Several times a week	About everyday
Provided you with a place to stay					
Pitched in to help you do something that you needed to be done					
Gave you over $25					
Loaned or gave you something that you needed					
Gave you transportation					
Gave you under $25					
Went with you to someone who could take action					
Provided you with a place where you could get away for awhile					
Loaned you over $25					
Watched after your possessions when you were away					
Looked after a family member when you were away					

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Appendix C

Family Assessment Device - General Functioning Scale

We are interested in what you perceive are your family's strengths and needs. After reading each statement below, decide if you strongly agree (SA), agree (A), disagree (D), or strongly disagree (SD) with the statement as it reflects how you feel about your family.

---

1. Planning family activities is difficult because we misunderstand each other.

__SA __A __D __SD

2. In times of crisis we can turn to each other for support.

__SA __A __D __SD

3. We cannot talk to each other about the sadness we feel.

__SA __A __D __SD

4. Individuals are accepted for what they are.

__SA __A __D __SD

5. We avoid discussing our fears and concerns.

__SA __A __D __SD

6. We can express feelings to each other.

__SA __A __D __SD

7. There are lots of bad feelings in the family.

__SA __A __D __SD

8. We feel accepted for what we are.

__SA __A __D __SD

9. Making decisions is a problem for our family.

__SA __A __D __SD

10. We are able to make decisions about how to solve problems.

__SA __A __D __SD

11. We don't get along well together.

__SA __A __D __SD

12. We confide in each other.

__SA __A __D __SD

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Appendix D

World Health Organization Quality of Life—BREF
WHOQOL–BREF

	Very Low	Low	Moderate	High	Very High
1. How would you rate your quality of life?	**1** **(very low)**	**2**	**3** **(moderate)**	**4**	**5** **(very high)**
2. How satisfied are you with your health?	**1** **(very unsatisfied)**	**2**	**3** **(moderately satisfied)**	**4**	**5** **(very satisfied)**
3. To what extent do you feel that (physical) pain prevents you from doing what you need to do?	**1** **(very little)**	**2**	**3** **(moderately)**	**4**	**5** **(very much)**
4. How much do you need any medical treatment to function in your daily life?	**1** **(very little)**	**2**	**3** **(moderately)**	**4**	**5** **(very much)**
5. How much do you enjoy life?	**1** **(very little)**	**2**	**3** **(moderately)**	**4**	**5** **(very much)**
6. To what extent do you feel your life to be meaningful?	**1** **(very little meaning)**	**2**	**3** **(moderate meaning)**	**4**	**5** **(very much meaning)**
7. How well are you able to concentrate?	**1** **(very poorly)**	**2**	**3** **(moderately)**	**4**	**5** **(very well)**
8. How safe do you feel in your daily life?	**1** **(very unsafe)**	**2**	**3** **(moderately safe)**	**4**	**5** **(very safe)**
9. How healthy is your physical environment?	**1** **(very unhealthy)**	**2**	**3** **(moderately healthy)**	**4**	**5** **(very healthy)**
10. Do you have enough energy for everyday life?	**1** **(very little)**	**2**	**3** **(moderate)**	**4**	**5** **(very much)**
11. Are you able to accept your bodily appearance?	**1** **(very unable)**	**2**	**3** **(moderately)**	**4**	**5** **(very able)**
12. Have you enough money to meet your needs?	**1** **(very little)**	**2**	**3** **(moderately)**	**4**	**5** **(very much)**
13. How available to you is the information that you need in your day-to-day life?	**1** **(very unavailable)**	**2**	**3** **(moderately)**	**4**	**5** **(very available)**

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14. To what extent do you have the opportunity for leisure activities?	**1** (very little)	**2**	**3** (moderately)	**4**	**5** (very much)
15. How well are you able to get around?	**1** (very little)	**2**	**3** (moderately)	**4**	**5** (very much)
16. How satisfied are you with your sleep?	**1** (very unsatisfied)	**2**	**3** (moderately satisfied)	**4**	**5** (very satisfied)
17. How satisfied are you with your ability to perform your daily living activities?	**1** (very unsatisfied)	**2**	**3** (moderately satisfied)	**4**	**5** (very satisfied)
18. How satisfied are you with your capacity for work?	**1** (very unsatisfied)	**2**	**3** (moderately satisfied)	**4**	**5** (very satisfied)
19. How satisfied are you with yourself?	**1** (very unsatisfied)	**2**	**3** (moderately satisfied)	**4**	**5** (very satisfied)
20. How satisfied are you with your personal relationships?	**1** (very unsatisfied)	**2**	**3** (moderately satisfied)	**4**	**5** (very satisfied)
21. How satisfied are you with your sex life?	**1** (very unsatisfied)	**2**	**3** (moderately satisfied)	**4**	**5** (very satisfied)
22. How satisfied are you with the support you get from your friends?	**1** (very unsatisfied)	**2**	**3** (moderately satisfied)	**4**	**5** (very satisfied)
23. How satisfied are you with the conditions of your living place?	**1** (very unsatisfied)	**2**	**3** (moderately satisfied)	**4**	**5** (very satisfied)
24. How satisfied are you with your access to health services?	**1** (very unsatisfied)	**2**	**3** (moderately satisfied)	**4**	**5** (very satisfied)
25. How satisfied are you with your transport?	**1** (very unsatisfied)	**2**	**3** (moderately satisfied)	**4**	**5** (very satisfied)
26. How often do you have negative feelings such as blue mood, despair, anxiety, depression	**1** (very infrequent)	**2**	**3** (moderately)	**4**	**5** (very frequently)

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Appendix E

Demographic Questions

1. **Age**: _____ 2. **Sex**: ☐ Male ☐ Female ☐ Other

3. **Highest Education:** ☐ Some high school ☐ High School Degree or GED ☐ Freshman ☐ Sophomore ☐ Junior ☐ Senior ☐ Bachelors Degree ☐ Graduate or Professional Degree

4. **Socioeconomic Status:** ☐ Lower ☐ Middle ☐ Upper

5. **Race:** ☐ Black ☐ White ☐ Other _____

6. **Relationship Status:** ☐ Single ☐ Dating ☐ Engaged ☐ Married ☐ Separated ☐ Divorced ☐ Other _____

7. **Parental Status:** ☐ No children ☐ Biological (Primary Caretaker) ☐ Biological (Not Primary Caretaker) ☐ Step (Primary Caretaker) ☐ Other _____

8. Opioid(s) of Choice _____

9. Age of initial use _____ 10. Month & Year that you started Treatment _____

11. Number of enrollments in substance abuse treatment _____

12. Did your mother abuse substances during your childhood?

☐ Yes ☐ No ☐ No relationship with a mother figure

If so, which substances? _____

13. Did your father abuse substances during your childhood?

☐ Yes ☐ No ☐ No relationship with a father figure

If so, which substances? _____

14. Did another member of your family abuse substances during your childhood?

☐ Yes ☐ No ☐ No relationship with other family members

If so, which substances? _____

15. What is your current level of family communication?

☐ Daily ☐ A few times a week ☐ A few times a month ☐ A few times a year ☐ Once a year or less

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Vita

Nathasha Cole Hahn was born on December 1st, 1986, in Miami, Florida. In 2005, she graduated from Coral Reef Senior High School in Miami, Florida. She received her Bachelor of Arts in Communication and Psychology from The Florida State University (FSU) of Tallahassee, Florida in June 2010. Nathasha worked at Florida International University from May 2010 to July 2011at the Center for Children and Families on several NIMH grants under the direction of Dr. Waxmonsky. In 2011, she began studying at Virginia Commonwealth University (VCU) in the counseling psychology doctoral program. While at VCU, Nathasha exhibited her work at poster sessions at several conferences and gave presentations of the work in the Utsey Lab. She has also been featured as a first author and co-author on several publications.

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