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A Comparative Study of Compliance Among Patients Attending an Opiate Outpatient Treatment Center in Rural Appalachia

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Abstract

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MSW, University of Kentucky, 2005

MA, Morehead State University, 1988

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Human Services Counseling

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Abstract

Adults with an opiate addiction have a higher rate of noncompliance with treatment, which limits its effectiveness and increases the burden of care for society. Effective treatment decreases emergency room visits, and overdoses. The tristate area of Kentucky, West Virginia, and Ohio has experienced increased opiate-related arrests and deaths. This study sought to measure the extent to which treatment type (medical treatment (MS) or faith-based component of service (FBS)) predicts compliance when measured by number of clean urine drug screens (UDSs) and number of kept pill count, over and above dual diagnosis, college education, and income. The on-site records of voluntary enrollees in an outpatient facility that used either MT alone or MT with FBS were reviewed. Spearman's rho and multiple stepwise regression revealed that, with respect to clean UDSs or kept pill count, the association between dual diagnosis and college education was not found to be statistically significant. Rather, income explained about 5% of the variance in clean UDSs with a significant *f* change of .019, while type of treatment did not significantly impact clean UDSs. Dual diagnosis, income, and college education were not found to be significantly associated with the number of kept pill count. According to this study, type of treatment did not significantly impact compliance in the tristate area of Appalachia as measured by clean UDSs or kept pill count. Since MT and FBS are so similar in their relationship to compliance, attendance and participation in treatment may be areas for future study.

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Dedication

I would like to dedicate this to my wife, Gale and to my twin girls Kara and Tara for their love and support and to my new grand-daughter Kylie Faith.

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The statement “It takes a village” (Clinton, 2006) aptly applies to raising children and obviously in the completion of a doctoral dissertation. This would not have been completed without the help of many people. I would like to thank Doctors Denning, Barkley, Flame, and Farris at Walden University for their support and guidance in obtaining this degree and Mr. Timothy McIndoo, dissertation editor at Walden for his guidance. I would like to thank my Walden cohort for the many hours of encouragement. I would also like to thank my wife and daughters for their continued love, understanding, support, and patience. I would like to thank the members of my church for their long hours of prayerful support. I would like to thank the owner/operator of EASTC for allowing this project to be conducted. I would like to thank my friends and co-workers for the several re-reads. But most of all, I would like to thank God for providing the motivation, endurance, and sanity.

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Chapter 1: Introduction to the Study

Background

Globally, more than 205 million people illicitly use opiates while 25 million suffer from dependence issues, making illicit opiate use a problem impacting health, socioeconomic, and security perspectives (World Health Organization [WHO], 2008).

In the United States, more than 52 million people above the age of 12 reported using opiates for nonmedical purposes (National Survey on Drug Use and Health [NSDUH], 2008). 6.2 million people currently use opiates for nonmedical purposes on a regular basis. More than one million people in the United States suffer with an opiate addiction, while only 200,000 attend programs offering medication assisted treatment (McCance-Katz, 2004). Opiate use produces undesirable consequences to society and the individual including increased relapse, an increase in communicable diseases, an increase in hospital emergency room presentation, and overdoses (Smith-Rohrberg et al., 2004). In 2009 there were a reported 1.2 million drug-related emergency room visits (SAMHSA, 2009) compared to 125,508 in 1995-1996 (Patel & Zed, 2002). In 2009, the number of individuals seeking treatment for addiction to painkillers increased by 400% from 1998 to 2008 and opioid painkillers was the leading cause of death even exceeding motor vehicle deaths in the United States (SAMSHA, 2009).

Appalachian society has been dramatically impacted by opiate abuse (Shannon, 2011; Zhang et al., 2008). In Kentucky, arrests and deaths associated with opiate use have skyrocketed. In 2008, there were 32 heroin related arrests (The Kentucky Office of Drug Control, 2012) compared to 676 arrests in 2012 for the Louisville Metropolitan Area with

50 deaths linked to heroin overdose (Musgrave, 2012). There were 921 cases involving opiates and appearing in circuit courts for 2012 compared with only 456 in 2011 (Kentucky's Administrative Office of the Courts, 2012) while district courts also noted an increase in cases with 679 in 2011and 1,784 in 2012. (Kentucky Administrative Office of the Courts, 2012).

The notoriety regarding opiate use and misuse in Appalachia was brought to public attention through numerous media reports describing the nonmedical use of opiates in Appalachia and its link to Appalachian culture and economics (Lipman, 2003; Zancy, 2003). A report issued in October 2013 from the Trust for America's Health (2013) in conjunction with the Robert Wood Johnson Foundation, listed West Virginia as having the highest rate of drug overdose deaths in the United States at 28.9 per 100,000—a 605% increase from 1999. The same report listed Kentucky as third in the nation, at 23.6 per 100,000, and Ohio as twelfth at 16.1 per 100,000.

Noncompliance limits treatment effectiveness and may increase the burden of care for society (Weiss, 2004). Individuals having substance use disorders are at a higher risk of noncompliance with prescribed treatment and noncompliance considerably jeopardizes treatment efficacy (Weiss, 2004). Effective opioid treatment would decrease relapse, decrease communicable disease, hospital emergency room visits, and overdoses (Smith-Rohrberg, et al, 2004). Increased arrests and death associated with opiate addiction have dramatically impacted Appalachia, including the tristate area of Kentucky, West Virginia, and Ohio (Cicero, Inciardi, & Muñoz, 2005; Havens et al., 2007; Zhang, Omfamte, Meit, & English, 2008).

The effectiveness of MT for opiate addiction has been documented by Fiellin et al. (2008) and by Minozzi, Davoli, and Vecchi (2011). Augmenting MT by integrating a FBS component has also been advocated (Ison et al., 2006; Neff, Shorkey & Windsor, 2006; Thomas & Lo, 2010).

Purpose Statement

The purpose of this study was to determine which treatment approach—MT or FBS—produces better compliance among patients attending an opiate outpatient treatment center in Appalachia and to what extent do the variables of dual diagnosis, income, and college education predict compliance.

Problem Statement

Opioid medications are commonly prescribed for the treatment of pain. In 2001, only 181 million prescriptions were written (Meir & Marsh, 2013), but by 2006, more than 230 million prescriptions were written (Arria, Garnier-Dykstra, Caldeira, Vincent, & O'Grady, 2011), 2001 to 2012 showed an increase of 33% with more than 240.9 million prescriptions written in 2012 (Meir & Marsh, 2013).

Opiate abuse and dependence has been defined as a chronic disease with a high rate of relapse (Compton, 2011; Kirchmayer et al., 2002), which has a negative impact on society (Day, Ison, & Strang, 2008). Addiction reduces life expectancy, and can cause direct adverse effects on others including family, co-workers, and members of the community (Carter, Hall, & Illes, 2012). Opiate addiction is chronic and life-long (Everly et al. (2011). There has been an increase in the occurrence of opiate-related misuse involving prescription medications, overdose, and legal charges against physicians

(Lewis, Combs, & Trafton, 2010). The use of opiates is a mounting concern: More than a million people suffer from dependence but there are only a limited number of treatment programs McCance-Katz (2004). To increase treatment efficacy, programs that emphasize compliance have been advocated (Gardner & Kosten, 2007).

More than 6 million people abuse or misuse prescription opiate medications in the treatment of pain (Kirsh & Fishman, 2011). Substance use was cited by Worley et al. (2005), as the number one health problem in the United States, impacting millions of American men, women, children and other family members each year. The number of people dying from an overdose of opioids exceeded the number of people dying from vehicular accidents (The Substance Abuse and Mental Health Services Administration [SAMSHA], 2009). Deaths from overdose of opioids is the second cause of unintentional death in the United States (Volkow & McLellan, 2011). The problem of death from opioid overdose continues to be a problem for society. Deaths by opioid overdose increased from 4,030 in 1999 to 16,651 in 2010 (Meir & Marsh, 2013).

Substance abuse effects the population from a financial perspective. In 2004, more than 19 million Americans reported existing drug use (Morgan & Crane, 2010). The financial medical treatment costs associated to substance use rose 5.9% annually from 1992 thru 2002 and cost society $180.8 billion (Morgan & Crane, 2010). Annually, the cost of opioid treatment exceeds $72 billion (The United States Department of Health and Human Services, 2012). In 2012, insurance claims averaged $13,000 per person for lost time/wages for a claim not including opioids while the costs involved for a short-acting opioid were $39,000 and for a long-acting opioid were $117,000 (Meir & Marsh, 2013).

From 1992 to 2002, hospital emergency room fatalities from overdose of hydrocodone and oxycodone also "increased by 170% and 450% respectively" (Boothby & Doering, 2007, p. 266). In 2010, there were 16,651 deaths due to opioid overdose (The United States Department of Health and Human Services, 2012). The rising impact on Americans of opioid treatment can be noted through the examination of emergency room (ER) admissions involving opioids by comparing the number of admissions from 2004 with the number of admissions from 2011. In 2004 there were 299,498 admissions where opioid use was linked to the admitting diagnosis while in 2011 the numbers of ER visits associated with opioid use were 885,348 (Meir & Marsh, 2013).

The Appalachian, tristate area of Kentucky, West Virginia, and Ohio, has been dramatically impacted with increased arrests and death associated with opiate addiction (Cicero et al., 2005; Havens et al., 2007; & Zhang et al., 2008). The Kentucky Office of Drug Control (2012) reported 32 heroin related arrests in 2008 compared to 676 arrests in 2012 for the Louisville Metropolitan Area with 50 deaths linked to heroin overdose. Kentucky's Administrative Office of the Courts (2012) reported 921 cases appearing in circuit courts involving opiates for 2012 compared with only 456 in 2011. District courts also noted an increase in cases with 1,784 in 2012 and 679 in 2011. A report issued in October, 2013 from the Trust for America's Health (2013) in conjunction with the Robert Wood Johnson Foundation, listed West Virginia as having the highest rate of drug overdose deaths at 28.9 per 100,000 individuals, this being a 605% increase from 1999. The same report also listed Kentucky as number three in the nation at 23.6 per 100,000 and Ohio at number 12 at 16.1.

Untreated, undertreated, or noncompliant patients with opiate addiction may experience increased occurrences of physical illness, incidents of self-harm or injury, difficulties in daily functioning and social functioning, and sustained addiction (Fornili & Alemi, 2007). An increase in the effectiveness of treatment and client compliance may result in decreased health care utilization by this population. Increased compliance may also improve cost effectiveness when treating substance use (Morgan & Crane, 2010).

Other problems exist in the treatment of substance use. Relapse and recidivism present as additional problems in opiate treatment. According to the Center for Substance Abuse Treatment (2010), relapse and recidivism are highest among those patients who are addicted to opiates because of failure to pass drug screenings or to comply with conditions of parole, typically leading to re-arrest and incarceration. Rowston (2002) related that 58% of illicit drug users have a history of illegal history. Even after a patient has obtained sobriety, the risk of relapse is substantial (Amato et al., (2011). Fiellin et al. (2008) reported only a 54% sobriety retention rate following three years of traditional outpatient based treatment while Caldiero, Parran, Adelman, and Piche (2006) identified only a 50% rate of sobriety following six weeks of traditional outpatient services.

Predictors of relapse included lack of family support, lack of 12-step program involvement, recent history of polysubstance use, previous history of long-term opioid therapy, and failure to improve or diminish pain (Dunbar & Katz, 1996). Polysubstance use is defined as being the intake or administration of multiple substances by the individual (Barrett et al., 2006). Effective outpatient opioid treatment should include participation in a support program including group counseling (Compton, 2011).

Individuals self-detoxifying from opioids often relapse by resorting to alcohol and other prescribed medication to cope (Ison et al., 2006). Individual and group psychotherapy co-implemented with medication assisted treatment improves treatment effectiveness (Fiellin et al., 2008).

The effectiveness of treating opiate addiction from a MT approach was documented by Fiellin et al. (2008) and Minozzi, Davoli, and Vecchi (2011) while the effectiveness of including a FBS component in the treatment of opiate addictions was documented by Ison et al. (2006), Neff et al. (2006), and Thomas and Lo (2010). The latter research showed that effective opiate treatment involves treating both the physical/psychological and spiritual issues. These were the only studies that I could identify supporting the integration of a FBS component in the treatment of opiate addiction and two of these studies were dated. None of the studies focused on the Appalachian region of Eastern Kentucky, Southern Ohio, and Western, West Virginia and none were specific for treatment involving Suboxone. Effective treatment is vital for opiate addiction and includes individual and group therapy and a variety of support services (Mattick & Hall, 1993; McLellan, Hagan, & Levine, 1998).

Nature of the Study

This study focused on the compliance of patients enrolled in an outpatient program for opioid addiction in the tristate area that I will refer to by the pseudonym, Eastern Appalachian Suboxone Treatment Center (EASTC). Patients participated in either medical treatment (MT) or a medical approach that incorporated a voluntary FBS. In this quantitative study, I carried out a secondary data analysis of electronic treatment

records from the previous year using multiple regression. Secondary, depersonalized data was downloaded from the client's electronic record from the facility and was monitored by EASTC administrator. Recording of secondary data included attendance logs for group therapy, the presence (yes/no) of a dual diagnosis, the reported annual income, the presence (yes/no) of college education, number of clean UDSs, and number of kept pill count. Group attendance in the MT or FBS program was measured through the actual number of days attending. Compliance was defined as the number of clean UDSs and the number of kept pill count. Clean UDSs were defined as not having any opiates found in the individuals' urine after laboratory analysis. Kept pill count was defined as the number of times that the individual kept an appointment with the laboratory technician to have their Suboxone counted. This study investigated which treatment approach —MT or MT plus FBS—produces higher compliance among individuals attending an opiate outpatient treatment center.

The EASTC is a private, for-profit agency employing one psychiatrist, a licensed clinical social worker, an independent laboratory, and two support staff. The total number of individuals served is around100. This treatment facility used Suboxone as the primary medication for the maintenance and treatment of opiate addiction (Diamant et al., 1998).

Definitions

This section defines often uses terms associated with this study.

Abuse. Abuse is defined as any use of an illegal drug, or purposely self-inducing prescription medication for a non-prescribed purpose such as experiencing a rapid and dramatic change in an individual's mood or consciousness (Kirsh & Fishman, 2011).

Abuse was defined as a "maladaptive pattern of substance use leading to clinically significant levels of impairment or distress" in one or more life area during the past twelve month period (American Psychiatric Association, DSM-IV-TR, 2000, p. 199). The American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5, 2013) does not include the term abuse and no definition or description is given.

Addiction. Addiction involves a chronicity and life-long persistence (Everly et al., 2011). Addiction is defined as a "disease with both physical and psychological components" (McCance-Katz, 2004, p. 333).

Adherence. Weiss (2004) defined adherence as the actions of the patient corresponding in compliance to the recommended treatment.

Compliance. Compliance has been defined as "the extent to which a person's behavior (in terms of taking medications, following diets, or executing lifestyle changes) coincides with medical or health advice" (Haynes, Taylor & Sackett, 1979, p.29). In this study, compliance was measured through agency electronic treatment records using TheraScribe, obtained from a previous one year time period measuring the number of group appointments attended, the number of clean UDSs, and the number of kept pill count which were kept.

Dependence. Opiate dependence has been defined as a chronic disease with a high rate of relapse (Compton, 2011; Kirchmayer et al., 2002), recurrent use (Frances, First, & Pencus, 1995) and which have a negative impact on society (Day et al., 2008).

Addiction. The *DSM-IV-TR (2000)* categorized substance disorders as either abuse or

dependence. The *DSM-5* (2013, p. 484) combines abuse and dependence into a single diagnosis that includes two or more symptoms, ranging from mild to severe.

The *DSM-IV-TR* defined dependence using the prior definition of abuse and included the qualifier of increased severity indicating problems in three or more life areas over the course of twelve months. The life areas included neglect of family, occupational responsibilities and duties, social contacts, or recreational activities in lieu of substance use. The major difference between abuse and dependence was severity (DSM-IV-TR, 2000). The *DSM-5* describes dependence in a manner that reflects the development of tolerance and withdrawal. Dependence is the first stage of addiction (DSM-5, 2013).

Opiate dependence has been defined as a "serious, relapsing disease that has a deleterious impact on the health and well-being" (Benyamina, Reynaud, Blecha, & Karila, 2011, p. 1384) for those who are dependent. The dependent, non-dependents, and other community members may be impacted by opiate use through heath concerns such as contaminated needle use and cross infection, criminal activities, social isolation and stigma, and mortality. Clients attending the outpatient treatment program used in this study have received a diagnosis of opiate abuse or dependence from a licensed psychiatrist trained in the treatment of opiate addiction.

Suboxone. Suboxone is a combination medication composed of buprenorphine and naloxone and was first approved by the Food and Drug Administration (FDA) for opiate treatment in the United States in 2002 (Thomas et al., 2008).

Withdrawal. Common early symptoms of opiate withdrawal include: anxiety, nervousness or restlessness, feeling tense or keyed up, and difficulty sleeping (National

Institutes of Health, 2013). Some cold or flu like symptoms are common and include: nasal discharge, body or muscle pain or ache, and sweating. Advanced symptoms of withdrawal may include: nausea, vomiting, diarrhea, stomach pain, and dilated pupils. According to the standards of the outpatient treatment program, clients experiencing advanced symptoms of withdrawal were referred for inpatient treatment.

Control variables. Rubin and Babbie (1993) defined control variables as a "variable that is held constant in an attempt to further clarify the relationship between two other variables" (p. 696). The control variables (CV) used for this study were three: dual diagnosis, income, and college education.

Dual diagnosis. Dual diagnosis has been defined as the presence of a mental illness coexisting with an alcohol or drug problem in which the combination of the problem is larger than either separately (Patrick, 2003) and as a deteriorating condition that is both interrelating and chronic (Hoffman et al., 2003). In this study, dual diagnosis indicates the lack (no = 0) or presence (yes = 1) of both mental illness and substance abuse, as determined by the facility psychiatrist, listed in accordance to diagnostic criteria from the *Diagnostic and statistical manual of mental disorders text revision* (4th ed.), (*DSM-IV-TR*) and indicated on clinical intake for treatment services and filed in client's chart using TheraScribe. The American Psychiatric Association in 2013 published a new revision of the *Diagnostic and statistical manual of mental disorders* (5^{th} ed.), although the *DSM-IV-TR* was indicated due to data originating before the publication of the new revision.

Income. Income was measured through reported annual income information obtained at the time of intake and electronically recorded in the clients chart by the social worker using TheraScribe.

College education. College education was measured through the self-reported response of the client answering no (o) or yes (1) to having attended college, results recorded in the clients chart by the social worker using TheraScribe.

Dependent variables. Variables have been defined by Rubin and Babbie (1993) as "a specific concept or theoretical construct" (p. 120) that is being investigated. A dependent variable is "a specific concept or theoretical construct" (Rubin & Babbie, 1993) that is "being explained" (p. 120). A dependent variable is a variable that is hypothesized to vary depending on, or under the influence of, another variable" (Schutt, 2009, p. 42). The dependent variables (DV) for this study included urine drug screens (UDSs) and kept pill count.

Urine drug screens. UDSs are defined as drug screens conducted at the facility by an independent laboratory representative to test for the presence of illicit substances, including opiates, marijuana, cocaine, amphetamines, benzodiazepines, PCP and methadone. All specimens were sent in a registered, securely sealed package from the independent laboratory representative working at EASTC, by FedEx to the parent laboratory where, after testing, a confirmatory report was issued to the facility psychiatrist and recorded in the clients' electronic record. No UDSs were considered complete until the confirmatory report was received. UDSs were obtained at each group visit. UDSs were measured through the actual number of clean UDSs obtained within the

12 month period. A total of 24 possible clean UDSs exist for this study period. Similar measures have been used in UDSs for the treatment of opiates and alcohol (Goehl, Nunes, Quitkin, & Hilton, 1993; Johnson, Cloninger, Roache, Bordnick & Ruiz, 2000; Margolis, Hjelmstad, Bonci, & Fields, 2003; and Strain, Stitzer, Liebson, & Bigelow, 1994).

Kept *pill count.* Kept pill count describes a measure of compliance. The client is asked to come to the treatment center and produce her medication for counting by the staff to determine if medication is being taken as prescribed. Kept pill count was measured through the number of actual kept pill count appointments within the 12-month period, having a total of 24 possible. Records of attendance to kept pill count were entered into the clients' chart using TheraScribe.

The independent variables (IV) for this study included MT and FBS.

Medical treatment. MT, an independent variable, is treatment used in opiate addictions and includes the use of medication; urine drug screens (UDSs), kept pill count, and group participation and was measured through documentation of client's participation in group counseling sessions, number of clean UDSs, and pill presentation by the LCSW taken from the individuals' electronic record. Type of treatment was coded as 0 for MT.

Faith-based support. FBS, an independent variable, incorporates the MT components augmented with an emphasis on faith through the use of group therapy as a treatment component and was measured through documentation of client's voluntary participation in group faith-based counseling sessions, number of clean UDSs, and kept

pill count presentation by the LCSW taken from the individuals' electronic record. FBS was coded as 1 in the variable type of treatment. The FBS group differed from MT in that it emphasized additional elements of faith including prayer, meditation, supportive devotionals, and use of a 12-step foundation focusing on overcoming addictions through faith. Faith-based elements include prayer, active listening, support, and reading from religious text (Naranyanasamy & Owens, 2001).

Research Questions and Hypothesis

This study was guided by the following research questions:

RQ1: To what extent does type of treatment (MT or FBS) predict compliance, as measured by clean UDSs, over and above dual diagnosis, college education, and income?

$H_0{}^{1\,=}$ null hypothesis is R^2_{change} for Type of Treatment = 0.

$H_A{}^1$ = alternative hypothesis is R^2_{change} for Type of Treatment > 0.

RQ2: To what extent does type of treatment (MT or FBS) predict compliance, as measured by kept pill count over and above dual diagnosis, college education, and income?

$H_0{}^2$= null hypothesis is R^2_{change} for Type of Treatment = 0.

$H_A{}^2$ = alternative hypothesis is R^2_{change} for Type of Treatment > 0.

Data were obtained through on-site records review of compliance rates, taken from the clients' existing agency electronic record, for a previous one year course of treatment and depersonalized by the researcher and monitored by EASTC administrator. Permission to conduct the study was obtained from the on-site director and Walden

University Internal Review Board Approval Number 10-06-14-0187970 and complied with Walden University practices and policies.

Theoretical Basis

This study was based on Maslow's hierarchy of needs and the integrated dual disorder treatment model (IDDT) of Kola and Kruszynski (2010).

The theoretical basis of FBS was Maslow's hierarchy of needs (1943). Maslow's model listed "considerable ramifications for the treatment of individuals with complex and multi-axial problems" (Best, Day, McCarthy, Darlington, & Pinchbeck, 2008, p. 306) and in this study referred to mental illness and substance use or dual diagnosis. This theory considered the interaction of multiple need factors on an individual including social and cultural aspects, psychological, and physiological. Maslow believed that everyone has the innate potential and desire for growth once the basic needs of the individual are met. Once the basic needs have been successfully met, the potential exists for ever higher growth, although growth may be inhibited by failure to attain those lower levels. Maslow called the highest level of growth self-actualization (McLeod, 2014). Self-actualization is a continual process which is developed through individual experiences and events in the persons' life and which may vary with each individual. (McLeod, 2014). Traditionally, individuals having a mental illness have been excluded from substance use treatment until they have the mental illness controlled (Center for Evidenced-Based Practices, 2011). Treating the mental illness need, the base need, prior to obtaining a higher level of treatment for substance use reflects the growth process of self-actualization suggested by Maslow. The theoretical basis of MT was the integrated

dual disorder treatment model (IDDT) by Kola and Kruszynski (2010) which proposed treating existing mental illness and addictions concurrently.

IDDT is an evidenced-based practice that focuses on the dual diagnosis of the individual while combining treatment for both mental illness and substance use through the use of the same team of providers and at the same treatment location (Center for Evidence-Based Practices, 2011). IDDT combines multiple treatment approaches including the use of medications, group and individual sessions, educational supports, and social interventions. Treatment members may include: psychiatrists, social workers, laboratory personnel, support staff, the individual and family members (Center for Evidence-Based Practice, 2011). According to Kola and Kruszynski (2010), "41% to 65% of persons with a lifetime substance use disorder have a lifetime history" (p. 438) of mental illness. The basis for integrated dual-disorder treatment involved "cross-trained practitioners providing integrated, comprehensive services directed toward the two disorders simultaneously in the same venue with the goal of recovery from both illnesses" (Kola & Kruszynski, 2010, p. 439).

Assumptions

This study was based on the following 3 assumptions:

(a) the information provided by the participant was valid and properly recorded in participants record,

(b) compliance to treatment, specifically, attendance, UDSs, and kept pill count were collected and properly recorded in participants record

(c) both the MT and FBS were consistent and that FBS elements did not occur in MT.

The assumptions for this study were necessary to the context of this study due to the nature of the study being drawn from archived data and from a prior year of service and that FBS elements did not occur in MT.

Limitations

The limitations identified in this project included the time frame and review of archived records from the previous one year period. This might have limited the possibility to gaining access to a larger group of data.

The sample was drawn primarily from Eastern Kentucky, Southern Ohio, and Western West Virginia—a population with limited cultural diversity—having possible differences in background and beliefs regarding FBS versus people only using MT and from other geographical regions and thus may is not generalizable to the general population which is a threat to the external validity of the study (Frankfort-Nachmias & Nachmias, 2008). This might have limited the possibility to gaining access to a larger group of participants or participants from a more diversified geographical area.

The data were obtained from EASTC's archival electronic data. Using archived data assumed that the responses provided were truthful, honest, and recorded correctly at the facility.

Scope and Delimitations

The study came at a time when the scope of practice is generating a lot of community awareness and attention from the media and local communities regarding the illicit use

and effect of opiates. The use of an archival study from a prior year was seen as a strength ensuring confidentiality and that a maximum sample could be obtained. I would have liked to have used a larger sample from a longer period of time, and having a more diverse, geographic distribution.

Significance of the Study

This study helped fill a gap in the literature concerning the Appalachian area with regards to type of treatment and compliance in the treatment of opiates. Other studies had addressed opiate treatment but few had compared type of treatment in Appalachia. Compliance in the treatment of opiate addiction may affect many different areas including: quality of life (Gardner & Kosten, 2007), cost effectiveness (Morgan & Crane, 2010), and has been linked to reduced illegal activity and lowering high risk behaviors (McCance-Katz, 2004). From a financial perspective, Substance use costs society billions of dollars and thousands of lives annually (Day et al., 2008; Morgan & Crane, 2010; Kirsh & Fishman, 2011). Failure to maintain compliance with treatment impacts society through an increased number of HIV and Hepatitis C (HCV) cases, increased court expenses, unemployment, and family conflicts (Day et al., 2008). Noncompliance has been linked to an increased risk of HIV, Hepatitis B virus (HBV) and Hepatitis C (Gardner & Kosten, 2007). Chaar, Hanrahan, and Day (2011) and Webster et al. (2011) discussed the link of fatalities to opiate use. Increasing compliance in the treatment of opiate addictions may help reduce the negative impact on individuals and the burden of care on society. Findings of this study can be used to inform regarding effective future opiate treatment.

Summary

This chapter introduced the problematic issues of opiate addiction and compliance among patients attending an opiate outpatient treatment center in Appalachia. Illicit opiate use is problem not only globally (World Health Organization [WHO], 2008) but is a problem for the United States (National Survey on Drug Use and Health [NSDUH], 2008) and for Appalachia (Cicero, Inciardi, & Muñoz, 2005; Havens et al., 2007; Zhang, Omfamte, Meit, & English, 2008) while only a small percentage participate in treatment programs (McCancee-Katz, 2004). Noncompliance to treatment limits treatment effectiveness and increases the burden of care for society (Weiss, 2004). This study investigated which treatment approach —MT or MT plus FBS—produces higher compliance among individuals attending an opiate outpatient treatment center in Appalachia. The study came at a time when a lot of attention is being generated regarding the illicit use and effects of opiate use, increasing community awareness and attention from the media. This study helped fill a gap in the literature concerning the Appalachian area with regards to type of treatment and compliance in the treatment of opiates.

Patients participated in either medical treatment (MT) or a medical approach that incorporated a voluntary FBS. In this quantitative study, I carried out a secondary data analysis of electronic treatment records from the previous year using multiple regression. The control variables included dual diagnosis, college education, and income. The dependent variables included UDSs and pill count. The research questions asked to what extent does type of treatment (MT or FBS) predict compliance, as measured by clean UDSs and pill count, over and above dual diagnosis, college education, and income. This

study was based on Maslow's hierarchy of needs and the integrated dual disorder treatment model (IDDT) of Kola and Kruszynski (2010).

Chapter 2 will discuss prior studies on noncompliance in treating opiate addiction in the outpatient medical and faith-based treatment settings. Chapter 3 will further explain quantitative multiple regression research. Chapter 4 will focus on the data collection and statistical test results using Spearman's rho. Chapter 5 will review the key findings and interpretations, recommendations for future studies, and implications for positive social change.

Chapter 2: Literature Review

Introduction

The purpose of this study was to determine which treatment approach—MT or FBS—produces better compliance among patients attending an opiate outpatient treatment center in Appalachia and to what extent do the variables of dual diagnosis, income, and college education predict compliance. This chapter will review the theoretical foundations used for MT and FBS in the treatment of opiate addiction through use of a literature review. This chapter will also view the rationale applied when discussing the effectiveness of treatment when incorporating a faith-based regimen, and previous studies and the literature review related to MT and FBS. The literature on (IDDT) by Kola and Kruszynski (2010) and Maslow's hierarchy of needs (1943) were examined with respect to opiate treatment.

Search Strategy

Data for this review were obtained by review of peer-reviewed journals, books, articles, printed and electronic books. Electronic databases included: EBSCOhost, PsychINFO, SocINDEX with Full Text, ERIC, PubMed, Google Scholar, Academic Search Premiere, MEDLINE were used, Websites included: Substance Abuse and Mental Health Services Administration (SAMHSA), National Institute on Drug Abuse (NIDA), National Institutes on Health (NIH), and the United States Veterans Administration Intranet. Search criteria included the following terms: faith, spirituality, religion, substance use, substance abuse, Suboxone, methadone, heroin, opiates, relapse, retention, compliance, and treatment outcome.

Opiates Defined

There are only two methods to obtain opiate medications; through prescription from a licensed certified provider or through illegal means (Compton & Volkow, 2005). Opiates are prescribed treatment for two primary reasons, acute pain with short term use and chronic pain with long-term use. Long-term use has been associated with addiction (Compton, 2011). The focus of this study was the compliance level in opiate treatment. Opiates are classified into either natural or synthetic substances medically used for the treatment and management of pain. Natural opiates include opium and a derivative called morphine. Heroin is a synthetic medication introduced in 1898 as a cough suppressant (SAMHSA, 2008). Other synthetic opioids include codeine, oxycodone (OxyContin), meperidine (Demerol), fentanyl (Sublimaze), and hydromorphone (Dilaudid).

History of Opiate Use and Addiction as a Social Problem

Opioid use is not a new issue and in fact, opiate use was legal in the United States during the nineteenth century. Opiates were commonly used in potions and liniments (Peele, 1985). However, the growth and amount of use has escalated over the years. Opiate use emerged as a serious problem during and following the Civil War (SAMHSA, 2008), as opioids were prescribed for pain management. By 1900, over 300,000 people were addicted to opiates (SAMHSA, 2008).

The Pure Food and Drug Act was enacted in 1906 as a first attempt to nationally limit opioids by requiring medications containing opioids to be labeled. In 1914, the Harrison Act attempted to regulate the manufacture, distribution, and prescription of opiates. The United States Supreme Court ruled in 1919 that addiction was not a disease

and limited the prescription of opiates by physicians. The first outpatient treatment centers for opiate addiction were founded in 1958 (SAMHSA, 2008).

Opiate abuse remained a prevalent problem in the United States with 2.5 million new users over the age of 12 of illicit opiates in 2007 and 2.15 million using medically prescribed opiates (Weiss et al., 2010). There were a reported 628,000 new opioid abuse cases in 1990 (SAMHSA, 2009) but in 2001 the number of new abuse cases exceeded 2.4 million (McCance-Katz, 2004). Opiate abuse "emerged as a major issue for the United States within the past decade and has worsened over the past few years" (Compton & Volkow, 2005, p. 103). Currently, more than six million people abuse or misuse prescription opioid medications for the treatment of pain (Kirsh & Fishman, 2011).

Another way to measure the effect on society of opioid abuse and addiction is to view the financial cost. Failing to treat substance use results in expensive costs to society especially in the areas of incarceration and medical treatment (Davis et al., 2006). A quantitative study using an anonymous written survey was completed by 84 veterans attending a Veterans Administration opiate treatment program over a period of 60 days and found that 80% admitted to a recent criminal activity, the majority of them involving theft (Mays et al., 2005).

From 1992 to 2002 hospital emergency room fatalities from overdose of hydrocodone and oxycodone "increased by 170% and 450% respectively" (Boothby & Doering, 2007, p. 266). Hospital emergency departments received an increasing number of requests from 2003 through 2007 for opiates in the treatment and management of pain (The Centers for Disease Control and Prevention, 2008). From 2004-2007 the number of

hospital emergency department visits related to opiate abuse almost quadrupled, increasing from 198,000 to 420,000 (Manchikanti, 2007). In 2009 there was a reported increase of 242.2% in opiate or opiate-like substance overdoses seen in a hospital emergency room setting compared with 175,949 from 2004 (The Drug Abuse Warning Network [DAWN], 2009). The medical treatment costs associated to substance abuse rose 5.9% annually from 1992 thru 2002 and cost society $180.8 billion (Morgan & Crane, 2010). The medical health care cost to society for 2007 as $25.0 billion (Birnbaum et al., 2011, p. 657). United States residents illegally use 80% of the international supply of opiates and 99% of hydrocodone (Manchikanti, 2007).

Measures have been instituted to help curb the illicit and misuse of opiate medications. In September 2013, the Food and Drug Administration announced that extended release and long term pain medications containing opiates could only be prescribed for severe pain requiring 24 hour management and only after other pain medications had been unsuccessfully used (Preda, Liskow, Talavera, Harsch, & Dunayevich, 2013). The use and effectiveness of these extended and long-term medications will require future study.

Costs to society are not merely measured in dollars but may also be measured by quality and quantity of life. Failure to maintain compliance with treatment impacts society through an increased number of HIV and Hepatitis C (HCV) cases, increased court expenses, unemployment, and family conflicts (Day et al., 2008). The cost of legal and police intervention due to substance use in the United States was $3.8 billion in 2007 (Birnbaum et al., 2011, p. 657). Noncompliance and illicit use have been linked to an

increased risk of HIV, hepatitis B virus (HBV) and hepatitis C (Gardner & Kosten, 2007; WHO, 2008). Opiate abuse costs Australian society in fatalities, the spread of infectious disease, violent drug motivated criminal activities, and family disturbance (Chaar et al., 2011). Substance use costs society billions of dollars and thousands of lives annually (Day et al., 2008; Kirsh & Fishman, 2011; Morgan & Crane 2010, WHO, 2008). The total cost to society in 2007 for substance use was $55.7 billion (Birnbaum et al., 2011).

Treatment Issues

Prescription Medical Treatment

Medications to treat opiate addiction include an agonist, antagonist, or a mixed agonist/antagonist (Nutt, 2010). An agonist is a substance such as oxycodone, heroin, or morphine that links to a brain cell receptor and elicits a response such as euphoric feeling. An antagonist links to a brain cell receptor but does not elicit a response, or only does so weakly. An antagonist prevents the opioid from attaching and prevents the euphoric feeling. Grant (2008) noted the effectiveness of antagonist medications in the treatment of heroin addiction through decreasing the urges to use through failing to achieve the desired feeling or outcome. A mixed agonist/antagonist is a substance that behaves like either an agonist or antagonist and depending on the dosage, can change its effect on the brain cell receptor. For every one dollar spent on medication assisted treatment for drug addiction saves between two and six dollars and has shown an impact in decreasing criminal behavior and re-incarceration (The National Institutes of Health, 2013).

Methadone Treatment

Methadone maintenance treatment (MMT) is the primary treatment mode for opiate addiction (Seivewright, 2000). MMT requires the daily administration of methadone to help reduce symptoms of withdrawal (Ward, Hall, & Mattick, 1999). The client must report to a methadone treatment center once per day to receive administration of the medication. Compliance to this treatment regimen is usually monitored by treatment center staff. MMT may or may not include components of psychotherapy or psychoeducation. Psychoeducation is defined by Rowston (2002) as informing the client regarding medication treatment and management, the role of stress, identifying precursors and triggers of relapse, and the role of illicit drugs in exacerbating drug use.

Methadone, developed in the 1930s, is an early medication approved by the FDA which is still used in the treatment of opiate addiction. This medication has been associated with a large amount of social stigma and is somewhat difficult to obtain (Urschel, 2009). Methadone is the most common method for opiate treatment (Drummond & Perryman, 2007) and is the primary type of treatment for opiate addiction in New York City (Spunt, 2003). Methadone must be taken daily to be effective, and treatment is usually continued over a period of several years. Methadone is most commonly prescribed in opiate treatment and that methadone serves as a replacement or substitutionary medication (Bond, Reed, Beavan & Strang, 2012). Methadone is used as a method for detoxification and for maintenance (Doran, 2008). Methadone treatment is cost effective, effective in reducing criminal activity associated with illegal drug use, and

in reducing HIV transmission from the use of dirty needles (Deck, Wiitala, & Laws, 2006).

Measuring methadone effectiveness. Gordon, Kinlock, Schwartz, and O'Grady (2008) conducted a three-group randomized controlled clinical trial from September 2003 to June 2005 at a Baltimore pre-release prison on 211 male inmates having heroin dependence prior to incarceration. The researchers randomly assigned participants to one of three groups; (a) weekly counseling only with a limited referral for methadone treatment at time of release, (b) weekly counseling only while in prison and being transferred to a methadone treatment facility upon release, (c) weekly counseling and methadone treatment while in prison and follow up for counseling and methadone treatment upon release. Two hundred and one former prisoners were assessed at 6 months following release through use of UDSs, self-reported drug use, number of days reincarcerated during the six month follow-up period, and participation in the treatment program. The researchers found that participation in an opioid treatment program while incarcerated, involving counseling linked with methadone, and continued services following 6 months after release served to reduce self-reported heroin use, and heroin use as measured through UDS.

Measuring methadone effectiveness with counseling. In contrast to the Gordon et al. (2008) study, Schwartz et al. (2011) conducted a randomized controlled 12 month study of 230 newly admitted adult methadone patients at two treatment facilities in Baltimore, MD. Patients were assessed using the Addiction Severity Index at admission in a blinded fashion prior to being assigned to a group. Patients were also assessed using

the Addiction Severity Index at 4 and 12 months in a non-blind manner. Patients were randomly assigned to one of three groups using block randomization consisting of placing patient identifying information in an envelope prior to group assignment. Patients were assigned to one of three groups. The first group focused on methadone treatment only. The second group focused on methadone treatment combined with counseling. The third group focused on methadone treatment combined with counseling received by a counselor with a reduced caseload. Retention rates were measured. UDS was also collected throughout the study. The researchers found that there were no significant differences in the retention rates of the patients or in the success of methadone or methadone with counseling. Easing of restrictions placed on methadone prescribers allowing for increased access to methadone and an increase in methadone only treatment programs (Spunt, 2003).

Suboxone and Buprenorphine Treatment

Suboxone is a combination medication containing buprenorphine and naloxone and was approved for the treatment of opiate addiction in 2000 by the FDA (Finch, Kamien, & Amass, 2007). Suboxone blocks the effects of opioids, decreases cravings, and suppresses major symptoms of withdrawal. If the client should have a relapse and use opiates, the client does not experience the feeling of high normally associated with opiate use. The typical course of treatment with Suboxone is 9 months to 2 years before tapering off (Finch et al., 2007).

In 2002, buprenorphine was approved by the FDA for use in the treatment of opioid dependence. Buprenorphine is a partial antagonist medication, which in low

concentrations duplicates the effects of opioid agonists such as oxycodone or heroin. In higher concentrations, buprenorphine acts as an opiate antagonist. Even though methadone has been recognized since the early 1960's as the leader in the treatment of opiate addictions, buprenorphine has proven to be more effective in maintenance (O'Connor, 2005). Methadone and buprenorphine were the two recommended long-term treatment options for opiate addiction (Finch et al., 2007).

The effectiveness of buprenorphine and methadone was compared by Barnett, Zaric, and Brandeau (2001) using a systematic Medline literature search in an effort to identify peer reviewed, double blind, randomized clinical trials occurring before 1999 which compared both medications. Retention in treatment was analyzed using a Cox proportional hazards regression. Urinalyses for opiates were studied with an analysis of variance. A meta-analysis was used to combine these results. The researchers found that lower dosages of buprenorphine had a 1.26 times higher drop- out rate (95% confidence level) than methadone. The researchers also found that higher dosages of buprenorphine were more effective than lower levels of methadone. The researchers concluded that further testing and analysis was necessary to determine significant results.

Johnson, Jaffe, and Fudala (1992) studied a 17-week medication maintenance period, followed by an 8-week detoxification phase, and conducted a randomized, double-blind, parallel group study of 162 patients to test the short-term efficacy of buprenorphine. The authors compared the effect of 8 mg of buprenorphine with methadone 20 mg and methadone 60 mg per day over seventeen week maintenance and an eight week detoxification. The authors compared the retention and abstinence rate of

buprenorphine to methadone and found that throughout the maintenance phase retention rates using buprenorphine were 42% better than using methadone 20mg. Urine drug samples comparing buprenorphine and methadone showed retention and abstinence rates were significantly higher with buprenorphine. The authors found that buprenorphine was equally effective in the treatment of opiate addiction as methadone 60 mg.

Measuring Suboxone effectiveness. Methadone and Suboxone share in their effectiveness of treatment for opiate addiction (Chapleo, 2003). The authors also noted that individuals using Suboxone had a lower incidence of becoming addicted to Suboxone. Suboxone was found to be safer when compared to the possible respiratory complications linked to methadone. Suboxone also offers an increased flexibility in administration of the medication which methadone does not. Suboxone may be self-administered compared to methadone which must be taken daily and provided in a controlled clinical setting.

Measuring Suboxone effectiveness with counseling. The effectiveness of incorporating counseling with Suboxone medication treatment was reported by Fiellin et al. (2006). The researchers in cooperation with the National Institute on Drug Abuse conducted a quantitative study involving 166 participants who were randomly assigned to one of three groups. Members of each group received medication management appointments with the prescriber including a brief counseling session with a nurse. Group one consisted of follow-up for once a week medication management. Group two consisted of three times per week medication management. Groups one and two had a total appointment time allotment of twenty minutes. Group three consisted of three times

per week medication management with a total appointment time of forty-five minutes to allow for additional counseling. Counseling consisted of discussions related to recent drug use, relapse, or support. All groups received UDSs monitoring. Drug use was monitored through weekly self-reports and UDSs. The researchers found that all three treatment types reduced self-reported opiate drug use frequency from 5.3 to 1.1 days and the UDSs measure did not show any significant difference. This suggests that although medication management is required in the successful treatment of opiate addiction, the frequency and amount of time spent in medication management is not significant.

Naltrexone Treatment

Another mediation approved by the FDA and used in the treatment of opiate addiction is the antagonist naltrexone. Naltrexone, in the form of an injectable medication called Vivitrol, was approved by the FDA in 2010 for the treatment of opioid addiction. Naltrexone was approved in 2006 for the treatment of alcohol dependence. Naltrexone acts on the brain cell receptors preventing a euphoric feeling. One possible problem in the use of naltrexone is that the client taking naltrexone may develop the misconception that since they are prevented from becoming high they are now free to use opiates freely and without consequence (Urschel, 2009). Naltrexone does not block cravings or desire for the opiate.

Measuring naltrexone effectiveness. Comer et al. (2006) conducted a multicenter, eight week, randomized, double-blind, placebo-controlled, parallel-group to rate the safety and efficiency of naltrexone. The researchers enlisted sixty adult heroin dependent users who were stratified by gender and years of heroin use and then

randomized to receive a placebo, a low dose, or a maintenance dose of naltrexone. All participants received counseling twice a week and UDSs. The researchers found a lower level of effectiveness in the placebo group when compared to the low dose naltrexone, and a lower level of effectiveness in the low dose naltrexone group when compared to the maintenance level dose.

Naltrexone, administered orally, has been shown to have a low level of effectiveness based on high rates of relapse and noncompliance (Hyman et al. 2009). One possibility suggested for the high noncompliance and relapse rates is that naltrexone eliminates the subjective feelings and cravings associated with opiates without replacing the "powerful reinforcing effects of opioids" (Carroll et al., 2001, p. 755). Development is currently underway for a sustained release injection (Liberto & Fornili, 2013). With the introduction of a sustained release injection and the inclusion of counseling, hopes are for enhanced effectiveness.

Measuring naltrexone effectiveness with counseling. Behavioral therapies used in conjunction with nalterxone have shown a higher level of compliance and treatment retention (Carroll et al., 2001). Carroll et al. (2001) conducted a study using a randomization sample of 127 detoxified opioid dependent patients who were assigned to one of three groups over a twelve-week period. Group one received medication treatment three times a week. Group two received the same medication treatment with incentive vouchers and group three received the same medication treatment, incentive vouchers, had the support of a family member present, and received six family therapy sessions.

The researchers found that incentive vouchers helped to increase retention and decreased noncompliance and that family therapy sessions help to improve family functioning.

An Integrated Treatment Approach

In the treatment of opiate addiction, medication maintenance is the principle method used (Fiellin, 2006). An integrated approach, combining medication management, monitoring, and counseling is recommended for effective treatment intervention. Coexisting mental illness and substance abuse disorders are best treated by programs, which are tailored for the needs of the individual (Drake, Mercer-McFadden, Muesser, McHugo, & Bond, 2001). McAuliffe and Ch'ien (1986) were early advocates of an integrated psychosocial approach to the treatment of opiates and Minkoff (1999) stressed the importance of an integrated approach in the treatment of substance use.

The IDDT treatment model views every aspect in the life of the client as part of the recovery process. IDDT is an evidence-based, multidisciplinary practice technique that is recognized by the SAMHSA for the treatment of co-occurring mental health and substance abuse disorders (Drake et al., 2001). Body, mind, and spirit are intertwined and that each requires integrated care (O'Brien, 2013). When working with dually diagnosed United States Armed Service veterans an integrated approach for treatment is recommended (Timko et al., 2003).

Integrated treatment programs are not new. Treatment for dual diagnosis should be simultaneous and carefully synchronized to be effective (Minkoff, 1989). The National Institute of Mental Health (1989) and Teague et al. (1990) concurred that effective treatment of dual diagnosis focuses on integrating alcohol, drug, and mental

health treatments. The advantages of having a single location and coordination of services when dealing with clients involved in integrated treatment were discussed by Wingerson and Ries (1994). Another advantage to an integrated approach is the ability to have clinicians who are cross-trained to service both mental health and substance use concerns (Drake et al., 1998).

Integrated Treatment Approach Research

The importance of an integrated treatment approach for addiction services was discussed by Grella, Gil-Rivas, and Cooper (2004). The authors viewed the findings from a UCLA dual diagnosis study of ten mental health and sixteen residential substance abuse programs to evaluate the outcomes of dually diagnosed clients. The authors presented areas of agreement and disagreement of administrators and staff from those treatment centers regarding the treatment of the dually diagnosed client. A factor analysis was conducted to determine common views regarding treatment. The extent of agreement was measured using a Likert scale. Scores were obtained and an analysis of variance using ANOVA for responses from four types of program directors; mental health administrators, mental health staff, substance use administrators, and substance use staff. The authors stated that a divergent mindset exists when comparing current treatment methods and an integrated approach would be best implemented at the administration level. Markoff, Finkelstein, Kammerer, Kreiner, and Prost (2005) conducted a mixed methods study using snowball sampling, fixed list approach, and semi-structured interviews. The authors focused on three large human service agencies in three different communities in Eastern Massachusetts working with women experiencing domestic

violence and dual diagnosis. The authors found that an integrated treatment process involving cross training of professionals working in mental health, addictions, and domestic violence aided in treatment but that individual program mindsets and stigmas still posed a barrier.

Crits-Christoph et al. (1999) conducted a study of four treatment centers with a total caseload of 487 patients. The patients were randomly assigned to one of four manual guided groups with varying approaches. Group number one used individual therapy with group therapy. Group number two used cognitive therapy and group therapy. Group number three included supportive-expressive therapy and group therapy and group four only used group therapy. The authors conducted thirty-six individual sessions and twenty-four group sessions over a period of 6 months. Clients were assessed each month, and during the ninth and twelfth months were given the Addiction Severity Index. The primary outcome measures were based on the Addiction Severity Index drug composite score and number of days self-reported cocaine use and UDS report. The authors found that all treatment modes provided improvements from the beginning of the study through completion but that treatment for opiate addiction was more effective when treated with an integrated approach incorporating medications and including both individual and group counseling.

Of the people diagnosed as having a chronic history of substance abuse, “41% to 65%” also have a chronic history of mental illness (Kola & Kruszynski, p. 438, 2010). Approximately 50% of individuals diagnosed with a chronic and severe mental illness also have a coexisting diagnosis of substance use (Drake et al., 2001). The effectiveness

of integrated treatment regarding alcohol use was advocated (Herman et al., 2000). The authors assigned clients to either an integrated approach treating both mental illness and substance use verses hospital treatment focused on treating mental illness and substance use separately. The authors conducted a randomized experimental, multilevel, nonlinear model of study over the course of 18 months with 429 randomized patients. Their findings showed that integrated treatment, treating mental illness and substance use concurrently reduced alcohol consumption among participants by 54%.

Minkoff (2001), who assessed 246 admissions over a 21-month period for treatment of substance use and psychiatric illness, also supports an integrated approach for effective treatment based on the study findings. The main weaknesses of this study were the lack of a control group, no comparative data, and the primary use of clients reported subjective experiences. Hoffman, Abrantes, and Anton (2003) studied 126 participants diagnosed with a dual diagnosis who were assessed at baseline, after 6 months, and at three years to assess whether integrated treatment helped in the reduction of criminal activity and health care costs. The authors conducted semi-structured interviews and self-reporting to assess quality of life. The authors found that integrated treatment lowered illegal activity and health costs. Semi-structured interviews were initiated at 1 months, 6 months, and three years. Limitations to the study include the lack of a control group, lack of follow up for dropout, lack of independent evaluators, and the lessening of sample size over time.

Davis et al. (2006) studied the effectiveness of integrative treatment using assertive community treatment (ACT) for individuals diagnosed as having a severe

mental illness and substance use. The authors used a retrospective study conducted at 24 months of 38 participants diagnosed with a dual diagnosis. The authors conducted motivational interviewing and administered the Clinician Alcohol Use Scale (CAUS) and Clinician Drug Use Scale (CDUS). Random UDSs were also conducted. Their findings showed that an integrated treatment approach showed a reduction in alcohol consumption and a 71% retention rate.

Kubek (2007) noted that IDDT is holistic in nature and considers the cultural background of the individual. Components of IDDT may include the use of individual, family, and/or group counseling for integrated mental illness and substance abuse/use, participation in self-help and support groups, pharmacological treatment, case management and outreach, supported employment and community integration/reintegration, and advocacy (SAMHSA, 2012).

IDDT Summary

IDDT seeks to treat both mental illness and substance abuse concurrently. The basis for integrated dual-disorder treatment involved "cross-trained practitioners providing integrated, comprehensive services directed toward the two disorders simultaneously in the same venue with the goal of recovery from both illnesses" (Kola & Kruszynski, 2010, p. 439). A high percentage of relapse exists for individuals suffering with a dual diagnosis and that separate, traditional means of treatment usually are ineffective (Drake et al., 2001). Using this treatment model among individuals diagnosed with a dual diagnosis would best address the individuals' holistic needs. The theoretical framework for MT was based on the Integrated Treatment (IT) approach, which seeks to

provide treatment to the client for mental illness and substance use concurrently. Kola and Kruszynski (2010) introduced their model of the IDDT, which suggested treating existing mental illness and addictions concurrently.

In this study both the MT and FBS have a component of integration. Both the MT and FBS integrate medication management, urine drug screens, and group psychotherapy with the FBS differing in the additional services received. Prior to an integrated approach incorporating counseling for opiate treatment, clients received medication management, primarily through the use of methadone maintenance and monitoring through urine drug screens.

Faith-based Services (FBS)

FBS focuses on the holistic needs of the individual in providing services designed to reduce instances of relapse. Faith-based services have been defined as being centered upon the presence or absence of spiritual content within the parameters of the program (Neff et al., 2006). Religious faith plays an integral role in the development and substantiation of communal morals, integration to a positive support network, and establishing new values and goals (Durkheim, 1948). The concept of faith served to elicit edification and promote self- discipline and feelings of wellbeing within the individual (Alpert, 1961).

The role of structured programs and faith in the treatment of substance use was discussed by White (1998). The idea of incorporating agape (love) in the treatment process and noted that this agape may be more readily found within faith-based programs was noted by Miller (2000). The use of a faith-based recovery model for substance use

treatment provides greater support and social strengthening for the individual (Moos, 2006). Faith-based care confirms a person's sense of self-worth, helps to define a meaning and purpose for life, and helps to perpetuate emphatic feelings for others (Greasley, Chiu, & Gartland, 2001). Moreira-Almeida Neto, and, Koenig (2006) in a systematic review of 850 studies found that increased faith-based involvement was positively linked to lower substance use and less symptoms of depression among adults.

Christian faith-based treatment programs have a long history of being the primary provider in the treatment of substance use (Hester, 2002). The Twelve-step program of Alcoholics Anonymous (AA), although not primarily defined as either Christian or religious, has a history derived from Christian faith-based treatment (Sellman, Baker, Adamson, & Geering, 2007) and an emphasis on spiritual tenets (AA World Services Inc. 1981, 2001). Faith-based programs serve a major role in the treatment of substance use (Cook, 2006; White & Whiters, 2005).

FBS and Addiction. FBS involvement serves as a safeguard against substance abuse and aids in achieving and maintaining continued sobriety (Stahler, Kirby, & Kerwin, 2007). Organizations incorporating a faith-based element to addiction treatment serve as protective elements when associated with alcohol and drug abuse (Ferguson, Dabir, Dortzbach, Dyrness and Spruijt-Metz, 2006). A holistic, integrated approach incorporating medication management, psychological and social interventions, and support systems when treating opiate addiction was recommended by WHO (2008). Involvement in a faith-based program has been shown to be effective for decreasing drug use (Gartner, Larson & Allen, 1991; Gorsuch, 1995; Kendler et al., 2003; Koenig and

McCullough, 2001; Piacentine, 2010). Hood (2011) advocated for the effectiveness of religious programs versus secular programs of treatment to substance abuse. Information regarding the effectiveness of faith-based programs in the treatment of substance abuse is inadequate and that further studies were necessary (Neff et al., 2005).

The individual indicating a presence of faith in their lives has a lower percentage of substance use (Columbia University's National Center on Addictions and Substance Abuse [CASA], 2001). Larson and Larson (2003) presented a review article of longitudinal studies of community samples, which noted that a person's spiritual commitment had a buffering effect on substance abuse. Stewart and Koeske (2005) agreed when stating that attendance at religious services serves as a positive indicator of non-substance use behavior.

Stahler et al. (2007) conducted research on 18 homeless, cocaine-using mothers who were admitted to a residential treatment program. These African American women were randomly assigned to a group receiving either traditional medical treatment or to a group receiving traditional medical treatment plus a faith-based element. These women were assessed at the time of intake and at 3 and 6 months. The authors reported on the effectiveness of faith-based treatment for opiate use among African-American females. The authors stated that faith-based treatment produced superior outcomes in retention of abstinence after 6 months by 75% versus 20% with non-faith-based and also resulted in improved cost effectiveness.

Duvall, Staton-Tindall, Oser, and Leukefeld (2008) conducted a survey over a period of 24 months of 500 Kentucky Drug Court clients. The study noted the perceived

addiction severity of the individual and found that clients indicated that faith was considered as having a positive impact upon mental health and addiction recovery by promoting abstinence through the interaction of like-minded peers.

There are no strict or identifiable definitions of what constitutes a faith-based program and according to Neff et al. (2006) faith-based programs vary in their format. Some faith-based programs may be faith-based in name only and use the concept of faith only in the context of attracting clients while other faith-based programs are more spiritually focused and incorporate religious resources and material (Mcllwrath, 2011). Sider and Unruh (1999) categorize faith-based treatment into four areas: (a) completely religious, (b) religious and secular combined, (c) secular with religious values, or (d) religious affiliation only. There are numerous religions and religious based organizations, which provide treatment for substance~~s~~ abuse but the Christian faith is most common (McCoy, Hermos, Bokhour, & Frayne, 2004). Conducting qualitative interviews, Arnold, Avants, Margolin, and Marcotte (2002) noted that patients prefer to include elements of FBS in their treatment of substance use.

Rationale for FBS. The rationale to examine whether faith plays a significant role in the treatment of opiate addiction is based on history. Throughout history, faith has been an element in the healing process. Ancient healers believed that a pantheon of gods was active in all of the affairs of ones' life and to receive healing, one had to petition the gods. This petition process might involve offering a sacrifice or performing a task in order to gain the gods attention and benevolence. The misnomer was that all disease and illness were the direct results of sin toward God or toward part of His creation (Kroll &

Bachrach, 1984). There is believed to be a connection or link existing between faith and recovery (King, 1994). There is a spiritual link between the healing power of prayer (faith and healing) and the practice of medicine (Dossey, 1993). The author promoted the idea that prayer was a valid and vital tool, comparing it to surgery and medications in the recovery process.

Hyman and Pedrick (2010) discussed the emphasis of faith in responsibility modification therapy (RMT). RMT is an approach where accountability is transferred to someone else, even to God or to a higher being. RMT involves giving the responsibility for all obsessional fears completely and absolutely to God. Narcotics Anonymous (NA) encourages the use of accountability partners and the belief and inspiration found in a higher power.

In recent years, a holistic approach has been associated to healing. Koenig et al. (2000) cited 1,200 studies indicating an acceptance of holistic medicine as a treatment option with over 66% of the studies reflecting significant associations between (a) faith and religious activity and (b) better mental and physical health along with decreased use of health care services. Saputo and Faass (2002) agreed when stating their belief that "people who have strong faith, religious belief, or a spiritual practice enjoy better physical, mental, and emotional health" (p. 1473).

A poll conducted by McNichol (1996) of 1,000 American adults found that 79% believed there was a positive association between spiritual faith and disease recovery. Mansfiled et al. (2002) conducted a random-digit-dial telephone survey in 1997 of 1052 adult households in 41 counties of eastern North Carolina. The survey assessed the

beliefs of the individuals surveyed regarding the importance and effect of faith in healing and recovery. The authors analyzed data using descriptive statistics, factor analysis, t-tests, analysis of variance, and logistic regression. The survey results found that 87.5% believed in miracles of healing and linked faith to recovery.

Faith and faith-based practices, such as prayer and meditation, are associated with improved health and health outcomes after a sickness and longer life expectancy (Sinatra, Roberts, & Zucker, 2007). Religion acts as a buffering agent in adolescent substance use (Wills, Yaeger, & Sandy, 2003). Alcoholics Anonymous (AA) and Narcotics Anonymous (NA) encourage clients to seek faith in a higher power as a part of the treatment steps.

The Drug Abuse Treatment Outcome Studies (DATOS) are the most recent national evaluation of treatment for opiate addictions (Flynn et al., 2003). DATOS included interviews with 10,010 patients admitted to one of 96 drug treatment programs in eleven cities in the United States from 1991 through 1993 and included follow-up for 5 years. Of the 10,010 interviewed, 708 were chosen for the study. Participants, at intake and one week from intake were given a self-reported assessment, which measured drug use and illegal activity. Daily drug use and illegal activity was also monitored through self-report. Recovery Perception Scales were used by participants to find what they felt were reasons for recovery. An ANOVA, analyzing variance was used for testing procedures. The authors found that 82% of individuals indicated personal motivation and 60-63% of individuals listed religion/spirituality as important to recovery.

Theoretical Framework

Maslow

During his life, Maslow proposed that man could achieve higher states of actualization and believed that psychology should focus on individuals as a whole and their actions. Man was an integrated being and has similar and shared needs, which were hierarchical in nature (Maslow, 1986). He described man as being able to reach a level when base needs are set aside for a higher power.

Initially, Maslow's hierarchy of needs (1943) composed a 5-stage model including physiological, safety, belonging, self-esteem, and self-actualization. This original model has been expanded upon several times throughout the years and now may include as many as eight different stages. Maslow proposed that the base needs of the individual must be met before any higher level of self –actualization can occur. The premise of the base level involves the focus on basic issues and necessities of life. Maslow identified the base needs as items such as food and health. Maslow's model listed "considerable ramifications for the treatment of individuals with complex and multi-axial problems" (Best et al., 2008, p. 306). This theory considered the interaction of multiple need factors upon an individual including social and cultural aspects, psychological, physiological, and pharmacological and treatment occurring from a holistic concept.

Integration of religion, science, and social passion is needed for the fulfillment of human needs (Maslow, 1970). The individuals' base physiological needs require attention to be met but once these lower needs are met, higher needs such as safety, belonging,

esteem, and then self- actualization take precedence and this process is continued throughout life in a more fluid process (Best et al. 2008). Maslow stated that basic human needs can only be fulfilled by other people (Maslow, 1970).

Individuals require a context of values and thinking, and that faith is an aspect of necessary structure for life (Maslow, 1962). Maslow compared man's need for faith to the natural components of sunlight and calcium. The relationship of body, mind, and spirit to addiction and the connection of the motivators for substance use are derived from unmet needs (Alexander, Robinshon, & Rainforth, 1994). The reasons for opiate addiction are multiple and include physiological, psychological, sociological, and spiritual (White, 1998). Tse, Leung, and Ho (2012), in a convenience study of 302 elderly nursing home patients, recommended a holistic approach for the effective treatment of base psychological needs.

The implications of this theory when associated with substance use are multiple. Many needs may accompany the client who is suffering with substances. The initial intake issues associated with substances are many and may include problems of homelessness, legal issues, health, relational, and occupational (Best et al., 2008). At the base of the pyramid are the immediate physiological needs of medication and integration of holistic treatment. Higher up the pyramid the needs of safety, occupational, legal, and residential may be addressed. In the outpatient opiate clinic, the addictions client is receiving treatment for base needs.

Faith is an empowering force for ones wellbeing when discussing the application of Maslow's hierarchy of needs to behavioral motivation and change (Brown & Cullen,

2006). Brown and Cullen (2006) conducted a study of 125 participants incorporating a self-administered questionnaire of 76 statements based upon the main categories of Maslow's hierarchy of needs. The authors studied the effect of faith as a motivational element for ones' self-actualization. Although this study did not incorporate any identified substance abuse participants, the authors suggested that faith served as a motivational element for change. Faith plays a vital role in reaffirming hope for the future and meaning in life (Musick, 2000).

The hierarchy of needs theory has been applied to a "trans-disciplinary" (Best et al., 2008, p. 307) or integrated approach for treatment. Although not specifically tied to opiate abuse, Maslow's hierarchy of needs may be integrated to substance use with regard to man's base physiological needs of medication and integration of holistic treatment and may also be applied to higher level needs of self-actualization.

Theoretical Propositions, Hypotheses and Assumptions

The first research question for this study is to what extent does type of treatment, (MT or FBS) predict compliance as measured by UDSs, after controlling for the control variables of dual diagnosis, college education, and income. The second research question is to what extent does type of treatment, (MT or FBS) predict compliance as measured by kept pill count, after controlling for the control variables of dual diagnosis, college education, and income. It is the hypothesis that when receiving treatment for opiate addiction, individuals voluntarily participating in FBS in addition to MT will have higher compliance outcomes than individuals receiving MT only.

There are several assumptions in this study. It is assumed that FBS will significantly predict compliance over and above MT due to the emphasis placed on holistic measures of treatment and the element of faith. It is also assumed that people enrolled in an opiate treatment program are addicted to opiates. It is assumed that information regarding the clients' attendance and compliance was entered into the clients' electronic record accurately. It is also assumed that the client is truthful in relating the intake and biopsychosocial information to the social worker. Another assumption is that intake data is accurate and that individuals have received a proper diagnosis. An assumption of the study is that MT does not include FBS elements in the treatment process and that FBS is truly reflective of the stated definition. A final assumption is that urine samples provided were unique to the individual client and were collected and tested in a precise manner.

Rationale of Variables

Mental Illness and Dual Diagnosis

The National Alliance on Mental Illness (NAMI) described mental illness as a medical condition that impedes a person's ability to function in all life areas and which may disrupt the ability to process feelings and emotions and the ability to relate to others. NAMI has also stated that 25% of individuals will experience an episode of mental illness (NAMI, 2013). Major mental illnesses include: schizophrenia, bipolar disorder, anxiety disorders, and major depression. General characteristics of schizophrenia may include the presence of auditory, tactile, or visual hallucinations and the presence of delusional or paranoid thinking. Bipolar disorder may include the characteristics of

persistent mood swings alternating between mania and depression over the course of hours, days, or weeks. Anxiety characteristics may include feelings of restlessness, fear, or panic. Anxiety disorders are the most common and effect 20% of individuals (NAMI, 2013) and include post-traumatic stress disorder, obsessive compulsive disorder, and panic disorder. Generalized anxiety disorder "accounts for 110 million disability days per year" (*DSM-5, 2013,* p. 225) in the United States. Characteristics of depression include intense feelings of sadness and loneliness and may include suicidal ideation.

The presence of depression increases the risk of substance use (Goodman & Huang, 2002). The authors conducted a linear regression analysis of cross-sectional data from the National Longitudinal Study of Adolescent Health (1995) of 15,112 students and found a link between mental illness and substance use. There is a high prevalence of co-existing psychiatric disorders and opiate dependent users (WHO, 2008). Depression is present in nearly half of those having an opiate dependence diagnosis (Benyamina et al., 2011).

Faith and Dual Diagnosis

Piacentine (2010) conducted a descriptive and cross sectional correlational design in a major Midwestern city of a clinic with 400 clients, 108 participating in the study to explore the relationship between spiritual well-being, depression and anxiety, and the consequences of continued drug use. Piacentine (2010) used a one-sample *t* test, Pearson's *r*, and multiple and logistic regression as testing measures and found a correlation between spiritual well-being and decreased feelings of depression, anxiety and an adverse finding related to poor spiritual well-being and drug use.

Many times, substance use is accompanied by other precursors of mental illness indicating the necessity for a dual diagnosis. Those individuals suffering from a mental illness are more likely to have a coexisting substance use problem (Drake et al., 2001) and have a higher potential for relapse during treatment (Kola & Kruszynski, 2010). Dual diagnosis has been defined by (Patrick, 2003) as a term to denote the presence of a mental illness coexisting with an alcohol or drug problem and that the combination of the problem is larger than either separately. Hoffman et al. (2003) defined dual diagnosis as a deteriorating condition that is both interrelating and chronic.

Individuals suffering from a mental illness and a substance abuse problem have been referred to both types of treatment programs. Barreira (2000) noted that in the past, people diagnosed as having both a severe mental illness and a substance abuse problem were treated in separate programs, which did not adequately care for their treatment needs. Hoffman et al. (2003) concurred when reporting on past treatment for the dually diagnosed client related that historically the client has been treated in parallel programs, which were separate in nature and produced poor compliance and continued relapse.

The inclusion of dual diagnosis as a control variable for this study is based on a study conducted by Pardini et al. (2000) of 236 individuals living in one county in California who were recovering from substance abuse. The authors examined the relationship between religious faith, spirituality, and positive mental health outcomes. A non-denominational religious faith measure was used to measure core behaviors and beliefs pertaining to items such as prayer, belief in a God, or sense of a guiding faith. The researchers used an anxiety scale and a ten point Likert scale addressing the individuals'

perception of religious faith, the element of faith was shown to be instrumental in the treatment of opiates and mental illness. The researchers allowed participants to respond to self-answer questionnaires. Strong levels of faith help to build and support positive mental and physical health (Pardini et al., 2000).

Rationale for an Integrated Approach in Dual Diagnosis

Prior to the use of an integrated treatment for addictions and mental illness, clients were treated either in an addictions or a mental health clinical setting with programs which were specific to their needs or possibly missing out on needed services altogether (Osher & Drake, 2010). The argument of which service was to be implemented first usually included some advocating for the necessity of the addiction being treated first in order to determine if a mental illness exists, while others were advocating for the treatment of the mental illness first with the explanation that the client may have been self-managing symptoms. During the 1990s, the focus of treatment began to change. Ackerson (1995) was an early advocate who examined the use of an integrated approach in dual diagnosis using what was called Continuous Treatment Teams.

College Education

The rationale for including college education as a control variable in this study is based on a study by Bryant, Schulenberg, O'Malley, Bachman, and Johnston (2003). The authors conducted a six year longitudinal study and found that educational achievement among high school students was linked to the percentage risk of substance use. Johnston, O'Malley, Bachman, and Schulenberg (2010), backed by the University of Michigan's Institute for Social Research and under the direction of the National Institute on Drug

Abuse, over a period of 35 years conducted surveys assessing drug use and an individual's level of education and found significant decreases in substance use when associated with a higher level of education. This study found that heroin use declined while substances such as oxycodone remained virtually unchanged.

Dos Santos, Trautmann, and Kools (2011) used a rapid assessment and response semi-structured interview of 84 informants found that living in abject poverty, with limited resources for living and education served as complications to opiate treatment. The authors did not present clear, exact or precise answers regarding what constituted poverty or limited resources. No specific findings were presented in this study.

Substance abuse, including alcohol and marijuana, impacts academic performance. Several previous studies have been conducted regarding the effect of alcohol use and education (Cook & Moore, 1993; Koch & Ribar, 2001). Bray, Zarkin, Ringwalt, and Junfeng (2000) using data from a school system in the Southeastern United States on 1,392 students found a connection between marijuana use and poor academic performance and dropout.

Income

The rationale for including income as a control variable was based on several studies. One of these studies was conducted by Goodman and Huang (2002), which found a link between higher socioeconomic status and decreased substance use. The prevalence of substance use rose with the variables of unemployment but decreased dramatically among college graduates and professionals (Merline, O'Malley, Schulenberg, Bachman, & Johnston, 2004). The authors used data obtained from

Monitoring the Future, a national sample of 17,000 high school seniors, with a weighted sample of 7,541. Students were grouped according to the year of their graduation and then were categorized into one of five categories based upon their response to which category best described their job. Students were also grouped according to marriage status, employment, and substance use.

Religious participation may impact substance use in low-income families. Hill and McCullough (2008) conducted a probability study of 2,402 low-income single mothers from Boston, Chicago, and San Antonio using data from the Welfare, Children and Families project over a two-year period. The authors used an ordered logistic regression formula and found that higher religious participation is associated to lower intoxication among low-income single female parent families.

SAMHSA (2012) in 2011 found that 14.8% of United States adults had a substance abuse or dependence diagnosis and were unemployed. This compared to 8.4% who had a substance abuse or dependence diagnosis and were employed. Gascon and Spiller (2009) used the data from the United States Census Bureau and the Department of Labor, and viewed the unemployment rate and opiate use in Kentucky during the time period of 2000-2005 and found a correlation between higher opiate use and higher unemployment.

Summary

The purpose of this study was to determine which treatment approach—MT or FBS—produces better compliance among patients attending an opiate outpatient treatment center in Appalachia and to what extent do the variables of dual diagnosis,

income, and college education predict compliance. It was the hypotheses that when receiving treatment for opiate addiction, individuals voluntarily participating in FBS in addition to MT will have higher compliance outcomes than individuals receiving MT only. This chapter comprised the literature review and viewed the rationale applied when discussing the effectiveness of treatment when incorporating a faith-based regimen. This chapter also reviewed the theoretical foundations of MT and FBS, Maslows' hierarchy of needs, and IDDT. Types of medication treatment including methadone, Suboxone, buprenorphine, and naltrexone were reviewed for their effectiveness in the treatment of opiates. Previous studies have been conducted researching the outcomes of substance use treatment. Literature supports the premise that faith-based treatment when added to MT is more effective than MT alone but a gap exists in the literature to document the higher compliance rate among participants in treatment for opiates treated with a Suboxone regimen. According to Piacentine (2009), limited research has been conducted on opiate use and faith or in the predictability for recovery.

Chapter 3 will view the research design, methods of participant recruitment, criteria for recruitment, ethical procedures, data collection and analysis for conducting a comparative study to identify compliance among two treatment types within an outpatient Suboxone treatment center.

Chapter 3: Research Method

Introduction

This chapter will review the research design, methods of participant recruitment, criteria for recruitment, ethical procedures used to safeguard all participants' rights, data collection procedures, analysis, and my role as the researcher. This study will identify which of two treatment approaches predicts compliance after controlling for the variables of dual diagnosis, income, and education among individuals attending an opiate outpatient treatment center.

The purpose of this study was to determine which treatment approach—MT or FBS—produces better compliance among patients attending an opiate outpatient treatment center in Appalachia and to what extent do the variables of dual diagnosis, income, and college education predict compliance.

Research Design and Analysis

This quantitative study of compliance used secondary data obtained from a previous 1-year period and used multiple regression to predict compliance based on receiving medical treatment (MT) only or medical treatment with faith-based services (FBS) at the Eastern Appalachian Suboxone Treatment Center (EASTC). Data included attendance logs for group therapy, number of clean UDSs, and number of kept pill count and was obtained through use of depersonalized electronic records. A stepwise linear regression analyses was chosen to test the hypotheses associated with both research questions, to what extent does type of treatment (MT or FBS) predict compliance, as measured by clean UDS (RQ1) or pill count (RQ2), over and above dual diagnosis,

college education, and income. Stepwise regression is used to identify the variable with the strongest relationship to the dependent variable (Field, 2009). I had considered conducting logistic regression but declined this approach due to the DVs (UDSs and kept pill count) not being qualitative and could not be answered through the use of coding 0/1. Statistical data, including the presence (yes/no) of a dual diagnosis, the reported annual household income, and the presence (yes/no) of college education was also obtained using electronic data from the client's record collected at the time of the client's initial entry into the treatment program. Urine drug screen (UDSs) and pill kept appointments was obtained from EASTC archived electronic records. Group attendance in the MT or FBS program was measured through the actual number of days attending. I downloaded depersonalized electronic data from clients' record at the facility while being monitored by the EASTC administrator. I recorded data using an index card for each entry. The index card, designated as the data collection tool (Appendix B), including a no/yes response for dual diagnosis, college education, and FBS. The index card also had three lines to record the actual amount of income, the actual number of clean UDSs, and the actual number of kept pill count. One other line located in the upper right had corner was used to place a checkmark once the data collection tool was recorded in SPSS. I used multiple regression in IBM SPSS 21 to predict compliance measured by kept pill count and by number of clean UDSs based on type of treatment after controlling for dual diagnosis, income, and college education.

The total available sample size was 103 clients. I used all 103 of the clients and then calculated the power using G*Power 3.1.2 analysis software (Faul & Erdfelder,

2009). I chose a medium effect size of $f^2 = .15$ since I was unable to find any data to support the existence of a smaller meaningful effect. The level of significance was .05. With one primary predictor (type of treatment) and three control variables (dual diagnosis, income, and college education), statistical power was .97.

Setting and Recruitment of Participants

EASTC is a private, for profit Suboxone treatment center located in the tristate area of Eastern Kentucky, Southern Ohio, and Western West Virginia, having a capacity of 100 clients and focusing on serving the needs of the opiate addicted client through the use of medical treatment (MT). The EASTC also offers optional FBS group counseling in lieu of MT. The EASTC employing one psychiatrist, a licensed clinical social worker, an independent laboratory provider, and two support staff and utilizing a 24-hour support hotline. Generalizability of the study may be affected in that the clients seen at EASTC are self-pay.

Data for this study were obtained from a private archival database. Participants in this study were voluntary, self-referred, self-pay consumers. The intervention was Suboxone with ancillary follow-up including group counseling (either MT or FBS), pill count, and urine drug screening (UDSs). Participants were required to complete a comprehensive biopsychosocial intake assessment upon entry into treatment; baseline UDSs and data was entered into their individual electronic record using TheraScribe. Participants could either self-assign to the MT or FBS group sessions at the time of intake based upon their preference. Participants were mandated to attend two sessions per month in addition to follow-up with the staff psychiatrist for medication.

Research Questions and Hypothesis

This study was guided by the following research questions:

RQ1: To what extent does type of treatment (MT or FBS) predict compliance, as measured by clean UDSs, over and above dual diagnosis, college education, and income?

H_0^1 = null hypothesis is R^2_{change} for Type of Treatment = 0.

H_A^1 = alternative hypothesis is R^2_{change} for Type of Treatment > 0.

RQ2: To what extent does type of treatment (MT or FBS) predict compliance, as measured by kept pill count over and above dual diagnosis, college education, and income?

H_0^2= null hypothesis is R^2_{change} for Type of Treatment = 0.

H_A^2 = alternative hypothesis is R^2_{change} for Type of Treatment > 0.

Permission to conduct the study was obtained from the on-site director at EASTC and the Walden University Institutional Review Board Approval # 10-06-14-0187970. The study complied with Walden University practices and policies. A certificate of completion from the NIH Office of Extramural Research for the protection of research participants was obtained. A Confidentiality Agreement (Appendix A) was included. A Letter of Cooperation between Walden University and the EASTC (was not included in the Appendix in order to ensure confidentiality) but was obtained prior to conducting this study.

Variables

Dependent Variables

UDSs was one dependent variable and was the actual recorded number (raw count) of clean urine screens found in the record. The second dependent variable was the number (raw count) of kept pill count found in the record.

Independent Variable

The independent variable is type of treatment, which has two values. The first value is Medical Treatment (MT) and is coded as 0. The second value is faith-based Services (FBS) and is coded as 1.

Control Variables

Control variables (CV) used for this study included dual diagnosis, income, and college education. I computed Spearman's rho correlation coefficients between each control variable and the dependent variables of UDSs and kept pill count. Those variables correlated at $p = .25$ were retained as control variables in the regression analyses. Dual diagnosis was coded as 0/1 for absence or presence of dual diagnosis, income as the reported annual household income, and college education as the absence/presence of college and coded as 0 no college or 1 for college.

Dual diagnosis includes a diagnosis of mental illness and a diagnosis of substance use (Weiss, 2004). Dual diagnosis was measured through the diagnosis obtained from the psychiatrist's intake note recorded in electronic record. College education was measured through the use of clients' electronic record containing biopsychosocial history obtained at intake by the social worker and indicating the total number of years the client has spent

in obtaining an education. Income was measured by report of the client taken from clients' electronic record containing biopsychsocial history obtained at intake by the social worker.

Participation in MT was coded as 0 and participation in FBS was coded as 1. During the intake, clients were asked to describe their religious preference or affiliation and to note their level of participation in religious activities.

Data Collection

Although EASTC also serves the mentally ill population, a medical diagnosis of opiate abuse or dependence as defined by the *DSM-IV-TR* must be the primary diagnosis. The *DSM-IV-TR* was used due to the data originating prior to *DSM-5* publication and implementation. No participants were recruited for this study as information was obtained through use of depersonalized data thereby insuring and maintaining privacy and confidentiality.

Data were collected by the treatment center at the time of entry into the program when the social worker collected biopsychosocial information including the presence or absence of opiate abuse or dependence, annual income, absence or presence of college education, and preference or no preference for participation in FBS. The presence or absence of a dual diagnosis was recorded in the clients' electronic record by the psychiatrist. Information was recorded electronically using TheraScribe. Computer access was password protected and backed up on an independent, redundant drive on a weekly basis.

Ethical Protection of Participants

Data was obtained from depersonalized, non-specific records of EASTC clients who were self-referred and were voluntarily enrolled in treatment services. Data originated from the electronic intake information obtained at time of clients' entry into treatment and kept in electronic records at EASTC. Data indicating compliance through attendance to group sessions, and through number of clean UDSs and number of kept pill count. This study did not directly involve interaction with any human subjects, and any potentially identifying information was depersonalized, thus insuring the protection of ethical standards. EASTC does not have any established research protocols.

Permission was obtained through the submission of a proposal of ethical review describing the study and procedures involved. A summary letter and PowerPoint presentation will be provided to the director of the EASTC following completion of the dissertation. Documentation data pertaining to this study will be maintained for the required five year time period and will be stored in a fireproof safe.

Summary

This chapter focused on the research design, methods of participant recruitment, criteria for inclusion of data in the study, ethical procedures used to safeguard all participants' rights, data collection procedures, and the role of the researcher. This involved a quantitative, stepwise multiple regression study viewing the compliance rate of patients enrolled in a private, for profit, outpatient Suboxone treatment setting at EASTC and explored any differences based on their participation in either a MT or FBS approach. Data included attendance logs for group therapy, number of clean UDSs, and

number of kept pill count. The research question asked to what extent does type of treatment (MT or FBS) predict compliance, as measured by clean UDS (RQ1) or pill count (RQ2), over and above dual diagnosis, college education, and income. Chapter 4 presents the results of the analyses.

Chapter 4: Data Collection and Results

Introduction

This chapter will review the research design and analysis, research questions, hypothesis, data collection and statistical procedural results, The purpose of this study was to determine which treatment approach—MT or FBS—produces better compliance among patients attending an opiate outpatient treatment center in Appalachia and to what extent do the variables of dual diagnosis, income, and college education predict compliance.

Review of the Research Design and Analysis

This study was guided by the following research questions regarding the type of treatment and compliance:

RQ1: To what extent does type of treatment (MT or FBS) predict compliance, as measured by clean UDSs, over and above dual diagnosis, college education, and income?

$H_0{}^{1\,=}$ null hypothesis is R^2_{change} for Type of Treatment = 0.

$H_A{}^1$ = alternative hypothesis is R^2_{change} for Type of Treatment > 0.

RQ2: To what extent does type of treatment (MT or FBS) predict compliance, as measured by kept pill count over and above dual diagnosis, college education, and income?

$H_0{}^2$= null hypothesis is R^2_{change} for Type of Treatment = 0.

$H_A{}^2$ = alternative hypothesis is R^2_{change} for Type of Treatment > 0.

It is the hypothesis that when receiving treatment for opiate addiction, individuals voluntarily participating in FBS in addition to MT will have higher compliance outcomes than individuals receiving MT only.

This quantitative study of compliance used secondary electronic data, obtained from a previous 1-year period, to predict compliance between medical treatment (MT) and faith-based services (FBS). These data included attendance logs for group therapy, number of clean UDSs, and the number of kept pill/ count. Statistical data included the presence (no/yes) of a dual diagnosis, the reported annual household income, college education (no/yes), number of clean urine drug screens (UDSs), and the number of kept pill/ count. MT was coded as 0 and FBS was coded as 1 in the independent variable type of treatment. Fifty-seven clients participated in the MT group and 46 participated in the FBS group. Dual diagnosis was coded as 0 for no dual diagnosis and 1 for dual diagnosis. There were 49 clients diagnosed with a dual diagnosis. Education was coded as 0 for no college education or 1 for college education. There were 27 clients who had attended college. The total available sample size was 103 (n=103). UDSs was one dependent variable and was measured by the number of clean urine screens in the record and the other dependent variable was measured by the number of kept pill count. See Table 1 for descriptive statistics for these variables.

Table 1

Descriptive Statistics for All Variables

	Mean	Std. Deviation	*N*
No. of kept pill count	9.93	1.962	103
No. of clean UDSs	14.26	4.415	103
Dual diagnosis (Y/N)	.49	.502	103
Income	40873.79	20974.625	103
College (Y/N)	.27	.447	103
Type of treatment	1.35	.479	103

Table 2 shows the results of the Spearman's rho with clean UDSs and kept pill count as the dependent variable.

Table 2

Spearman's rho Using UDSs and Kept Pill Count as Dependent Variables

			No. of clean UDSs	No. of kept pill count	Dual diagnosis (Y/N)	College (Y/N)	Income	Type of treatment
Spearman's rho	No. of clean UDSs	Correlation Coefficient	1.000	.616**	.133	.096	.275**	.054
		Sig. (2-tailed)	.	.000	.182	.333	.005	.586
		N	103	103	103	103	103	103
	No. of kept pill count	Correlation Coefficient	.616**	1.000	.049	.095	.111	.124
		Sig. (2-tailed)	.000	.	.622	.340	.264	.211
		N	103	103	103	103	103	103
	Dual diagnosis (Y/N)	Correlation Coefficient	.133	.049	1.000	.323**	-.071	.225*
		Sig. (2-tailed)	.182	.622	.	.001	.476	.022
		N	103	103	103	103	103	103
	College (Y/N)	Correlation Coefficient	.096	.095	.323**	1.000	.344**	.056
		Sig. (2-tailed)	.333	.340	.001	.	.000	.577
		N	103	103	103	103	103	103
	Income	Correlation Coefficient	.275**	.111	-.071	.344**	1.000	.297**
		Sig. (2-tailed)	.005	.264	.476	.000	.	.002
		N	103	103	103	103	103	103
	Type of treatment	Correlation Coefficient	.054	.124	.225*	.056	.297**	1.000
		Sig. (2-tailed)	.586	.211	.022	.577	.002	.
		N	103	103	103	103	103	103

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

I intended to conduct stepwise linear regression analyses to test the hypotheses associated with both research questions by first entering all three control variables dual diagnosis, income, and education into the equation on step 1 and then entering type of

treatment at step 2. However, after computing Spearman rho coefficients between each control variable with each dependent variable I eliminated any control variables that did were not significantly correlated at $p = .25$ from the stepwise analyses. As a result, when UDSs was the dependent variable, dual diagnosis and income were retained as control variables and no control variables were retained when kept pill count was the dependent variable (see Table 2).

I chose to conduct a Spearman's rho due to the lack of normal distributions of the variables of dual diagnosis, income, and college education. Field (2009) stated that Spearman's rho is used when "data have violated parametric assumptions such as non-normally distributed data (p. 179).

Table 3 shows the model summary for the variables of income, dual diagnosis, and type of treatment and the Adjusted R square.

Table 3

RQ1 Model Summary for clean UDSs

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.263[a]	.069	.031	4.345	.069	1.826	4	98	.130
2	.257[b]	.066	.038	4.330	-.003	.339	1	98	.561
3	.246[c]	.060	.042	4.322	-.006	.601	1	99	.440
4	.230[d]	.053	.044	4.317	-.007	.789	1	100	.376

[a] Predictors: (Constant), Type of treatment, College (Y/N), Dual diagnosis (Y/N), Income

[b] Predictors: (Constant), Type of treatment, Dual diagnosis (Y/N), Income

[c] Predictors: (Constant), Dual diagnosis (Y/N), Income

[d] Predictors: (Constant), Income

[e] Dependent Variable: No. of clean UDSs

As shown in Table 3, income explains about 5% of the variance (R^2 = .053) in number of clean UDSs but is not significant at p = .376; adding dual diagnosis to the equation increases R^2 to .060 but is not significant at p = .440; adding type of treatment also increases the R^2 to .066 but also increases non-significance to .561. Therefore the null hypothesis that type of treatment predicts number of clean UDSs is not rejected.

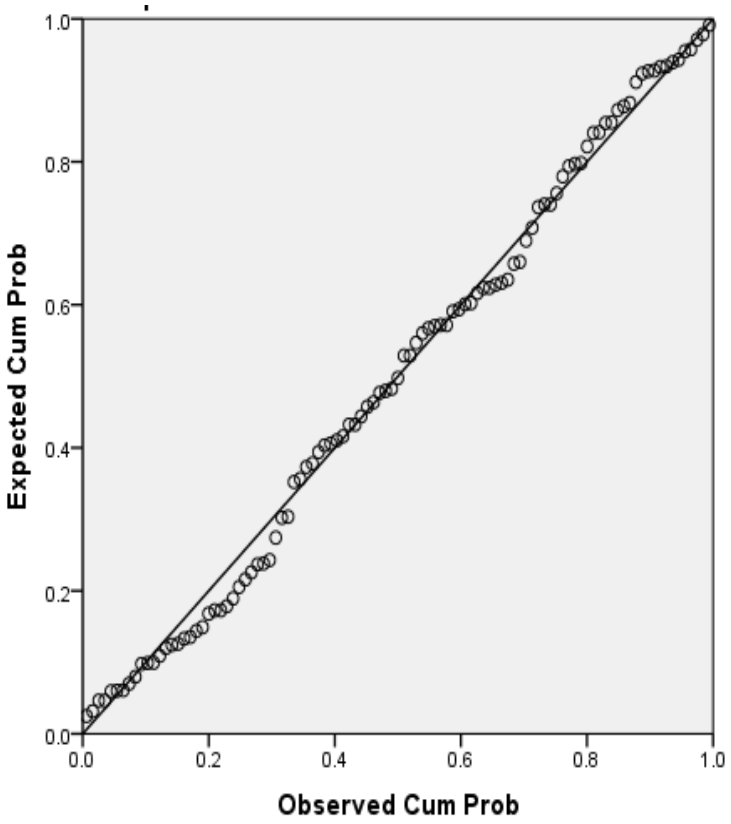

Figure 1 Normal P-plot of Regression Standardized Residual DV: No. Clean UDS.

Figure 1 shows the residuals are normally distributed by use of p-plot.

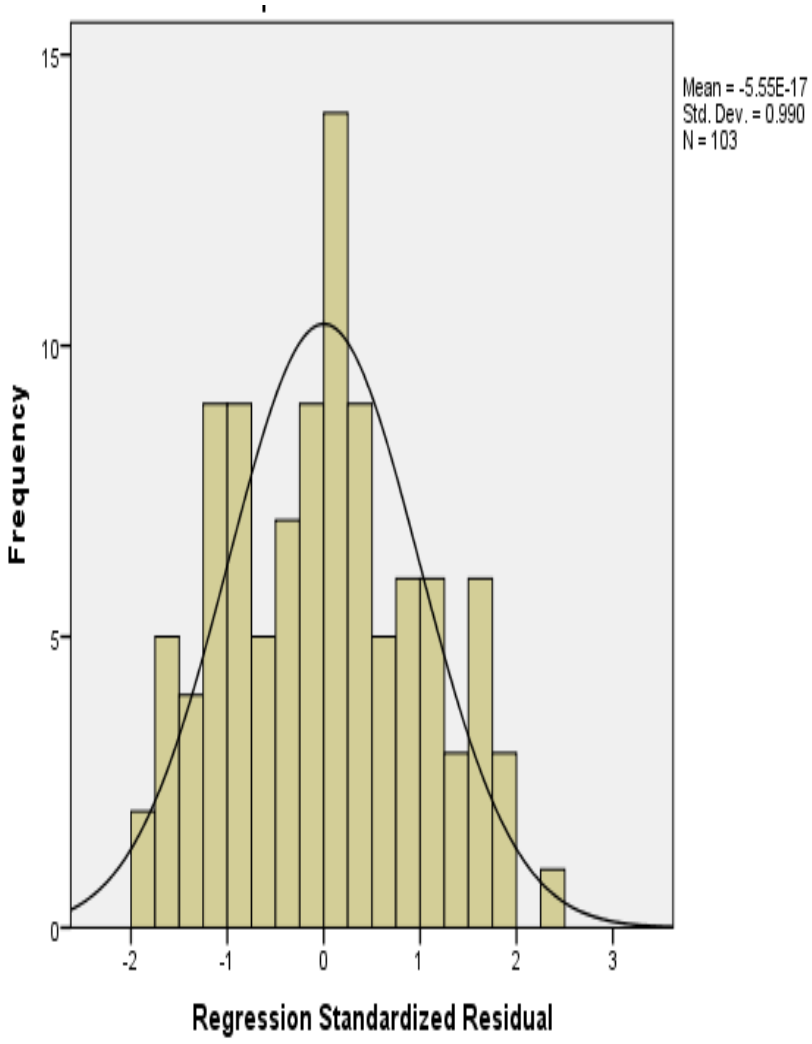

Figure 2. Histogram DV: Clean UDS.

Figure 2 shows the histogram for regression of residuals with the dependent variable of clean UDSs.

Table 4 shows the unstandardized and standardized coefficients for RQ1 that were used to calculate the predicted number of clean UDSs, the differences between predicted values and the actual values for each subject (i.e., the residuals).

Table 4

Coefficients for RQ1

Model		Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	12.281	.935		13.130	.000	10.425	14.136
	Income	4.848E-005	.000	.230	2.379	.019	.000	.000
2	(Constant)	12.837	1.368		9.385	.000	10.123	15.551
	Income	5.228E-005	.000	.248	2.426	.017	.000	.000
	Type of treatment	-.527	.943	-.057	-.559	.577	-2.399	1.344

[a.] Dependent Variable: No. of clean UDSs

Research Question 2: Kept Pill Count as a Dependent Variable

Based on Table 3, none of the control variables were significant at or below p = .25; therefore, I only ran the regression with type of treatment as the predictor of number of kept pill count.

Table 5 shows the Model Summary for RQ2 which indicates failure to reject the null hypotheses with respect to type of treatment predicting kept pill count data.

Table 5

RQ2 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.078[a]	.006	-.004	1.965	.006	.613	1	101	.435

[a.] Predictors: (Constant), Type of treatment

[b.] Dependent Variable: No. of kept pill counts

Table 5 addresses the variance (R^2 = .006) of Type of Treatment but is not significant at p = .435. Therefore the null hypothesis that type of treatment predicts number of kept pill count is not rejected.

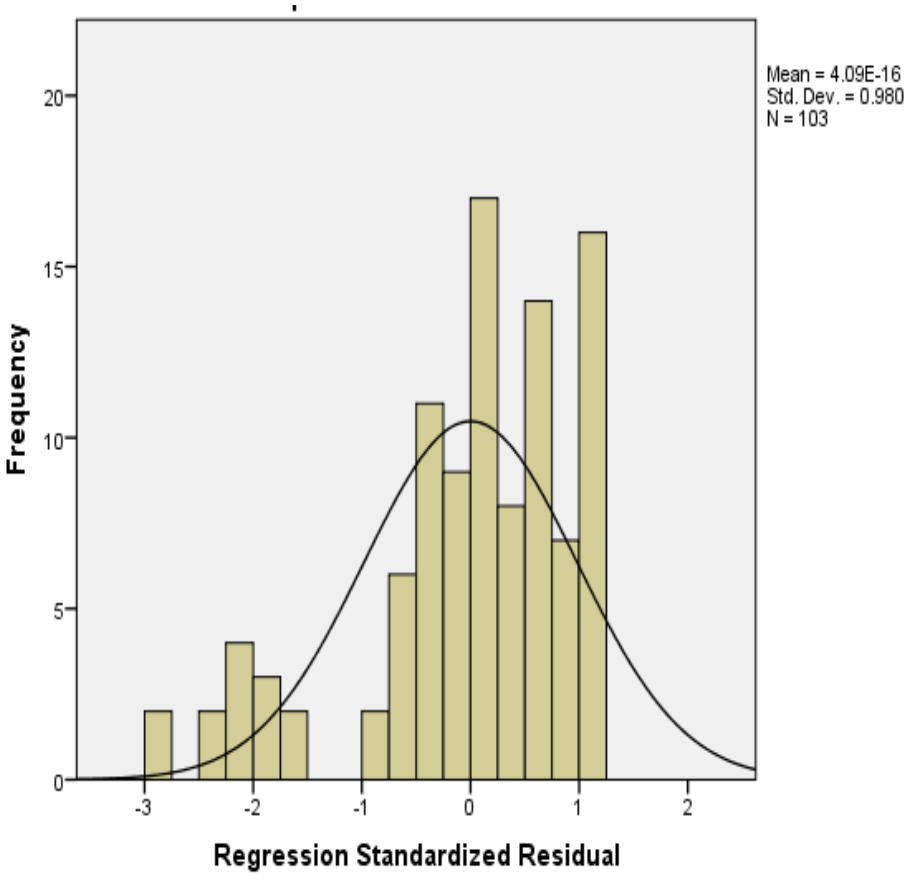

Figure 3. Histogram: DV Kept Pill Count

Figure 3, the Histogram shows that residuals are close to normal and regression is robust with respect to that assumption.

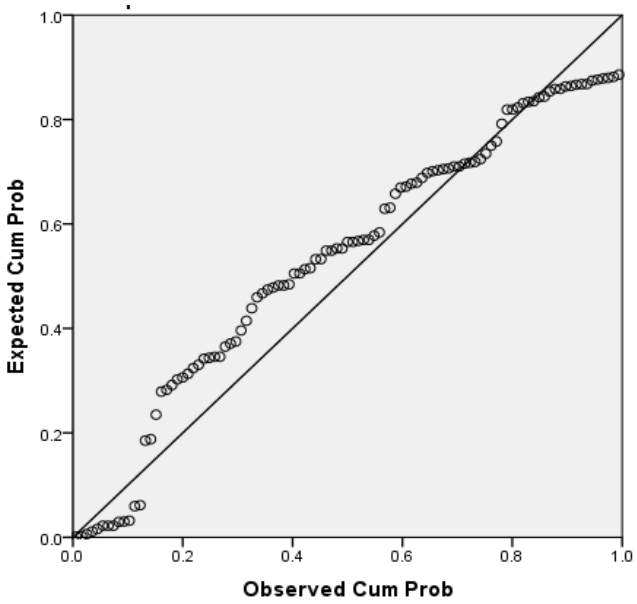

Figure 4. Normal P-Plot of Regression Standardized Residual DV: Kept Pill Count.

Figure 4 shows the p-plot for the dependent variable of number of pill/strip count.

Table 6 shows the regression coefficients for RQ2 that were used to calculate the predicted number of kept pill count and the differences between the predicted values and the actual values for each subject (i.e., the residuals).

Table 6

Coefficients for RQ2

Model		Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	9.503	.581		16.347	.000					
	Type of treatment	.318	.406	.078	.783	.435	.078	.078	.078	1.000	1.000

[a.] Dependent Variable: No. of kept pill count

Type of treatment was not found to be significant to compliance.

Summary

This chapter focused on the data collection and statistical test results. A Spearman's rho was conducted. Dual diagnosis was not significant to clean UDSs or to kept pill count and college education was not significant to clean UDSs or to kept pill count. Multiple stepwise linear regression was used to answer RQ 1 and RQ2. The data found that income explains about 5% of the variance of clean UDSs with a significant *f* change of .019 while the type of treatment was not close to significance. I must fail to reject the Null Hypothesis and must conclude that the type of treatment does not significantly impact clean UDSs. Chapter 5 will examine the findings and limitations of this study and implications for social change.

Chapter 5: Findings

Introduction

The purpose of this study was to determine which treatment approach—MT or FBS—produces better compliance among patients attending an opiate outpatient treatment center in Appalachia and to what extent do the variables of dual diagnosis, income, and college education predict compliance.

This quantitative study sought to measure the compliance of individuals enrolled in an outpatient Suboxone treatment center located in the Appalachian tristate area, who voluntarily participated in either a MT or MT that incorporated a FBS. Compliance was measured using multiple regression on electronic secondary data obtained from the facility. The secondary data described the number of clean urine drug screens (UDSs), group sessions attended, and the number of kept pill/strip counts.

The control variables were dual diagnosis, college education, and income. Dual diagnosis and education were found not to be statistically significant with respect to clean UDSs. Dual diagnosis, income, and college education were not found to be statistically significant with respect to compliance when measured by the kept pill count. RQ1 asked: To what extent does type of treatment (MT or FBS) predict compliance, as measured by clean UDSs, over and above dual diagnosis, college education, and income? The data showed that income explains about 5% of the variance of clean UDSs while the type of treatment was not statistically significant. Based on these results, I reject the null hypothesis. Based on these research reviews, the type of treatment (MT or FBS) does not significantly impact treatment compliance when using clean UDSs as the measure. RQ2

asked: To what extent does type of treatment (MT or FBS) predict compliance, as measured by clean UDSs, over and above dual diagnosis, college education, and income? The data showed that dual diagnosis, income, or college education were not significant factors impacting treatment compliance when using kept pill count as the indicator. Type of treatment, FBS or MT did not significantly impact client compliance with treatment when using kept pill count as the measure.

Interpretation of the Findings

Individuals with an opiate addiction have a higher rate of noncompliance with prescribed treatment and that noncompliance limits treatment effectiveness and may increase the burden of care and cost for society (Weiss, 2004). Effective opioid treatment would decrease relapse, decrease the incidence of communicable diseases, hospital emergency room incidents and overdoses (Smith-Rohrberg et al., 2004). Appalachia, including the tristate area of Kentucky, West Virginia, and Ohio, has been dramatically impacted with increased arrests and death associated with opiate addiction (Cicero et al., 2005, Havens et al., 2007; Zhang et al., 2008).

Approximately 50% of individuals diagnosed with a chronic and severe mental illness also have a coexisting diagnosis of substance use (Drake et al., 2001; Kola & Kruszynski, 2010). The importance of an integrated treatment approach in the treatment of mental illness and addiction use was advocated by Grella et al. (2004). As shown in Table 1, dual diagnosis was prevalent in 49% of the cases which was consistent with these statements. However, dual diagnosis was not statistically significant with regard to compliance as measured by either the clean UDSs or kept pill count measures.

Treatment for dual diagnosis should be simultaneous and carefully synchronized to be effective (Lehman et al., 1989; Minkoff, 1989; Osher & kofoed, 1989). Effective treatment of dual diagnosis includes integration of substance use and mental health treatments (The National Institute of Mental Health, 1989; Teague et al., 1990). In this study, both the MT and FBS have a component of integration. Both the MT and FBS integrate medication management, UDSs, and group psychotherapy. FBS differs in the additional services received.

A faith-based recovery model for substance use treatment provides greater support and social strengthening for the individual (Moos, 2006). This area of Appalachia has a rich culture based on tradition, family, pride, and religion (ARC, 2010) and a faith-based ideology is important to the effectiveness of substance use treatment (Miller, 2000). Body, mind, and spirit are intertwined and each requires integrated care (O'Brien, 2013).

FBS offers important structured programs in the treatment of substance use (White, 1998). The data from this study showed that the type of treatment in which a client participated was not significant to compliance as measured by clean UDSs and that FBS did not lead to higher compliance. In this area the research results differed from the other studies.

Faith-based care confirms a person's sense of self-worth, helps to define a meaning and purpose for life, and helps to perpetuate emphatic feelings for others (Greasley et al., 2001). Increased faith-based involvement was positively linked to lower substance use and less symptoms of depression among adults (Moreira-Almeida et al.,

2006). This study was quantitative in nature, using attendance data obtained from a previous year and did not explore qualitative measures.

FBS involvement served as a safeguard against substance abuse and aids in achieving and maintaining continued sobriety (Stahler et al., 2007). Organizations incorporating a faith-based element to addiction treatment serve as protective elements when associated with alcohol and drug abuse (Ferguson et al., 2006). Attendance at religious services serves as a positive indicator of non-substance use behavior (Stewart & Koeske, 2005). Involvement in a faith-based program has been shown to be effective for decreasing drug use (Gartner et al., 1991; Gorsuch, 1995; Kendler et al., 2003; Koenig, 2001; Piacentine, 2010; Richard et al., 2000; Wills et al., 2003). The effectiveness of religious programs versus secular programs of treatment to substance abuse was noted by Hood (2011). Columbia University's National Center on Addictions and Substance Abuse (CASA, 2001) related the individual indicating a presence of faith in their lives had a lower percentage of substance use. A person's spiritual commitment had a buffering effect on substance abuse (Larson & Larons). Faith-based treatment produced superior outcomes in retention of abstinence after 6 months by 75% versus 20% with non- faith-based and also resulted in improved cost effectiveness (Stahler et al., 2007). Faith was considered as having a positive impact upon mental health and addiction recovery by promoting abstinence through the interaction of like- minded peers (Duvall et al., 2008). The results of this study did not find statistical significance in the FBS treatment program verses the MT. It appears both programs were equally successful with no differences in compliance. Adding the FBS component did not add anything to the

MT alone based on these dependent variables. The results of this study do not support that the type of treatment predicts compliance, as measured by UDSs, over and above dual diagnosis, college education, and income.

Limitations of the Study

This study had several limitations. The first limitation was the size of the study group which was limited due to the regulations on the number of Suboxone treatment clients allowed in the center. This study was also limited to the recorded data obtained from a Suboxone treatment center located in Eastern Kentucky and serving clients from the Appalachian areas of Eastern Kentucky, Southern Ohio, and Western West Virginia. This study may have a unique population and geographical composition and may not be generalizable beyond this specific population due to limited cultural diversity. Appalachia may be known for its production of coal, poor economy, high poverty rate (Hall et al. 2008), high unemployment (Bureau of Labor Statistics/US Department of Labor, 2013), poor educational system, poor health and higher fatality levels from drug overdose (Hall et al., 2008) but is also known to have a rich culture that is deeply focused on traditions, history, and relationships (ARC, 2010) with its values focused on family, religion, pride, independence, hospitality, modesty, beauty, patriotism, love of home, individualism, and humor (Jones,1974). The cultural pride and independence of Appalachia is described as a type of cultural isolation (Christian et al., 2010) which might also make this study not generalizable beyond this geographic region. There might be cultural or geographical factors, which may have led to the differences between the results found and the other published studies. This would require future study.

Another limitation was the use of electronic archival data within the facility. Data was obtained through on-site records review of compliance rates from a previous one year course of treatment collected and depersonalized by the researcher and monitored by the EASTC administrator. This might be a limitation based on the assumption that data was collected and recorded at the EASTC center correctly and without bias.

Recommendations for Action

Even though this study did not identify any aspects of faith significantly influencing compliance, and both MT and FBS showed similar results, the way that progress is personally perceived by the individual may impact treatment compliance. It is not known if personal preference and the level of change and perceived support varies from individual to individual. It is also unknown if people engaged in FBS may feel as if they have experienced a different experience and relate this to their concept of faith and compliance. As quantitative research generally concentrates on breadth and qualitative research focuses on depth and meaning, future recommendations include a mixed methods design allowing for a study conducting survey, interviews, or in-depth case studies and including the quantitative predictors of attendance and interaction.

Recommendations for Research

This study showed that the type of treatment in which one enrolls for opiate treatment with Suboxone did not significantly impact compliance in the tristate area of Appalachia as measured by clean UDSs or kept pill count. It may still be debatable, that a clients' perception of faith impacts their personal compliance and ultimate success in treatment for opiate use. It is unknown if an issue of selection preference (MT or FBS)

may initially motivate a client to attend Suboxone treatment. A further future study may also be conducted assessing the role of interaction and attendance to compliance, measured through clean UDSs and kept pill count. This study used an electronic data set; a future study may be implemented involving direct testing of human subject responses. This study focused on the Appalachian tristate area of Kentucky, Ohio, and West Virginia. Future studies may be implemented serving a larger or more divergent and culturally diverse population of Appalachia.

Implications for Positive Social Change

Opioid use is not a new issue but is an issue that continues to impact the United States (DeQuency, 1998; Compton & Volkow, 2005; Weiss et al., 2010) medically (Day et al.; DAWN, 2009; Gardner & Kosten, 2007; Morgan & Crane, 2010; SAMHSA, 2003b; WHO, 2008), financially (Morgan & Crane 2010), through criminal activity and legal intervention (Davis et al., 2006; Mays et al., 2005; Birnbaum et al,. 2011), and impacts families (Day et al., 2008) while few attend or participate in treatment programs (McCance-Katz, 2004). The National Institutes of Health (2013) reported that for every $1 spent on medication assisted treatment for drug addiction saves society between $2 and $6 dollars.

Individuals participating in a medical treatment program and a 12-step program had a decreased rate of use than those who only participated in either the medical treatment program or the 12-step program (Fiorentine & Hillhouse, 2006). Weis et al. (2005) conducting a study of 487 cocaine-dependent individuals undergoing a 24-week outpatient randomized controlled trial for behavioral treatment taken from five different

sites using a 12- step program measuring both attendance and participation found that active participation in a 12-step program for a period of 1 month showed a decreased amount of cocaine use in the next month. Also found was that those patients who increased their 12-step participation initially, during the first 3 months of treatment, showed a significant decrease in cocaine use for the next 3 months. Increased participation and involvement in support groups leads to enhanced effective treatment for substance use (Gossop & Marsden, 2008).

The determination of effective treatment options for opiate addiction treatment and increased compliance may help reduce the negative impact on individuals through increasing life expectancy (Carter et al., 2012), and improved physical health through decreasing the number of self-harm injuries (Fornili & Alemi, 2007). Effective treatment options for opiate addiction treatment and increased compliance may also help decrease adverse effects on family members, co-workers, and other members of society by decreasing relapse, communicable disease, hospital emergency room visits, and overdoses (Smith-Rohrberg et al., 2004) and may decrease the financial burden of care on society which Ruetsch (2010) states costs almost half a trillion dollars in costs associated with medical, economic social, and judicial/legal expenses due to substance use. Based upon the results of this study, with both MT and FBS being so similar in their relationship to compliance, implications suggest that attendance and participation in treatment may be future areas for study.

Conclusion

This study sought to measure the compliance of individuals voluntarily enrolled in an outpatient setting in the tristate area of Kentucky, Ohio, and West Virginia who participated in either a medical treatment (MT) or MT incorporating a faith-based component of service (FBS) for the treatment of opioid addiction and incorporated a secondary electronic data analysis using multiple regression. Analyses of data showed that both programs were equally successful with no differences in compliance, adding the FBS component did not add anything to the MT alone based on these dependent variables. The results of this study do not support that the type of treatment predicts compliance, as measured by UDSs or by kept pill count, over and above dual diagnosis, college education, and income.

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Appendix A: Confidentiality Agreement

CONFIDENTIALITY AGREEMENT

Name of Signer: Jerry R. Morris

During the course of my activity in collecting data for this research: "A Comparative Study of Compliance Among Patients Attending an Opiate Outpatient Treatment Center" I will have access to information, which is confidential and should not be disclosed. I acknowledge that the information must remain confidential, and that improper disclosure of confidential information can be damaging to the participant.

By signing this Confidentiality Agreement I acknowledge and agree that:

1. I will not disclose or discuss any confidential information with others, including friends or family.
2. I will not in any way divulge, copy, release, sell, loan, alter or destroy any confidential information except as properly authorized.
3. I will not discuss confidential information where others can overhear the conversation. I understand that it is not acceptable to discuss confidential information even if the participant's name is not used.
4. I will not make any unauthorized transmissions, inquiries, modification or purging of confidential information.
5. I agree that my obligations under this agreement will continue after termination of the job that I will perform.
6. I understand that violation of this agreement will have legal implications.
7. I will only access or use systems or devices I'm officially authorized to access and I will not demonstrate the operation or function of systems or devices to unauthorized individuals.

Signing this document, I acknowledge that I have read the agreement and I agree to comply with all the terms and conditions stated above.

Signature:  **Date: 09/07/2014**

Appendix B: Data Collection Tool

Data Collection Tool _____

Dual Diagnosis N Y

College N Y

Income

FBS N Y

#UDS

#Pill