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Behavioral Modification and Relapse Rates in Opioid-Dependent Pregnant Women Managed with Subutex

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Walden University
2015

Abstract

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MSN, Walden University, 2009

BSN, Marshall University, 1986

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Substance abuse, especially opioid misuse is a growing public health issue. Opioid dependency affects not only the individual who is dependent on opioids but negatively impacts the family unit, the community, and society as a whole. Opioid use in the prenatal period can have devastating effects on both the mother and the fetus. The purpose of this paper is to perform a secondary analysis of the effectiveness of behavioral modification in reducing relapse rates and improving compliance of treatment regimen in opioid dependent pregnant women who are being managed in a FamilyCare Health Center in West Virginia. The transtheoretical model was used as a framework to determine participants' behavioral readiness to change. The Stetler model was used to evaluate outcomes and goal achievement. The sample consisted of pregnant opioid dependent women over r the age of 18 (including emancipated minors) who have participated in the Subutex-assisted program at three FamilyCare Health Center in West Virginia. The analysis consisted of a secondary source of data with a review of medical records to determine if behavioral modification contributed to a reduction in relapse rates and improved compliance with treatment regimen in opioid dependent pregnant women who are participants in a Subutexassisted program. The results showed behavioral modification does contribute to a reduction in relapse rates in the target population. The information obtained from this analysis can be used to assist healthcare providers in revising or modifying existing programs and help to design future programs that effectively meet the needs of this target population.

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Dedication

This work is dedicated to Dr. Nancy Dunn and the FamilyCare Health Center who has given me to opportunity to learn and grow professionally.

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I would like to take this opportunity to thank the Dr. Conway for her patience and help in making this DNP project a success. Dr. Nancy Dunn has embraced me and has shared her knowledge in research to guide and direct this project. I would also like to thank the staff at the Family Care Clinic who has been gracious in letting me use their site to conduct my study on their Subutex program.

Table of Contents

List of Figures

Section 1: Nature of the Project

The Introduction

Opioid dependence and misuse is a growing global public health issue (Park, Meltzer-Brody, & Suzuki, 2012). In the United States almost 3 million Americans are affected by opioid use disorders (Haddad, Zelenev, & Altice, 2013). Opioid dependency affects all ages. According to national surveys, 90% of women who are classified as opioid dependent are of child-bearing age (Park et al., 2012). In 2010, the National Survey on Drug Use and Health reported approximately 4.4% of pregnant respondents admitted to the use of illicit drugs in the last 30 days (American Congress of Obstetricians and Gynecologists [ACOG], 2012).

Opioid drug use, especially chronic use in pregnancy, is associated with poor maternal health and potentially devastating negative effects on the fetus. Up until recently, opioid dependency in the pregnant population had been managed with methadone. Buprenorphine (Subutex) has recently emerged as an alternative to the traditional opioid–assisted therapy using methadone (Park et al., 2012). Because the use of Subutex is a relatively new practice in managing opioid dependency in the pregnant population, research is limited. As with any substance use disorder, relapse and noncompliance are challenges that both the client and healthcare team encounter. Therefore the DNP project focused on the secondary analysis of using behavioral modification to reduce the incidence of relapse and improve compliance with prescribed Subutex-assisted treatment regimen in opioid dependent pregnant women who are being managed in a federally funded FamilyCare Health Center in West Virginia. A secondary

analysis and evaluation of the effectiveness of behavioral modification in improving compliance and minimizing relapse rates (having less than a 5% relapse rate) in pregnant women who are enrolled in the Subutex program at the family care clinic was done. The practicum site collected all medical records for review, kept them in a central locked location, and used a numbering system to maintain confidentiality of patients.

Problem Statement

Opioid use, in the form of heroin or opioid analgesic medications, can have adverse effects when used in pregnancy. Substance abuse while pregnant can have deleterious long term adverse effects that start in utero and continue over one's lifespan (National Institute on Drug Abuse [NIDA], 2011). In 2008 to 2009, NIDA conducted a survey on drug abuse among pregnant women in the United States. The sample included pregnant women between the ages of 15 to 44 years of age. Results of the study revealed pregnant women between the ages of 15-17 years of age reported the greatest substance use (NIDA, 2011). In addition, these pregnant adolescents had higher rates of illicit substance abuse (15.8% or 14,000 women) than their counterparts who were not pregnant (13.0% or 832,000 women) (NIDA, 2011).

The American College of Gynecologists and Obstetricians (ACOG) conducted a study on drug use in the pregnant population and reported 0.1% of pregnant women had reportedly used heroin in the last month of pregnancy and 1% of respondents admitted to the nonmedical use of opioid analgesic medications, making substance abuse in pregnancy a priority issue (ACOG, 2012). Treating opioid dependency in pregnant women requires a multidisciplinary team approach that must be supported by evidence-

based interventions and treatment. Substance use and abuse, especially the use of opioids during pregnancy is associated with adverse maternal and fetal outcomes, as well as negative societal and economic consequences. Due to limited research on opioid dependence in pregnant women who are enrolled in a Subutex-assisted treatment program, little evidence is available to analyze the effectiveness of behavioral modification in conjunction with Subutex-assisted treatment programs.

Purpose Statement

The purpose statement for this project is: The secondary analysis of the use of behavioral modification to reduce relapse in opioid dependent pregnant women over the age of 18 years of age as well as emancipated minors. The purpose of the project is to evaluate the effectiveness of behavioral modification in promoting positive lifestyle changes in the opioid dependent pregnant women over the age of 18 years of age as well as emancipated minors. who are enrolled in a Subutex-assisted treatment program in a FamilyCare Health Center in West Virginia. Positive lifestyle changes in this population will consist of these women not using illicit drugs and having less than a 5% relapse rate.

Purpose Objectives

Objectives can be defined as measurable, realistic, time oriented statements that are in alignment with the project's goals (Hodges & Videto, 2011). Objectives provide the project team with a clear understanding of the goals and expectations of the initiative and are linked to the evaluation method. This project has three clear objectives: (a) provide a secondary analysis of data, (b) evaluate the effectiveness of behavioral modification therapy in minimizing relapse rates in opioid dependent pregnant females

over the age of 18 years of age (including emancipated minors) who have been enrolled in a Subutex-assisted treatment program, and (c) report the results of the analysis to the team at the clinic.

Significance to Practice

Opioid use and abuse in the pregnant population involves potentially harmful maternal and fetal consequences, as well as a higher incidence of maternal, fetal, and neonatal morbidity (Wong, Ordean, & Kahon, 2011). Pregnant women who have a substance abuse problem may be reluctant to seek prenatal care, leading to poor outcomes (Pinto et al., 2012; Winklbaur et al., 2008; Wong et al., 2011) Confounding factors associated with substance abuse, especially opioid dependency, in pregnant women that can exacerbate poor maternal and fetal outcomes include a higher incidence of engaging in negative lifestyle behaviors, such as poor nutrition, the use of other substances, for example alcohol and tobacco use, depression, domestic violence, and a higher rate of infectious diseases, such as HIV/AIDS, hepatitis, and sexually transmitted infections (Anderson, Roux, & Pruitt, 2002; Wong et al., 2011).

Spontaneous abortions, preeclampsia, preterm labor, placental insufficiency, premature rupture of membranes leading to intrauterine infection, and abruptio placenta are some of the serious medical consequences associated with opioid dependence in pregnancy (Park et al., 2012; Pinto et al., 2010). Relapse during pregnancy is associated with periods of intoxication and withdrawal predisposing the mother and fetus to a vicious cycle that may ultimately lead to death (ACOG, 2012). Following delivery, these

mothers are at a high risk for relapse, therefore continuation with drug addiction programs is essential (Park et al., 2012).

The transtheoretical model of change (TTM) and the Stetler model will be used to guide the project. The TTM is a popular model that can be used to support intentional behavioral change and is applicable to a variety of populations, behaviors, and settings (Hodges & Videto, 2011). This model integrates the principles and process of change to influence intentional behavioral change. Behavioral change proceeds through a series of stages with the application of diverse interventions and strategies to influence behavior modification. Resistance to change is managed and relapse is prevented.

The Stetler model is a practice oriented model that utilizes the principles of change to introduce new evidence into clinical practice. The Stetler model is divided into five phases that utilize the decision making process to determine if evidence supports a practice change (Stetler, 2001). This model supports the project by implementing findings into the practice setting to determine if behavioral modification is effective in reducing relapse rates in opioid dependent pregnant women. Both of these models will be discussed in detail in Section 2.

Reduction in Gaps

Due to the limited number of studies conducted on opioid dependency during pregnancy, long-term effects of opioids on the fetus cannot be determined sufficiently, especially the effects of Subutex. However, infants born to opioid dependent mothers have a higher risk of prematurity, intrauterine growth retardation, birth defects, and neonatal abstinence syndrome (NAS) (ACOG, 2012; Kraus et al., 2011). Due to limited

research, the severity and duration of NAS impacted by methadone or Subutex is unclear; however, infants born to mothers on methadone or Subutex will exhibit signs of withdrawal with varying degrees of severity (Park et. al., 2012). Therefore, it is imperative that opioid dependent pregnant women seek replacement therapy early in the prenatal period.

Treating patients, pregnant and non-pregnant, who have substance and drug addiction issues, places an added burden on an already drained healthcare system. Numerous indirect and direct costs are associated with treating substance use in the prenatal and postnatal periods (Wong et. al., 2011). Healthcare costs are associated with an increased incidence of social cost and comorbidities, such as: infectious disease, HIV and hepatitis, loss of work due to premature birth and other maternal complications, as well as increased cost associated with treatment for both mother and infant (Haddad et.al., 2013).

Despite best efforts, relapse, resistance, and noncompliance with treatment are issues that challenge practitioners. The NIDA (2008) conducted a survey on drug addiction and reported a 40–60% relapse rate amongst users. Drug addiction is characterized by periods of abstinence followed by intermittent relapse. Despite effective pharmacological management of drug addiction, relapse rates remain high among opioid dependent clients (Tkacz, Severt, Cacciola, & Ruetsch, 2012). Due to high relapse rates, opioid dependence has become known as a chronic relapsing disorder (Tkacz et. al., 2012).

A number of factors can influence the probability of relapse. Intrapersonal factors that may hinder treatment include lack of motivation to change, inability to manage stress, poor self esteem, and inability to manage interpersonal conflicts with family members and others (Jones, 2013; Parks et. al., 2011; Tkacz et. al., 2012). Environmental factors that may hinder treatment include peer pressure, partners who have problems with substance abuse, and a number of environmental stimuli that make compliance with treatment overwhelming (Jones, 2013; Parks et. al., 2011; Tkacz et. al., 2012). Relapse does not point to failure but indicates a need for practitioners to adjust current treatment modalities to meet the needs of the patient or seek alternative treatments.

Project Question

In writing a project question to explore the effectiveness of therapy, the problem, intervention, comparison, outcome, and time formula, also known as the PICOT, was utilized (Riva et. al., 2012). The PICOT question is a formula that is used to assist in identifying outcomes that are dependent on specific interventions or actions (Riva et. al., 2012). Evidence must either support or refute the intervention that influences the project.

Project Question: What is the relationship between behavioral modification in combination with Subutex-assisted therapy and relapse rates in opioid dependent pregnant women over the age of 18 years as well as emancipated minors?

PICO: In pregnant opioid dependent women over 18 years of age does behavioral modification drug abuse counseling in combination with Subutex-assisted therapy, compared to no drug abuse counseling, reduce relapse rates by more than 5% in the prenatal period?

Population: pregnant opioid dependent women over 18 years of age.

Intervention: behavioral modification drug abuse counseling with Subutex-therapy.

Comparison: no drug abuse counseling.

Outcome: reduce relapse rates by more than 5% in the prenatal period.

A secondary analysis was the preferred approach to achieve the project's goals and objectives and answer the PICO question. A descriptive correlational study design was used. This design examined the relationships between study variables without using manipulation or control (Burns & Grove, 2009). In this project I collected and analyzed data to determine if the current treatment regimen is effective in reducing relapse in the target population. The identity of study participants remained anonymous and I had no contact with the subjects.

Evidence-Based Significance

Substance abuse and dependency is creating a negative impact on society welfare. In 2004, 7.9% of the American population admitted to current drug use (Morgan & Crane, 2010). In the United States, 59,000 deaths have been linked to drug misuse and annually over 40 million injuries or illnesses are associated with substance abuse (Cox, Ketner, & Blow, 2013). The cost of substance abuse and dependency is taking a toll on society. The negative financial implications from drug abuse are seen in escalating crime rates, increased healthcare costs, an increase in government assistance programs, high unemployment rates, and decreased work productivity (Morgan & Crane, 2010). The cost of drug abuse has risen in the United States since 1992 by 5.9% annually reaching an all

time high of approximately $180 billion in 2002 (Morgan & Crane, 2010). These statistics have led program planners, lawmakers, healthcare providers, and researchers to search for methods and design programs to minimize and reduce the negative impact of drug addiction on society.

In addition, drug addiction has a negative impact on the individual, family unit, and the community. Substance misuse and addiction are sources of conflict within families and marriages. Families are being split apart due to drug addiction and misuse of substances. According to longitudinal prospective studies on marriage and substance use in both older and younger couples, frequent substance use was a predictor of subsequent divorce (Collins, Ellickson, & Klein, 2007). Drug and substance misuse during pregnancy can have devastating effects on the unborn fetus. Despite a multidisciplinary approach to prenatal care, research indicates higher incidences of adverse obstetric and perinatal complications in women who abuse substances (Pinto et. al., 2010).

Researchers have supported the use of various strategies to help reduce and treat drug addiction others (Jones, 2013; Parks et. al., 2011; Tkacz et. al., 2012). Behavioral modification in combination with the use of synthetic opioids, such as Subutex, have proven to be effective in minimizing relapse rates in the opioid dependent population (Parks et. al., 2012). Therefore, the benefits of treatment outweigh the societal and costly implications of drug addiction (U.S. Department of Health and Human Resources, 2009).

Implications for Social Change

As previously stated, drug addiction and substance abuse negatively impacts society. Social change is defined as "any fundamental alteration in (a) the structure of

existing relationships of a society or parts of a society, (b) the processes or common practices used in everyday life, (c) population composition, and (d) the basic values, ideas, and ways of thinking that prevail in a society" (Naughton, 2008, p. 15). Preventing and treating substance abuse disorders can have a major impact on society. Therefore, drug prevention programs must foster a supportive environment that promotes health-related quality of life outcomes and engages clients to become active participants in their treatment regimen (Villeneuve et. al., 2006). This project can contribute to the advancement of policy by emphasizing the importance of programs that focus on drug prevention and helping clients to overcome the devastating cycle of drug abuse and dependency.

Doctoral prepared nurses can lead the journey in designing programs that meet the needs of the target population. Therefore the purpose of this project is to impact social change by evaluating the effectiveness of behavioral modification as an adjunct treatment to Subutex therapy. Integrating evidence-based practices into the clinical setting will bridge the gap between theory and practice and significantly improve health outcomes. (White & Dudley-Brown, 2012).

Definition of Terms

To provide a clear understanding of terms that are used throughout this project proposal, a list of defining terms used will be provided:

Conceptual Definitions:

Abstinence *practice of not doing or having something that is wanted or enjoyed,*

Behavioral Modification *term for the use of empirically demonstrated behavior change techniques to increase or decrease the frequency undesired behavior, such as substance misuse*,

Contingency Management *systematic reinforcement of desired behaviors and the withholding of reinforcement or punishment of undesired behaviors,*

Relapse *to fall or slide back into a previous state*
(Morrison-Valfre, 2011).

Definitions of Medications to Treat Opioid Dependency in Pregnancy:

Buprenorphine *synthetic opioid used to treat opioid dependency,*

Methadone *synthetic opioid,*

Opioid *psychoactive chemical that has properties similar to Morphine or other opiate in its pharmacological effects*,

Subutex *trade name for buprenorphine*

(Morrison-Valfre, 2011).

Other Definitions:

Abruptio Placenta *premature separation of the placenta from the uterus,*

Fullterm Birth *baby born 37+ completed weeks of pregnancy,*

Intrauterine Growth Retardation *poor growth of a fetus while in utero,*

Neonatal abstinence Syndrome (NAS) *group of problems that occur in a newborn who was exposed to addictive illegal or prescription drugs while in utero,*

Placental Insufficiency *insufficient blood flow to the placenta during pregnanc,y*

Preeclampsia *medical condition in pregnancy characterized by high blood pressure and increased amounts of protein in the urine,*

Premature Birth *a baby born before 37 completed weeks of pregnancy,*

Premature Rupture of Membranes *condition in pregnancy where there is a rupture of the amniotic sac membrane and chorion before 37 completed weeks of pregnancy,*

*(*Leifer, 2011).

Assumptions and Limitations

Assumptions

During pregnancy, behavioral modification interventions in combination with Subutex may reduce relapse in opiod dependent women. Literature supports the assumption that pregnancy is an opportune time to motivate expectant mothers. Improved healthcare outcomes are likely when interventions are employed to motivate lifestyle changes. Literature indicates medication alone may not be sufficient to minimize and prevent relapse rates in drug addiction (ACOG, 2012). Therefore, it is assumed that implementing behavioral modification in combination with Subutex will lead to improved outcomes for both expectant mother and the unborn child.

Limitations

The most apparent limitation in the study was related to the methodology. Initially, the sample size of the population was expected to be around 100. However, as the project evolved, the sample size was reduced to 43 participants. Due to the small sample size, generalizablity may have been affected.

Summary

In summary, substance misuse and opioid dependency is becoming a growing public health concern. Opioid abuse and dependency during pregnancy may lead to both maternal and fetal complications. Programs need to be designed to minimize relapse rates

during the prenatal period and postnatal periods. This project will evaluate the effectiveness of using behavioral modification in combination with Subutex therapy in existing programs affiliated with three FamilyCare Health Centers located in West Virginia. Section 2 will show the relationship between existing literature and the use of behavioral modification techniques to influence behavioral change.

Section 2: Review of Literature and Theoretical and Conceptual Framework

Introduction

Opioid use while pregnant can have devastating effects on both the mother and unborn child. Pregnancy is a opportunity to introduce healthcare interventions to elicit behavioral change and modification. This purpose of this project is to determine if a relationship exists between behavioral modification and the reduction of relapse rates in opioid dependent pregnant women and to evaluate the effectiveness of an existing program in meeting the needs of this population. A review of existing literature focusing on current studies that have been published in professional journals and documentation from government agencies that conducts research is significant to providing information about the topic under review. This section includes a review of scholarly evidence from literature sources to support the assumption of opioid dependency in pregnancy and the use of behavioral modification to reduce relapse rates, as well as the integration of theoretical frameworks to guide the project. The review of literature includes both specific literature sources to support the use of Subutex-assisted therapy and general literature sources to validate the use of behavioral modification and contingency management in minimizing relapse in the target population.

Literature Search Strategy

Several strategies were used to search and locate current, relevant sources of literature. Several databases were used to locate current research and literature on opioid dependency in pregnancy. In searching databases located in the library at Walden University, nursing was the chosen subject. The nursing and health databases were

chosen, specifically CINAHL Plus with Full Text, Nursing & Allied Health Source, and MEDLINE with Full Text. Current, within the last 5 years, peer reviewed studies were chosen for review. Key search terms included pregnancy, opioid dependency, substance misuse/abuse, Subutex, contingency management, and behavioral modification. Since Subutex is a relatively new treatment regimen for opioid dependency in pregnancy, little research has been conducted to determine the effectiveness of this intervention. To overcome this obstacle, the search focused on the use of behavioral modification and contingency management to prevent and reduce relapse rates.

Specific Literature

Treatment of opioid dependency in pregnant women can be very challenging. Practitioners are faced with numerous obstacles, such as relapse and noncompliance in following the treatment regimen, and a plethora of medical complications that may occur as a result of opioid drug use (Parks et. al., 2012). However, despite these obstacles, pregnancy may be a significant opportunity to motivate these women to reduce substance use/abuse and implement positive lifestyle changes. Pregnancy can inspire and motivate one to adopt positive attitudes that are conducive to positive behavioral changes (Chang et. al., 2008). Despite the added stressors, pregnancy is an ideal time to support and empower these women to adopt healthy lifestyles (Baffour & Chonody, 2012). Social support, knowledge, and strong community programs empower a person to change behavior and overcome oppression.

The standard of care has shifted from an abstinence-only model to a risk reduction, do no harm, encouraging active participation in treatment (Parks et. al., 2012;

ACOG, 2012; Wong et. al., 2011). Medication-assisted withdrawal is a popular medical intervention to treat opioid dependency, especially in the pregnant population (Jones, Finnegan, & Kaltenbach, 2012).Up until recently, the gold standard for treating opioid dependency in the pregnant population was the use of methadone as a maintenance treatment. However, Subutex has evolved as a feasible treatment option that is deemed safe for both the mom and fetus (Wong et.al., 2012). Methadone and Subutex are both medications that are used in addiction treatment. Methadone and Subutex are semi synthetic long acting opiates that were first discovered in the 1960's (Wesson & Smith, 2010). Since the use of Subutex is relatively new, there is not a vast amount of evidence available on the safe and effective use in pregnancy. Researchers at John Hopkins conducted a study to compare the effects of methadone and Subutex in pregnancy and in the neonatal period (Kakko, Heilig, & Sarman, 2008). Findings from the study suggested a decrease in neonatal abstinence scores in the Subutex group; however subjects reported a higher rate of dissatisfaction with Subutex therapy (Kakko et. al., 2012).

General Literature

In an effort to prevent adverse fetal outcomes, pregnancy is an ideal time to motivate women to change negative lifestyle behaviors (Wong et. al., 2011). Harm reduction is the goal of behavioral management therapy (BMT) as the treatment team encourages abstinence or a reduction in substance use, treatment of withdrawal symptoms, counseling sessions, and pharmacotherapy management (Wong et. al., 2011). Contingency management, motivational interviewing, and an educational program to counsel women on the risks of drug use in the antepartum, prenatal and postpartum

periods are new approaches that may prove to be beneficial in reducing relapse rates in opioid dependent pregnant women and enhance one's desire to change behavior.

Contingency management is a behavioral strategy that is based on the use of a rewards system to modify behavior (National Collaborating Centre for Mental Health, 2008). Voucher-based reinforcement, prize-based reinforcement, clinic privileges, and monetary incentives are some of the forms of incentives used in contingency management (NCCMH, 2008). Due to the limited number of evidence to support the use of contingency management in opioid dependent pregnant women, research will need to be performed to analyze cost effectiveness and overall effectiveness of this motivational strategy in reducing or preventing relapse.

Motivational interviewing is a goal directed counseling strategy that is used to produce behavioral changes in clients (Amodeo et. al., 2011). Individual counseling, reflective listening, and helping the client to recognize self-efficacy for change are techniques counselors use to produce desired changes in behavior (Amodeo et. al., 2011). Interventions focus on identifying factors that increase the potential for opioid and other drug use and helping these clients to overcome obstacles and improve life functioning and well-being for both themselves and their unborn child (Jones, 2013, p. 90). Resistance to treatment may increase if clients feel ashamed, persecuted or branded (Parks et. al., 2012). Therefore, it is imperative staff who work with these clients maintain a nonjudgmental, supportive attitude. Motivational interviewing is an intervention that offers patient-centered counseling in an atmosphere of warmth, compassion, and acceptance (Handmaker & Wilbourne, 2001).

In order to increase effectiveness of behavioral management therapy (BMT), an educational component must be part of the treatment plan. Education on prenatal care, nutrition, the effects of substance use on the fetus, Neonatal Abstienence Scoring (NAS), care of the infant after birth, and availability of community resources and support services need to be addressed. Programs to support the pregnant client and stabilize the home environment after delivery are key to a successful drug free transition (Park et. al., 2012).

Conceptual Model and Theoretical Frameworks

According to Karl Popper (1959), a 20th century social scientist, researchers who did not use a theoretical framework as a foundation to guide and collect data are "rank empiricists" hoping to find answers through statistical correlation and techniques (Kettner, Moroney, & Martin, 2011, p. 32). Using a theoretical framework as a road map to guide and direct the project will help in developing and testing hypotheses. This project integrates an interpersonal theory to support the process of behavioral change and an evidence-based model to develop and test the project question.

Transtheoretical Model

Over the past several decades, the transtheoretical model of change (TTM) has emerged as one of the most popular models in the field of substance abuse and addiction (Velasquez, et. al., 2005). The transtheoretical model is an intrapersonal theory that focuses on an individual or a groups' readiness to change a health behavior (Hodges & Videto, 2011). The model is comprised of five stages of readiness that an individual or group will transition through in the process of intentional behavioral change:

precontemplation, contemplation, decision/determine, action, and maintenance (Hodges & Videto, 2011). Each stage represents an individual's level of motivation to change and is influenced by intentions, behavior, and attitude (Velasquez et. al., 2005). In the case of substance abuse, intentional behavior change is consistent with altering repeated and frequent patterns of destructive behavior (Vilela, Jungerman, Laranjeira, & Callaghan, 2009). Intentional changing of behavior is essential to the success of substance abuse treatment and health promotion programs. Behavior change presents in four dimensions: stage, processes, context; and signs of change (Vilela et. al., 2009). Change can be measured in both objective and subjective terms as individuals' cycle through each dimension until behavior stability and change is achieved. (Vilela et. al., 2009). In each stage of transition, interventions and strategies can be designed to affect change in people, the environment, and behavior. This model can be applied to the process and principles of behavioral modification to support and empower behavioral changes.

The first stage of the model, precontemplation, is defined by denial of the undesired behavior as a problem that can lead to destruction and adverse consequences (Hodges & Videto, 2011). Often times, if an individual seeks treatment during this phase, it is a result of extrinsic external pressures (Vilela et. al., 2009). Psychoeducational strategies, such as media campaigns, health appraisals, and individual counseling and feedback, can be used successfully to transition individuals to the next stage of the model (Hodges & Videto, 2012; Kahl, 2010;Vilela, et.al., 2009).

In the contemplation stage, there is a recognition that a problem exists and intention to change is planned within the next six months (Hodges, & Videto, 2011).

Ambivalence to change may be apparent and treatment strategies must focus on the positive benefits of behavioral change. Strategies to promote change during this phase include motivation and encouragement, behavioral modification, contingency management, and self assessment and evaluation to strengthen self efficacy (Kahl, 2010, Vilela, 2009).

Preparation, also known as decisions/determination phase of the model, is characterized by a commitment to action. During this stage, strategies should focus on developing action plans to strengthen the commitment to behavioral change. Negotiating contracts between the client and counselor may be beneficial in reinforcing and strengthening commitment (Kahl, 2010). Behavioral modification and group and individual counseling sessions help individuals learn goal setting skills as they develop individualized action plans that facilitate behavioral change.

The action stage is marked by modification of past habitual behavioral patterns. Clients become active participants in their treatment plan. Interventions that reinforce designed action plans are imperative during this stage. Self evaluation, social support intervention, and reaffirmation of the commitment to change can be used to promote and maintain desired change (Vilela et. al., 2009).

The maintenance phase is a continuous process where efforts target the integration and sustainability of the new behavior. Avoiding relapse is the primary goal of treatment and interventions to promote and continually reinforce the new behavior are crucial. Relapse plans must be integral components when designing and developing health promotion programs.

The TTM defines relapse as an anticipate component of behavioral change where a regression in the stages of behavioral change occur (Vilela et. al., 2009). Individuals may relapse and cycle back and forth through the various stages of change. During relapse, strategies to reinforce the adoption of the new behavior and renewal of self-confidence will assist in the transition process.

Transtheoritical model of change has created a major shift in the treatment and care of individuals who exhibit at-risk behaviors (Velasquez et. al., 2005). Behavioral modification and contingency management are some of the strategies that can be used to motivate individuals to adopt healthy behavior and implement relapse plans. Motivation and intentions are key components to fostering active participation in activities to meet therapeutic self-care demands (Pickens, 2012). Effective change occurs when clients have a desire to change and are active participants in their own self-care.

Evidenced-Based Models

In addition, evidence-based practice models (EBP), also known as, models of change are designed to aid researchers in the successful transition of new knowledge into practice (White & Dudley-Brown, 2012). Effective change is a planned process that encompasses the diffusion of new knowledge into the clinical setting. With any change process, one must anticipate resistance and plan, control, and manage the effects of the planned change on the organization. An (EBP) model and a change theory or framework will help with the systematic integration of new knowledge into the practice environment.

The Stetler Model

The Stetler Model is an evidence-based practice (EBP) model that reflects a practitioner-oriented approach (Stetler, 2001, p. 72). Originally developed in the 1976, and refined in 1994, the Stetler model focuses on research as a systematic process and the utilization of research in clinical practice (Stetler, 2001). This model can be applied on an organizational level, as well as, an individual level. Nurse can apply the Stetler EBP model to improve clinical reasoning and judgment skills. The Stetler EBP model is one of the oldest EBP models and has been revised to include EBP outcomes (Gawlinski & Rutledge, 2012). The Stetler EBP model integrates both internal and external evidence (Stetler, 2001). Internal evidence is data that is derived from quality assurance data and evaluation projects (Gawlinski & Rutledge, 2012). National expert consensus and primary research are sources of external evidence that can be used as knowledge to support EBP (Gawlinski & Rutledge, 2012).

The Stetler model is based on a series of critical thinking and decision making steps that is supported by the utilization of research and scientific inquiry. The model consists of five phases that culminate in evaluating outcomes and goal achievement. The first phase of the model is the preparatory phase where researchers determine a purpose or problem that is of significance, affirming the existence of the problem through the use of internal and external evidence, identifying key stakeholders, and conducting a systematic review of literature (Stetler, 2001). In addition, the preparatory phase involves developing a project team to assist in the dissemination and implementation of the new knowledge into the practice setting.

Validation of evidence is the second phase of the model. Critically appraising literature for validity and reliability is essential to identifying sufficient evidence that supports a need for a change in the practice setting. If there is insufficient evidence to support a practice change then the process will terminate in the second phase.

The third phase, comparative evaluation/decision making, is the synthesis of literature to determine if more research will need to be conducted. Patterns or trends in data are identified. Based upon evidence, recommendations are made to accept or reject findings (Stetler, 2001).

The fourth phase, translation/application, is a significant step in the process. This phase focuses on the implementation of the new knowledge into practice. Plans are developed to facilitate implementation of change on the organizational level. These plans should be reflective of evidence-based strategies that foster a climate to embrace new knowledge and approaches to practice.

Evaluations, both formal and informal evaluation, comprise the last phase of the Stetler EBP model. Summative and formative evaluations are conducted to measure outcome and goal achievement and determine the feasibility of the implemented change (Stetler, 2001). In the evaluation phase, researchers will need to calculate cost versus benefits of the planned change. Evaluation is an ongoing process that involves modification and revision strategies to ensure a successful adaption of change in the practice setting.

Summary

To summarize major themes in the literature, pregnancy is an opportune time to motivate and influence behavioral change and modification. Subutex is a relatively new treatment regimen that can be used to treat opioid dependency in the pregnant population. However, there is a limited amount of research to prove the safe and effective use of Subutex in pregnancy. Research supports the use of behavioral modification interventions as an adjunct therapy to motivate behavioral change.

Literature proves treating opioid dependency in pregnancy can be very challenging. A number of barriers and obstacles can interfere with the success of the treatment regimen. However, research suggests pregnancy can be ideal time to influence a positive change in positive behavior. This project supports the advancement of nursing practice through the use of a healthcare initiative to promote health outcomes for not only the new mother bher unborn child. In addition, this project evaluates the effectiveness of an existing program in meeting the healthcare needs of a vulnerable population. A secondary analysis to determine the effectiveness of behavioral modification in reducing relapse rates in the target population will be the preferred approach to conduct the project. A descriptive correlational design will be used to examine the relationship between variables. The project will be designed using literature to connect and bridge the gap in literature to the existing problem. Section 3 will describe in more detail the method used in undertaking the project.

Conceptual models and theoretical frameworks are significant components in the planning and implementation phases to guide and direct the change process. TTM is an

interpersonal theory that has been successful in assisting individuals to transition through the behavior change process. TTM enables leaders and change agents to design programs that are deemed a “good fit” and meets the needs of the target population. In addition, an evidence-based model, such as the Stetler model uses evidence to promote and support an organizational culture that values EBP.

Section 3: Methodology

Introduction

Opioid use in pregnancy can have deleterious outcomes for both the mother and unborn child. Interventions to prevent and reduce relapse in opioid dependent clients, especially those clients who are pregnant, must be employed. Therefore the purpose of this project is to examine the relationship between behavioral modification and relapse in opioid dependent pregnant women.

Section three outlines the project's approach to designing the project, the methods used to design the project, and a description of the population and sampling methods. In addition, a description of the data collection methods and data analysis strategies that were utilized to answer project questions will be described. Finally, a project evaluation plan will be outlined.

Population and Sampling

Population-based studies are important in outcome studies as findings reflect the total population (Burns & Grove, 2009). The focus of this secondary analysis was a review of medical records to determine if an existing program at the practicum site was achieving desired outcomes. To maintain patients' anonymity and confidentiality of the subjects, all medical record numbers and patient information were decoded. The accessible population consisted of opioid dependent, pregnant clients over 18 years of age, as well as, emancipated minors, who had received Subutex assisted treatment from one of three FamilyCare Health Centers located in West Virginia.

The sample included all clients from the accessible population who had received Subutex assisted treatment from one of the three FamilyCare Health Centers located in West Virginia. Inclusion criteria for this analysis were: (a) pregnant female; (b) over 18 years of age, as well as emancipated minors; (c) opioid dependent; (d) received treatment from the Subutex clinic at one of the three Family Care Clinics in West Virginia. Exclusion sampling criteria were: (a) nonpregnant,; (b) under 18 years of age, (c) male, (d) clients whose medical records lack required information, (e) clients whose inclusion may invoke HIPAA protected information that could be used to identify the patient.

The Subutex treatment program has been in operation for approximately 2 years. Convenience sampling method was used to recruit subjects from three FamilyCare Health Centers in West Virginia. Forty three subjects participated in the DNP project. Convenience sampling insured all available subjects who met criteria were included into the study.

Project Design/Methods

To design a successful project that achieves desired outcomes and project objectives, an understanding of the social problem, opioid dependency in pregnancy, is essential. This process involves the collection of data periodically throughout the process to determine if the program is effectively meeting the needs of the target population (Hodges & Videto, 2011). In addition, collecting data from a secondary source, the patient's medical record, will enable project planners to design a program that is deemed a good fit for the target group. Patient identities were protected by assigning a numbering system to each patient record.

The purpose of this project was to evaluate an existing program to determine if the program is achieving desired outcomes and contingency management and behavioral modification are effective in reducing relapse rates in the target population. The program has been in effect for several years and during that period of time; no data has been collected or analyzed to determine the efficacy of the existing program. The project design will focus on analyzing existing data to determine if the program and team is promoting compliance of prescribed treatment and minimizing relapse rates in the target population.

The project method will be an analysis of the collected data to determine if the present program at the family care clinics is achieving desired outcomes. Secondary analysis design involves analyzing data to determine if the reported findings are meeting the needs of the community-based initiative (Burns & Grove, 2009). A retrospective secondary analysis utilizing a quantitative approach was conducted which involved analyzing data from a target population-opioid dependent pregnant females over the age of 18 years who have been participants in the Subutex assisted treatment program at one of the three FamilyCare Health Center sites located in south western West Virginia. This design methodology was done in a relatively short amount of time as data was easily obtained from the medical records. The Gantt chart was used as a timeline to keep the project on track.

Data Collection

Prior to collecting the data, the approval of Walden University's Institutional Review Board (IRB) was obtained. The role of the IRB is to protect study participants

and ensure the project maintains ethical boundaries. Data was screened to determine if participants remained clean without dependency on substances or had fewer than 2 relapses during the prenatal period. All participants of the project remained anonymous. Data were collected using a retrospective chart review.

The primary source of secondary information was the participants' medical records. Records were reviewed according to defined criteria. To maintain the principles of confidentiality, the author did not have access to the patient's name or medical record number. A coding system was designed to maintain anonymity of health information. No identifying information was utilized in the coding of the medical records. Information from the medical records with reference to weekly urinalysis results, additional medications prescribed during treatment, compliance with counseling, those subjects who attended Narcotics Anonymous versus subjects who only attended counseling at the family care clinic, and pregnancy related complications were collected. Data were screened to determine if participants have remained clean without dependency on substances or have had fewer than 2 relapses during their treatment. All participants of the project received information regarding the risks and benefits of the project and informed consent was obtained prior to data collection.

Data Analysis

A secondary analysis of existing data from past participants in the Subutex assisted treatment program for opioid dependent pregnant females at the practicum site was completed. An analysis of the medical records of past participants enrolled in the program over a two year period was undertaken. Data was analyzed using a SPSS

software program. The data analysis technique, Analysis of Variance (ANOVA) and multiple analysis of variable (MANOVA) were used because of their powerful design and capabilities to measure multiple factors (Burns & Grove, 2009). The MANOVA was used to measure more than one independent variable (See Appendixes D-H for analysis results).

The dependent variable was continued abstinence and compliance with the treatment regimen with an outcome of a 5% relapse rate. Independent variables included age, educational level, socioeconomic level, marital status, history of past pregnancies, payer sources, previous treatment for substance abuse, employment, family history of drug abuse, exercise, tobacco and alcohol usage, and provision of treatment for legal issues. Outcomes studies focus on analyzing data to determine if a change has occurred and in turn use exploratory methods to identify extremes in data, also known as outliers (Burns & Grove, 2009). Analysis of change and analysis of improvement are two examples of methodology used in outcome studies. Both methods seek to identify changes, negative or positive, in the target population through the use of parametric statistical analysis to determine significance in their findings (Burns & Grove, 2009). Ensuring reliability and validity of outcome measures may be challenging. In outcomes studies, data from individuals are used as indicators that correspond to group characteristics (Burns & Grove, 2009). To limit threats in reliability, validity, consistency, and reduce potential error in the project, a statistician reviewed the SPSS spreadsheet for any duplication or errors in recording data.

This study used a descriptive, correlational design to examine the relationship between behavioral modification and relapse rates. A convenience sample of 43 individuals who had been enrolled over the previous two years in the Subutex-assisted program at the FamilyCare Health Centers were participants in the project. Descriptive statistics and regressive analysis were used to analyze data. Data was entered into an SPSS program spreadsheet. Variables were entered in column form on the spreadsheet and answers were coded using a numerical system. Demographic variables, such as, educational level, marital status, unemployment, and a history of depression and anxiety explained a significant proportion of the variance in opioid dependence. Subjects who participated in counseling, onsite or offsite, displayed less incidences of relapse than subjects who did not attend or were not compliant counseling regimen.

Relapse was measured over different points of time in the Subutex treatment program of each subject. Data was analyzed at week 2, week 6, and week 10.

Project Evaluation Plan

The evaluation process is an ongoing, continuous process that begins in the early phases of program design (Kettner, Moroney, & Martin, 2013). Evaluation is a significant component in the planning of effective programs to meet identified needs of the target population. Evaluation provides planners with insight into the program's success, needed revisions to improve the efficacy of a program and/or informs decisions regarding future community-based initiatives (Hodges & Videto, 2011). Program evaluation must be designed to evaluate the effectiveness of a program in meeting goals, objectives and

desired outcomes. Several evaluation methods will be utilized in the project to ensure a thorough and comprehensive evaluation plan.

The logic model is beneficial in developing the evaluation component of a program design. The logic model consists of a series of events that link interventions with goals, objectives, strategies, and outcomes to determine if the program will be successful in producing expected changes in behavior (Komro, Perry, Munson, Stigler, & Farbakhsh, 2004). In addition, the logic model incorporates theory into the planning process. Highly successful program designs focus on theory, prior research studies, and measures to ensure reliability and validity of findings (Komro et. al., 2004).

Outcome evaluation is one type of program evaluation strategy to measure changes in health or quality of life (Hodges & Videto, 2011). Outcome evaluation measures the achievement of long term goals and objectives. In the project, the DNP student conducted a secondary analysis of the participants' medical records to evaluate and measure outcomes of the Subutex-assisted program at the practicum site. In conclusion, a comprehensive evaluation plan is essential in determining and understanding how and why behavioral changes occur and what factors influence those changes. A descriptive correlational design utilizing the statistical test, Pearson's product-moment correlation coefficient, the measurement of the relationship between behavioral modification and an improvement in compliance with the treatment regimen as evidenced by less than or equal to a 5% relapse rate.

Figure 1.1*:* Visual Representation of the Program Design (revised)

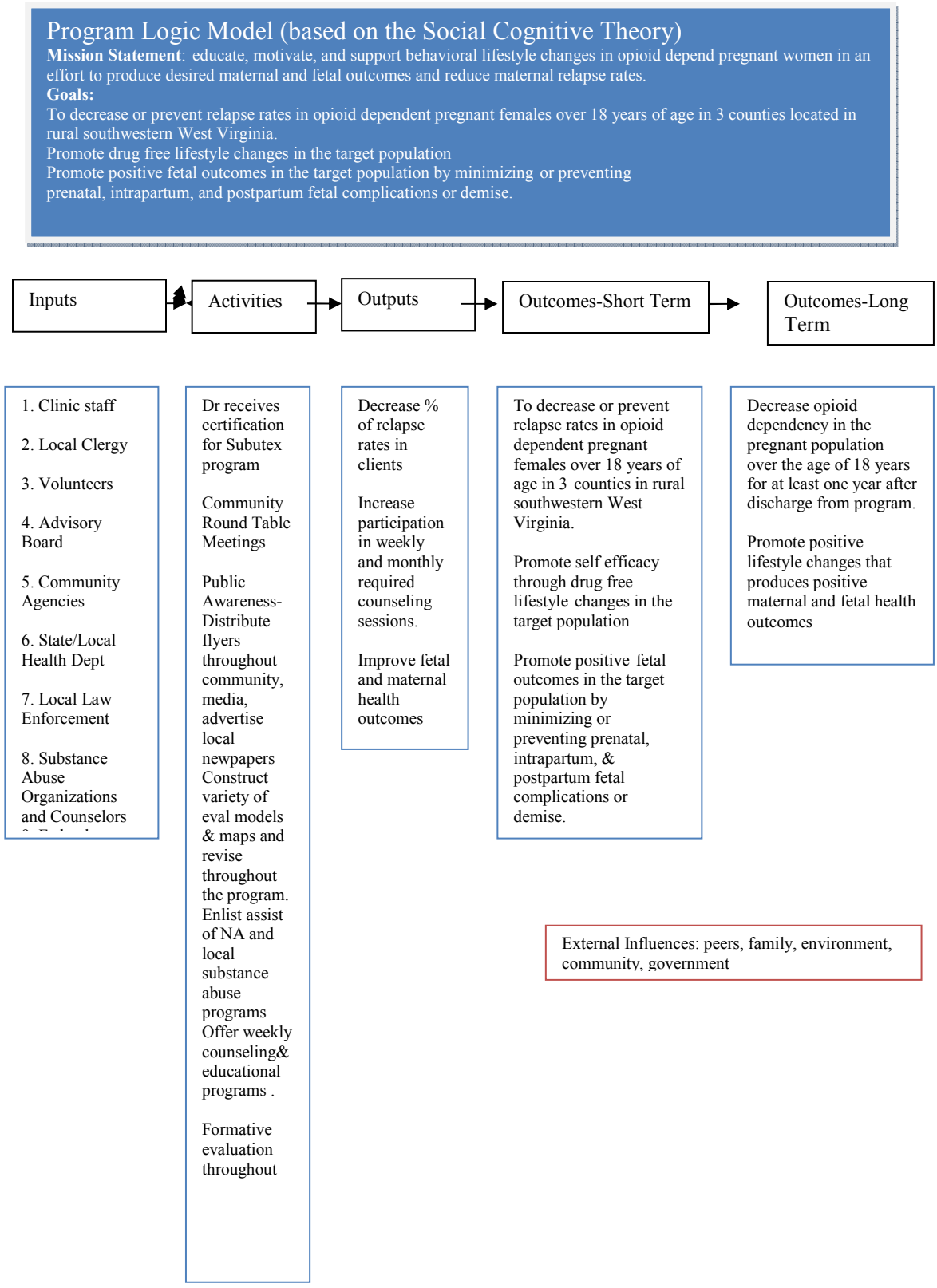

Figure 1.1 Ghant Chart used to diagram the layout for the project

Summary

In summary, opioid dependency in the pregnant population can have negative consequences for the mother and the unborn child, as well as society. The purpose of this project was to evaluate an existing program at three FamilyCare Health Center sites in West Virginia to determine if the program was effectively meeting the needs of the target population. The project method strived to analyze data from a secondary source to determine if the program was promoting positive change in the lives of these women by reducing relapse and improving compliance with prescribed treatment. A report will be shared with the organization in the form of a poster presentation at the practicum site. Dissemination of findings is essential to the improvement process. The role of dissemination is to utilize knowledge in the clinical setting to advance quality healthcare (White & Dudley-brown, 2012).

Section 4: Findings, Discussion, and Implications

Introduction

The purpose of this project was to evaluate the effectiveness of behavioral modification therapy in reducing relapse rates in opioid dependent pregnant women who were enrolled in a Subutex-assisted treatment program offered at a FamilyCare Health Center in West Virginia The project question focused on the relationship between behavioral modification in combination with Subutex-assisted therapy to reduce relapse rates in opioid dependent pregnant women over the age of 18 years as well as emancipated minors. To answer this question, a secondary analysis using a retrospective design was preformed.

Summary of Findings

In review, this project had three clear objectives: (a) a secondary analysis of data(b) evaluate the effectiveness of behavioral modification therapy in minimizing relapse rates in opioid dependent pregnant females over the age of 18 years of age (as well as emancipated minors) who have been enrolled in a Subutex-assisted treatment program (c) report the results of the analysis to the team at the clinic. Each objective was achieved. A secondary analysis of the data was completed and the analysis supported the assumption that behavioral modification interventions are effective in reducing relapse in opioid dependent pregnant women. Finally, the results of the project were reported to the team at the FamilyCare Health Centers..

The project question asked: What is the relationship between behavioral modification in combination with Subutex-assisted therapy and relapse rates in opioid

dependent pregnant women over the age of 18 years as well as emancipated minors? In the study, there were no significant findings to support a relationship between counseling and relapse. Therefore, counseling using behavioral modification strategies in combination with Subutex was not supported to reduce relapse rates and motivate opioid dependent pregnant women to avoid illicit drug usage.

PICO: In pregnant opioid dependent women over 18 years of age does behavioral modification drug abuse counseling in combination with Subutex-assisted therapy, compared to no drug abuse counseling, reduce relapse rates by more than 5% in the prenatal period?

In evaluation, behavioral modification and counseling in conjunction with Subutex-assisted therapy compared with Subutex assisted therapy and non compliance with clinical contract mandating counseling sessions utilizing behavioral modification interventions may or may not have the potential to reduce or prevent relapse in opioid dependent pregnant females. However, in the study, relapse rates were slightly higher than the proposed 5%.

Literature stresses a number of factors can influence relapse rates (Jones, 2013; Parks et. al., 2011; Tkacz et. al., 2012). In the study, a number of intrapersonal and environmental factors contributed to relapse. The majority of relapse incidences were due to inability of the participant to manage stress and conflict. In addition, living in an environment where drug abuse is prevalent led to relapse.

In summary, the study results supported the review of literature stating on the behavioral modification when used with Subutex-assisted therapy can reduce relapse

rates in the target population. Despite the slightly higher incidence of relapse obtained from the study results, relapse can be minimized when patients are compliant with counseling that advocate behavioral modification strategies. In addition, the study concluded health outcomes of both the expectant mother and the unborn child were improved. A very low percentage of the sample population experienced adverse prenatal outcomes such as miscarriages, abruptio placenta, and premature labor.

Literature Discussion

The literature showed that behavioral modification therapy in conjunction with a structured medical treatment plan can produce positive heath outcomes in pregnant women who have opioid dependency. In the project study, the target population exhibited confounding factors, such as hepatitis, sexually transmitted diseases, poor socioeconomic status, unemployment, depression, past history of abuse, and other factors that contributed to negative lifestyles leading to drug dependence and misuse. This is consistent with studies conducted by Wong et. al. (2011) and Anderson, Roux, and Pruitt (2002), which stated confounding factors associated with substance abuse can contribute to poor maternal and fetal outcomes.

Consistent with findings from studies conducted by Parks et. al. (2012) and Pinto et. al. (2010), serious medical complications, such as abruptio placenta, spontaneous abortions, and preterm labor to mention a few can be a direct reflection of opioid use in pregnancy. The project study confirmed that opioid use and dependency during pregnancy can lead to serious medical complications as several subjects experienced adverse effects, such as preterm labor, abruptio placenta, and spontaneous abortions.

These results support the need for behavioral modification as a means to promote healthy lifestyle changes that lead to improved maternal and fetal outcomes.

Due to high relapse rates in the opioid dependent population, opioid dependence is known as a chronic relapsing disorder (Tkacz et. al., 2012). Studies prove that relapse is associated with a number of intrapersonal and environmental factors that can exacerbate drug misuse and abuse (Jones, 2013;Parks et. al., 2011; Tkacz et. al., 2012). Parallel to the project findings, factors such depression and inability to manage stress, as well as, a partner who has problems with drug dependence can contribute to relapse. Behavioral modification and counseling are health interventions to promote a lifestyle change that is reflective of best practice and treatment regimens individualized to meet the needs of the patient. Pregnancy is an ideal time to motivate expecting mothers to transition to a drug free lifestyle.

Implications

Policy

Over the last decade, death from drug misuse and abuse has increased twofold (Schreiner, 2012). Policy makers have an obligation to advocate for policies that regulate and monitor drug prescribing and illegal issuing of substances. Prescription Drug Monitoring Programs (PDMP) is an effective strategy to assist physicians in identifying prescription drug misuse and prevent potential indiscriminate drug prescribing (Schreiner, 2012). Designing effective programs to combat the present drug abuse epidemic is one solution to winning the war against drugs.

This capstone project can influence policy makers to consider continued funding for social programs that are designed to prevent and control drug misuse and abuse. Using interventions, such as behavioral modification techniques, in conjunction with medication can produce positive health outcomes. In addition, this project can have implications for future laws and regulations that govern the treatment of vulnerable populations, such as pregnant women.

The court system has the power to transform healthcare by imposing legal statutes on the medical profession. Changing and implementing new policies and regulations will be a giant step in preventing drug misuse and abuse. If proven successful, community based programs, such as the Subutex- assisted treatment program for opioid dependent pregnant women, can meet accountability benchmarks and receive further support and needed funding.

Practice

Bringing evidence into the clinical setting can transform practice. Throughout the decades, nursing practice has been based on rituals and traditions that have used as a guide to decision making in the practice setting (Brown et. al., 2010). However, when research is integrated into the practice setting, evidence supports patient outcomes improve and clinical judgment and decision making skills are perfected. This project supports the premise that health interventions when used in conjunction with a medical treatment regimen can produce health outcomes that have wide spread effects. It is the responsibility of every nurse to share their knowledge with other members of the

healthcare community. Disseminating the project results with healthcare professionals will develop knowledge that can affect care provision in the practice setting.

Healthcare professionals must collaboratively work together to design community based programs that target diverse populations. In the planning process, program planners must integrate ongoing strategies for performance measurement, monitoring, and evaluation (Kettner et. al., 2013). In hindsight, the practicum site did not integrate ongoing measures to monitor the performance and success of the Subutex-assisted program for the target population. Therefore, the clinical site could not surmise the implications and output of their program. In assessment, it must be stressed program planners use a variety of strategies are in place to ensure ongoing monitoring of programs. Monitoring for performance effectiveness, quality, cost effectiveness and efficiency are strategies that can be useful to secure funding and resources to improve existing programs or design new quality initiatives.

Research

Bringing research into the practice setting can transform healthcare. Implementing interventions that are supported by evidence can produce favorable outcomes for stakeholders. This project supports research utilization as a best practice measure and should be used in the decision making process to decide what is the best treatment option for the patient. Utilizing interventions and life's circumstances such as pregnancy, can positively affect behavioral changes that are lifelong and sustainable.

Further research studies are needed to determine the efficacy of behavioral modification in reducing relapse rates in opioid dependent pregnant women. Due to the

small cohort size, generalizations cannot be conclusively inferred from the results of the project. Additional research studies will need to be conducted on behavioral modification interventions to determine if treatment engagement and participation, as well as, outcome performance measurement is improved.

Social Change

Community based programs are designed to overcome social problems that are threatening social values and meet the needs of the targeted population (Kettner et. al., 2013). In order to enact positive social change, programs must educate program participants on the importance of behavioral change strategies that lead to a healthy lifestyle change (Kettner et. al., 2013). This project evaluates the efficacy of a health intervention to produce a healthy outcome for not only a pregnant female but her unborn child also. Through understanding of behavioral change strategies and implementing behavioral change models, such as the transtheoretical model of behavior change, positive behavioral change can occur. Healthcare disparities can be overcome and best practices can be employed. In order for social based programs to be successful, needs of the target population must be met and participants must be motivated to change their behavior

Project Strengths and Limitations

Strengths

The findings of this study were consistent with previous studies conducted on drug addiction and behavioral modification (Parks et. al., 2012; Jones, 2013; Tkacz et. al., 2012). The findings of this study support growing evidence promoting behavioral

modification as an effective intervention that motivates one to change their lifestyle. Synthetic opioids, such as Subutex, when used alone, may not be sufficient to prevent or minimize relapse in opioid dependency. Therefore, behavioral modification when used in combination with Subutex-assisted therapy can have a positive influence on the prevention and reduction of relapse in opioid dependency.

In addition, the application of diverse theories (TTM, and the Stetler model) laid the foundation upon which to construct the project. The transtheoretical model of change is an excellent intrapersonal theory that explains the process of behavioral change and can be used to assess one's readiness to change. In addition, the Stetler model provides a framework for the translation of evidence into practice. In order for change to be sustainable, the application of theories/models provides a solid foundation for change to occur. Future recommendations for future projects or research include focusing on health outcomes of the infant born to an opioid dependent mother and interventions to prevent relapse in addicted clients.

Limitations

One limitation of this project was the small size of the sample population. Initially, the sample size was thought to be between 60 – 100 participants. However, not all the participants' medical records could be found. Therefore, study findings may not be generalized to the larger population representing opioid dependent pregnant women.

Another limitation of the study was methodological. A limited amount of information related to variables could be found in the medical record. In some instances,

there was very little documentation or missing documentation on identified variables, making accuracy of data collection and analysis difficult.

Analysis of Self

The DNP capstone project is an integrative clinical practice encounter that culminates into a learning experience that is designed to promote a student's professional and personal growth. This learning experience prepares a student to assume leadership qualities that promote professional growth not only as a scholarly practitioner but as a practitioner that is committed to clinical scholarship and advancing clinical practice and improving health outcomes. Throughout this academic journey, the student has grown both personally and professionally and is prepared to assume the aggregate role of a DNP practitioner. Self refection is a way to evaluate personal and professional growth.

As Scholar

An essential component of advancement in professional development is the application of scholarly activity. Scholarly activity promotes the sharing of evidence to support advancements in clinical practice and quality improvement initiatives and interventions to improve healthcare outcomes (Thomas, Karr, Kelley, & McBane, 2012). Scholarly activity fosters an environment that promotes the application of research to design changes in practice to support a new way of thinking or to create an awareness of clinical outcomes or produce a scholarly product (Zaccagnini & White, 2011).

According to the American Nurses Association (ANA) *Code of Ethics for Nurses* Provision 5:2 Professional Growth and Maintenance of Competence, it is every nurse's professional responsibility to be a self directed learner and commit one's self to lifelong

learning (ANA, 2010). Reflecting back on practicum experiences throughout courses NURS 8400, NURS 8410, and NURS 8500, the author has developed a number of skills and attributes to promote leadership and collaborative relationships. This commitment to lifelong learning has assisted the author in the acquisition of knowledge that is in line with current standards and scope of nursing practice to network with professional colleagues, confront changing practice issues that produce positive health and patient outcomes. In return, the author has the knowledge and skill to transform evidence into clinical practice to support needed changes in today's' healthcare arena and improve the future of the nursing profession.

As Practitioner

The practitioner plays a significant role in bringing evidence to the bedside to transform and support changes in clinical practice. The DNP practicum experience guides the advanced practice nurse to understand the link between nursing theory, research, and clinical practice (Terry, 2012). According to Terry (2012), "nursing theory guides nursing practice, it is practice that tends to generate the questions that will ultimately form research questions or hypotheses, and it is research that will aid in the development of guidelines for practice" (pg. 28).

To transform the future of healthcare, the nurse realizes the importance of utilizing all available resources. In addition, the advanced practice nurse performs as a skilled practitioner with specialized knowledge to treat patients, their families, and the community using a holistic approach. In this manner, the advance practice nurse can identify changing practice trends and integrate those trends into clinical practice, link

systematic level changes into the healthcare arena, and promote positive health outcomes by educating patients in self care and management of chronic disease and foster healthy lifestyle changes and decision making skills that lead to positive outcomes (Terry, 2012).

The author has grown as a skilled practitioner who uses knowledge and leadership skills to bring evidence into the clinical setting. This knowledge and skill can be used to guide practice changes, promote cost-effective healthcare, and reform the present day healthcare system. Quality healthcare is the paradigm of the future of healthcare and the nursing profession.

As Project Developer

In today's healthcare arena, quality care, cost-effectiveness, and performance accountability are of the utmost importance. Federal agencies and regulatory bodies scrutinize practices of healthcare institutions and programs reducing funding and cutting human service programs if performance is deemed below average. Therefore, it is essential healthcare services design programs that meet the mandated performance requirements of payer and funding sources and evaluate if the needs of the target population are being met (Kettner, Moroney, & Martin, 2013).

The activities of the practicum experience form a basis upon which continual improvement of healthcare services and programs evolve and decision making processes to improve and make changes in existing and new healthcare programs are utilized (Kettner et. al., 2013). During the DNP practicum, the author has developed skills and knowledge to assess the needs of a target population, design programs to meet those

needs, measure performance accountability, and evaluate the effectiveness and efficiency of quality improvement initiatives.

As a DNP prepared nurse, the author has the ability and determination to be a transformational leader and create effectiveness-based planning systems that focus on performance improvement, performance measurement, and program evaluation. In addition, the author can lead the way for future healthcare reform through the transition of evidence into clinical practice.

Future Professional Development

The American Associated Colleges of Nursing (AACN) *Essentials of Doctoral Education*, defines advanced practice nursing as "any form of nursing intervention that influences healthcare outcomes for individuals or populations" (AACN, 2006, p. 4). To overcome disparities in healthcare, healthcare professionals must address social problems and design interventions that focus on client need (Kettner, et. al., 2013). Program planners must design programs focusing on interventions, such as behavioral management, that assist clients in achieving desired goals, objectives, and positive outcomes.

The future of healthcare depends on leaders who can apply effectiveness principles to define social problems, collaborate with others to design interventions and programs that target the needs of diverse populations, and evaluate the success or failure of the quality improvement initiative. Determining the relationship between variables will assist program planners to understand future trends in planning programs that are effective and cost efficient. Finally, professional development grows when one learns

from the experiences of others. Taking into consideration past successes and failures of existing programs, collecting and analyzing data, developing an awareness of financial and regulatory issues, and integrating feedback from others will lead to reformation of healthcare programs that promote continuum of care to achieve desired results.

Summary

This secondary analysis was performed to evaluate the effectiveness of an intervention and a program to produce positive health outcomes for opioid dependent pregnant women. Specifically, behavioral modification therapy was evaluated to determine if the program was successful in reducing relapse rates in opioid dependent pregnant females. Drug abuse and misuse has increased globally and is creating a public health crisis that is having devastating effects on society. Community based programs utilizing interventions that promote healthy lifestyle change must be designed in such a way to meet the needs of the target population. This project stresses the importance of social programs and the influence they can have on one's life.

Section 5: Scholarly Product and Evaluation

Project Summary

This project was designed based upon the results of a needs assessment. The misuse of drugs and the rising incidence of opioid dependence and misuse in West Virginia and the United States have creating a public health crisis. Discussing the issue with community healthcare leaders, it was brought to the attention of the author, a secondary analysis of a community based intervention, behavioral management, was needed to determine if the goals and objectives of one community based program was meeting the needs of a target population and producing positive health outcomes. Therefore, with cooperation of the FamilyCare Health Center t he project was initiated.

After touring the FamilyCare Health Center and discussing the community based program with members of the staff, the project was designed to determine if behavioral management therapy, along with Subutex, could reduce relapse rates in pregnant opioid dependent pregnant females. A secondary analysis of the health intervention was determined to be the most efficacious method of evaluation. The clinic gathered medical records of program participants over the last several years and, in an effort to maintain confidentiality, designed an anonymous patient medical record numbering system. To further ensure confidentiality and protection of patient privacy, the medical records were housed in a locked file cabinet in an office at one of the clinical sites. Only the chief nursing officer was allowed access to the records. Through the use of a SPSS software program, data were recorded and analyzed. Measures were put into place to monitor for accuracy of data entry.

Project Evaluation Report

Program evaluation is defined as "social science techniques applied to determining the workings and effectiveness of social programs" (Kettner, Moroney, & Martin, 2013, p. 231). Healthcare organizations utilize program evaluations to determine the value and impact of an intervention and its effects in producing positive health outcomes. Impact program evaluation strives to identify cause and affect relationships and determine if the program is meeting the needs of the target group (Kettner et. al., 2013). In addition, feedback from the evaluation can be used to inform policy makers about intended versus unintended benefits and/or consequences of the intervention to evoke changes or redesign social policies or programs (Kettner et. al., 2013).

Program evaluation uses outcome measurement to improve existing programs and plan for new initiatives. Program evaluation integrates both formative and summative evaluation principles to complete a program assessment. Once data is collected and assessed, recommendations are reported to social service-funding agencies in an effort to secure needed revenue to continue support of community programs. Evaluating the effectiveness and necessity of programs will help to resolve the current healthcare crisis in the United States by eliminating funding for unnecessary programs that are not effectively meeting the needs of the population group.

In evaluating the project, a number of factors were analyzed. The project was a determined to be of significant importance to not only the community but to overall health outcomes of this vulnerable population- opioid dependent pregnant female. Confidentiality and anonymity of subjects was maintained throughout this project.

Identified variables were determined to be relevant to the project. SPSS software analyzed the collected data and measures were implemented to ensure accuracy of results. Two reviewers assessed data that was entered into the program for accuracy. However, one limitation of this project was in relation to the size of the sample population. Future projects will need to increase the sample size thereby improving generalization of results. In conclusion, evaluation findings and recommendations will be disseminated to the FamilyCare Health Center staff at a future poster presentation planned at site. This feedback can be used to maintain sustainability of the existing program and healthcare intervention or make changes to improve future programs and quality initiatives. In addition, the importance of ongoing evaluation, continually monitoring program processes, measures, and results/improvements, will be stressed to the FamilyCare Health Center staff.

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Appendix A

Table 1A.

*Case Processing Summary of the *UDS Other-*

Variables	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Gender *UDS other	38	88.4%	5	11.6%	43	100%
Payer *UDS other	38	88.4%	5	11.6%	43	100%
Poverty Level Percentage *UDS other	38	88.4%	5	11.6%	43	100%
Age *UDS other	38	88.4%	5	11.6%	43	100%
Marital Status * UDS other	38	88.4%	5	11.6%	43	100%
Education Level *UDS other	36	83.7%	7	16.3%	43	100%
Employed *UDS other	38	88.4%	5	11.6%	43	100%
*Previous Treatment *UDS other	38	88.4%	5	11.6%	43	100%
Treatment Provision of Treatment *UDS other	38	88.4%	5	11.6%	43	100%
Family History of Drug Abuse* UDS other	31	72.1%	12	27.9%	43	100%
Exercise * UDS other	38	88.4%	5	11.6%	43	100%
Tobacco User *UDS other	38	88.4%	5	11.6%	43	100%
Alcohol User *UDS other	36	83.7%	7	16.3%	43	100%

Note. Most misused drug during week 2 & week 10 of treatment (n=43)

Appendix A

Table 1B.

*Case Processing Summary of the *UDS Cannabis*

Variables	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Gender *UDS cann	38	88.4%	5	11.6%	43	100%
Payer *UDS cann	38	88.4%	5	11.6%	43	100%
Poverty Level Percentage *UDS cann	38	88.4%	5	11.6%	43	100%
Age *UDS cann	38	88.4%	5	11.6%	43	100%
Marital Status * UDS cann	38	88.4%	5	11.6%	43	100%
Education Level *UDS cann	36	83.7%	7	16.3%	43	100%
Employed *UDScann	38	88.4%	5	11.6%	43	100%
*Previous Treatment *UDS cann	38	88.4%	5	11.6%	43	100%
Treatment Provision of Treatment *UDS cann	38	88.4%	5	11.6%	43	100%
Family History of Drug Abuse* UDS cann	31	72.1%	12	27.9%	43	100%
Exercise * UDS cann	38	88.4%	5	11.6%	43	100%
Tobacco User *UDS cann	38	88.4%	5	11.6%	43	100%
Alcohol User *UDS cann	36	83.7%	7	16.3%	43	100%

Note. Second highest drug misused during treatment week 6 & moderate highest week 2 (*n*=43)

Appendix A

Table 1C.

Case Processing Summary of the *UDS *THC*

Variables	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Gender *UDS THC	38	88.4%	5	11.6%	43	100%
Payer *UDS THC	38	88.4%	5	11.6%	43	100%
Poverty Level Percentage *UDS THC	38	88.4%	5	11.6%	43	100%
Age *UDS THC	38	88.4%	5	11.6%	43	100%
Marital Status * UDS THC	38	88.4%	5	11.6%	43	100%
Education Level *UDS THC	36	83.7%	7	16.3%	43	100%
Employed *UDS THC	38	88.4%	5	11.6%	43	100%
*Previous Treatment *UDS THC	38	88.4%	5	11.6%	43	100%
Treatment Provision of Treatment *UDS THC	38	88.4%	5	11.6%	43	100%
Family History of Drug Abuse* UDS THC	31	72.1%	12	27.9%	43	100%
Exercise * UDS THC	38	88.4%	5	11.6%	43	100%
Tobacco User *UDS THC	38	88.4%	5	11.6%	43	100%
Alcohol User *UDS THC	36	83.7%	7	16.3%	43	100%

Note. Second moderate drug misused during week 6 of treatment (*n*=43)

Appendix A

Table 1D

*Case Processing Summary of the *UDS Oxycodone-*

Variables	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Gender *UDS oxyc	38	88.4%	5	11.6%	43	100%
Payer *UDS oxyc	38	88.4%	5	11.6%	43	100%
Poverty Level Percentage *UDS oxyc	38	88.4%	5	11.6%	43	100%
Age *UDS oxyc	38	88.4%	5	11.6%	43	100%
Marital Status * UDS oxyc	38	88.4%	5	11.6%	43	100%
Education Level *UDS oxyc	36	83.7%	7	16.3%	43	100%
Employed *UDS oxyc	38	88.4%	5	11.6%	43	100%
*Previous Treatment *UDS oxyc	38	88.4%	5	11.6%	43	100%
Treatment Provision of Treatment *UDS oxyc	38	88.4%	5	11.6%	43	100%
Family History of Drug Abuse* UDS oxyc	31	72.1%	12	27.9%	43	100%
Exercise * UDS oxyc	38	88.4%	5	11.6%	43	100%
Tobacco User *UDS oxyc	38	88.4%	5	11.6%	43	100%
Alcohol User *UDS oxyc	36	83.7%	7	16.3%	43	100%

Note. Third moderate drug misused during week 10 of treatment (*n*=43)

Appendix A

Table 1E

*Case Processing Summary of the *UDS Amphetamine*

Variables	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Gender *UDS amph	38	88.4%	5	11.6%	43	100%
Payer *UDS amph	38	88.4%	5	11.6%	43	100%
Poverty Level Percentage *UDS amph	38	88.4%	5	11.6%	43	100%
Age *UDS amph	38	88.4%	5	11.6%	43	100%
Marital Status * UDS amph	38	88.4%	5	11.6%	43	100%
Education Level *UDS amph	36	83.7%	7	16.3%	43	100%
Employed *UDS amph	38	88.4%	5	11.6%	43	100%
*Previous Treatment *UDS amph	38	88.4%	5	11.6%	43	100%
Treatment Provision of Treatment *UDS amph	38	88.4%	5	11.6%	43	100%
Family History of Drug Abuse* UDS amph	31	72.1%	12	27.9%	43	100%
Exercise * UDS amph	38	88.4%	5	11.6%	43	100%
Tobacco User *UDS amph	38	88.4%	5	11.6%	43	100%
Alcohol User *UDS amph	36	83.7%	7	16.3%	43	100%

Note. Lowest incidence of drug misused- week 2 & week 10 of treatment (*n*=43)

Appendix A

Table 1F

*Case Processing Summary of the *UDS Benzodiazipine*

Variables	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Gender *UDS benzo	38	88.4%	5	11.6%	43	100%
Payer *UDS benzo	38	88.4%	5	11.6%	43	100%
Poverty Level Percentage *UDS benzo	38	88.4%	5	11.6%	43	100%
Age *UDS benzo	38	88.4%	5	11.6%	43	100%
Marital Status * UDS benzo	38	88.4%	5	11.6%	43	100%
Education Level *UDS benzo	36	83.7%	7	16.3%	43	100%
Employed *UDS benzo	38	88.4%	5	11.6%	43	100%
*Previous Treatment *UDS benzo	38	88.4%	5	11.6%	43	100%
Treatment Provision of Treatment *UDS benzzo	38	88.4%	5	11.6%	43	100%
Family History of Drug Abuse* UDS benzo	31	72.1%	12	27.9%	43	100%
Exercise * UDS benzo	38	88.4%	5	11.6%	43	100%
Tobacco User *UDS benzo	38	88.4%	5	11.6%	43	100%
Alcohol User *UDS benzo	36	83.7%	7	16.3%	43	100%

Note. Lowest incidence of drug misused- week 6 (*n*=43)

Appendix B

Table 2A

Report of UDS Other (2nd week) and Variables

Other	Gender	Payer	Povert	Age	Marital	Educ.	Emp	Prv Tx	Tx Pro	Fy
YES										
Mean	2.000	1.1538	5.00	26.2308	1.3077	5.3636	1.7692	1.6923	2.000	1.3000
N	13	13	13	13	13	11	13	13	13	10
Std. DV	.0000	.55470	.00000	4.96914	.85485	1.02691	.43853	.48038	.00000	.48305
NO										
Mean	2.000	1.4000	425.4	25.8400	1.3600	5.5200	1.6400	1.4800	1.9200	1.5714
N	25	25	25	25	25	25	25	25	25	21
Std. DV	.00000	.81650	.0000	3.48425	.56862	.65320	.48990	.50990	.27689	.50709
Total										
Mean	2.0000	1.3158	4.947	25.9737	1.3421	5.4722	1.6842	1.5526	1.9474	1.4839
N	38	38	38	38	38	36	38	38	38	31
Std. DV	.00000	.73907	.32444	3.98976	.66886	.77408	.47107	.50390	.22629	.50800

Appendix B

Table 2A (continued)

Report of UDS Other (2nd week) and Variables

UDS other	Exercise	Tobacco User	Alcohol User
YES			
Mean	1.5385	1.0000	1.7500
N	13	13	12
Std. Dev	.51887	.00000	.45227
NO			
Mean	1.4400	1.0400	1.6250
N	25	25	24
Std. Dev	.50662	.16440	.49454
Total			
Mean	1.4737	1.0263	1.6667
N	38	38	36
Std. Dev	.50601	.16222	.47809

Appendix B

Table 2B.

Report of UDS Cannabis and Variables (Week 2)

UDS THC	Sex	Payer	Poverty	Age	Marital	Educ	Empl	Prv T	Tx Prov	Family Hx
YES										
Mean	2.00	1.222	5.0000	24.0	1.222	5.25	1.88	1.66	1.88	1.4286\
N	9	9	9	9	9	8	9	9	9	7
Std. Dev	.0000	.6666	.00000	4.555	.44096	.8864	.3333	.5000	.3333	.53452
NO										
Mean	2.00	1.322	4.9310	26.58	1.3793	5.357	1.620	1.517	1.965	1.5000
N	29	29	29	29	29	28	29	29	29	24
Std. Dev	.0000	.7688	.37139	3.669	.72771	.7444	.4938	.5085	.1857	.51075
Total										
Mean	2.000	1.315	4.9474	25.97	1.3421	5.472	1.684	1.552	1.947	1.4839
N	38	38	38	38	38	36	38	38	38	31
Std. Dev	.0000	.7390	.32444	3.989	.66886	.7740	.4710	.5039	.2262	.50800

Table 2B(continued)

Report of UDS Cannabis and Variables (Week 2)

UDS other	Exercise	Tobacco User	Alcohol User
YES			
Mean	1.6667	1.0000	1.7143
N	9	9	7
Std. Dev	.50000	.00000	.48795
NO			
Mean	1.4138	1.0345	1.6552
N	29	29	29
Std. Dev	.50123	.18570	.47093
Tota			
	1.4737	1.0263	1.6667
l	38	38	36
Mean	.50601	.16222	.47809
N			
Std. Dev			

Appendix B

Table 2C

Lowest incidence of drug misused- week 6 (n=43)

)

UDS	Sex	Payer	Pov L	Age	Marital	Educ	Emp	Prv Tx	Treat Prov.	Family Hx
YES										
Mean	2.000	1.000	5.000	28.00	1.0000	5.000	2.000	2.000	2.000	1.000
N	0	0	0	0	0	0	0	0	0	0
Std. Dev	1	1	1	1	1	1	1	1	1	1
NO										
Mean	2.000	1.324	4.945	25.98	1.3514	5.485	1.675	1.5405	1.945	1.500
N	37	37	37	37	37	35	37	37	37	30
Std. Dev	.0000	.7473	.3288	4.030	.67562	.7810	.4745	.50523	.2292	.50855
Total										
Mean	2.000	1.315	4.947	25.97	1.3421	5.472	1.684	1.5526	1.947	1.4839
N	38	38	38	38	38	36	38	38	38	31
Std. Dev	.0000	.7390	.3244	3.989	.6688	.7740	.4710	.50390	.2262	.5080

Report of UDS Amphe and Variables (Week 2) (continued)

UDS other	Exercise	Tobacco User	Alcohol User
YES			
Mean	2.000	1.000	1.500
N	1	1	1
Std. Dev	-	-	-
NO			
Mean	1.4595	1.0270	1.6857
N	37	37	35
Std. Dev	.50523	.16440	.47101
Total			
Mean	1.4737	1.0263	1.6667
N	38	38	36
Std. Dev	.50601	.16222	.47809

Appendix C

Table 3A

ANOVA Results UDS Other (Week 2)

Variables		F	Sig.
Payer *UDS other (combined)	Between Groups	.947	.337
	Within Groups		
	Total		
Poverty Level Percentage (combined*UDS other	Between Groups	.513	.478
	Within Groups		
	Total		
Age *UDS other (combined)	Between Groups	.080	.779
	Within Groups		
	Total		
Marital Status *UDS other (combined)	Between Groups	.051	.823
	Within Groups		
	Total		
Education Level (combined)	Between Groups	.306	.584
*UDS other	Within Groups		
	Total		
Employed *UDS other (combined)	Between Groups	.637	.430
	Within Groups		
	Total		
Previous Treatment (combined)	Between Groups	1.540	.223
*UDS other	Within Groups		
	Total		
Treatment Prov (combined)	Between Groups	1.071	.308
*UDS other	Within Groups		
	Total		
Family History (combined)	Between Groups	1.998	.168
*UDS other	Within Groups		
	Total		
Exercise (combined)	Between Groups	.318	.576
*UDS other	Within Groups		
	Total		

Tobacco User (combined) *UDS other	Between Groups	.513	.478
	Within Groups		
	Total		
Alcohol User (combined) *UDS other	Between Groups	.540	.468
	Within Groups		
	Total		

**Note.* Significant at p<.05.

Appendix C

Table 3B

ANOVA Results UDS Cannabis (Week 2)

Variables		F	Sig.
Payer *UDS Cann (combined)	Between Groups	.185	.670
	Within Groups		
	Total		
Poverty Level Percentage (combined) *UDS Cann Groups	Between Groups	.305	.584
	Within		
	Total		
Age *UDS Cann (combined)	Between Groups	.3.045	.089
	Within Groups		
	Total		
Marital Status *UDS Cann (combined)	Between Groups	.372	.546
	Within Groups		
	Total		
Education Level (combined)	Between Groups	.844	.365
*UDS Cann	Within Groups		
	Total		
Employed *UDS Cann (combined)	Between Groups	2.305	.138
	Within Groups		
	Total		
Previous Treatment (combined)	Between Groups	.597	.445
*UDS Cann	Within Groups		
	Total		
Treatment Prov (combined)	Between Groups	.783	.382
*UDS Cann	Within Groups		
	Total		
Family History (combined)	Between Groups	.104	.749
*UDS Cann	Within Groups		
	Total		
Exercise (combined)	Between Groups	1.750	.194
*UDS Cann	Within Groups		

	Total		
Tobacco User (combined) *UDS Cann	Between Groups	.305	.584
	Within Groups		
	Total		
Alcohol User (combined) *UDS Cann	Between Groups	.084	.774
	Within Groups		
	Total		

Note. Significant at p<.05.

Appendix C

Table 3C

ANOVA Results UDS Amphetamines (Week 2)

Variables		F	Sig.
Payer *UDS Amph (combined)	Between Groups	.183	.671
	Within Groups		
	Total		
Poverty Level Percentage (combined) *UDS other Amph	Between Groups	.026	.872
	Within Groups		
	Total		
Age *UDS Amphe (combined)	Between Groups	.260	.613
	Within Groups		
	Total		
Marital Status *UDS Amph (combined)	Between Groups	.263	.611
	Within Groups		
	Total		
Education Level (combined)	Between Groups	.376	.544
*UDS Amph	Within Groups		
	Total		
Employed *UDS Amph (combined)	Between Groups	.455	.504
	Within Groups		
	Total		
Previous Treatment (combined)	Between Groups	.805	.375
*UDS Amph	Within Groups		
	Total		
Treatment Prov (combined)	Between Groups	.054	.817
*UDS Amph	Within Groups		
	Total		
Family History (combined)	Between Groups	.935	.341
*UDS Amph	Within Groups		
	Total		
Exercise (combined)	Between Groups	1.115	.298
*UDS Amph	Within Groups		

	Total		
Tobacco User (combined) *UDS Amph	Between Groups	.026	.872
	Within Groups		
	Total		
Alcohol User (combined) *UDS Amph	Between Groups	2.061	.160
	Within Groups		
	Total		

Note. Significant at p<.05.

Appendix D

Table 4A

Case Processing Summary of the *UDS Cannabis

Variables	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Gender *UDS Cann	29	67.4%	14	32.6%	43	100%
Payer *UDS Cann	29	67.4%	14	32.6%	43	100%
Poverty Level * Cann	29	67.4%	14	32.6%	43	100%
Age *UDS Cann	29	67.4%	14	32.6%	43	100%
Marital Status * UDS	29	67.4%	14	32.6%	43	100%
Education Level *UDS	28	65.1%	15	34.9%	43	100%
Employed *UDS Cann	29	67.4%	14	32.6%	43	100%
*Previous Treatment	29	67.4%	14	32.6%	43	100%
Treatment Provision	29	67.4%	14	32.6%	43	

		100%			
Family History of	24	55.8%	19	44.2%	43
Drug Abuse		100%			
Exercise * UDS Cann	29	67.4%	14	32.6%	43
		100%			
Tobacco User*UDS	29	67.4%	14	32.6%	43
		100%			
Alcohol User *UDS	27	62.8%	16	37.2%	43
		100%			

Note. Lowest incidence of drug misused- week 6 (n=43)

Appendix D

Table 4B

*Case Processing Summary of the *UDS THC-*

Variables	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Gender *UDS THC	29	67.4%	14	32.6%	43	100%
Payer *UDS THC	29	67.4%	14	32.6%	43	100%
Poverty Level Percentage *UDS THC	29	67.4%	14	32.6%	43	100%
Age *UDS THC	29	67.4%	14	32.6%	43	100%
Marital Status * UDS THC	29	67.4%	14	32.6%	43	100%
Education Level *UDS THC	28	65.1%	15	34.9%	43	100%
Employed *UDS THC	29	67.4%	14	32.6%	43	100%
*Previous Treatment	29	67.4%	14	32.6%	43	100%
Treatment Provision of Treatment *UDS THC	29	67.4%	14	32.6%	43	100%
Family History of Drug	24	55.8%	19	44.2%	43	100%
Exercise * UDS THC	29	67.4%	14	32.6%	43	100%
Tobacco	29	67.4%	14	32.6%	43	100%

Note. Second highest misused week 6 (n=43)

Appendix D

Table 4C

*Case Processing Summary of the *UDS Benzodiazipine*

Variables	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Gender *UDS Benzo	22	51.2%	21	48.8%	43	100%
Payer *UDS Benzo	22	51.2%	21	48.8%	43	100%
Poverty Level Percentage *UDS Benzo	22	51.2%	21	48.8%	43	100%
Age *UDS Benzo	22	51.2%	21	48.8%	43	100%
Marital Status * UDS Benzo	22	51.2%	21	48.8%	43	100%
Education Level *UDS Benzo	22	51.2%	21	48.8%	43	100%
Employed *UDS Benzo	22	51.2%	21	48.8%	43	100%
*Previous Treatment *UDS Benzo	22	51.2%	21	48.8%	43	100%
Treatment Provision of Treatment *UDS Benzo	22	51.2%	21	48.8%	43	100%
Family History of Drug Abuse* UDS Benzo	18	49.1%	25	58.1%	43	100%
Exercise * UDS Benzo	22	51.2%	21	48.8%	43	100%
Tobacco User *UDS Benzo	22	51.2%	21	48.8%	43	100%
Alcohol User *UDS Benzo	20	46.5%	23	53.5%	43	100%

Note. Lowest incidence of drug misused- week 6 (*n*=43)

Appendix E

Table 5A

ANOVA Results UDS Cannabis (week 6)

Variables		F	Sig.
Payer *UDS Cann (combined)	Between Groups	.002	.968
	Within Groups		
	Total		
Poverty Level Percentage (combined) *UDS Cann Groups	Between Groups	.254	.618
	Within		
	Total		
Age *UDS Cann (combined)	Between Groups	.000	.997
	Within Groups		
	Total		
Marital Status *UDS Cann (combined)	Between Groups	.316	.579
	Within Groups		
	Total		
Education Level (combined)	Between Groups	.202	.657
*UDS Cann	Within Groups		
	Total		
Employed *UDS Cann (combined)	Between Groups	.017	.896
	Within Groups		
	Total		
Previous Treatment (combined)	Between Groups	.772	.387
*UDS Cann	Within Groups		
	Total		
Treatment Prov (combined)	Between Groups	1.089	.306
*UDS Cann	Within Groups		
	Total		
Family History (combined)	Between Groups	.090	.767
*UDS Cann	Within Groups		
	Total		
Exercise (combined)	Between Groups	.076	.784
*UDS Cann	Within Groups		

	Total		
Tobacco User (combined) *UDS Cann	Between Groups	.254	.618
	Within Groups		
	Total		
Alcohol User (combined) *UDS Cann	Between Groups	.021	.885
	Within Groups		
	Total		

Note. Significant at p<.05.

Appendix E

Table 5B

ANOVA Results UDS THC (week 6)

Variables		F	Sig.
Payer *UDS THC (combined)	Between Groups	.002	.968
	Within Groups		
	Total		
Poverty Level Percentage (combined) *UDS THC	Between Groups	.254	.618
	Within Groups		
	Total		
Age *UDS THC (combined)	Between Groups	.000	.997
	Within Groups		
	Total		
Marital Status *UDS THC (combined)	Between Groups	.316	.579
	Within Groups		
	Total		
Education Level (combined)	Between Groups	.202	.657
*UDS THC	Within Groups		
	Total		
Employed *UDS THC (combined)	Between Groups	.017	.896
	Within Groups		
	Total		
Previous Treatment (combined)	Between Groups	.772	.387
*UDS THC	Within Groups		
	Total		
Treatment Prov (combined)	Between Groups	1.089	.306
*UDS THC	Within Groups		
	Total		
Family History (combined)	Between Groups	.090	.767
*UDS THC	Within Groups		
	Total		
Exercise (combined)	Between Groups	.076	.784

*UDS THC	Within Groups		
	Total		
Tobacco User (combined)	Between Groups	.254	.618
*UDS THC	Within Groups		
	Total		
Alcohol User (combined)	Between Groups	.021	.885
*UDS THC	Within Groups		
	Total		

Note. Significant at p<.05.

Appendix E

Table 5C

ANOVA Results UDS THC (week 6)

Variables		F	Sig.
Payer *UDS THC (combined)	Between Groups	.002	.968
	Within Groups		
	Total		
Poverty Level Percentage (combined) *UDS THC	Between Groups	.254	.618
	Within Groups		
	Total		
Age *UDS THC (combined)	Between Groups	.000	.997
	Within Groups		
	Total		
Marital Status *UDS THC (combined)	Between Groups	.316	.579
	Within Groups		
	Total		
Education Level (combined)	Between Groups	.202	.657
*UDS THC	Within Groups		
	Total		
Employed *UDS THC (combined)	Between Groups	.017	.896
	Within Groups		
	Total		
Previous Treatment (combined)	Between Groups	.772	.387
*UDS THC	Within Groups		
	Total		
Treatment Prov (combined)	Between Groups	1.089	.306
*UDS THC	Within Groups		
	Total		
Family History (combined)	Between Groups	.090	.767
*UDS THC	Within Groups		
	Total		
Exercise (combined)	Between Groups	.076	.784
*UDS THC	Within Groups		

	Total		
Tobacco User (combined) *UDS THC	Between Groups	.254	.618
	Within Groups		
	Total		
Alcohol User (combined) *UDS THC	Between Groups	.021	.885
	Within Groups		
	Total		

Note. Significant at p<.05.

Appendix E

Table 5D

ANOVA Results UDS Benzodiazepines (week 6)

Variables		F	Sig.
Payer *UDS Benzo (combined)	Between Groups	.320	.729
	Within Groups		
	Total		
Poverty Level Percentage (combined) *UDS Benzo Groups	Between Groups	.054	.948
	Within		
	Total		
Age *UDS Benzo (combined)	Between Groups	1.771	.190
	Within Groups		
	Total		
Marital Status *UDS Benzo (combined)	Between Groups	1.238	.306
	Within Groups		
	Total		
Education Level (combined)	Between Groups	.228	.798
*UDS Benzo	Within Groups		
	Total		
Employed *UDS Benzo (combined)	Between Groups	2.774	.081
	Within Groups		
	Total		
Previous Treatment (combined)	Between Groups	1.105	.346
*UDS Benzo	Within Groups		
	Total		
Treatment Prov (combined)	Between Groups	.112	.894
*UDS Benzo	Within Groups		
	Total		
Family History (combined)	Between Groups	1.017	.379
*UDS Benzo	Within Groups		
	Total		
Exercise (combined)	Between Groups	2.125	.137
*UDS Benzo	Within Groups		

	Total		
Tobacco User (combined) *UDS Benzo	Between Groups	.054	.948
	Within Groups		
	Total		
Alcohol User (combined) *UDS Benzo	Between Groups	.952	.400
	Within Groups		
	Total		

**Note*- Significant at p<.05.

Appendix F

Table 6A

*Case Processing Summary of the *UDS Other-*

Variables	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Gender *UDS other	22	67.4%	21	48.8%	43	100%
Payer *UDS other	22	67.4%	21	48.8%	43	100%
Poverty Level Percentage *UDS other	22	67.4%	21	48.8%	43	100%
Age *UDS other	22	67.4%	21	48.8%	43	100%
Marital Status * UDS other	22	67.4%	21	48.8%	43	100%
Education Level *UDS other	22	65.1%	21	48.8%	43	100%
Employed *UDS other	22	67.4%	21	48.8%	43	100%
*Previous Treatment *UDS other	22	67.4%	21	48.8%	43	100%
Treatment Provision of Treatment *UDS other	22	67.4%	21	48.8%	43	100%
Family History of Drug Abuse* UDS other	18	55.8%	25	58.1%	43	100%
Exercise * UDS other	22	51.2%	21	48.8%	43	100%
Tobacco User *UDS other	22	51.2%	21	48.8%	43	100%
Alcohol User *UDS other	20	46.5%	23	53.5%	43	100%

**Note- Most misused drug during week 10 of Treatment (n=43)*

Table 6B

*Case Processing Summary of the *UDS Oxycodone*

Variables	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Gender *UDS oxyc	22	51.2%	21	48.8%	43	100%
Payer *UDS oxyc	22	51.2%	21	48.8%	43	100%
Poverty Level Percentage *UDS oxyc	22	51.2%	21	48.8%	43	100%
Age *UDS oxyc	22	51.2%	21	48.8%	43	100%
Marital Status * oxy other	22	51.2%	21	48.8%	43	100%
Education Level *UDS oxy	22	51.2%	21	48.8%	43	100%
Employed *UDS oxy	22	51.2%	21	48.8%	43	100%
*Previous Treatment *UDS oxy	22	51.2%	21	48.8%	43	100%
Treatment Provision of Treatment *UDS oxyc	22	51.2%	21	48.8%	43	100%
Family History of Drug Abuse* UDS oxyc	18	41.9%	25	58.1%	43	100%
Exercise * UDS oxyc	22	51.2%	21	48.8%	43	100%
Tobacco User *UDS oxyc	22	51.2%	21	48.8%	43	100%
Alcohol User *UDS oxyc	20	46.5%	23	53.5%	43	100%

**Note.* Highest moderate misused drug during week 10 of Treatment (n=43)

Appendix F

Table 6C

*Case Processing Summary of the *UDS Amphetamines*

Variables	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Gender *UDS amph	22	51.2%	21	48.8%	43	100%
Payer *UDS amph	22	51.2%	21	48.8%	43	100%
Poverty Level Percentage *UDS amph	22	51.2%	21	48.8%	43	100%
Age *UDS amph	22	51.2%	21	48.8%	43	100%
Marital Status * UDS amph	22	51.2%	21	48.8%	43	100%
Education Level *UDS amph	22	51.2%	21	48.8%	43	100%
Employed *UDS amph	22	51.2%	21	48.8%	43	100%
*Previous Treatment *UDS amph	22	51.2%	21	48.8%	43	100%
Treatment Provision of Treatment *UDS amph	22	51.2%	21	48.8%	43	100%
Family History of Drug Abuse* UDS amph	18	41.9%	25	58.1%	43	100%
Exercise * UDS smph	22	51.2%	21	48.8%	43	100%
Tobacco User *UDS amph	22	51.2%	21	48.8%	43	100%
Alcohol User *UDS amph	20	46.5%	23	53.5%	43	100%

Note. Highest moderate misused drug during week 10 of Treatment (*n*=43)

Appendix G

Table 7A

ANOVA Results UDS Other (week 10)

Variables		F	Sig.
Payer *UDS other (combined)	Between Groups	.025	.876
	Within Groups		
	Total		
Poverty Level Percentage (combined) *UDS other Groups	Between Groups	.284	.600
	Within		
	Total		
Age *UDS other (combined)	Between Groups	.095	.761
	Within Groups		
	Total		
Marital Status *UDS other (combined)	Between Groups	2.744	.113
	Within Groups		
	Total		
Education Level (combined)	Between Groups	.568	.460
*UDS other	Within Groups		
	Total		
Employed *UDS other (combined)	Between Groups	.705	.411
	Within Groups		
	Total		
Previous Treatment (combined)	Between Groups	.034	.856
*UDS other	Within Groups		
	Total		
Treatment Prov (combined)	Between Groups	.885	.358
*UDS other	Within Groups		
	Total		
Family History (combined)	Between Groups	1.383	.257
*UDS other	Within Groups		
	Total		
Exercise (combined)	Between Groups	.928	.347
*UDS other	Within Groups		

	Total		
Tobacco User (combined) *UDS other	Between Groups	.284	.600
	Within Groups		
	Total		
Alcohol User (combined) *UDS other	Between Groups	.189	.669
	Within Groups		
	Total		

Note Significant at p<.05.

Appendix G

Table 7B

ANOVA Results UDS Oxycodone (week 10)

Variables		F	Sig.
Payer *UDS oxyc (combined)	Between Groups	.885	.358
	Within Groups		
	Total		
Poverty Level Percentage (combined) *UDS oxyc Groups	Between Groups	.096	.760
	Within		
	Total		
Age *UDS oxyc (combined)	Between Groups	1.917	.181
	Within Groups		
	Total		
Marital Status *UDS oxyc (combined)	Between Groups	.856	.366
	Within Groups		
	Total		
Education Level (combined)	Between Groups	.455	.508
*UDS oxyc	Within Groups		
	Total		
Employed *UDS oxyc (combined)	Between Groups	1.212	.284
	Within Groups		
	Total		
Previous Treatment (combined)	Between Groups	1.212	.284
*UDS oxyc	Within Groups		
	Total		
Treatment Prov (combined)	Between Groups	.202	.658
*UDS oxyc	Within Groups		
	Total		
Family History (combined)	Between Groups	.622	.442
*UDS oxyc	Within Groups		
	Total		
Exercise (combined)	Between Groups	.069	.796
*UDS oxyc	Within Groups		

	Total		
Tobacco User (combined) *UDS oxyc	Between Groups	.096	.760
	Within Groups		
	Total		
Alcohol User (combined) *UDS oxyc	Between Groups	3.600	.074
	Within Groups		
	Total		

Note. Significant at p<.05.

Appendix G

Table 7C

ANOVA Results UDS Amphetamine (week 10)

Variables		F	Sig.
Payer *UDS amph (combined)	Between Groups	.284	.600
	Within Groups		
	Total		
Poverty Level Percentage (combined) *UDS amph Groups	Between Groups	.045	.833
	Within		
	Total		
Age *UDS amph (combined)	Between Groups	.100	.755
	Within Groups		
	Total		
Marital Status *UDS amph (combined)	Between Groups	.399	.535
	Within Groups		
	Total		
Education Level (combined) *UDS amph	Between Groups	.670	.423
	Within Groups		
	Total		
Employed *UDS amph (combined)	Between Groups	.559	.463
	Within Groups		
	Total		
Previous Treatment (combined) *UDS amph	Between Groups	.559	.463
	Within Groups		
	Total		
Treatment Prov (combined) *UDS amph	Between Groups	.096	.760
	Within Groups		
	Total		
Family History (combined) *UDS amph	Between Groups	.622	.442
	Within Groups		
	Total		
Exercise (combined) *UDS amph	Between Groups	1.477	.238
	Within Groups		

	Total		
Tobacco User (combined) *UDS amph	Between Groups	.045	.833
	Within Groups		
	Total		
Alcohol User (combined) *UDS amph	Between Groups	1.543	.230
	Within Groups		
	Total		

Note. Significant at p<.05.

Appendix H

Table 8A

Treatment Options-Counseling, Counseling & Narcotics Anonymous (NA), NA, Excluded, Discharged, Relapse from the Program (n=43)

Treatment	Number
Onsite counseling	16
Onsite counseling & NA	13
NA	2
Ex	8
cluded (noncompliant with counseling)	
Discharged	4
Total	43
Relapse	18

Appendix I: Institutional Review Board Confirmation Number

The Confirmation of Ethical Standards (CES) has an IRB record number of 08-22-14-0061636 for this project.