

ABSTRACT

Predicting Length of Treatment Involvement for Substance Using Perinatal Women in an
Integrated Inpatient Healthcare Program

by

Alicia Marie Bell

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Director: Shari M. Sias

Department of Addictions and Rehabilitation Studies

Services for perinatal (pregnant and one year postpartum) women are limited, and inpatient settings where women receive substance abuse services specific to the perinatal population, although ideal, are rare in eastern North Carolina. A collaborative effort between East Carolina University's Navigate-Pregnancy and Recovery Clinic (PARC), Vidant Medical Center, and Walter B. Jones Alcohol and Drug Center made services available to 96 pregnant and postpartum women with previous or present substance use issues. The women received group counseling, which was based in Motivational Interviewing. To improve outcomes for themselves and their babies, pregnant and postpartum substance using women must engage and remain in treatment.

This exploratory, non-experimental, relational study examined: (a) the relationship between number of living children, number of previous treatment attempts, level of mental distress as measured by the *Global Appraisal of Individual Needs-Short Screener* (GAIN-SS), and level of behavioral complexity as measured by the GAIN-SS with the number of sessions completed by pregnant and postpartum women participating in a manual based motivational interviewing counseling and perinatal education group and (b) the relationship between positive

attitudes towards breastfeeding as measured by the *IOWA Infant Feeding Attitude Scale* and the number of completed sessions. Simultaneous multiple regression analysis was used to evaluate potential predictors of number of treatment sessions completed. Pearson product–moment correlation coefficient was used to examine the relationship of positive attitudes towards breastfeeding and number of sessions attended by perinatal women participating in an inpatient manual based motivational interviewing counseling intervention and perinatal education group. Significance was not found for either research question. However, prospective results did reveal significance for predicting the number of treatment sessions that pregnant and postpartum women would attend based on current number of living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity when the sample size was doubled and tripled. Further research is needed to replicate the current findings. Suggestions for future research include: (a) replication of the study with a larger sample which includes additional predictors of treatment attendance such as involvement with Department of Social Services and criminal justice system (b) research which compares the Transtheoretical Model of Change/Processes of Change treatment to the traditional 12-step facilitation treatment and client attendance rates, (c) research which compares outpatient versus inpatient substance abuse treatment of perinatal women and client attendance rate, and (d) research that compares inpatient substance abuse treatment which allows for children to remain with their mothers during treatment versus having the children in foster care and/or kinship placement and client attendance rates.

PREDICTING LENGTH OF TREATMENT INVOLVEMENT OF SUBSTANCE USING
PERINATAL WOMEN IN AN INTEGRATED INPATIENT HEALTHCARE PROGRAM

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by

Alicia Marie Bell

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by

Alicia Marie Bell

APPROVED BY:

DIRECTOR OF DISSERTATION: _____

Shari M. Sias, PhD

COMMITTEE MEMBER: _____

Stephen Leierer, PhD

COMMITTEE MEMBER: _____

Paul J. Toriello, RhD

COMMITTEE MEMBER: _____

Kylie Dotson-Blake, PhD

COMMITTEE MEMBER: _____

Jeannie Golden, PhD

CHAIR OF THE DEPARTMENT OF ADDICTIONS

AND REHABILITATION STUDIES: _____

Paul J. Toriello, RhD

DEAN OF THE GRADUATE SCHOOL: _____

Paul Gemperline, PhD

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CHAPTER 1: INTRODUCTION TO THE STUDY

Chapter one provides an introduction to the present study. This exploratory study examined the relationship between number of living children, number of previous treatment attempts, level of mental distress as measured by the *Global Appraisal of Individual Needs-Short Screener* (GAIN-SS), and level of behavioral complexity as measured by the GAIN-SS with the number of sessions completed by pregnant and postpartum women participating in a manual based motivational interviewing counseling intervention and perinatal education group. Additionally, this study examined the relationship between positive attitudes towards breastfeeding and the likelihood that women will stay in treatment. Chapter one includes the background of the study, statement of the problem, justification for the study, purpose of the study, research questions and definition of terms, significance of the study, and a brief summary of the chapter.

Background of the Study

National statistics reveal that substance use among pregnant and postpartum women is a grave health risk (Substance Abuse and Mental Health Services Administration [SAMHSA], 2011). In 2011-2012, pregnant women ages 15 to 44 reported current alcohol use at a rate of 8.5%, engaged in binge drinking at 2.7%, and heavy drinking at 0.3% (SAMHSA, 2014). Also, 5.9 percent of these women reported using illicit drugs. When comparing drugs used, nicotine/cigarette use is most prevalent at a rate of 18.9%, followed by alcohol (10%), marijuana (3.7%), and prescription analgesics (1.1%) (SAMHSA, 2005). Crack cocaine and sedative use were reported at less than 1% and methamphetamine or heroin use was not reported.

Interestingly, trends reveal that women understand the impact that substance use has on their unborn babies. Over time, the use of past month alcohol, binge alcohol, and

nicotine/cigarette use, which is highest in pre-pregnancy and first trimester, steadily decreases through the third trimester. Marijuana use rates also decrease, with use in pre-pregnancy being the highest, but slowly decreasing through the third trimester (SAMHSA, 2009). Unfortunately, rates of substance use drastically increase within three months postpartum for all of the above substances, including marijuana, and continue to rise, except for marijuana. These problematic trends are more obvious in North Carolina.

The rates of infant mortality in North Carolina are above the national average with 7.2 infants in North Carolina dying for every 1,000 live births (N.C. Healthy Start Foundation, 2012). Furthermore, infant mortality rates from 2007 to 2011 in southeastern and eastern North Carolina were the highest in the state, ranging from 7.4 to 8.1 deaths per 1,000 live births (NC Department of Health & Human Services State Center for Health Statistics, 2012a). Statewide, congenital malformations, deformations and chromosomal abnormalities (19.2%), and prematurity and low birth weight (22.5%) account for nearly half of all infant deaths (NC Department of Health & Human Services State Center for Health Statistics, 2012b). Both are connected to perinatal substance use (American Pregnancy Association, 2013; The National Institute on Drug Abuse [NIDA], 1992). Pregnant North Carolinians rates of alcohol use were at 8.2% in 2008 (Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System, n.d. as cited in March of Dimes Foundation, 2015a). The amount of alcohol and other drug use, as well as the infant mortality rate call attention to the need for effective and efficient substance abuse treatment at the prenatal juncture.

Although effective and efficient substance abuse treatment is needed for the perinatal population, many pregnant and postpartum women face numerous barriers to receiving treatment. Perhaps the most consequential barriers are these women have multiple family

obligations. Nelson-Zlupko, Kauffman, and Dore (1995) identified that women's familial responsibilities negatively affect their ability to enter treatment. Zankowski (1987) also found that lack of child care was a major issue for women seeking substance abuse treatment since women are more likely to have the primary caretaker role in the family. These women are also more cautious about giving up their caregiver role in order to enter substance abuse treatment. When Zankowski (1987) studied one inpatient program, her results revealed that women commonly leave treatment early due to the lack of childcare for dependent children. Rhoads (1983) notes that women, in general, report having small social networks with little to no friends. This suggests that women lack trusted individuals who they feel comfortable caring for their children while they seek inpatient treatment. It is likely that women do not want to involve the social service system in the caretaking of their children due to mistrust. It is clear that women need to feel secure about child care for their children in order to be successful in substance abuse treatment. In fact, Chan (1986) found that pregnant substance dependent women who had help with child care postpartum, in addition to prenatal care, had higher treatment retention rates. These mothers also had a stronger mother-child bond.

Qualitative data also indicates that child care is an issue for women seeking inpatient substance abuse treatment. Jessup, Humphreys, Brindis, and Lee (2003) conducted life history interviews with 36 women which examined help seeking behaviors prior to treatment enrollment. This research gave relevance to social barriers, such as child care, as opposed to solely focusing on a woman's motivation. Women included in the study came from 15 residential substance abuse treatment programs in California which cared for pregnant and parenting women. Entrance criteria into the study included being alcohol or drug dependent, at least 24 weeks pregnant or parenting a child under 12 months of age, and being at least 18 years old. Interviews were semi-

structured and asked one open-ended question: “Please tell me about the period of time before you entered treatment.” The interviewer was able to ask follow-up questions. The theme of preserving the family was prevalent amongst participants. One 20 year old mother described her difficulties in making the decision to go to treatment, “There was an opening for here [the treatment program]. But the only hardest part was I had to choose one kid... (crying) So... they (child welfare) came and got my ten-month-old, and my two-year-old came here... It’s not fair”. Barriers of participants in this study were similar to those of women in the present study. For instance, participants in the Jessup, et al. (2003) study noted that common difficulties included limiting the number and ages of children that could come with them to treatment and placing some children in foster care or in the care of other family members in order to enroll in treatment. Additional issues included one woman having to cease treatment for reunification with a child to continue, and another woman no longer qualifying for services due to losing Medicaid funding once her infant was placed in foster care.

Influence of Substance Use Disorders in Pregnancy and Postpartum Care

Substance use disorders (SUDs) are “...a cluster of cognitive, behavioral, and physiological symptoms indicating that the individual continues using the substance despite significant substance-related problems” (APA, 2013, p. 483). In the current study, all participants met the criteria for having a SUD. Further, an overarching goal of substance abuse treatment with pregnant women is to prevent babies from experiencing negative side effects from the mother’s substance use.

Effects of mother’s substance use on babies. Babies are affected by the substance use of their mothers as a fetus, neonate, and developing child. Pregnant women who use drugs such as heroin, methadone, amphetamines, PCP, marijuana, crack or powder cocaine risk giving birth

to addicted babies who undergo withdrawal, known as Neonatal Abstinence Syndrome (NAS) (March of Dimes Foundation, 2015b). Signs of NAS include convulsions, excessive crying, fever, sweating, tight muscle tone, trouble sleeping, and hyperactive reflexes. Substance use during pregnancy can affect the fetus in other ways as well. For example, cocaine use in pregnancy can cause placental abruption, intra-uterine growth restriction, low birth weight, premature delivery, smaller head circumferences, and shortness in length (March of Dimes Foundation, 2015b).

Alcohol use during pregnancy can also cause complications for the fetus and neonate (Centers for Disease Control & Prevention, 2015). Alcohol ingested by mothers crosses the placenta to the fetus and because the fetus is smaller, alcohol is broken down more slowly, leaving the fetus to have higher exposure rates than the mother (American Pregnancy Association, 2013). Consumption of alcohol during the first trimester increases the chance of the fetus aborting (Kesmodel et al., 2002), and use throughout pregnancy increases the risk of pre-term labor (Kesmodel, Olsen, & Secher, 2000). The impact of alcohol on the fetus can lead to fetal alcohol disorders.

Fox et al. (2015) indicate that there are approximately 0.2 to 1.5 cases of Fetal Alcohol Syndrome for every 1,000 live births, but the rate of Fetal Alcohol Spectrum Disorders may be three times more than that of Fetal Alcohol Syndrome. Fetal alcohol spectrum disorders (FASD) comprises several diagnosis including “fetal alcohol syndrome” and “fetal alcohol effects” (American Pregnancy Association, 2007). “Fetal alcohol effects” includes alcohol-related neurodevelopmental disorder and alcohol-related birth defects. All FASDs are the result of alcohol consumption during pregnancy and therefore preventable. Fetal alcohol spectrum disorders are characterized by physical, learning, and/or behavioral problems (Centers for

Disease Control and Prevention, 2015). A diagnosis of Fetal Alcohol Syndrome must include facial abnormalities, growth deficits and central nervous problems (Department of Health and Human Services, 2004). Symptoms of Fetal Alcohol Syndrome include abnormal features of the face and head, such as a small head circumference, small eyes, flattened bridge and short length of nose, as well as flattening of the vertical groove between the nose and mouth. Other classifications include signs of central nervous system abnormalities, eye defects, heart defects, decreased muscle tone, poor coordination, and poor growth in utero and postpartum (U.S. National Library of Medicine, 2013). Further, the March of Dimes (2015a) points out that alcohol exposure in utero can also cause problems related to vision or hearing, learning and behavior, sleeping and sucking, and speech and language. It is clear that substance use during pregnancy has wide reaching impacts on the fetus that will affect development across the lifespan.

Hull and colleagues (2010) discuss other issues that are more likely to affect prenatal cocaine abusing women, such as poly-substance use, psychiatric symptoms and comorbid disorders, and co-occurring environmental risk factors. For example, nicotine is substance that is likely to be used by pregnant cocaine using women. In fact, prevalence rates of nicotine use by substance using pregnant women ranges from 77 to 99 percent (Haller, Knisely, Dawson, & Schnoll, 1993). Not only does nicotine use produce its own side effects in mother and baby, but it is a factor in predicting length of stay for the infant in a neonatal intensive care unit (Miles, Lanni, Jansson, & Svikis, 2006).

Psychiatric symptoms of depression are also an issue (Hull et al., 2010; Lovejoy, Graczyk, O'Hare, & Neuman, 2000), as rates of substance abuse are elevated for prenatal cocaine abusing women (Rayburn & Bogenschutz, 2004). However, it is unclear if a mother has

a co-morbid disorder of depression or if her emotions are the result of hormonal changes in pregnancy or postpartum. Grella and Joshi (1999) note that cocaine abusing pregnant women who also have what was referred to as an axis one disorder in the DSM-IV-TR are at an increased risk for having symptoms that are worsened because of: (a) hormonal fluctuations, (b) breastfeeding, (c) stress of labor and delivery, and (d) meeting the needs of an infant exposure to substances in-utero. Lovejoy et al. (2000) found that higher rates of depression in non-substance using pregnant women negatively impact mother-infant bonding and attachment. Lastly, Hull and colleagues (2010) discuss environmental factors that contribute to poor outcomes for mother and baby. Issues that affect cocaine using pregnant women include poor nutrition, domestic violence, poverty, insufficient medical care, and prolonged medical concerns like HIV and asthma (Singer, Farkas, & Kliegman, 1992; Velez, Montoya, Jansson et al., 2006). All of these issues will have an effect on infants as they progress across their lifespan.

Many of the issues discussed above also have a substantial impact on the mother's attitudes and abilities to breastfeed. Breastfeeding should be recommended and supported whenever it is safe for mother and infant due to its various benefits. The American Academy of Pediatrics (2012) suggests that infants should be breastfed or receive breast milk at least through the first six months of life. As infants develop and are introduced to solid food, it is recommended that mothers continue to offer breast milk to their infants through the first year of life. Lawrence and Lawrence (1999, as cited in Lawrence, 2000) describe the benefits of breastfeeding including, "species specificity and the fact that human milk is engineered specifically for the needs of the human infant; the nutritional advantages of human milk; its anti-infective properties; its immunologic properties; its allergy protective properties; and the special mother-infant interaction provided by the process of breastfeeding itself" (p. 519). The U.S.

Department of Health and Human Services, Office on Women's Health (2012) reports that breastfeeding is associated with lower risk of health concerns in infants. These include a lower risk of ear infections, stomach viruses, respiratory infections, atopic dermatitis, asthma, obesity, Type 1 and 2 diabetes, childhood leukemia, and necrotizing enterocolitis, which is a gastrointestinal disease typical in preterm infants.

In addition to the above benefits, mothers of methadone-exposed infants who breastfeed help reduce the symptoms of Neonatal Abstinence Syndrome in length and also the amount of medications, like morphine, that must be used to assist with neonatal withdrawal (McQueen, Murphy-Oikonen, Gerlach, MSc.Kin, & Montelpare, 2011). Unfortunately, women on methadone maintenance continue to experience many barriers that prevent them from breastfeeding such as varying advice from medical professionals; infant feeding problems due to in-utero drug exposure; infants staying long periods of time in the hospital separated from their mother; and the mother having low self-esteem, limited knowledge on breastfeeding, or guilt due to their substance use while being pregnant (Dryden, Young, Hepburn, & Mactier, 2009; Jansson, Velez, & Cheryl, 2004). Medical and mental health providers should offer mothers with substance use disorders the level of support needed to successfully breastfeed their infants.

D'Apolito (2013) researched the concerns amongst health care professionals when recommending breastfeeding to mothers with substance use disorders. The major concern was the safety of the infant. D'Apolito (2013) concludes that women in a methadone maintenance program should be encouraged to breastfeed. However, more research is needed for women who are receiving buprenorphine (Subutex). Marijuana, cocaine, alcohol, and heroin were also reviewed, with the recommendation that women who continue to use these substances recreationally should not be advised to breastfeed. The one exception is women who are able to

use alcohol in moderation and wait an acceptable amount of time before breastfeeding. The Academy of Breastfeeding Medicine Protocol Committee (2009) outlines specific recommendations for making the decision to recommend breastfeeding drug dependent women. Perhaps the most important point is the need for all professionals involved in the woman's care to work as an interdisciplinary team (Academy of Breastfeeding Medicine Protocol Committee, 2009). The committee recommends that drug-dependent breastfeeding women be carefully monitored through substance abuse treatment, psychiatric care, and postpartum care.

Breastfeeding is only one area that is affected by substance use. Pregnant women are also negatively impacted by consequences related to substance use. For example, social stigma towards substance abuse inhibits women from pursuing prenatal care, and if women do seek care, they are often embarrassed and make an effort to mask their substance use (Ashley, Marsden, & Brady, 2003). Lack of prenatal care contributes to prenatal morbidity and mortality (El-Mohandes, Herman, El-Khorazaty, Katta, White, and Grylack, 2003), which leads to the women needing long-term support to cope with the results of substance use during pregnancy. In summary, substance use during pregnancy has a negative effect on the fetus, the mother, and has long-term effects on their families and society as a whole. Motivational interviewing is an established and effective means of treating substance using pregnant and postpartum women (Ondersma, Chase, Svikis, & Schuster, 2005).

Motivational Interviewing

The most recent definition of motivational interviewing (MI) is “a client centered, directive method of communication for enhancing intrinsic motivation by exploring and resolving ambivalence about a particular change” (Miller & Rollnick, 2013). Motivational

interviewing was chosen due to its ability to intervene in a brief, effective manner, utilizing the natural change process (Deci & Ryan, 2000; Miller & Rollnick, 2013; Rollnick & Miller, 1995).

Natural change occurs in any individual's daily life. As individuals discuss change, we are aware when verbal language and body language signal reluctance, willingness, and commitment (Deci & Ryan, 2000; Miller & Rollnick, 2013). Motivational interviewing seeks to promote the natural change process by having more effective conversations about behavior change. Counselors arrange conversations so that clients base change on their own values and interests. Importance is placed on counselors' communication style, as this impacts their ability to facilitate change. The counselor's job, when implementing MI, is to listen and then offer expertise when needed. Counselors communicate to clients that they trust the wisdom that clients hold about themselves and that clients can work towards change in their own way.

Counselors may experience the righting reflex, as they hope to get individuals quickly on the road to recovery. The righting reflex is when counselors attempt to argue for the change as opposed to recognizing the ambivalence that is naturally occurring for clients. Clients are able to see reasons for change as well as reasons to not change. At this point, clients engage in change talk, which is in favor of change, and also in sustain talk, which is in favor of not changing (Amrhein, Miller, Yahne, Palmer, & Fulcher, 2003).

Another concern is the Pygmalion Effect. The Pygmalion Effect says that individuals will behave in ways that others expect of them. When counselors believe clients are willing and able to create change, they act accordingly (Miller & Rollnick, 2013). In addition to the natural change process, MI endorses a way of being - - the "spirit" of MI.

The spirit of MI is based on three elements, autonomy, collaboration, and evocation (ACE) (Gaume, Gmel, Faouzi, & Daeppen, 2009; Miller & Rollnick, 2013; Rollnick & Miller,

1995; Wagner & Ingersoll, 2012). The spirit of MI was needed in the current study to establish strong therapeutic relationships with clients in a short amount of time and in a group setting. Autonomy is the notion of being self-governed. Counselors need to emphasize client autonomy to facilitate change. Motivational Interviewing respects the notion that power for change lies within clients and only clients can make change occur. Counselors provide clients with the understanding that there are multiple paths to change, and encourage them to develop their own set of options for how to best achieve their desired outcome.

Collaboration is the partnership that exists between clients and counselors. Counselors collaborate with clients instead of taking the stance of expert. Counselors build rapport with clients, which in turn develops trust in the therapeutic relationship. Counselors may not necessarily agree with clients, but the focus is on mutual understanding.

Evocation is based on counselors having the ability to bring out the client's own ideas and thoughts, resisting any impulses to impose their own opinions. It is important that counselors understand that motivation and commitment to change are most influential when they arise from clients. In addition to the style of MI, there are four principles that guide MI which include expressing empathy, amplifying ambivalence, rolling with resistance, and supporting self-efficacy.

When counselors express empathy, they attempt to think, feel, and share in the client's experiences. Counselors also make every attempt to amplify ambivalence. Counselors achieve this by developing discrepancy by highlighting differences between where clients are and where they want to be in the future. Counselors who gently distinguish the difference between what clients want and value and what they are currently experiencing will make great strides towards

assisting clients in the change process (Gaume, et al., 2009; Miller & Rollnick, 2013; Rollnick & Miller, 1995; Wagner & Ingersoll, 2012).

Rolling with resistance involves counselors avoiding the resistance of clients by not using direct confrontation, and working diligently to de-escalate situations to avoiding negative interactions (Moyers & Rollnick, 2002; Rollnick & Miller, 1995; Wagner & Ingersoll, 2012). There is great value in clients deciding what issues and new perspectives to explore so that counselors are never imposing their own way of thinking. For example, when working with pregnant substance using women, a simple reflection, repeating what the client has said in a different, neutral manner, allows the counselor to remain neutral, but may also elicit more thought from the client and allow them to gain a new perspective.

Supporting self-efficacy is the last principle of MI. When a counselor supports self-efficacy, they acknowledge that clients are fully capable of making a change on their own. Clients believing they can create their own change must be supported by counselors to facilitation movement through the change process. Counselors can promote self-efficacy by focusing on clients' past success, skills, and strengths (Moyers & Rollnick, 2002; Rollnick & Miller, 1995; Wagner & Ingersoll, 2012). In addition to the four principles which guide MI, there are specific counseling skills as well.

Motivational Interviewing counseling skills includes open ended questions, affirmations, reflections, and summaries (OARS). These skills assist in bringing about the spirit of MI and demonstrate the principles of MI. The purpose of OARS is to deepen the therapeutic alliance and elicit discussions about change. Open ended questions allow clients to elaborate in their responses and think deeply about their behavior (Moyers & Rollnick, 2002; Resnicow & McMaster, 2012; Rollnick & Miller, 1995; Wagner & Ingersoll, 2012).

Affirmations build rapport with and acknowledge clients' strengths. Counselors working with a pregnant or postpartum substance using women may consider utilizing affirmations that are truly genuine in nature, building the therapeutic alliance and showing support of clients' accomplishments. An example of an affirmation may be making a simple statement such as, "The way you handled that situation showed a lot of strength!" (Sobell & Sobell, 2008).

Reflective listening allows counselors to express empathy and let clients know that they are understood. Sobell and Sobell (2008) offer several examples of reflective listening which includes statements like, "It sounds like...", "What I hear you saying...", "On the one hand it sounds like..., but on the other hand it sounds like...".

Finally, summaries are especially helpful during transitions in conversations with clients. Summaries clarify what's been said and facilitate change. As counselors implement specific MI skills, they should also pay attention to client use of sustain talk or change talk (Moyers & Rollnick, 2002; Resnicow & McMaster, 2012; Rollnick & Miller, 1995; Wagner & Ingersoll, 2012).

As discussed previously, sustain talk focuses on remaining the same and change talk focuses on the client's commitment to change. Change talk is often conceptualized by the acronym "DARN CAT", with "DARN" consisting of the preparatory change talk of desire, ability, reason, and need and "CAT" consisting of implementing change talk which includes commitment, activation, and taking steps. The counselor's job is to evoke change talk by: (a) asking open-ended questions; (b) asking for elaboration and examples that look back to a time before the behavior (e.g., substance use) was an issue; (c) looking forward to a future without the behavior; (d) discussing the best and worst case scenarios of remaining the same versus changing; and (e) exploring goals and values and then siding with the negative side of

ambivalence in order to elicit change talk from clients. Motivational Interviewing is used in various research studies with pregnant and postpartum substance using women as a way of facilitating change (Moyers & Rollnick, 2002; Resnicow & McMaster, 2012; Rollnick & Miller, 1995; Wagner & Ingersoll, 2012).

Motivational Interviewing and Treatment of Perinatal Population

Haug, Svikis and Diclemente (2004) studied the effectiveness of motivational enhancement therapy (MET; a form of MI) with 67 nicotine dependent methadone maintained pregnant women. Participants' were smoking cigarettes at least five times daily and were twenty-six weeks or less in gestational age. The Project MATCH Motivational Enhancement Therapy manual was used by researchers to assist the participants in nicotine reduction and/or cessation. Participants received four sessions: (a) Building Rapport; (b) Recognizing risk factors (e.g., current smoking habits, negative consequences of smoking, and stage of change); (c) Developing a plan for change and increasing motivation for change; and (d) Overcoming barriers. Results revealed movement through the stages of change. More specifically, the women's readiness for change increased.

Research conducted by Ondersma, Chase, Svikis and Schuster (2005) supports the utilization of MI with pregnant and postpartum substance using women. Ondersma, et al. (2005) describe a series of studies using a computer-based brief motivational intervention, Motivation Enhancement System (MES), with a drug using perinatal population. Study 1 focused on the feasibility and acceptability of MES. The sample included 30 postpartum women enlisted from an urban obstetric hospital; 10 were mothers recruited from a substance abuse facility, and 7 were women commissioned from a methadone maintenance program. The measurement tool was a 7-item, self-report, Likert scale (1 = "not at all" to 5 = "very much") used to determine how

much participants liked the MES, and to what extent they found it “interesting, easy to use, made up of understandable questions, respectful, bothersome and humorous” (Ondersma, et al. 2005, p. 306). The MES has a series of questions with attractive graphics and a cartoon character that narrates the experience for the user. The MES is based on MI and includes information concerning the adverse ramifications of drug use, the positives and negatives of continued drug use versus stopping all use, a summary/inquiry of participants’ interest in changing, and an option for setting goals regarding their use of substances. Results showed that participants generally liked the MES and thought that it was easy to use and understandable (rating = 5.0 out of 5), as well as interesting (rating = 4.1 out of 5).

Ondersma, and colleagues’ (2005) second study included women who had recently delivered babies at a large, urban obstetric hospital and who reported using illicit drugs one month prior to pregnancy. Participants used a laptop computer with a touchscreen to enter data. Motivation was assessed by asking participants about the likelihood of their using drugs, recognizing a drug problem, and motivation for treatment. The intervention was modified based on the results of study 1 to make the MES most pleasing to the majority of participants. Motivation was assessed before and after the three-part intervention (i.e., pros and cons, feedback, goal setting). Results showed that motivation was higher after the three intervention components than at baseline. On average, motivation increased 60.8%, establishing MI as a successful intervention in identifying perinatal substance using women and promoting change and/or involvement in treatment. The present study utilized 8 sessions of Motivational Interviewing, noting that the brief Motivational Enhancement System was effective.

Thyrian et al. (2007) discussed factors related to client success and MI. Researchers posed two questions: (a) Is there a relationship between client characteristics (i.e. age, education,

etc.) and therapist adherence to the principals of MI? and (b) Is there a relationship between the principles of MI and intervention outcome? One-hundred sixty-one (N = 161) participants were randomly assigned to the intervention group and the control group. Participants in the intervention group who acknowledged they smoked nicotine cigarettes prior to pregnancy received an initial counseling session in their homes. Additionally, participants received follow-up phone calls at four and twelve weeks post-baseline. Results revealed a positive relationship between counselors having “good” adherence to the principles of MI and the likelihood of participants being a non-smoker six months post-baseline. Thyrian et al. (2007) note that future research should ensure that researchers and staff strictly adhere to the principles of MI. The present study trained group leaders in MI and provided ongoing supervision to ensure adherence to MI principles, style and techniques.

Another study supporting the use of MI (in combination with cognitive behavioral therapy) was conducted by Fleming, Lund, Wilton, Landry, and Scheets (2008). Eight-thousand seven-hundred and six women completed a health screening survey. Of those, 1,209 screened positive for high risk drinking. Nine hundred sixty-nine women agreed to participate in the study. However, only 235 women met all admission criteria and were randomized to the control group (N = 113) or the experimental group (N = 122). Of these, some participants were unable to keep their obstetric appointments, leaving 99 participants in the experimental group. The study was a randomized clinical trial, with women being assigned to the “usual care” group or the “brief intervention” group. Thirty-four obstetrical clinics participated in the study. Receptionists at each site asked women who were over the age of 18 to complete the Health Screening Survey (Fleming & Barry, 1991), which was modified to include questions regarding alcohol use pre-pregnancy, during pregnancy, and post-partum. The Health Screening Survey asked general

lifestyle questions including questions on exercise, smoking, nutrition, and alcohol use. In addition to being 18 years old and seeking postpartum care, the women had to have consumed 20 or more standard size drinks within the past 28 days, four or more drinks on four or more occasions in the past 28 days, or at least 20 drinks in the previous 28 days. The intervention was based on the TrEAT Intervention Workbook (Fleming et. al., 1997), which is a combination of MI and cognitive behavioral therapy. The researcher or nurse implementing the intervention completed the workbook with participants during two face-to-face visits. Additionally, participants were asked to complete homework assignments which focused on high risk drinking situations, things they like about drinking, and things they did not like about drinking. Participants also completed drinking diary cards and follow-up phone calls were made to emphasize limits on drinking, to offer support, and to process challenges faced when decreasing drinking. Results were based on a regression model which controlled for baseline alcohol use, age, education, smoking status, depression, breastfeeding, and partner alcohol use. Primary outcome variables included total number of drinks in the past 28 days, number of drinking days in the past 28 days, and the number of heavy drinking days in the past 28 days. Women in both groups reduced their alcohol use between baseline and 6-month post-randomization. Furthermore, there were statistically significant differences between the intervention and control group, with the intervention group having 19% less total drinks, 21% less number of drinking days, and 36% less in number of heavy drinking days. Ultimately, this study suggests that a brief intervention based on MI can reduce alcohol use in postpartum women. The current study builds on this suggestion utilizing a brief (8 sessions) MI protocol with pregnant and postpartum substance using women.

Motivational Interviewing with Perinatal Population in an Integrated Healthcare Setting by Mental Health Professionals

Motivational interviewing (MI) substance abuse treatment for pregnant and postpartum women concurrent with health education is imperative to ensuring that women are receiving holistic treatment. Although it seems logical for medical professionals, such as physicians, nurses, and health educators to provide MI during their medical appointments with substance using pregnant women, the literature suggests that this may not be the best option due to a lack of training, time, and resources (Handmaker & Wilbourne, 2001).

For instance, MI is typically provided by mental health professionals who have studied and trained extensively in counseling or psychology (Resnicow, DiIorio, Soet, Borrelli, Ernst & Hecht, 2002). In medical settings, it is more common for medical professionals to implement MI techniques (Doherty, Hall, James, Roberts, & Simpson, 2000). For example, medical professionals are trained to give advice as a means to changing patient health behavior (Goldstein, DePue, Monroe, Lessne, Rakowski, Prokhorov, Niaura & Dube, 1998). However, advice giving in an early stage of change increases patient defensiveness (Miller & Rollnick, 1991). Further, women who are resistant to treatment, or are undecided if they want to change, may be best helped by a mental health professional with extensive training in counseling and MI. Counselors trained in MI can create ambivalence in a non-judgmental manner, thus developing a strong therapeutic relationship and decreasing the potential for participant dropout of services. Medical professionals with less extensive training may have difficulty achieving the true spirit of MI or may lack the time to master the more advanced skills through training, practice, and supervision (Velasquez, Hecht, Quinn, Emmons, DiClimente, & Dolan-Mullen, 2000).

Morse and Hutchens (2000) report that obstetricians do not routinely integrate substance abuse screening, assessment, and counseling into their treatment. This is important because women will engage in counseling when it is part of prenatal care. Ultimately, mental health professionals should be integrated into prenatal care and education and focus their interventions on being a customary and efficacious part of the primary care setting (Saitz, Svikis, D’Onofrio, Kraemer, & Perl, 2006). Several researchers note that having a multidisciplinary team of medical and mental health professionals is the best way to provide services since professionals can work in partnership (Tanney & Lowenstein, 1997).

Not all researchers and practitioners support integrated care settings. Handmaker and Wilbourne (2001) propose mental health and medical professionals working in an integrated setting, although ideal, is not realistic. They suggest the use of “A Stepped Care Model for Prenatal Settings” that includes five steps after an obstetric examination is completed. These include screening, comprehensive assessment, assessment feedback, increased motivation, alcohol and psychosocial treatment, and monitoring. The first step involves health care practitioners administering an initial assessment that is short, but accurately identifies problem drinking. In the second step, an additional assessment along with advice giving is administered if problem drinking occurring. Handmaker and Wilbourne (2001) suggest that this step may help “lighter drinkers”. In the third step, MI is used by healthcare practitioners to “negotiate” with the patient for change. “A Stepped Care Model for Prenatal Settings” is in keeping with the spirit of MI including client autonomy and collaboration with the client, as opposed to persuasion or advice giving. To conclude the model, Handmaker and Wilbourne (2001) suggest that health care practitioners refer their patients to the appropriate treatment and monitor patient progress. Although it would be beneficial for healthcare practitioners to have training in MI, it is important

that we do not hinder patients from moving forward through the stages of change. Providing advice giving, which is seen in stage three of “A Stepped Care Model for Prenatal Settings” could increase patient defensiveness and resistance if given earlier in the process. Further, it is unrealistic to expect healthcare practitioners to learn broad skill sets in general counseling and MI. Velasquez, Hecht, Quinn, Emmons, and DiClimente (2000) point out that the ability to master the advanced MI skills is not feasible. Health practitioners who provide MI may only exhibit technical skills, and may be unable to project the full spirit of the intervention (Resnicow et al., 2002). Therefore, mental health professionals should provide MI to pregnant women in settings where women are also receiving perinatal education or care. The present study utilized the expertise of health care professionals (i.e., master’s level nurses) to assist with the start-up of perinatal education, however, after establishing the clinic, mental health professionals facilitated MI and perinatal education groups in order to assist with the development of a strong therapeutic alliance that focused on developing ambivalence and lessening resistance in participants.

Motivational Interviewing for Substance Use Treatment with Perinatal Population in an Integrated Setting

Saitz et al. (2006) suggests brief interventions, such as motivational interviewing (MI), implanted in healthcare settings promotes early identification of alcohol problems and sustainability of integrated care programs. Saitz and colleagues (2006) report many individuals with alcohol related problems are never identified because screening and referrals are not taking place in healthcare settings. Mental health professionals should seamlessly connect to the medical world by being incorporated into the daily flow and provide counseling and case management services. In the present study, perinatal nurse educators and counselors were going to an inpatient perinatal substance abuse program to offer education and counseling to clients.

Jones, Svikis, Rosado, Tuten, and Kulstad (2004) were the first to explore MI and behavioral incentives with a pregnant population who were not seeking drug treatment. One hundred-twenty pregnant women agreed to participate in the study. Ninety (90) women self-reported drug use in the past thirty days or had a positive urine screen for cocaine, heroin, and/or marijuana. Researchers recruited women receiving obstetrical care at Johns Hopkins Hospital who were at least eighteen years of age and were present for their first prenatal visit. The study's staff had a minimum of a bachelor's degree in psychology or related field and some experience with substance abuse counseling or MI. There were three groups of pregnant women who enrolled in the study; 31 women received MI and behavioral incentives, 59 women received MI, behavioral incentives, and case management, and 30 women were in a drug-free control group. Women in the case management group received assistance accessing resources for services which they identified. Participants received a \$25 gift certificate for completing the pre-treatment interview. The two groups consisting of women who used illicit drugs received a four-hour semi-structured interview, weekly individual sessions for four weeks and incentives for drug free urine screens. Women could discuss life issues or their drug use. The drug-free control group completed a semi-structured interview but no individual sessions. Women in the drug-free control group also received incentives for producing negative drug screens. Results from the group which included case management showed a decrease in all self-identified psychosocial needs (mental health counseling, housing, and transportation) except employment and legal services. Other results revealed that attendance was similar for the intervention groups. That is, both groups had lower attendance rates than the drug-free control group. Negative urine screens were 100% for the drug-free control group, 41% for the MI and behavioral intervention group, and 54% for the MI, behavioral incentives, and case management group. There was a significant

difference in sustained drug abstinence between the MI and behavioral incentives group and the group that included case management. The researchers found that women in the case management group were able to provide two negative drug screens significantly more often than women in the MI and behavioral incentives group. These findings show promise for the current study since the women received MI group and/or individual sessions as well as case management as needed.

Armstrong et al.'s (2003) Early Start Program studied 6,774 women who delivered babies between July 1, 1991 and June 30, 1998. The study's instrumentation was the Early Start Prenatal Substance Use Screening Questionnaire. The Early Start Program had a therapist embedded in the prenatal clinic. This allowed for the therapist to be a key member of the participant's team. Participants were placed in one of four groups: the Screened, Assessed, and Treated (SAT) group, the Screened and Assessed (SA) group, the Screened only (SO) group, and the control group. Women received various substance abuse treatments including MI, cognitive-behavioral therapy, and psychodynamic therapy. The study's outcomes included neonatal assisted ventilation, low birth weight, preterm delivery, and Neonatal Intensive Care Unit admission. Results indicated that infants' whose mothers were in the SAT group did as well as infants in the control group when measuring rates of assisted ventilation, birth weight, and preterm delivery.

Armstrong's et al. (2003) study although convincing, had limitations. For instance, the study was an archival field study which was not randomized. Further, the researchers indicated that they could not be certain that positive results were not affected by the positive social support received by mothers or any intensified awareness given to mothers by medical professionals in the clinic. Although the Armstrong's et al. (2003) study is similar to the present study, it does not

look specifically at MI. The present study will also need to take into consideration the confounding variable of the relationships that developed between group members, noting that the support received from group members may affect the prediction of the number of treatment sessions women will attend.

Yonkers et al. (2009) adapted a manual for behavioral treatment to include aspects of MI and cognitive therapies. This study was similar to the Armstrong and colleagues (2003) study in that treatment was concurrent with medical appointments. However, therapy was delivered by medical professionals (four nurses and a medical student). There were six structured sessions. Each session allowed ten minutes to review homework from the last session, ten minutes for skill training, and ten minutes to assign homework and introduce the next week's topic.

Session one used MI to explore reasons for reducing substance use and to develop a list of activities that did not involve using substances. In session two, the counselor completed a substance use functional analysis, documenting the antecedents, behaviors, consequences and client triggers for use. Session three focused on health risks related to substance use.

Communication and refusal skills were discussed in session four, and session five concentrated on relapse prevention techniques. During the final session, the clinician conducted a life assessment and assists clients with developing future goals related to education, employment, housing, recovery, etc.

Fourteen women were offered treatment throughout the course of their pregnancy and no limits were placed on the number of sessions. Results showed a decrease in the number of days of drug use in the past month by half. This study had several limitations including a small sample size, no comparison group, and low levels of substance use within the sample. The Yonkers et al.

(2009) study is similar to the present study, but the present study focused on group MI counseling sessions.

Statement of the Problem

Research supports that pregnant substance using women have the highest rates of use in their first trimester. Generally, they decrease their usage through the third trimester but resume elevated rates of substance consumption within three months postpartum (SAMHSA, 2009). Research also shows that gender and pregnancy specific integrative, holistic care based in MI is effective when treating pregnant and postpartum substance using women (Greenfield et al., 2007). Further, there is research on client variables, such as number of living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity, which may have an impact on the number of treatment sessions pregnant and postpartum women will attend. Missing from the literature is research that looks at these variables simultaneously to determine the number of treatment sessions completed by pregnant and postpartum women with substance use disorders. The present study is interested in this set of variables that may inhibit women from completing treatment sessions.

In the current study, the women were from rural North Carolina, where there is a lack integrative care sites, and predictors of dropout, such as number of living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity may be amplified due to a smaller population. Using baseline psychological and demographic data, the present study sought to predict the number of group counseling sessions pregnant substance using women would complete. The information gained from the present study is beneficial to clinicians working with pregnant and postpartum women because the findings provide information that make treatment more effective and efficient for clients.

Purpose of the Study

The purpose of the present study was to explore the relationship between number of living children, number of previous treatment attempts, level of mental distress, level of behavioral complexity, and the number of motivational interviewing group sessions completed by pregnant and postpartum substance using women. Results provide the basis for using the variables as predictors of attendance at an inpatient perinatal substance abuse group, thus facilitating progress and enhancing the ability of the counselor to provide emotional clinical support and case management when clients need it most allowing them to remain in treatment. In turn, pregnant and postpartum substance using women who remain in treatment have improved pregnancy and postpartum outcomes for the mother and baby (Burgdorf et al., 2004).

Theoretical Rationale

Transtheoretical Model of Change

The Transtheoretical Model (TTM) developed by Prochaska and DeClemente (1982), focuses on purposeful change and the decision-making process which occurs when modifying behavior. The TTM was developed through a systemic analysis and integration of over 300 counseling and behavior change theories (Prochaska & Velicer, 1997). The critical assumptions are:

1. No single theory can account for the complexities of behavior change. Instead, a comprehensive model will integrate various theories.
2. Behavior change occurs over a period of time through a series of sequential stages. Stages are stable and open to change.
3. To promote change, there are specific processes and principles of change that should be highlighted at specific stages of change.

4. Most at-risk populations (e.g., pregnant substance using women) are not prepared for action and therefore will not receive effective treatment if served in traditional behavior change programs (Prochaska & Norcross, 2014).

The TTM posits that change in behavior occurs through a succession of stages: Precontemplation, Contemplation, Preparation, Action, Maintenance, and Termination (Glanz et al., 2008). During the precontemplation stage, individuals are unaware of the problem behavior (e.g., problematic substance use) or the negative consequences of the behavior. Therefore, they have no intention of acting towards change. In counseling, they tend to be avoidant and lack motivate.

In the contemplation stage, individuals are thinking about change but are not committed to action (Glanz et al., 2008). These individuals are weighing the pros and cons of changing which can produce uncertainty that may prohibit individuals from moving forward with behavior change.

During the preparation stage, individuals plan to take action in the near future (Glanz et al., 2008). These individuals have a specific plan and sometimes have taken small steps towards change. Individuals in the action stage have made specific, observable behavioral changes. It is important to note that the TTM definition of behavior change is complete abstinence as opposed to a reduction in behavior. Only abstinence from the behavior equates to quitting the behavior.

Individuals in the maintenance stage are striving to prevent relapse (Glanz et al., 2008). They are less tempted to return to previous behavior and become progressively more confident that they will continue their behavior change. The maintenance stage typically lasts six months to five years.

The final stage, termination, is when individuals have confidence in their ability to maintain change (Glanz et al., 2008). They no longer experience the temptation of returning to their previous behavior even when experiencing various emotional states. New behavioral patterns now seem automatic to the individual.

The TTM has ten processes of change that individuals use when moving through the stages of change (Glanz et al., 2008). This includes consciousness raising, dramatic relief, self-reevaluation, environmental reevaluation, self-liberation, social liberation, counterconditioning, stimulus control, contingency management, and helping relationships. These processes assist counselors in guiding treatment and are discussed in chapter two.

Other constructs of the TTM include, decisional balance, self-efficacy, and temptation (Glanz et al., 2008). Decisional balance occurs when individuals are weighing the pros and cons of the behavior change. Self-efficacy is the faith individuals have that they can cope with difficult situations without relapsing. Temptation relates to the desire to engage in the old behavior. Temptations may arise due to emotional distress, social situations, and cravings. The style of motivational interviewing is one way to approach high risk populations who are in the beginning stages of change.

Research Questions and Definitions of Terms

Research Question 1

How does the number of living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity predict the number of sessions completed by perinatal substance using women participating in an inpatient manual based motivational interviewing counseling and perinatal education group?

Research Question 2

Is there a positive relationship between positive attitudes towards breastfeeding and number of sessions attended?

Definitions of Terms

Substance Use Disorder (SUD): Substance use disorders (SUDs) are “...a cluster of cognitive, behavioral, and physiological symptoms indicating that the individual continues using the substance despite significant substance-related problems” (APA, 2013, p. 483).

Motivational Interviewing: “A collaborative, goal-oriented style of communication with particular attention to the language of change, designed to strengthen personal motivation for and commitment to a specific goal by eliciting and exploring the person’s own reasons for change within an atmosphere of acceptance and compassion” (Miller & Rollnick, 2012, p. 29).

Perinatal: A woman who is pregnant or has delivered a baby within the past 365 days (e.g. postpartum).

Other Living Children: Number of children, not residing at the inpatient facility, that were birthed by the participant.

Previous Treatment Attempts: Mental health or substance abuse treatment, either inpatient or outpatient, received by the participant including past treatment at Walter B. Jones Alcohol and Drug Center.

Mental Distress: Based on the Internal Mental Distress Scale on the Global Appraisal Individual Needs-Short Screener (GAIN-SS), mental distress is “... a count of past-year symptoms related to internalizing disorders, including somatic, anxiety, depression, traumatic stress, and suicide thoughts...” (Dennis et al., 2006, p. 83).

Behavioral complexity: Based on the Behavior Complexity Scale in the GAIN-SS behavioral complexity is “... is a count of past-year symptoms related to externalizing disorders, including attention deficit, hyperactivity/impulsivity, and conduct disorder...” (Dennis et al., 2006. p. 83).

Study Justification

Women need substance abuse treatment at the prenatal and postpartum junctures in order to obtain sobriety while pregnant and maintain this sobriety in order to combat the current statistics which show an increase in substance use postpartum (SAMHSA, 2009). Sobriety throughout pregnancy and postpartum is beneficial for the health of the child as well as the parent-child relationship. In the present study, nurses from Vidant Medical Center and graduate students from the Department of Addictions and Rehabilitation Studies worked together to provide group sessions specifically geared for substance using pregnant and postpartum women at Walter B. Jones Alcohol and Drug Center.

The ability to predict the number of sessions that pregnant substance using women are likely to complete based on confounding client variables is important to know in order to adequately support each woman in treatment. Substance abuse counselors can use this information in treatment planning, projecting when a pregnant woman may be at risk for dropping out of treatment and then intervening accordingly. Increasing retention rates of substance using pregnant and postpartum women in treatment may assist with initial health outcomes for babies who have been exposed to substances in utero, as well as possibly reduce the long-term effects from substance exposure.

Significance of the Study

The intention of the current study was to predict the number of group counseling sessions pregnant and postpartum women will attend. The group utilizes motivational interviewing and spans across eight modules. Having the ability to predict how many sessions women will complete offers valuable information to clinicians. Clinicians can support substance using pregnant and postpartum women better if they can assess the baseline data of women, predict likely outcomes, and provide clinical support to prevent dropout. Treatment completion may offer women an opportunity for healthier outcomes for themselves and their infants.

Perhaps the first step a pregnant substance using woman can take to develop a healthy lifestyle for her and her baby is to obtain sobriety and seek prenatal care. Radcliffe (2011) notes the importance of service delivery and highlights the need for nurse specialization in substance use as well as nurse training on opiate substitution therapy, and lifestyles of substance using pregnant women.

Researchers emphasize pragmatic solutions for accessible services should be put in place to better serve substance using pregnant women (Kipnis, Davidoff, Ernst, & Matzdorph, n.d.). Pragmatic solutions to issues (i.e., lack of information concerning breast feeding, level of mental and behavioral distress) facing pregnant and postpartum women can be identified when predictions regarding the number of sessions women will attend can be made. With this information, clinicians are able to support women in removing the obstacles that prevent women from completing treatment.

Chapter Summary

This chapter presented the purpose of the study, which was to explore the relationship between number of living children, number of previous treatment attempts, level of mental

distress as measured by the GAIN-SS, and level of behavioral complexity as measured by the GAIN-SS, with the number of sessions completed among pregnant and postpartum women participating in a manual based motivational interviewing counseling and perinatal education group. Rates and impact of substance abuse during pregnancy in the United States and North Carolina were presented. The statement of the problem highlighted the lack of research concerning the number of sessions pregnant and postpartum women are likely to complete based on a set of client confounding variables, noting that the predicting of sessions would allow clinicians to provide effective and efficient interventions to assist with treatment completion. A review of the theoretical foundation which guides this study was discussed. The chapter closed with justification and significance of the study. Chapter Two provides an exhaustive review of research on outcome factors for substance using pregnant and postpartum women.

CHAPTER 2: LITERATURE REVIEW

Introduction to Literature Review

In the preceding chapter, substance use during pregnancy was recognized as a serious problem. Motivational interviewing (MI) was established as an effective treatment for pregnant and postpartum substance using women. Integrative, holistic care, which includes mental health clinicians trained in MI in partnership with healthcare professionals, was suggested as the preferred treatment option for perinatal substance using women. Further, pregnant women who receive substance abuse treatment have more positive outcomes than pregnant women who use substances and do not receive treatment (Armstrong, et al., 2003).

A review of the literature reveals that some women may receive motivational interviewing (MI) throughout their pregnancy by their health care provider. However, integrative care, where substance abuse treatment based in motivational interviewing is provided concurrent with prenatal education is scarce. What follows is an extensive review of current research on outcome factors for substance using perinatal women.

Theoretical Rationale

Transtheoretical Model

As discussed in chapter one, the Transtheoretical Model (TTM) supports the idea that behavior change occurs through six stages that include precontemplation, contemplation, preparation, action, maintenance, and termination (Glanz et al., 2008). The processes of change are the actions individuals utilize to move forward through the stages of change. Counselors can use the processes of change in treatment as a way to guide their interventions and assist individuals in facilitating change. Glanz et al. (2008) discuss ten processes that include consciousness raising, dramatic relief, self-reevaluation, environmental reevaluation, self-

liberation, social liberation, counterconditioning, contingency management, and helping relationships.

Consciousness raising involves detailed awareness about what causes the behavior, the effects of the behavior, and solutions of the behavior (Glanz et al., 2008). Counselors can intervene in ways that promote greater self-awareness for individuals including utilizing feedback, interpretations, and confrontations. Additionally, counselors may consider bibliotherapy to raise client awareness.

Dramatic relief allows clients to raise their emotional experiences, which should be followed by a reduction in affect (Glanz et al., 2008). For example, dramatic relief may allow an individual to experience negative feelings related their old behavior, like fear or anxiety, after hearing about the health risks such as using substances while pregnant or while breastfeeding (<http://www.prochange.com/transtheoretical-model-of-behavior-change>). Alternatively, an individual may feel inspired after hearing success stories from individuals in group counseling. Counselors can assist in increasing emotional experiences through utilizing interventions like role-playing, grief work, health risk feedback, and personal testimonies (Glanz et al., 2008).

Self-reevaluation involves clients using imagery that produces both cognitive and affective assessments of their self-image. Clients visualize themselves continuing with the behavior (e.g., using substances) and then visualize themselves without the behavior (e.g., in recovery). Counselor should consider interventions like value clarification during this process of change.

Environmental reevaluation also consists of clients engaging in self-assessments in a cognitive and affective nature. Clients increase their awareness of how engaging in the behavior impacts their social environment. One example would be the impact of substance use on others.

Glanz et al. (2008) point out that this process of change may also include the awareness that individuals can serve as a positive or negative role model to others. Counselors should consider utilizing empathy training, documentaries, and family interventions to increase clients' awareness of how their continued substance use impacts others.

Self-liberation is the fifth process of change, and this is when clients become aware of alternative behaviors and feel empowered to make new choices. This process of change also includes clients using resources in their environment to support change. For example, perinatal women may be introduced to resources such as Temporary Assistance for Needy Families (TANF) or Women, Infants, and Children (WIC). Self-liberation can be enhanced in therapy through the use of resolutions and testimonies (Glanz et al., 2008). In guiding treatment, counselors can consider advocacy and empowerment.

Counter-conditioning includes the individual learning new behavior that is healthier. The new behavior is a substitute for less healthy behavior. For example, when faced with stressful situations which trigger cravings to use substances, clients may use relaxation techniques until the cravings subside. Counselors can teach clients other interventions such as desensitization, and positive statements about self (Glanz et al., 2008).

Stimulus control is the process of taking away the cues for unhealthy habits. This process also includes prompts for alternative behaviors. Counselors may consider interventions such as encouraging client involvement in self-help groups or discussing ways clients can manage their environment to avoid negative cues (Pro-Change Behavior Systems, Inc., 2014).

Contingency management is the ninth process of change. Counselors may utilize reinforcement, contingency contracts, incentives and group recognition to assist with clients continuing in the change process. For example, counselors may encourage clients to engage

positive self-statements and self-rewards when they reach a milestone in their sobriety (Pro-Change Behavior Systems, Inc., 2014).

Helping relationships is the final process of change discussed (Glanz et al., 2008). Counselors aim to develop a strong therapeutic relationship in this process of change and should consider rapport building, counselor calls, and therapeutic alliances. Ultimately, counselors should consider where an individual is within the stages of change and then facilitate change through specific processes of change.

Prochaska, DiClemente, and Norcross (1992) identified which processes of change were most effective in facilitating movement in a given stage. For example, clients in the contemplation or preparation stages are best assisted by the self-reevaluation process of change. In the action stage, self-liberation is stressed and in the maintenance stage, counterconditioning, helping relationships, reinforcement management, and stimulus control are all processes of change that counselors should consider during treatment planning. See figure 1. Research supports that MI is an effective with the substance using perinatal population (Fleming, et al., 2008; Haug, et al., 2004; Ondersma, et al., 2005). The current study suggests that counselors' using the Transtheoretical Model (TTM) processes of change may mitigate client variables/barriers to treatment including having other living children outside of the inpatient setting, number of previous treatment attempts, level of mental distress, and level of behavioral complexity.

Pre-contemplation (Unaware)	Contemplation (Thinking about change)	Preparation (Doing homework)	Action (Making change happen)	Maintenance (Focusing on success)
<p>Consciousness Raising: Increasing awareness through information, education, and feedback about addiction, recovery, and pregnancy/infant care. <i>Interventions:</i> Bibliotherapy, Health risk feedback</p> <p>Dramatic Relief: Experiencing negative emotions (anxiety/worry about infant's health) because of behaviors during active addiction or experiencing positive emotions (inspiration, hope) when hearing others success in recovery and/or child care. <i>Interventions:</i> Grief work, Personal testimonies</p> <p>Environmental Reevaluation: Realizing how one's addiction affects others (e.g., infant) and how recovery could have a positive impact on one's life. <i>Interventions:</i> Family and baby impact discussions</p>	<p>Self-Reevaluation: Realizing that the recovery behaviors are an important part of who one is or who one want to become (e.g., a mother who is clean and sober). <i>Interventions:</i> Cognitive Imagery (e.g., "Imagine what a typical day was like during active addiction. Now imagine what a typical day is like in recovery.")</p>	<p>Social Liberation: Grasping that society is more encouraging of the healthy behavior (e.g., recovery and caring for your infant's needs) or being aware of and applying social conditions that support personal change including using resources in one's environment to support change <i>Interventions:</i> Referrals to community resources (e.g., WIC)</p>	<p>Helping Relationships: Connecting with people who are supportive of one's recovery. <i>Interventions:</i> Group therapy, 12-step meetings</p> <p>Counter-Conditioning: Substituting unhealthy ways of acting and thinking during active addiction for healthy ways during recovery (e.g., caring for self and infant). <i>Interventions:</i> Identification of triggers and cravings as well as coping skills.</p> <p>Reinforcement Management: Increasing rewards that come from recovery behavior and reducing those that come from active addiction behavior. <i>Interventions:</i> Incentives, Group recognition</p>	<p>Stimulus Control: Using reminders that encourage recovery behavior as substitutes for those that encourage the active addiction behavior. <i>Interventions:</i> Monitoring self-talk ("It is important to stay clean and sober because I am breastfeeding."), coins and key chains from 12-step meetings</p>

Figure 1. Stages of Change, Processes of Change, and Examples of Navigate-PARC

Interventions

Outcome Factors for Substance Using Perinatal Women

Greenfield et al. (2007) completed a literature review regarding substance abuse treatment entry, retention, and outcomes in women. It was noted that factors related to positive outcomes included treatment containing more sessions and treatment completion (Stark, 2000). Unfortunately, fifty percent of individuals in substance abuse treatment drop out within the first month. Greenfield et al. (2007) began to explore individual characteristics which were associated with treatment retention in women. Retention factors included higher income, being married, and being unemployed (Mertens & Weisner, 2000).

Factors which impact treatment retention differ when women are pregnant or postpartum. These factors include number of living children, number of previous treatment attempts, attitudes towards infant feeding, level of mental distress, and level of behavioral complexity.

Relationship between Number of Treatment Sessions and Number of Living Children

Knight et al. (1999) sampled 41 mothers with dependent children who were participating in a 12 month residential program titled "First Choice". Women who participated in First Choice were required to be at least 17 years old, to be pregnant or have at least one child younger than age 11, to have substance abuse issues, and agree to participate in the research study. After receiving a grant from the Center for Substance Abuse Treatment, the First Choice program obtained 20 apartments and evaluated participants for five years. Families lived in the apartments and were responsible for their own food, clothing, etc. Families were also supported therapeutically by staff of First Choice. Treatment at First Choice drew upon the Therapeutic Community philosophy, 12-step, Rogerian theory, Systems theory, Brief theory, and Gestalt theory. Each family had an individualized treatment plan. The First Choice program had five phases (Orientation, Phase IA, IB, Phase 2, and Phase 3) which took approximately seven to

twelve months to complete. During phase IA, personal issues of participants were identified. Treatment goals were developed, and women began to develop support systems.

In phase IB, participants work towards increasing their self-esteem, parenting skills, job skills, and interpersonal skills. During this phase, participants received one hour of individual counseling and twenty hours of group counseling per week.

In phase II, participants engaged in vocational training or began to actively look for employment, while continuing to address personal issues. During the final phase of treatment, phase III, participants continue to live at First Choice, but are employed in the community. Participants continued to live at First Choice until other housing becomes available.

A limitation of the Knight et al. (1999) study was the rate of participant attrition (27%). Researchers postulate that this was due to the complex issues (i.e. parenting stress, issues surrounding alcohol use) participants faced and that many of these issues are not addressed until participants were in the program for several weeks. By this time, participants had already decided to drop out of the program. The study spanned over five years and found that treatment dropout occurred earlier among mothers who drank daily, did not have support from a partner, and had more than two children in treatment with them. These findings are contradictory to that of Brady and Ashley (2005) who suggest that having childcare at treatment facilities is associated with longer length of stay. Szuster et al. (1996) also indicated that women who were allowed to have their children with them during treatment had better treatment retention rates.

Kelly et al. (2001) used archival data to compare women who completed the New Start program to women who did not complete the program. New Start program participants were all pregnant women who spoke English and who also had their first prenatal appointment at the Cook County Hospital in Chicago between 1992 and 1995. All of the women reported heroin,

cocaine or alcohol abuse. Women who agreed to participate in the study were randomly assigned to one of two programs. The first group received treatment from the prenatal clinic at the hospital and were referred to a community agency for substance abuse treatment. The second group also received prenatal care, substance abuse treatment, as well as case management from the New Start program.

Of the 36 participants, 15 women were “completers” and 19 were “non-completers”. Completers remained clean and sober for a year without relapse, attended program activities regularly, began a personal development plan, reconnected with family, and had children returned to them from the foster care system. Non-completers participated in the program a minimum of three months and failed to finish the required steps to complete the program (Kelly et al., 2001).

Kelly et al. (2001) also analyzed treatment records, as well as the *Addiction Severity Index* scores, the Maternal Social Support Index ratings, and the *Sarason Social Support Questionnaire* scores, all of which were given to women upon treatment entry. Four social variables were explored including how women differed in their social position/demographics, social support, history of violence, and history of drug use history. Social variables related to treatment completion included participants’ having higher levels of education, job skills or previous employment, fewer children, a family member or friend supportive of treatment, no involvement of child protective services, no housing assistance from family, and less chaos factors in their lives (i.e., homelessness, current domestic violence, psychiatric illness, and child protective services involvement). It is interesting to note that completers (40%) had fewer children than non-completers (86%). Furthermore, those who completed the program had less children under the age of six, with 20% of completers having two or more children under six and

53% of non-completers having two or more children under six. Kelly et al. (2001) discussed how the responsibilities of being a mother to young children can produce pressure which could make completing the program difficult.

Kelly et al. (2001) report three study limitations including a small sample, use of self-report measures, and possible lack of sensitivity in the assessment instruments. The small sample size may have made it difficult to decipher differences between completers and non-completers. Most information collected was self-reported which depends on participants' truthfulness. Furthermore, the quantitative assessments that were used may not have been sensitive enough to uncover the social support available to the participants.

Participants in the current study face many of the same difficulties as participants in Kelly and colleagues' (2001) research. For instance, many of the current participants discussed concerns about not having their children with them in treatment and concerns about protective services involvement.

Relationship between Number of Treatment Sessions and Number of Previous Treatment Attempts

Previous treatment attempts experienced by substance using perinatal women in inpatient treatment settings is an important predictor of attendance. Howell et al. (1999) conducted a literature review on substance abuse treatment for pregnant women which focused on prevalence rates, factors that contribute to substance abuse and prevent treatment success, and factors that are included in successful treatment programs. Researchers found that although literature on the subject is abundant, there is still a dearth of knowledge related to effective treatment models. Prior to the 1990s, prenatal care and substance abuse treatment were delivered separately, possibly due to each service having different funding streams. Additionally, Howell et al. (1999)

mention three documents that began to shape substance abuse treatment programs for pregnant women. These include the Treatment Improvement Protocol (TIP) for Pregnant, Substance Using Women (Mitchell, 1993 as cited in Howell et al., 1999), Practical Approaches in the Treatment of Women Who Abuse Alcohol and Other Drugs (Department of Health and Human Services, 1994 as cited in Howell et al., 1999), and Treatment of the Pregnant Addict (Center for Chemical Dependency Treatment, 1994 as cited in Howell et al., 1999).

The present study builds upon previous research reviewed in Howell et al. (1999), recognizing the need for integrated care of substance abuse treatment and prenatal education. Women in the present study were asked about previous substance abuse treatment experiences and this information will be included in the analysis.

Clark et al. (2001) studied 244 Medicaid eligible, prenatal care clients who were in need of specialized services. Seventy-nine percent of participants were African American and 21% were White and not of Hispanic origin. Fifty-six percent of participants had children and 56% had high school diplomas. Women who participated in the study were 20 to 41 years old. Twenty-seven percent started prenatal care in their first trimester, 51% in their second trimester, and 22% in their third trimester.

Participants were currently using substances or had done so in the recent past and were eligible for the Step-by-Step program which offered case management and substance abuse outpatient or inpatient treatment. Outpatient treatment included education groups, therapy/support groups, and individual counseling or couples counseling. Inpatient treatment included three to four days of medically monitored detoxification and intensive education/counseling for ten days. Of the 244 women, 236 were referred to outpatient treatment and 137 were referred to inpatient treatment. Research questions explored treatment compliance

based on type of treatment (outpatient versus inpatient) and sociodemographic factors (e.g., previous substance use treatment) associated with treatment compliance.

Logistic regression analysis revealed that 61% of women referred to outpatient treatment complied with the referral, whereas only 59% of women referred to inpatient treatment complied. All participants who completed treatment, regardless of type of treatment (outpatient, outpatient) had past treatment attempts which suggests that women who had previous treatments may be less fearful about returning to treatment, whereas women who are seeking treatment for the first time may fear what lies ahead and be less likely to enter treatment. Additionally, women who have previous treatment attempts may understand entering a program is necessary to gain drug-free relationships with their partners and children. This study had limitations which includes a small sample size, and all participants were from a low-income area in North Carolina. Additionally, there may be other factors not analyzed in this study that affect treatment compliance (i.e. comorbid psychiatric disorders). This study relates to the current study in that women at the Navigate-PARC clinic were also from North Carolina and were enrolled in an inpatient substance abuse treatment program. Information gained from the Clark et al. (2001) study can assist researchers in noting the importance of positive drug-free relationships in order to assist with treatment compliance.

Relationship between Number of Treatment Sessions and Mental Distress and Behavioral Complexity

The level of mental distress and behavioral complexity are other important predictors of treatment attendance. Level of mental distress is measured on the Global Appraisal Individual Needs-Short Screener (GAIN-SS) by the number of symptoms related to somatic disorder, anxiety disorder, depressive disorder, traumatic stress, and suicidal thoughts, clients have in the

past year (Dennis et. al, 2006). Behavioral complexity, as measured by the GAIN-SS, is the number of symptoms related to attention deficit disorder, hyperactivity/impulsivity, and conduct disorder, clients have in the past year (Dennis et al, 2006).

Knight, Logan, and Simpson (2001) researched predictors of program completion for women in residential substance abuse treatment. Participants were 87 women enrolled in the First Choice program. Women who participated had a serious drug problem, were age 17 or older, agreed to participate in research, and were pregnant or had one or more children younger than 13. First Choice was a 12-month treatment program where women lived in individual apartments located on the grounds of the facility. During the day, women engaged in services such as individual and group counseling, skills training, case management, parent trainings, and outside services such as health care, law, education, and employment services. Children were enrolled in school or daycare during the day, and were also integrated into treatment. Upon admission, participants completed the Initial Self-Rating Form which assessed for treatment readiness, psychological status, and social functioning. Additionally, a 90-minute intake interview was conducted by a counselor to socio-demographics, family background, social relationships/friendships, criminal history, health and psychological status, substance use history, and risk of AIDS. Discharge protocol included collecting data on the status of program completion, reason for discharge, referrals, and plans after discharge. This data is similar to data collected in the Navigate-PARC Clinic regarding mental distress and behavioral complexity. Knight et al. (2001) collected information regarding legal involvement which included arrests in the 6 months before admission, legal actions related to child abuse or neglect, and current involvement with the child welfare system. Information related to psychological functioning was collected using a 7-point self-assessment scale related to depression and anxiety. Results

indicated that women who had not been arrested six months prior to treatment were significantly more likely to complete treatment. In fact, these women were 4.5 times more likely than women who had been arrested to complete treatment. Knight et al. (2001) suggest that women with criminal involvement may be less likely to complete treatment due to difficulty complying with facility rules. Additionally, women with criminal involvement may have more external pressure due to the monitoring of correctional officers during treatment. Knight et.al. (2001) suggest that women who are experiencing legal pressure during treatment are less likely to complete treatment. One trend was identified but was not statistically significant due to the small sample size. That is, women who had psychological problems were less likely to complete treatment.

Study limitations include lack of generalizability to non-pregnant or parenting treatment locations. Larger and more diverse samples should be used in the future. This study does, however, offer a beginning to understanding barriers to treatment completion for women who are pregnant or postpartum. The Knight et al. (2001) study offers valuable information to the current study, where the population of the women served is similar. Women in the Navigate-PARC clinic were asked to take the GAIN-SS, which assesses for psychological symptoms, specifically behavioral complexity and mental distress. If researchers know that mental health symptoms are barriers, they may be able to better support women throughout the course of treatment in order to promote better outcomes.

Fiocchi and Kingree (2001) researched treatment retention and birth outcomes of women enrolled in a substance abuse treatment program for pregnant women. Participants included 135 pregnant women between the ages of 18 and 42 who used crack cocaine. Participants were enrolled in a federally funded residential treatment program in Georgia. All women were referred before their 33rd week of pregnancy. Similar to the setting of the current study, this residential

treatment program offered a specialized program for pregnant women. Upon admission, information was gathered during an intake interview which included demographics, psychological functioning, physical health, and substance use severity. Pregnancy measures were utilized throughout pregnancy and then compared to birth outcomes. Birth outcome data was taken from health records of the participants. Research questions explored which participant characteristics (i.e., prior psychiatric hospitalization,) were associated with treatment retention and if participant characteristics were associated with birth outcomes. Interestingly, prior psychiatric hospitalization was the only characteristic associated with treatment retention. Women who had psychiatric issues had a higher probability of leaving treatment prior to delivering their infant. Fiocchi and Kingree (2001) state that findings are especially helpful to treatment providers as they can now be aware of specific risks associated with poor retention and birth outcomes of pregnant crack cocaine users. This information will be used in the present study to assess for risk of program retention.

Fiocchi and Kingree (2001) discuss three limitations to their research. One was the lack of birth outcome data for women who left treatment early (N = 59). Without this data, researchers were unable to compare birth outcomes of completers and non-completers which the generalizability of the findings. Secondly, researchers state that a lack of process measures prevents the study from linking how participation in substance abuse treatment creates healthy babies at delivery. Lastly, Fiocchi and Kingree (2001) hope that in the future more extensive, validated measures can be used to assess for specified characteristics.

Relationship between Number of Treatment Sessions and Infant Feeding

Attitudes towards breastfeeding is yet another important predictor of attendance. Oftentimes, pregnancy sparks a period of change and sense of new beginnings in women.

Women care about the health and wellbeing of their babies. This can be seen in national statistics (SAMHSA, 2009) that show how women, are able to decrease their substance use from pre-pregnancy through the third trimester. Women who have positive attitudes towards breastfeeding may be more likely to stay in treatment longer due to having the desire to provide the best health for their babies. Postpartum, breastfeeding assists women with attachment, producing an emotional connection that stems from the time spent with their baby engaging in physical touch, eye contact, and hormones that are released when nursing (American Academy of Pediatrics, 2011 as cited in American Academy of Pediatrics, 2015). Not only are women providing what their baby physically needs to sustain life (milk), they are also supplying what their baby emotionally needs (physical touch and connection). This researcher hypothesizes that women who lack positive attitudes towards breastfeeding, and thus choose not to engage in this type of infant feeding post-partum, may not feel as connected and attached to their infants. If women do not feel that their baby needs them, they may lose hope and give in to their addiction. Therefore, attitudes toward breastfeeding may predict the number of sessions a substance using perinatal woman will complete as this will give insight into whether women plan to breastfeed or continue breastfeeding. In order to encourage treatment retention and long-term recovery, clinicians can provide support and psychoeducational information concerning bonding and breastfeeding. Unfortunately, research regarding the relationship between attitudes towards breastfeeding and attendance is scarce.

Lamontagne et al. (2009) studied the impact of breastfeeding clinic attendance on a woman's breastfeeding experience. More specifically, Lamontagne and colleagues (2009) explore the relationship of clinic attendance and breastfeeding duration and satisfaction. Data was gathered via telephone questionnaires and semi-structured interviews. Logistic regression

analysis indicated that women found their involvement with the clinic to be helpful, with duration of breastfeeding being significantly longer than the control group. The women also reported that during the interviews, staff provided moral support which had a positive effect on their overall experience. Similar to the Lamontagne et al. (2009) research, the current study, was exploring the relationship between breastfeeding and other perinatal education, treatment involvement and retention.

The research reviewed in chapters one and two support that gender specific, integrative, holistic care based in motivational interviewing is effective when treating perinatal substance using women (Greenfield et al., 2007). There is research on client variables, such as number of living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity, which can have an impact on the number of treatment sessions perinatal women will attend. Missing from the literature is research that looks at these variables simultaneously to predict the number of treatment sessions completed by perinatal women with substance use disorders. The present study is interested in this set of variables that may inhibit women from completing treatment sessions.

Chapter Summary

The preceding chapter provided a review of the literature concerning the Transtheoretical Model and the stages of change, motivational interviewing with perinatal substance using women, arguments for integrative care for perinatal substance using women, and factors which effect treatment outcomes of substance using perinatal women. Chapter three will address the methodology for this study.

CHAPTER 3: METHODS

Introduction

Chapter Three describes the methodology and design of the present study. Included in this chapter are the purpose of the study, the research questions, and data sources. A description of the research design is also provided, including population, sample and sampling procedures, study procedures, and instrumentation. A depiction of the statistical analyses used to investigate the research questions and study limitations are given. A discussion of ethical considerations concludes this section.

Study Purpose and Research Question

Purpose of the Study

The purpose of the study was to explore the relationship between number of living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity with the number of motivational interviewing and perinatal education group sessions completed by perinatal substance using women. Additionally, this research explored whether women with positive attitudes towards breastfeeding were more likely to stay in treatment.

Research question 1.

How does the number of living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity predict the number of sessions completed by perinatal substance using women participating in an inpatient manual based motivational interviewing counseling and perinatal education group?

Research question 2.

Is there a positive relationship between positive attitudes towards breastfeeding and number of sessions attended?

Archival Data

This study utilized data collected from Navigate-Pregnancy and Recovery Clinic (PARC), a substance abuse clinic within East Carolina University which is a collaborative effort between the Department of Addictions and Rehabilitation Studies, Vidant Medical Center, and Walter B. Jones Alcohol and Drug Center in Greenville, North Carolina. The data was from manualized motivational interviewing/perinatal education groups. Substance abuse services were provided concurrent with perinatal education to reduce barriers for perinatal women, increase engagement in services, and provide optimal care through communication between mental health and medical professionals.

Data was collected between January 2013 and March 2015 by graduate students in the Department of Addictions and Rehabilitation Studies at East Carolina University. Data was obtained from client records and put into an Excel spreadsheet with identifying information removed. The SPSS release version 22.0 program was used for statistical analysis (SPSS: An IBM Company, 2015). Archival data was used in the present study in order to assess data gathered over a 26-month time period.

There are many advantages to using archival data. Perhaps the main advantage of using secondary survey analysis is that the method is less costly (Kiecolt & Nathan, 1985). Additionally, secondary survey analysis can allow researchers to conduct several different research studies using data that has been previously collected. Using archival data, researchers have the ability to look at issues from a new angle, discovering new facets to a research problem. Kiecolt and Nathan (1985) describe secondary survey analysis as having more advantages than limitations, however there are several disadvantages. For instance, errors may exist in data sets that may be invisible to researcher using archival data, and thus, the quality of the data may be

questionable. Researches may also be forced to use data they have versus acquiring data that may fit their study with more ease. A disadvantage encountered during this study was the inability to collect missing data from participants and the inability to control for extraneous variables.

Research Design

Researchers used a non-experimental relational design. Archival data from a substance abuse clinic was used and researchers did not manipulate conditions. Research was descriptive, correlational and exploratory in nature. As part of the clinic regimen, clients completed the *Global Appraisal of Individual Needs-Short Screener (GAIN-SS)* and the *IOWA Infant Feeding Attitude Score* prior to attending their first treatment group and again at completion of treatment. However, this study utilizes pre-session data only to exploring the relationship between number of living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity, with the number of motivational interviewing group sessions completed by perinatal substance using women. Secondly, the study used pre-session data gathered from the *IOWA Infant Feeding Attitude Scale* to see if there is a positive relationship between positive attitudes toward breastfeeding and women who stay in treatment.

Treatment consisted of four motivational interviewing/perinatal group sessions. The first hour was a process group where participants discuss concerns related to sobriety, recovery, pregnancy and childcare. The second hour was perinatal education (i.e., neonatal abstinence syndrome, stages of labor, breastfeeding, postpartum care). Clients could attend hour one, hour two or both hours of the group.

Population

Participants were women who received services from Navigate-PARC. Women are eligible for services if they are 18 years of age or older, pregnant or postpartum (i.e., conception

through one year postpartum), psychiatrically stable, and in treatment at the Walter B. Jones Alcohol and Drug Center, an inpatient substance abuse treatment facility which admits clients (females and males) throughout North Carolina. All Navigate-PARC clients are assessed for suicidal ideations, homicidal ideations, and hallucinations and are considered psychiatrically stable if they manage these symptoms with psychotropic medication under the supervision of a medical doctor.

Sample and Sampling

A selective sampling method was used for this study. Selection was limited to clients who met PARC admission criteria previously discussed. The data to be used for this study was collected for Navigate-PARC over a 26-month period. To obtain the suggested number of participants, Tabachnick and Fidell (2001), as cited in Garson (2014), recommend adding the number of independent variables (i.e., number of living children, number of previous treatment attempts, attitudes towards breastfeeding, level of behavioral complexity and level of mental distress) and multiply that number by twenty ($5 \times 20 = 100$). In the present study, there were 96 participants which met the inclusion criteria. Due to the nature of archival data and the difficulties related to field research, the present study has slightly less participants than recommended in the literature. For further discussion, please see the Study Limitation section.

Procedures

Data Collection

Prior to receiving a consultation from Navigate-PARC clinicians, clients were pre-screened by inpatient staff for a history of substance use or a current substance use disorder. All referred clients met individually with Navigate-PARC clinicians and services were explained. During the individual consultation, demographic information, substance use history, and safety

check information was obtained. If clients met admission criteria (i.e., 18 years of age or older, pregnant or postpartum, psychiatrically stable, and in inpatient treatment), were interested in services, and were willing to complete clinic data/outcome measure, they were asked to review and sign the East Carolina University Institutional Review Board (IRB) approved informed consent for research and HIPPA notification documentation. Clients could participate in the group sessions without being a part of the data/outcome process. Next, clients were given the GAIN-SS assessment and then the *IOWA Infant Feeding Attitude Scale*. Upon completion of eight sessions, the GAIN-SS and the *IOWA Infant Feeding Attitude Scale* was re-administered to obtain post-baseline data. The post-baseline data was collected as part of the clinic regimen and is not included in the current study. The study's research question was derived from knowledge learned during the operation of the clinic. As clients' dropout of the program, clinicians pondered why participants failed to complete treatment, how they could assist the clients best, and when they should intervene. If clinicians were able to predict the number of treatment sessions a perinatal woman would complete by examining various factors that may affect treatment completion of perinatal substance using women, then clinicians would be able to problem-solve how and when to intervene lessening attrition rates.

Clinical Services

Upon completion of individual consultations, clients began a series of eight group counseling sessions in an "open group" structure. Under this approach, new clients could join the group at any point in the series (provided they had also completed individual consultations). After eight sessions, clients then completed posttests (GAIN-SS and the *IOWA Infant Feeding Attitude Scale*) and graduated from the program. Some clients opted to continue attending the group for further support even after graduation.

There were two group sessions per week. The first session was a one hour of motivational interviewing based counseling group. The second session was a one-hour perinatal education group. The MI counseling groups were provided by graduate students (doctoral and master's) from East Carolina University's Department of Addictions and Rehabilitation Studies, who received weekly supervision of individual client cases, SUDs, and motivational interviewing training.

To ensure clinic staff adhere to MI guidelines, the PARC clinic coordinator periodically observes sessions conducted by graduate students and nurses, and all staff were trained by an instructor from the Motivational Interviewing Network of Trainers (MINT) program (Motivational Interviewing Network of Trainers, 2015). Motivational Interviewing Network of Trainers (MINT) instructors completed separate a training workshop entitled "Training of New Trainers" (TNT). This workshop provided instruction to professionals using MI in the field, and certifies them as MI trainers. Certification candidates progress through the training process by performing motivational interviewing skills to the workshop's standards.

Motivational interviewing sessions were based on the *Motivational Groups for Community Substance Abuse Programs* manual (Ingersoll, Wagner, & Gharib, 2002). Due to the limited number of sessions clients could attend, and the relevance of the information to perinatal substance using women, four sessions out of ten were chosen. Session topics included Lifestyles, Stages of Change, Raising Awareness, and Looking Forward. The manual provided the structure and psycho-educational information for the group. The women were also encouraged to speak about their emotions, current life events, and to develop support systems within the group.

Perinatal education, the second group, was conducted by master's level perinatal education nurses who eventually trained graduate level clinicians from the Department of

Addictions and Rehabilitation Studies to take over this portion of the groups. The perinatal education sessions were based on the Duke AHEC Lamaze Childbirth Educator Program (Shuler et al., 2011), and were supplemented with the professional expertise of perinatal educators that had specific clinical practice and education in substance use with the perinatal population. Groups based in perinatal education were titled Welcome Session, Neonatal Abstinence Syndrome, Stages of Labor, and Breastfeeding and Postpartum Care.

Attendance to perinatal MI and education groups was optional. To increase attendance and participation, incentives were offered to clients. Information regarding how to earn incentives was explained during the consultation session. Clients were given a baby item worth one to five dollars each session. In addition, door prizes were available for client who were awake, involved, and stayed for the entire session. Clients who completed all motivational interviewing/perinatal education group sessions, pre and post-baseline GAIN-SS assessments, and *IOWA infant feeding attitude scale* assessments, received a baby item for completion of the program.

Instrumentation

The Navigate-Pregnancy and Recovery Clinic Triage Form

The Navigate-Pregnancy and Recovery Clinic Triage Form was used to gather demographic information from clients and was completed during their first visit to the clinic. Information collected included the date, the name of the counselor completing the form, the client's first and last name, date of birth, age, address, contact information, current medications, highest level of school completed, and current marital status. Additionally, clients were asked for contact numbers of individuals close to them who would know how to reach them.

In the upper left hand corner of the document were prompts for counselors to ask clients the following questions:

1. Do you currently smoke cigarettes or use nicotine replacement products (e.g., the patch)?
2. What is your expected due date?
3. Are you considering breastfeeding or bottle-feeding?
4. Do you have other biological children? If so, what are their ages?

The Global Appraisal of Individual Needs-Short Screener (GAIN-SS)

The *Global Appraisal of Individual Needs-Short Screener* (GAIN-SS) enabled clinicians to: (a) screen for psychiatric disorders, substance use disorders, and crime and violence; (b) increase the consistence of diagnoses and referral; and (c) measure “behavioral health change over time” (Dennis, Feeney, Stevens, & Bedoya, 2008, p. 1). The GAIN-SS can be administered on the internet, by paper and pencil, or on a computer. For this study, masters and doctoral counseling students administered the GAIN-SS by computer. The clinician administering the GAIN-SS ask clients how recent a problem (e.g., substance use) has occurred. Possible client responses include use/occurrence: (a) in the past month, (b) 2 to 12 months ago, (c) 1+years ago, or (d) never. Responses of use/occurrence in the past month track client behavior change. Use/occurrence in the last year suggest a current client diagnosis, and any lifetime symptoms measure lifetime indicators of client usage/problems.

Before beginning the GAIN-SS, clinicians assist the clients in developing timeframe anchors by asking them to think back twelve months prior and verbalize an event that was occurring (e.g., holiday or family event). This gives clients a point of reference to base their

responses upon. After the administered, the web-based version of the GAIN-SS provides scores which suggest areas that may need further discussion with clients or interpretation by clinicians.

Dennis, Chan, and Funk (2006) found that the GAIN-SS has excellent internal consistency at .96, and is highly correlated to the full GAIN 123 item scale ($r = .84$ to $.94$). The GAIN-SS also revealed exceptional sensitivity for identifying individuals with a disorder (90% or higher). The GAIN-SS was also able to rule out individuals who did not have a disorder at a rate of 92% or higher.

The GAIN-SS fit well with the purpose of the present study as a method of identifying SUDs, mental health disorders, and measuring change over time. The GAIN-SS has many benefits. It requires minimal training to administer making it ideal for graduate level counseling students to learn and implement. The GAIN-SS is a five to ten-minute screener, which is likely to hold the attention span of substance using perinatal women. Although research shows that the GAIN-SS is a valid and reliable tool to use in the clinical setting, it is important that clinicians use the GAIN-SS as a tool, and remember to also use their clinical skills, various assessments, and other information before making a clinical decision regarding clients.

IOWA Infant Feeding Attitude Scale

The *IOWA Infant Feeding Attitude Scale* measures attitudes towards infant feeding (i.e., breastfeeding, formula-feeding) (de la Mora, Russell, Dungy, Losch, & Dusdieker, 1999). Participants were asked the extent to which they agree with 17 statements on a 5-point, Likert scale (1 = “Strongly Disagree” to 5 = “Strongly Agree”). The Multiattribute Utility Assessment preceded the development of the *IOWA Infant Feeding Attitude Scale* (de la Mora et al. 1999). However, the Multiattribute Utility Measure was long and cumbersome for participants to complete. De la Mora and colleagues (1999) report the *IOWA Infant Feeding Attitude Scale* is

comparable to the Multiattribute Utility Measure, but easier to administer and shorter. The present study utilizes the *IOWA Infant Feeding Attitude Scale* with women who were pregnant and up to one year postpartum to measure their attitudes towards infant feeding. Participants were given the measure prior to receiving the eight sessions of motivational interviewing/perinatal education and again upon completion of the sessions.

To develop the *IOWA Infant Feeding Attitude Scale* and explore its reliability and validity, De la mora and colleagues (1999) conducted three separate studies, each having a specific focus. Study one focused on the development of the *IOWA Infant Feeding Attitude Scale*, specifically items included on the Likert scale that would best evaluate attitudes towards infant feeding. The aim of second study was to support the reliability of *the IOWA Infant Feeding Attitude Scale* by replicating study one. Study three assessed the *IOWA Infant Feeding Attitude Scale's* predictability of breast feeding behavior based on infant feeding attitudes. Breast feeding behavior was measured by the length of time women breastfed.

Study one participants were 125 postpartum women in a community hospital. The women ranged in age from 17 to 39 years. Eighty-two percent were married and 97% were Caucasian. Nursing staff asked women to participate in the study within 48 hours postpartum. Participants were given the *IOWA Infant Feeding Attitude Scale* and an unnamed multiattribute utility measure. The Multiattribute Utility Measure assessed five topics related to product dimensions of breast milk and formula (i.e., cost, physical shape of mother, sexual pleasure, mental-physical comfort, and nutrition) and five topics related to dimensions of infant feeding (physical closeness, ease of feeding, infant food intake, and nighttime feeding). Women were then asked to rate the efficacy of breastfeeding and formula feeding and how important they felt

that part of feeding was in relation to other methods of feeding. Scores were arranged so that the higher the score the greater the preference for breastfeeding.

The original version of the *IOWA Infant Feeding Attitude Scale* had 25 questions. However, only 17 were included on the final version. These 17 items were highly reliable ($\alpha = .86$). Participants' scores were also highly correlated with the Multiattribute Utility Measure ($r = .80$). The *IOWA Infant Feeding Attitude Scale* also proved to be valid. That is, women who planned to breastfeed had higher scores on the *IOWA Infant Feeding Attitudes Scale* and breastfeed longer than those with lower scores. Additionally, it should be noted that the *IOWA Infant Feeding Attitude Scale* was more valid than the longer, Multiattribute Utility Measure (De la mora et al., 1999).

One hundred-thirty women participated in study two. Their ages ranged from 16 to 41. Seventy-one percent were married and 91% were Caucasian. Results related to reliability were consistent with study one, with the *IOWA Infant Feeding Attitudes Scale* being highly reliable ($\alpha = .85$). Again, the scale was valid and attitudes toward breastfeeding predicted participants' choice to breastfeed (De la mora et al., 1999).

Study 3 sought to discover whether scores on the *IOWA Infant Feeding Attitude Scale* can not only predict a woman's choice of feeding postpartum, but a woman's actual behavior (De la mora et al., 1999). Study 3 examined the relationship between participants' scores on the *IOWA Infant Feeding Attitude Scale* and the length of time breastfeeding. The same procedures as in study 1 and 2 applied. However, in this study the women sampled were those who actually began breastfeeding their new infants. Interviews were conducted over the telephone with participants every two weeks for 16 weeks after discharging from the hospital. Participants were asked to rate on a scale of one to five their infant feeding habits, with 1 being exclusively

breastfeeding and 5 being exclusive formula feeding. This study found that mothers with more positive attitudes towards breastfeeding engaged in exclusive or partial breastfeeding for a longer duration. However, the reliability of *the IOWA Infant Feeding Attitude Scale* decreased (alpha = .68).

The previously discussed studies suggest that mothers' attitudes towards infant feeding are solid predictors of infant feeding methods. In fact, attitudes towards infant feeding was a stronger predictor than maternal demographic characteristics (De la mora et al., 1999). Due to the *IOWA Infant Feeding Attitude Scale* strong validity and reliability in measuring breastfeeding attitudes and behaviors of postpartum women, it was chosen for the current study. However, pregnant women were not included in De la mora et al. (1999) studies but were in the current study which could impact the reliability and validity of the IOWA Infant Feeding Attitude Scale. However, a more appropriate measure could not be identified and accessed.

Statistical Analyses

To examine the data for this study, SPSS release version 22.0.0 (SPSS: An IBM Company, 2015) was used. Simultaneous multiple regression was used to analyze the data. Pallant (2013) describes multiple regression as a technique that explores the relationship between one dependent variable that is continuous and multiple independent variables. Multiple regression is attractive due to its flexibility (Hoyt, Leierer & Millington, 2006). Because multiple regression allows researchers to have a more advanced exploration of relationships that exist between variables, multiple regression is often used in field research rather than laboratory research (Pallant, 2013). All variables in a simple multiple regression are entered into the equation simultaneously and each variable evaluated on its predictive power.

For the present study, descriptive statistics for demographic data including percentages, mean, and standard deviation are presented. Pearson product–moment correlation coefficient was used to examine the relationship of psychosocial variables with the number of sessions completed by perinatal women participating in an inpatient manual based motivational interviewing counseling intervention and perinatal education group. A simultaneous multiple regression analysis was used to evaluate potential predictors of number of treatment sessions. Potential predictors included psychosocial variables (number of living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity). Pearson product–moment correlation coefficients were used to analyze the relationship between breastfeeding and number of sessions attended. Preliminary analyses were conducted to test for violation of the normality, linearity and homoscedasticity assumptions for the correlation analysis. Likewise, the assumptions of multicollinearity, normality, linearity and homoscedasticity for the regression analyses were evaluated.

Study Limitations

The present study has limitations including:

1. Archival Data was used in the present study, not allowing the researcher the opportunity to collect data in a different manner.
2. This study’s design was correlational; therefore, a causal relationship between the chosen variables cannot be assumed (Gall, Borg & Gall, 1996). Correlational research designs explore potential relationship(s) and the degree of relationship(s) among the variables, but do not assume causation. Additionally, other variables may contribute to the actual cause even when significant correlations are found between variables. For example, mandatory versus voluntary treatment referrals or family supports may affect clients’ number of completed sessions.

3. This study had a small sample due to the nature of inpatient substance abuse treatment facilities in North Carolina. That is, insurance may only cover a few weeks as opposed to the four weeks needed to complete the program. Also, perinatal women were only a small portion of the general population at the inpatient substance abuse treatment center.

4. Open groups, although convenient for women served, is a limitation for this research study. Since women are able to start, stop or re-start sessions at any point during the group rotation, women are receiving information from groups in various sequences. This difference in educational sequencing may have affected the women's engagement in treatment and understanding of information.

5. Generalizability is a concern. The small sample limits the generalizability to other perinatal substance using women in North Carolina and the United States. Also, the *IOWA Infant Feeding Attitude Scale* normative population was women within 48 hours postpartum. The present study includes both pregnant and postpartum women completing the IOWA Infant Feeding Attitude Scale. Additionally, because women in the present study were in an inpatient treatment facility, they had decreased likelihood of current substance use, which affects the generalizability to outpatient substance using perinatal women.

Ethical Considerations

Navigate-PARC administrators obtained approval from the East Carolina University Institutional Review Board (IRB) to conduct research through the Navigate Counseling Clinic. This writer was listed as a research team member in the IRB submission. Therefore, this study did not require an additional IRB submission.

In terms of participant privacy, ethical considerations were maintained throughout the collection, analysis and reporting of data. All records were filed and secured behind two locked

doors. Records were also kept on reputable electronic health record databases, Therascribe and in paper medical charts. Identifying information, such as name, address, and telephone number were not used in the analysis or reporting of this study. Coded identifiers were used in the present study, linking personal information of each participant her specific identifier. Privacy infringement was minimized to the greatest extent possible.

Chapter Summary

The purpose of the study was to explore the relationship between number of living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity with the number of motivational interviewing and perinatal education group sessions completed by perinatal substance using women. Each of these variables are barriers for perinatal women seeking treatment. To date, these variables have yet to be evaluated together with Motivational Interviewing as the intervention to determine the number of treatment sessions perinatal substance using mothers will complete.

CHAPTER 4: RESULTS

Introduction to the Chapter

This chapter begins with a description of the participant attrition rate, followed by a review of sample demographics. Descriptive statistics are presented, and the results for the prediction of demographic factors on client participation in an inpatient motivational interviewing perinatal group are reported. Next, results investigating the relationship between positive attitudes about breastfeeding and number of counseling sessions attended are reported. The chapter concludes with a summary of the results.

Attrition Rate

The sample for this archival study was derived from a population of perinatal substance using women in eastern North Carolina. The sample included clients who received services from East Carolina University's Navigate-Pregnancy and Recovery Clinic in the Department of Addictions and Rehabilitation Studies. A total of 96 clients consented to participate in clinic research and evaluation between January 2013 and March 2015. Although this study was founded on baseline data, the attrition rate was calculated for participants who did not complete the 8 session program. Twenty-one ($N = 21$) participants completed all sessions and 75 participants did not. Thus, there was a 78% attrition rate. Most drug treatment programs have dropout rates averaging 55%, although various psychosocial factors may impact this percentage (Sayre et al., 2002). Participation in group sessions was voluntary for all perinatal women within the inpatient treatment facility. A discussion of participant psychosocial factors that may have affected participant attrition rate is discussed in Chapter 5. The following section is a description of the sample, including the distributions of demographic variables.

Sample Demographics

This section provides a description of the sample using participant demographic information. The sample consisted of adult females, over the age of 18, with a history of substance use disorders (SUDs), who received group services and completed the baseline evaluation measures. All participants were either pregnant or within one year postpartum. As previously stated, twenty-one participants completed the 8 session program, however baseline data of the 96 participants enrolled in the Navigate-Pregnancy and Recovery Clinic between January 2013 and March 2015 was used for this study's analysis.

Participant Completion Rates

The majority of participants completed 4 or more sessions (N = 59; 62.1%). Most participants completed 2 sessions (N = 35; 36.8%), 4 sessions (N = 20; 21%), or all 8 sessions (N = 21; 22.1%). The reason for participants completing 2, 4, or 8 sessions is possibly due to 2 sessions being offered per day. See Table 1.

Table 1

Number of Completed Sessions

Number of Sessions	Frequency	Percent
1	3	3.1
2	35	36.8
3	1	1.0
4	20	21.0
5	7	7.3
6	6	6.3
7	2	2.1

Note. N = 96. Number of completed sessions was not available for 1 participant.

Ethnicity and Age

Of the 96 participants, 83 reported their ethnicity. Of those, the reported distribution of ethnicity was 66 Caucasian (79.5%), 7 African-American (8.4%), 6 Native American (7.2%), and 4 Multiracial (4.8%). The distribution of age ranged from 18 to 41 years ($M = 28.2$, $SD = 4.67$), which is logical considering participants were women of child bearing age. See Table 2.

Table 2

Ethnicity

Ethnicity	Frequency	Percent
Caucasian	66	79.5
African American	7	8.4
Native American	6	7.2
Multi-racial	4	4.8

Note. N = 96. Thirteen participants did not report ethnicity.

Number of Other Living Children

The number of other living children included children birthed by participants that were not currently residing at the inpatient facility with participants. Of the 96 participants, 54 (56.2%) reported the number of other living children and 42 (43.7%) left the question blank. Missing data were due to participants refusing to answer this question, clinician error (i.e., not asking participants the question due to emergency situations), or participants not being able to complete the demographic questionnaire due to other engagements at the substance abuse facility

(i.e., team meetings, physician appointments). The mean number of other living children was 1.69 (SD = 1.36). See Table 4.

Descriptive statistics reveal that the majority of the participants, 15 women (27.7%), had no other living children. Thirteen (24%) of the participants had 2 other living children, 13 (24%) of participants had 3 other living children, 9 (16.6%) participants had 1 other living child, 3 (5.5%) participants had 4 other living children, and 1 (1.8%) participant had 5 other living children. See Table 3.

Table 3

Other Living Children

Number of other living children	Frequency	Percent
0	15	27.8
1	9	16.7
2	13	24.1
3	13	24.1
4	3	5.6
5	1	1.9

Note. N = 96. Forty-two participants did not report other living children.

Interestingly, women with no other living children completed the 8 session program more frequently than women with 1 to 5 other children. The women who completed all sessions included 9 women with no other living children, 3 women with 1 other living child, 3 women with 2 other living children, and 4 women with 3 other living children. Women with 4 or more other living children did not complete all sessions. This difference may be due to women with

other children being concerned about caring for these children, and therefore, choosing to not completing inpatient treatment.

Previous Treatment Attempts

Previous treatment attempts were defined as mental health or substance abuse treatment, either inpatient or outpatient, received by participants, including past treatment at Walter B. Jones Alcohol and Drug Center (the inpatient program where participants were currently residing). Of the 96 participants, 75 (78%) provided a response to, “Do you have a history of past treatment attempts”? Of those, 33 reported no previous treatment attempts and 60 reported a history of past treatment attempts. More specifically, twenty participants reported 1 previous treatment attempt, 12 reported 2 previous treatment attempts, 6 reported 3 previous treatment attempts, 2 reported 4 previous treatment attempts, and 2 reported 5 previous treatment attempts. The mean number of prior treatment attempts was 1.07. See Table 4.

Table 4

Descriptive Statistics

Variables	Mean	SD	N
Other living children	1.69	1.36	54
Previous Treatment Attempts	1.07	1.27	75

Descriptive Statistics

Descriptive statistics for this study included participants’ number of completed counseling sessions and levels of mental distress and behavioral complexity 90 days prior to baseline. Additionally, this study compared attitudes towards breastfeeding and number of

completed counseling sessions in the Navigate – Pregnancy and Recovery Clinic inpatient motivational interviewing and perinatal education group.

Prevalence of Mental Distress

The *Global Appraisal of Individual Needs-Short Screener* (GAIN-SS) was used to measure symptoms of mental distress. Mental distress was based on the Internal Mental Distress Scale score on the GAIN-SS. Mental distress is “... a count of past-year symptoms related to internalizing disorders, including somatic, anxiety, depression, traumatic stress, and suicide thoughts...” (Dennis et al., 2006, p. 83). Although clinic data was collected for multiple timeframes (start of treatment through one year), this study focuses on participants’ self-report of the past 90 days. Ninety days was chosen (as opposed to 30 days) in order to gather more comprehensive information about participants’ symptoms. Additionally, 90 days was chosen because it is possible that researchers would gain more information about participant substance use prior to women getting pregnant.

Over seventy percent (N = 68) of participants completed the GAIN-SS subscale, Internalizing Disorder Screener measuring mental distress. Twenty-eight (N = 28) of the participants had missing data. Missing data were due to participants refusing to answer questions, clinician error (i.e., not asking participants all questions due to emergency situations), or participants not being able to complete the GAIN-SS due to other engagements at the substance abuse facility (i.e., team meetings, physician appointments). Of the 68 participants with accessible data, 62 (91.2%) of the participants reported internalizing mental health disorder related items (M = 2.7, SD = 1.51). Although the mean score was 2.7, the most common score was 4. The GAIN-SS sub-screener (Internalizing and Externalizing Disorders) and scores are divided into three levels (low, moderate and high) (Chestnut Health Systems GAIN Coordinating

Center, n.d.). The participants who reported internalizing mental health disorder items fall between the moderate to high categories. The category of moderate includes scores of 1 to 2 and suggests a diagnosis of a mental health disorder. A score of 3 or higher on the internalizing sub-screener suggests that the probability of a diagnosis is high. A mean score of 2.7 suggests that the majority of the 68 participants with accessible data had an internalizing diagnosis related to somatic complaints, depression, anxiety, trauma, psychosis, and/or suicide.

Prevalence of Behavioral Complexity

The *Global Appraisal of Individual Needs-Short Screener* (GAIN-SS) was used to measure symptoms of behavioral complexity. Behavioral complexity was based on the External Mental Distress Scale score on the GAIN-SS. Behavioral complexity is "... a count of past-year symptoms related to externalizing disorders, including attention deficit, hyperactivity/impulsivity, and conduct disorder..." (Dennis et al., 2006, p. 83).

Although data was collected for multiple timeframes (start of treatment through one year), this study focuses on baseline self-report of the past 90 days. Of the 96 participants, 68 responses were recorded and scored for the externalizing disorder screener measuring behavioral complexity. Twenty-eight (N = 28) of the participants had missing data. Missing data were due to participants refusing to answer questions, clinician error (i.e., not asking participants all questions due to emergency situations), or participants not being able to complete the GAIN-SS due to other engagements at the substance abuse facility (i.e., team meetings, physician appointments). Of the 68 participants with accessible data, 49 (51%) women reported at least one externalizing mental health disorder related items, with an average of 1.96 out of 6 possible indicators (SD = 1.84). A mean score of 1.96 suggests that the majority of the 49 participants

with accessible data had an externalizing diagnosis (attention deficits, hyperactivity, impulsivity, conduct problems, and gambling).

Attitudes towards Infant Feeding

The *IOWA Infant Feeding Attitude Scale* was used to measure participants' attitudes towards infant feeding. Although clinic data was collected pre-post treatment, this study focused on self-report at baseline. Of the 96 participants, 73 (76%) completed the IOWA. Missing data were due to participants refusing to answer questions, clinician error (i.e., not asking participants all questions due to emergency situations), or participants not being able to complete the IOWA due to other engagements at the substance abuse facility (i.e., team meetings, physician appointments). Participants' mean score was 58.7 (SD = 9.33). Total attitude scores on the IOWA range from 17 to 85, where higher scores indicate positive breastfeeding attitudes. Lower scores on the IOWA indicate positive formula feeding attitudes. As a group, participants had positive breastfeeding attitudes.

Table 5

Summary Correlation Table

Variables	Pearson Correlation	Sig. (2 tailed)	N
Total Sessions			
Prior Treatment Attempts	0.270	.020	74
Other living children	-0.241	0.080	54
Pre Externalizing, Past 90 days	0.079	0.522	68
Pre Internalizing, Past 90 days	0.184	0.134	68
Pre IOWA Infant Feeding Attitude Scale	-0.012	0.922	73

Prior Treatment Attempts			
Other living children	-0.194	-0.186	48
Pre Externalizing, Past 90 days	0.180	0.152	65
Pre Internalizing, Past 90 days	0.203	0.105	65
Pre IOWA Infant Feeding Attitude Scale	0.002	0.988	66
Other living children			
Pre Externalizing, Past 90 days	-0.150	0.337	43
Pre Internalizing, Past 90 days	-0.155	0.320	43
Pre <i>IOWA Infant Feeding Attitude Scale</i>	0.121	0.432	44
Pre Externalizing, Past 90 days			
Pre Internalizing, Past 90 days	0.527	0.000	68
Pre <i>IOWA Infant Feeding Attitude Scale</i>	-0.264	0.032	66
Pre Internalizing, Past 90 days			
Pre <i>IOWA Infant Feeding Attitude Scale</i>	-0.211	0.089	66

Note. Significance is denoted with boldface.

A significant positive correlation was found between prior treatment attempts and total number of sessions completed at the Navigate – Pregnancy and Recovery Clinic. Participants who had more treatment attempts completed more group sessions.

When examining participants' GAIN-SS Internalizing Mental Distress scores and Externalizing Behavioral Complexity scores, a positive correlation was found ($r = .53, p < .001$). As participants' internalization of mental distress (e.g., somatic, anxiety, depression, traumatic stress, and suicide thoughts) increased, so did their externalization of behavioral complexity (e.g., attention deficit, hyperactivity/impulsivity, and conduct disorder). This finding suggests that participants who had difficulty coping with symptoms related to trauma, anxiety, and depression had behavioral symptoms expressed through impulsive, attention deficit, and conduct

related symptoms. Counselors can utilize dramatic relief (TTM's processes of change) with perinatal substance using women to assist with identifying and expressing negative emotions, as well as developing coping skills. Additionally, counselors can use counter conditioning (TTM's processes of change) to help clients identify triggers related to trauma, anxiety, depression, and substance use. Furthermore, counselors can assist clients in the development of helping relationships (TTM's processes of change) during group therapy and 12-step meetings.

A negative relationship was found between baseline *IOWA Infant Feeding Attitude Scale* scores and baseline externalizing scores. The lower a participant's score on the IOWA Infant Feeding Attitude Scale, the higher the externalizing score on the GAIN-SS. Breastfeeding is the best feeding option for babies (American Academy of Pediatrics, 2012; U.S. Department of Health and Human Services, Office on Women's Health, 2012), However, due to the women's substance use, comorbid internalizing (e.g., trauma) and externalizing (e.g., attention deficits, conduct related behaviors) disorders, breastfeeding and completion of sessions were difficult endeavors. Individual behavioral treatment, which focuses on emotional regulation and self-soothing (Linhan, Schmidt, Dimeff, Craft, Kanter, Comtois, 1999) may be helpful for preparing women for MI group treatment and breastfeeding, which requires a mother to be sensitive to the cues of her infant.

Other relationships between variables were trending toward significance, however because of the limited number of participants, significance was not met (i.e., the relationship between other children and prior treatment attempts, and the relationship between baseline internalization GAIN-SS scores and prior treatment attempts). Further, the relationship between baseline *IOWA Infant Feeding Attitude Scale* scores and baseline internalization scores on the GAIN-SS was close to significance at .089. With more participants, data may show that as

IOWA scores increase, internalization scores decrease. This would suggest that women who have more positive attitudes towards breastfeeding are more likely to have lower internalization scores. Chapter 5 will discuss the study’s results as well as review possible findings if the number of participants were increased.

Data Analysis Results for Research Questions

This section includes the results of the analyses for each research question. This information is followed by a summary of the research questions results.

Research Question 1

How does the number of living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity predict the number of sessions completed by perinatal substance using women participating in an inpatient manual based motivational interviewing counseling and perinatal education group?

A simultaneous multiple regression was used to analyze the data for research question one. When analyzing participants’ number of living children, previous treatment attempts, level of mental distress, and level of behavioral complexity, the overall model was not found to be statistically significant [$F(4, 38) = 1.35, p = ns$]. There was a small effect size. 11.2% of the variance accounted for the model. See Table 6.

Table 6

Summary of Simultaneous Multiple Regression Analysis for Research Question 1

Variable	β	t	Sig.
Other Children	-0.336	-2.077	.045
Previous Treatment Attempts	-0.042	-0.259	0.797

Pre-Internalizing Past 90 days	0.032	0.168	0.867
Pre-Externalizing Past 90 days	-0.118	-0.627	0.534

Research Question 2

Is there a positive relationship between positive attitudes towards breastfeeding and number of sessions attended?

Pearson product–moment correlation coefficients were used to analyze the data for research question two. When analyzing participants attitudes towards breastfeeding and number of sessions attended, the Pearson correlation did not reveal a significant correlation, ($r(.46) = -.01, p = ns$).

When examining Pearson’s correlations between participants’ GAIN-SS Externalizing Behavioral Complexity scores and IOWA scores, a negative correlation was found ($r = -.26, p = .016$). As participants’ externalization of behavioral complexity increased, their willingness to breastfeed decreased.

CHAPTER 5: DISCUSSION

Introduction to the Chapter

This chapter provides a summary of the study including purpose, variables, sample, and data collection procedures. Study results including a discussion of the demographics, descriptive statistics, and analyses for each research question are provided. Additionally, limitations of the study are examined, implications for substance abuse counselor, supervisors and educators are presented and future research is reviewed. Finally, the chapter concludes with a summary.

Summary of the Study

The purpose of this exploratory study was to investigate the relationship between number of living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity, with the number of motivational interviewing and perinatal education group sessions completed by perinatal substance using women in an inpatient treatment facility. A simultaneous multiple regression was used to analyze the relationship between client variables (i.e., number of other living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity) with number of completed sessions. Each of these client variables are potential barriers for perinatal substance using women seeking substance abuse treatment. Until now, these variables have not been evaluated together with motivational interviewing as the treatment process, to predict the number of treatment sessions perinatal substance using women will complete. The current study also explored whether participants' positive attitudes towards breastfeeding were related to an increase in the number of completed sessions. This relationship was explored using a Pearson product–moment correlation coefficient.

The theoretical foundation for this study was the Transtheoretical Model of Change (TTM) (Prochaska & DeClemente, 1982). Specifically, would client barriers (i.e., number of other living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity) be mitigated by the application of Prochaska and DeClemente's (1982) processes of change (i.e. consciousness raising, dramatic relief, self-reevaluation, environmental reevaluation, self-liberation, counterconditioning, contingency management, and helping relationships).

A selective sampling method was used for this study. Selection was limited to clients who met Navigate-Pregnancy and Recovery Clinic (PARC) inclusion criteria (i.e., 18 years of age or older, pregnant or postpartum, psychiatrically stable, and in inpatient treatment). A total of 96 participants met the inclusion criteria, and data was collected over a 26-month period.

The *Global Appraisal of Individual Needs-Short Screener* (GAIN-SS) subscales scores were used to determine participants' level of mental distress and level of behavioral complexity. The number of previous treatment attempts was gathered utilizing the GAIN-SS system prior to completing the GAIN-SS assessment. Participant demographic information was gathered at intake to determine each participant's number of living children. The *IOWA Infant Feeding Attitude Scale* scores was used to determine participant attitudes towards breastfeeding.

Demographic Variables

Demographic variables included participant ethnicity, age, number of other living children, and previous treatment attempts. A fairly homogenous sample was revealed. All participants were women who were pregnant or up to one year postpartum and had a history of a substance use disorder. Their ages ranged from 18 and 41. The majority of participants were

Caucasian ($N = 66$, 68.8%), in their late twenties ($M = 28.27$), with at least 1 previous treatment attempt ($N = 42$ [of 75 responses]).

Most women reported having other children living outside of the treatment facility ($N = 39$ [of 54 responses]). As previously discussed, women with no other living children completed the 8 session program more frequently than women with 1 to 5 other children. The women who completed all sessions included 9 women with no other living children, 3 women with 1 other living child, 3 women with 2 other living children, and 4 women with 3 other living children. Women with 4 or more other living children did not complete all sessions. This difference may be due to women with other children being concerned about caring for these children, and therefore, choosing to not complete inpatient treatment. The current findings are similar to past research which suggests allowing women to have other living children with them throughout their inpatient substance abuse facility stay increases their likelihood of treatment completion (Brady & Ashley, 2005; Szuster et al., 1996). Kelly et al. (2001) confers, stating the responsibilities of being a mother to young children can produce pressure that makes program completion difficult, noting that women in their study discussed concerns about not having their children with them and the potential for protective services involvement. These concerns were also raised by the participants in the current study.

Descriptive Statistics

Symptoms of mental distress and behavioral complexity were gathered using the GAIN-SS sub-scales. Of the 68 participants with accessible data, 62 (91.2%) women reported internalizing mental health disorder related items ($M = 2.7$, $SD = 1.51$). These women tended to fall between the moderate to high categories, suggesting the presence of internalizing diagnoses

such as somatic symptom disorder, anxiety disorder, depressive disorder, traumatic stress, and suicide thoughts.

Of the 68 participants with accessible data, 49 (51%) women reported at least one externalizing mental health disorder related item ($M = 1.96$, $SD = 1.84$), suggesting the presence of externalizing diagnoses such as attention deficits, hyperactivity, conduct related problems, gambling, or impulsivity. The GAIN-SS sub-scales results suggest that the majority of participants had co-occurring mental health and substance use disorders. These findings are similar to those of Hull et al. (2010) and Lovejoy (2000) who found that psychiatric symptoms and comorbid mental health disorders, such as depression, were common in perinatal substance abusing women. When providing treatment to perinatal substance abusing women, counselors must screen for co-occurring disorders and understand that this population has an increased risk for having mental health symptoms that are worsened because of: (a) hormonal fluctuations, (b) breastfeeding, (c) stress of labor and delivery, and (d) meeting the needs of an infant exposed to substances in-utero (Grella & Joshi, 1999). This information is equally important for addiction counselor educators and supervisors to include during lectures, in-class discussions, and supervision sessions.

Attitudes towards infant feeding were gathered using the *IOWA Infant Feeding Attitude Scale*. Of the 96 participants, 73 (76%) completed the *IOWA Infant Feeding Attitude Scale* at baseline. Participants' mean score at baseline was 58.7 ($SD = 9.33$), suggesting a preference toward positive breastfeeding attitudes. This suggests that the majority of participants will choose or are choosing to breastfeed their babies, which may lower their babies' health risks and increase mother-infant bonding (U.S. Department of Health and Human Services, Office on Women's Health, 2012). The importance of breastfeeding may serve as a reminder/stimulus

control (TTM process) that encourages recovery behavior for perinatal substance using women. Therefore, counselors and/or perinatal educators should assess for difficulties with infant feeding and provide encouragement throughout feeding to support recovery processes.

Interpretation of Results

This section includes a discussion of the results of the statistical analyses reported in Chapter 4. Results for research questions 1 and 2 are examined and interpretations for each are discussed.

Research Question 1

How does the number of living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity predict the number of sessions completed by perinatal substance using women participating in an inpatient manual based motivational interviewing counseling and perinatal education group?

Results from the statistical analyses revealed that the overall model was not statistically significant [$F(4, 38) = 1.35, p = ns$]. The lack of statistical significance may have been confounded by high attrition rates.

Based on past research, this researcher thought that number of living children, past treatment attempts, level of mental distress, and level of behavioral complexity would be factors in predicting treatment completion. As a set of variables, the model was not significant. One possible reason for this finding may be the lack of specificity when exploring the number of other living children in participants' custody. When participants were asked about other living children, they may have responded about children who were not in their care prior to treatment admission or for some time. That is, these children may have been cared for by extended family or in foster care prior to women coming to inpatient treatment and participating in the present

study. Future research should ask about living custody arrangements of participants' children prior to admission.

Additionally, past treatment attempts may not be a barrier to prenatal substance using women's treatment completion but rather a consequence of barriers. Lastly, research suggests that co-occurring disorders brings complications to treatment and is a barrier for women. Researchers are curious if model insignificance is due to small sample size, needing more specific information about the care of other living children, or other factors that may be playing a part such as trauma (i.e., history loss of children due to sudden infant death syndrome or abortions). Moreover, a number of the participants spoke of involvement with the Department of Social Services and the justice system, which may be other factors to explore in future research.

Prospective study results were completed based on doubling and tripling the current data. When data of the current sample ($N = 96$) was doubled, the regression model was not significant [$F(4, 77) = 2.42, p = .056$]. When data of the current sample ($N = 96$) was tripled, significance was found [$F(4, 117) = 3.79, p = .006$], suggesting that the number of living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity may predict the number of sessions perinatal substance using women attend. Prospective study results including TTMs processes of change and counseling interventions are discussed in the Future Research section.

Research Question 2

Is there a positive relationship between positive attitudes towards breastfeeding and number of sessions attended?

Results from Pearson's product-moment correlation was not significant ($r(73) = -.01, p = ns$). Prospective results were examined with the sample size doubled and prospective results did

not reveal significance. These findings suggest there is no relationship between positive attitudes towards breastfeeding and number of sessions attended by perinatal substance abusing women. This researcher suspected a positive relationship between positive attitudes towards breastfeeding and number of sessions completed because women who choose to breastfeed have enhanced sensitivity during the period of early infancy, which fosters secure attachment (Britton, Britton, & Gronwaldt, 2006). Therefore, this enhanced sensitivity to infant needs would encourage mothers to attend treatment sessions and seek recovery. Although the majority of participants had positive attitudes towards breastfeeding, there was no relationship with positive attitudes and the number of completed sessions. A possible reason for this finding is for this sample, sensitivity to infant needs was less of an issue than other factors such as caring for other children. Future research is needed.

Other Findings

Externalizing behavior complexity scores and attitudes toward breastfeeding. When examining Pearson product–moment correlation between participants’ GAIN-SS Externalizing Behavioral Complexity scores and *IOWA Infant Feeding Attitude Scale* scores, a negative correlation was found ($r = (66) -.26, p = .032$). As participants’ externalization of behavioral complexity increased, their willingness to breastfeed decreased. A possible reason for this finding is that women who have a high externalizing score may lack a calm, regulated, emotional state required to effectively breastfeed an infant. More specifically, women with high levels of externalization may lack the ability to regulate their own emotions prior to initiating breastfeeding. In addition to training in MI and the use of the TTM processes of change, counselors providing services to perinatal substance abusing women may benefit from training which focuses on teaching clients emotional regulation and self-soothing (Linhan, et al., 1999).

Further, counselor educators and supervisors are encouraged to include the importance of emotional regulation skills development in addiction treatment course work and counselor skill development.

Internalized mental distress scores and attitudes toward breastfeeding. When examining Pearson product moment correlation between participants' Internalized Mental Distress scores and *IOWA Infant Feeding Attitude Scale* scores, the relationship, although not significant ($r = (66) -.21, p = .089$), was trending toward significance. That is, data was trending towards a negative relationship between Internalizing Mental Distress scores and *IOWA Infant Feeding Attitude Scale* scores, which suggest that women with increased internalized mental distress and externalizing behaviors have a decreased interest in breastfeeding. This further supports the need for counselor's integrating emotional regulation techniques as previously discussed (Linhan, et al., 1999).

Prior treatment attempts and total number of sessions completed. A significant positive relationship was found between prior treatment attempts and total number of sessions completed at the Navigate-Pregnancy and Recovery Clinic ($r (74) = .27, p = .02$). That is, participants with more past treatment attempts completed more group sessions. The current results are similar to those of Clark et al.'s (2001) study. As previously discussed, Clark et al. (2001) studied 244 Medicaid eligible, prenatal care clients and found that all participants who completed treatment, regardless of treatment type (inpatient, outpatient), had past treatment attempts. Clark et al. (2001) suggested that women who have previous treatment experience may be less fearful about returning to treatment, whereas women who are coming to treatment for the first time may fear what lies ahead. In addition, women with a history of previous treatment attempts may have personal knowledge that entering a treatment program is necessary in order to

establish drug-free relationships with their partners and children. This may have been true for the current participants as well.

Although the counselors in the current study were using the TTM's processes of change, participants seeking treatment for the first time may have benefited from more consciousness raising interventions (e.g. information and support concerning treatment expectations). Increasing first time treatment participants' awareness and understanding of treatment expectation may increase their number of completed sessions. Counselor educators and supervisors are encouraged to engage counselors-in-training in role-play discussions, which provide common treatment requirements in a clear and supportive fashion.

Internalization of mental distress and externalizing behavioral complexity. A positive correlation was found between participant's GAIN-SS Internalizing Mental Distress scores and GAIN-SS Externalizing Behavioral Complexity scores ($r(68) = .53, p < .001$). This finding suggests that as perinatal substance abusing women's internal stress (somatic, anxiety, depression, traumatic stress, and suicide thoughts) increases, so does their externalizing symptoms, such as impulsivity or conduct related problems. This finding is consistent with that of Kelly et al. (2001) and Knight et al. (2001). Kelly et al. (2001) found that psychiatric illness was a factor for perinatal substance abusing women not completing treatment. Knight et al. (2001) also identified a trend that participants with psychological problems were less likely to complete their 12-month treatment program. Knight et al. (2001) cited small sample size as a limitation, suggesting that significance may have been established with a larger scale study. When providing treatment to perinatal substance abusing women, counselors should not only screen for co-occurring disorders, but additionally provide care coordination to other needed services such as medication management and evidenced based psychotherapy treatment. If

perinatal women are able to develop strategies to cope with their internalizing symptoms or are provided treatment that facilitates healing concurrently with substance abuse group sessions, their externalizing symptoms may subside, allowing them to focus on substance abuse treatment. Further, participants increased internalizing mental distress and externalizing behavioral complexity scores suggest that counselors may need to use more consciousness raising interventions (e.g., information and support concerning the impact of co-occurring disorders and coping skill development) and dramatic relief interventions (e.g., grief work, personal testimonies). The current study, similar to Knight et al. (2001), offers promising results, which were impacted by small sample size, as well as other study limitations.

Study Limitations

The previous section reviewed and discussed the research findings. Although the simultaneous multiple regression analysis of participants' number of living children, previous treatment attempts, level of mental distress, and level of behavioral complexity did not predict the number of sessions perinatal substance using women completed for the current study, prospective results were promising (i.e., offering clinical significance when sample size is doubled). Secondly, a positive relationship between positive attitudes towards breastfeeding and number of sessions attended was not found in the current study or in prospective results (when sample size was doubled or tripled). Limitations of this study exist in the research design, study sample, use of archival data, and generalizability of research findings.

Research Design

An exploratory, non-experimental, relational research design was used in the current study. Archival data was analyzed, therefore, this researcher did not manipulate study conditions. Due to the study's correlational design, a causal relationship between the variables cannot be

assumed (Gall, Borg & Gall, 1996). Even when significant correlations are found between variables, other factors may be contributing to the actual cause. A correlational research design is exploring the possible relationship(s) and the degree of the relationship(s) among the variables (Gall, Borg & Gall, 1996).

Due to this study being field research, open treatment groups were established for the convenience of the women served. Since participants started, stopped, and re-started sessions at any point during the group rotation, participants received educational information in various sequences. This difference in educational sequencing may have affected participant engagement in treatment and their understanding of information.

Study Sample

The current study's sample included 96 clients enrolled in Navigate-PARC services who consented to participate in clinic research and evaluation between January 2013 and March 2015. Although this study was founded on baseline data, the attrition rate was calculated for participants who did not complete all eight group therapy sessions. Twenty-one (N = 21) participants completed all sessions and 75 participants did not. Thus, there was a 78% attrition rate, which contributed to the small sample size. Attendance in MI and perinatal education group classes was voluntary for all perinatal women at the inpatient treatment facility. When present in the facility, all participants chose to attend group, however, outside concerns (e.g., doctor's appointments, treatment team meetings) sometimes did not allow for attendance. Additionally, participant attrition was due to outside stressors, such as insurance issues where a participant's inpatient bed days ran out. Knight et al. (1999) also reported a high attrition rate (27%) as a limitation when studying 41 mothers with dependent children who were receiving substance abuse treatment in a 12-month residential program. Knight et al. (1999) postulated that

participant dropouts were due to complex client issues (i.e., parenting stress, issues surrounding alcohol use) that typically were not addressed until participants were in the program for several weeks. By this time, participants had already decided to leave the program. Attrition rates amongst the substance using perinatal population are common, which emphasizes the need for continued research in order to increase treatment completion.

Also contributing to the small sample was the nature of inpatient substance abuse treatment facilities in North Carolina. For instance, insurance may only cover a few weeks as opposed to the four weeks needed to complete the program. In addition, perinatal women were only a small portion of the general population at the inpatient substance abuse treatment center.

Open Groups

As discussed in Chapter 4, open groups was a limitation for this study. Participants were able to start, stop or re-start sessions at any point during the group rotation. Women were receiving information from groups in various sequences, which could have affected the present study's data. This difference in educational sequencing may have affected the women's engagement in treatment and understanding of information provided by counselors and educators. Researchers chose to allow women to begin, stop, or re-start sessions at any point in time in order to allow for flexibility and to ensure that as many women as possible had access to the service.

Archival Data

As previously discussed, there are advantages to using archival data (e.g., less costly, less time consuming, looks at existing data from multiple angles) and there are disadvantages or limitations (Kiecolt & Nathan, 1985). One disadvantage to using archival data in the current study was errors may have existed in the data that were invisible to this researcher. Additionally,

this researcher was unable to collect missing data from participants or collect comparison data for participants who discontinued treatment prior to completion.

Generalizability

Generalizability is also a limitation. The small sample limits the generalizability of the findings to other perinatal substance using women in North Carolina and the United States. Also, the *IOWA Infant Feeding Attitude Scale* normative population was women within 48 hours postpartum. However, the present study included pregnant and postpartum (up to one-year) women which may have affected the *IOWA Infant Feeding Attitude Scale* results. Further, women in the present study were in an inpatient treatment facility, which decreased the likelihood of participants engaging in current substance use. The study's result may not be generalized to perinatal substance using women receiving outpatient services.

Implications, Contributions, and Future Research

The purpose of current study was to explore the relationship between number of living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity, with the number of motivational interviewing and perinatal education group sessions completed by perinatal substance using women. The results of the study are encouraging and reveal elements of a potential model for predicting attendance of perinatal women receiving inpatient substance use services. Further research is needed to support the prospective findings.

This study began by establishing perinatal substance abuse as a problem in today's society. National statistics reveal that substance use among pregnant and postpartum women is a grave health risk (Substance Abuse and Mental Health Services Administration [SAMHSA], 2011). Research reveals that women understand the impact that substance use has on their unborn babies with rates of past month alcohol, binge alcohol, and nicotine/cigarette use being

highest pre-pregnancy and steadily decreasing through the third trimester (SAMHSA, 2009). Marijuana rates also decrease throughout pregnancy. Regrettably, substance use rates increase drastically within three months postpartum for past month alcohol, binge alcohol, and nicotine/cigarette use and continue to rise, except for marijuana, which increases within three months postpartum but does not continue to rise thereafter. In North Carolina, substance use trends amongst the perinatal population are more problematic. Infant mortality rates, which are connected to perinatal substance use, are higher than the national average at 7.2 infants for every 1,000 live births (N.C. Healthy Start Foundation, 2012). Nearly half of all infant deaths in North Carolina are due to congenital malformations, deformations, chromosomal abnormalities, prematurity and low birth weight, all connected to perinatal substance use (NC Department of Health and Human Services State Center for Health Statistics, 2012b). Eastern North Carolina was an ideal location for the current study due to its high infant mortality rates. Eastern North Carolina's high infant mortality rates may be due to a lack of access to treatment and general health issues in the population (Selewski et al., 2013). Perinatal women in the present study were from rural North Carolina, where there is a lack integrative care sites, and predictors of treatment non-completion, such as number of living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity may be amplified due to the lack of available services. The current study explored potential barriers to treatment completion in order to provide valuable information to substance abuse counselors, supervisors, and educators. Substance abuse professional as well as counselors-in-training can learn about these barriers, predict treatment completion, and intervene effectively and efficiently.

Research shows that gender and pregnancy specific integrative, holistic care based in MI are effective when treating pregnant and postpartum substance using women (Greenfield et al.,

2007). Studies reveal that client variables, such as number of living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity, may have an impact on the number of treatment sessions pregnant and postpartum women will attend. Missing from the literature was research that explored all of these client variables together. Clinicians in the current study utilizing the TTM processes of change in treatment in hopes of mitigating the barriers participants faced (number of other living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity). The current study analyzed these variables simultaneously in hopes of predicting the number of treatment sessions completed by perinatal women with substance use disorders.

The present study was the first to explore this set of variables that may inhibit women from completing group treatment sessions. Using baseline psychological and demographic data, the present study sought to predict the number of group sessions pregnant substance using women would complete. The study's demographic results provide a preliminary profile of pregnant and postpartum substance using women in eastern North Carolina. Perinatal substance using women in this study were women who were pregnant or up to one year postpartum, had a history of a substance use disorder, and were between the ages of 18 and 41. The majority of participants were Caucasian (N = 66, 68.8%), in their late twenties (M = 28.27) with at least one previous treatment attempt (N = 42 [of 75 responses]). Most women reported having other children living outside of the treatment facility (N = 39 [of 54 responses]).

Secondly, the findings add to the body of research concerning perinatal substance using women. Findings in the present study are similar to those of Hull et al. (2010) and Lovejoy (2000) who found that psychiatric symptoms and comorbid mental health disorders, such as depression, were common in perinatal substance abusing women. Fifty-one percent of women in

the current study reported at least one externalizing mental health disorder related item ($M = 1.96$, $SD = 1.84$), suggesting the presence of externalizing diagnoses such as attention deficits, hyperactivity, conduct related problems, gambling, or impulsivity. The GAIN-SS sub-scales results suggest that the majority of participants had co-occurring mental health and substance use disorders. This research contributes to earlier findings that many perinatal substance using women have co-occurring mental health disorders and further supports the need for counselors to screen for co-occurring disorders and understand that this population has an increased risk for having mental health symptoms. These symptoms may be amplified due to (a) hormonal fluctuations, (b) breastfeeding, (c) stress of labor and delivery, and (d) meeting the needs of an infant exposed to substances in-utero (Grella & Joshi, 1999). This study's contribution to the literature not only raises awareness about these concerns, but also calls for substance abuse counselors to screen their perinatal substance abusing clients for co-occurring disorders and for counselor educators and supervisors to include these findings in lecture and skill building addiction courses.

In addition to the present study suggesting that substance abuse counselors' screen their perinatal substance using clients more effectively, correlations from this study support substance abuse counselors working with multi-disciplinary teams to meet the complex needs of this population. When examining participants' GAIN-SS Internalizing Mental Distress scores and Externalizing Behavioral Complexity scores, a positive correlation was found ($r = .53$, $p = .001$). As participants' internalization of mental distress (e.g. somatic, anxiety, depression, traumatic stress, and suicide thoughts) increased, so did their externalization of behavioral complexity (e.g. attention deficit, hyperactivity/impulsivity, and conduct disorder). Kelly et al. (2001) found that psychiatric illness was a factor for perinatal substance abusing women not completing treatment,

and Knight et al. (2001) identified a trend that participants with psychological problems were less likely to complete their 12-month treatment program. The present study calls for counselors to not only screen for co-morbid mental health disorders when providing treatment to perinatal substance abusing women, but to also provide care coordination to other needed services including medication management and evidenced based psychotherapeutic treatment. Counselor educators and supervisors are encouraged to include mock interdisciplinary case staffing in skills based courses.

Lastly, although attitudes towards breastfeeding were not found to be a predictor of number of completed sessions, participants, in general, had positive attitudes towards feeding. This suggests that perinatal women understand that breastfeeding is important for the health of their babies. However, this knowledge appears to not be related to number of sessions completed. Future research is needed to support this finding.

When examining the Pearson Product Moment correlation between participants' Internalized Mental Distress scores and *IOWA Infant Feeding Attitude Scale* scores, the relationship was trending toward significance ($r = -.21, p = .089$), which suggests that women with increased internalized mental distress as well as increased externalizing behaviors have a decreased interest in breastfeeding. This suggests that perinatal substance abusing women may benefit from emotional regulating interventions. Counselors working with this population are encouraged to diversify their training, and perhaps integrate emotional regulation interventions into their protocol. Counselor educators and supervisors are encouraged to include emotional regulation techniques in addiction curriculum. When examining the relationship between participants' Internalized Mental Distress scores and the *IOWA Infant Feeding Attitude Scale* scores, there is a trend towards significance which suggest that future research is needed.

Concerning future research, this exploratory study's results provide a starting point for understanding client variables, which are barriers to treatment attendance of perinatal substance using women. Replication of this effort is needed. When replicating the study, larger sample sizes are needed to ensure an adequate number of perinatal substance abusing women are represented. (See Prospective Data Analysis.) To increase the sample size, the use of multisite research is suggested.

Another suggestion for future research is to utilize the variables in the present study to compare inpatient and outpatient treatment completion. Additionally, this researcher suggests a quasi-experimental design, which compares MI and the use of the TTM's processes of change with the more traditional 12-step facilitation treatment. Lastly, other client variables, which are also barriers to treatment, should be explored, including Department of Social Services and criminal justice involvement.

Additionally, there were several participants who reported having previous pregnancies where children were either aborted or who had babies who died from sudden infant death syndrome (SIDS). Researchers chose to ask about other *living* children for this reason. Future research should include rates of abortions/SIDS and their impact on internal and externalizing behavior.

Prospective Data Analysis

When data from the current sample was doubled, findings were close to statistical significance. When data from the current sample was tripled, findings were significant, suggesting that a larger scale study would be worthwhile.

Research question 1. The current data was doubled, and a simultaneous multiple regression was used to explore participants' number of living children, number of previous

treatment attempts, level of mental distress, and level of behavioral complexity with number of completed treatment sessions. The results were close to statistical significance with the overall model being $[F(4,77) = 2.42, p = .056]$. The model accounted for 11.2% of the variance and yielded a small effect size. See Table 7.

Table 7

Summary of Simultaneous Multiple Regression Analysis for Research Question 1- Sample Doubled

Variable	β	T	Sig.
Other Living Children	-0.336	-3.038	0.003
Previous Treatment Attempts	-0.042	-0.378	0.706
Pre-Internalizing Past 90 days	-0.032	0.246	0.806
Pre-Externalizing Past 90 days	-0.118	-0.917	0.362

When current data was tripled, and a simultaneous multiple regression was used to explore participants' number of living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity with number of completed treatment sessions, the results were statistically significant $[F(4,117) = 3.79, p = .006]$. The model accounted for 11.5% of the variance and yielded a small effect size. See Table 8.

Table 8

Summary of Simultaneous Multiple Regression Analysis for Research Question 1- Sample Tripled

Variable	β	t	Sig.
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Other Living Children	-0.334	-3.837	0.000
Previous Treatment Attempts	-0.068	-0.749	0.456
Pre-Internalizing Past 90 days	0.019	0.177	0.860
Pre-Externalizing Past 90 days	-0.097	-0.921	0.359

As previously discussed, Knight et al. (2001) also cited small sample size as a study limitation, but was able to identify a trend that participants with psychological problems were less likely to complete their 12-month treatment program. Knight et al. (2001) notes that a larger sample size may have contributed to significant findings. Additionally, Kelly et al. (2001) also reported small sample size as a study limitation. Due to the many barriers perinatal substance using women face, attrition is a concern for researchers. Prospective results show promise that with a large sample, number of treatment sessions will be predicted, so that in the future counselors can mitigate potential barriers, not only using the TTM's processes of change, but pinpointing their interventions towards this specific barriers.

Conclusion

Perinatal substance abuse, an issue in today's society, is a health risk to pregnant and postpartum mothers (Substance Abuse and Mental Health Services Administration [SAMHSA], 2011). Although women acknowledge the negative impact substance abuse has on their unborn babies (SAMHSA, 2009), rates of use increase dramatically within three months postpartum. The present study included perinatal women from North Carolina where infant mortality rates are higher than the national average (N.C. Healthy Start Foundation, 2012), integrative care sites are limited, and predictors of attrition (i.e., number of living children, number of previous treatment attempts, level of mental distress, level of behavioral complexity) are possibly

magnified due to the rural geography. A review of current literature on the perinatal substance abuse population revealed various barriers to treatment completion, but also confirmed that using Motivational Interviewing (MI) was successful with this population.

Gender and pregnancy specific integrative, holistic care based in MI is known to be effective when treating perinatal substance using women (Greenfield et. al., 2007). The current study was based on counselors using the Transtheoretical Model's (TTM) processes of change to mitigate barriers faced by perinatal substance using women. The purpose of the study was to determine the relationship between number of other living children, number of previous treatment attempts, level of mental distress, and level of behavioral complexity, with the number of motivational interviewing group sessions completed by perinatal substance using women. The current study used multiple regression to analyze variables simultaneously in order to predict the number of treatment sessions completed by perinatal substance using women. An additional purpose was to explore the relationship between positive attitudes towards breastfeeding and number of completed sessions using a Pearson product-moment correlation analysis.

Participants in this study were women who were pregnant or up to one year postpartum, had a substance use disorder, and were between the ages of 18 and 41. Most participants were Caucasian (N = 66, 68.8%), in their late twenties (M = 28.27), and had at least one previous treatment attempt (N = 42 [of 75 responses]). The majority of women reported having other living children outside of the inpatient treatment facility (N = 39 [of 54 responses]).

Valuable information was gained from this study, which influences future research and practice. Similar to previous research (Hull et. al., 2010; Lovejoy, 2000), psychiatric symptoms were common among study participants. Analysis of participants' *Global Appraisal of Individual Needs-Short Screener* (GAIN-SS) sub-scale results suggest that the majority of the participants

had co-occurring mental health disorders. Additionally, the current study found a positive correlation ($r(68) = .53, p = .001$) which suggests that as a participant's internalization of mental distress increased, so did their externalization of behavioral complexity. Additionally, elements of a potential model for predicting attendance of perinatal substance using women was revealed. With a larger sample, results of future research are promising and may provide a foundation for using client variables as predictors of attendance at inpatient perinatal substance abuse groups. Having more knowledge about client variable predictors of attendance may facilitate client progress by enhancing the ability of the counselor to use the TTM's processes of change effectively and efficiently. Further, addiction counselor educators and supervisors are encouraged to provide information and training in the TTM of Change and the processes of change when working with counselors-in-training.

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APPENDIX A: IRB Approval Letter



EAST CAROLINA UNIVERSITY
University & Medical Center Institutional Review Board
Office

4N-70 Brody Medical Sciences Building · Mail Stop 682
600 Moye Boulevard · Greenville, NC 27834
Office **252-744-2914** · Fax **252-744-2284** · www.ecu.edu/irb

Notification of Amendment Approval

From: Biomedical IRB
To: [Stephen Leierer](#)
CC:
Date: 5/21/2015
[Ame4 UMCIRB 12-000419](#)
Re: [UMCIRB 12-000419](#)
Effects of Counseling Interventions with Clients Receiving Counseling at the Navigate Clinic

Your Amendment has been reviewed and approved using expedited review for the period of 5/20/2015 to 5/19/2016. It was the determination of the UMCIRB Chairperson (or designee) that this revision does not impact the overall risk/benefit ratio of the study and is appropriate for the population and procedures proposed.

Please note that any further changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. A continuing or final review must be submitted to the UMCIRB prior to the date of study expiration. The investigator must adhere to all reporting requirements for this study.

Approved consent documents with the IRB approval date stamped on the document should be used to consent participants (consent documents with the IRB approval date stamp are found under the Documents tab in the study workspace).
The approval includes the following items:

Document	Description
Increase in projected enrollment.	

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

IRB00000705 East Carolina U IRB #1 (Biomedical) IORG0000418
IRB00003781 East Carolina U IRB #2 (Behavioral/SS) IORG0000418

APPENDIX B: Navigate Triage Form

PARC Only
Do you smoke? Y N
Do you have other living children? Y N
If so how many? ___
When is your due date?



Navigate Counseling Clinic ~ 4425 Health Sciences Dr. ~ Greenville, NC 27834
Phone: (252) 744-0328 ~ Fax: (252) 744-6311 ~ On Call Cell: (252) 378-8498

Navigate Triage Form

Date of call/walk-in: _____

Counselor's name completing form: _____

Caller's First Name: _____ Last Name: _____

Telephone Number: _____

Address: _____

Presenting Concern:

Safety Check:

- 0- Denied plans of any intent to harm self or others
- 1- Low risk, no plans, no intent able to contract for safety
- 2- Moderate risk, plan, but no means of carrying out any action able to contract for safety
- 3- High risk, specific plan and means of carrying out plan unable to contract for safety

Is this individual at risk of harming themselves? 0 1 2 3

Is this individual at risk of harming someone else? 0 1 2 3

If Yes to either question above, please describe actions taken:

Referred To Outside Provider: _____

Navigate Appointment Scheduled (date, time, and name of counselor):

“At your first appointment, please bring:

-proof of income

-list of current medications

-previous documentation/assessments

-Give client Real Crisis number: (252) 758-4357

We look forward to seeing you on _____. We will be giving you a call the day prior to your appointment.”

If client is referred to an outside provider, place this form in crisis book, if a Navigate appointment is scheduled, place form in client record.

Entered on Navigate Tracking Log? Yes / No

APPENDIX C: IRB Navigate Informed Consent

East Carolina University



Informed Consent to Participate in Research

Information to consider before taking part in research that has no more than minimal risk.

Title of Research Study: Effects of Counseling Interventions with Clients Receiving Counseling at the Navigate Clinic

Principal Investigator: Stephen Leierer, PhD

Institution/Department or Division: Department of Addictions and Rehabilitation Studies

Address: 4410 Health Sciences Building, Mail Stop 677, East Carolina University, Greenville, NC 27858

Telephone #: (252) 744-0328

Researchers at East Carolina University (ECU) and the Navigate Counseling Clinic in the Department of Addictions and Rehabilitation Studies study problems in society, health problems, environmental problems, behavior problems and the human condition. Our goal is to try to find ways to improve the lives of you and others. To do this, we need the help of volunteers who are willing to take part in research.

Why is this research being done?

The purpose of this research is to evaluate the effectiveness of counseling services as provided by the Navigate Counseling Clinic. The decision to take part in this research is yours to make. By doing this research, we hope to learn more about counseling outcomes and processes including client attendance, therapeutic homework completion, and client satisfaction with counseling services.

Why am I being invited to take part in this research?

You are being invited to take part in this research because you have chosen to receive counseling related services at the Navigate Counseling Clinic. If you volunteer to take part in this research, you will be one of an estimated 200 people to do so from the Navigate Counseling Clinic.

Are there reasons I should not take part in this research?

I understand I should not volunteer for this study if I am under 18 years of age, am seeking couples counseling, medically unstable, or am actively experiencing psychotic symptoms (e.g. delusions, hallucinations).

What other choices do I have if I do not take part in this research?

You can choose not to participate. If you choose not to participate, you can continue to receive services from the Navigate Counseling Clinic.

Where is the research going to take place and how long will it last?

The research procedures will be conducted at the Navigate Counseling Clinic on the 4th floor of the Allied Health Building and at the Brody School of Medicine in the Department of Obstetrics and Gynecology. You will need to come to Room 4410 at your scheduled counseling appointment during the study in the Allied Health Building or to Module B in the Department of Obstetrics and Gynecology if you are a pregnant woman with a history of substance use. An estimated two hours of services is expected beyond normally scheduled counseling. Counseling will begin and end based on individual client needs. The total amount of time you will be asked to volunteer for this study is approximately two hours for research and evaluation activities beyond normally conducted counseling.

What will I be asked to do?

You are being asked to do the following:

- Complete the GAIN assessment during intake to the counseling clinic. The GAIN is a verbally administered assessment containing questions on one's history pertinent to counseling including school, career, life stressors, crime/violence, substance use, life satisfaction, physical and mental health, and risky behavior.
- Complete the GAIN assessment following discharge.
- Participate in counseling sessions in which the counselor is video recorded. As a client, only voice will be recorded.
- A client may opt out of participation in research (video recording) while still receiving counseling services. All clients regardless of research participation will be administered the GAIN as part of an intake assessment.
- Video recordings will be collected and stored via a fully HIPAA compliant, encrypted, and password protected video recording system.
- GAIN Data Management Services (Chestnut Health Systems, 448 Wylie Drive, Normal, IL) will have access to your de-identified data.

What possible harms or discomforts might I experience if I take part in the research?

It has been determined that the risks associated with this research are no more than what you would experience in everyday life.

What are the possible benefits I may experience from taking part in this research?

We do not know if you will get any benefits by taking part in this study. This research might help us learn more about how counseling services work to benefit clients. There may be no personal benefit from your participation beyond that normally received from counseling related services, but the information gained by doing this research may help others in the future.

Will I be paid for taking part in this research?

We will not be able to pay you for the time you volunteer while being in this study.

What will it cost me to take part in this research?

You will be asked to pay for counseling services based on a sliding scale fee. Should you be unemployed or unable to pay, you will not be turned away for services.

Who will know that I took part in this research and learn personal information about me?

To do this research, ECU and the people and organizations listed below may know that you took part in this research and may see information about you that is normally kept private. With your permission, these people may use your private information to do this research:

- Any agency of the federal, state, or local government that regulates human research. This includes the Department of Health and Human Services (DHHS), the North Carolina Department of Health, and the Office for Human Research Protections.
- The University & Medical Center Institutional Review Board (UMCIRB) and its staff, who have responsibility for overseeing your welfare during this research, and other ECU staff who oversee this research.

How will you keep the information you collect about me secure? How long will you keep it?

Recordings will be kept until the study is closed at which point all recordings will be completely erased from the video recording system. Video recordings will be used only for research and clinical supervision purposes. Client paperwork and records will be stored in a locked filing cabinet with access given only to clinic staff. GAIN data will be stored in encrypted HIPAA compliant form.

What if I decide I do not want to continue in this research?

If you decide you no longer want to be in this research after it has already started, you may stop at any time. You will not be penalized or criticized for stopping. You will not lose any benefits that you should normally receive.

Who should I contact if I have questions?

The people conducting this study will be available to answer any questions concerning this research, now or in the future. You may contact the Principal Investigator, Stephen Leierer, PhD, at (252) 744-6298, Monday-Thursday, 7am-9am.

If you have questions about your rights as someone taking part in research, you may call the Office for Human Research Integrity (OHRI) at phone number 252-744-2914 (days, 8:00 am-5:00 pm). If you would like to report a complaint or concern about this research study, you may call the Director of the OHRI, at 252-744-1971

I have decided I want to take part in this research. What should I do now?

The person obtaining informed consent will ask you to read the following and if you agree, you should sign this form:

- I have read (or had read to me) all of the above information.
- I have had an opportunity to ask questions about things in this research I did not understand and have received satisfactory answers.
- I know that I can stop taking part in this study at any time.
- By signing this informed consent form, I am not giving up any of my rights.
- I have been given a copy of this consent document, and it is mine to keep.

Participant's Name (PRINT)	Signature	Date
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- **Person Obtaining Informed Consent:** I have conducted the initial informed consent process. I have orally reviewed the contents of the consent document with the person who has signed above, and answered all of the person’s questions about the research.

Person Obtaining Consent (PRINT)	Signature	Date
---	------------------	-------------

Principal Investigator (PRINT)	Signature	Date
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(If other than person obtaining informed consent)

APPENDIX D: Global Appraisal Individual Needs-Short Screener

GAIN Short Screener (GAIN-SS) Version [GVER]: GAIN-SS ver. 3.0

What is your name? a. _____ b. _____ c. _____
 (First name) (M.I) (Last name)

What is today's date? (MM/DD/YYYY) |__|_| / |__|_| / 20 |__|_|

The following questions are about common psychological, behavioral, and personal problems. These problems are considered **significant** when you have them for two or more weeks, when they keep coming back, when they keep you from meeting your responsibilities, or when they make you feel like you can't go on.

After each of the following questions, please tell us the last time, if ever, you had the problem by answering whether it was in the past month, 2 to 3 months ago, 4 to 12 months ago, 1 or more years ago, or never.

Past month	2 to 3 months ago	4 to 12 months ago	1+ years ago	Never
4	3	2	1	0

IDScr 1. When was the last time that you had **significant** problems with...

- a. Feeling very trapped, lonely, sad, blue, depressed, or hopeless about the future? 4 3 2 1 0
- b. Sleep trouble, such as bad dreams, sleeping restlessly, or falling asleep during the day? 4 3 2 1 0
- c. Feeling very anxious, nervous, tense, scared, panicked, or like something bad was going to happen? 4 3 2 1 0
- d. Becoming very distressed and upset when something reminded you of the past? 4 3 2 1 0
- e. Thinking about ending your life or committing suicide? 4 3 2 1 0
- f. Seeing or hearing things that no one else could see or hear or feeling that someone else could read or control your thoughts? 4 3 2 1 0

EDScr 2. When was the last time that you did the following things **two or more times**?

- a. Lied or conned to get things you wanted or to avoid having to do something. 4 3 2 1 0
- b. Had a hard time paying attention at school, work, or home. 4 3 2 1 0
- c. Had a hard time listening to instructions at school, work, or home. 4 3 2 1 0
- d. Had a hard time waiting for your turn. 4 3 2 1 0
- e. Were a bully or threatened other people. 4 3 2 1 0
- f. Started physical fights with other people. 4 3 2 1 0
- g. Tried to win back your gambling losses by going back another day. 4 3 2 1 0

SDScr 3. When was the last time that...

- a. You used alcohol or other drugs weekly or more often? 4 3 2 1 0
- b. You spent a lot of time either getting alcohol or other drugs, using alcohol or other drugs, or recovering from the effects of alcohol or other drugs (e.g., feeling sick)? 4 3 2 1 0
- c. You kept using alcohol or other drugs even though it was causing social problems, leading to fights, or getting you into trouble with other people? 4 3 2 1 0
- d. Your use of alcohol or other drugs caused you to give up or reduce your involvement in activities at work, school, home, or social events? 4 3 2 1 0

e. You had withdrawal problems from alcohol or other drugs like shaky hands, throwing up, having trouble sitting still or sleeping, or you used any alcohol or other drugs to stop being sick or avoid withdrawal problems? 4 3 2 1 0

CVScr 4. When was the last time that you...

- a. Had a disagreement in which you pushed, grabbed, or shoved someone? 4 3 2 1 0
- b. Took something from a store without paying for it? 4 3 2 1 0
- c. Sold, distributed, or helped to make illegal drugs? 4 3 2 1 0
- d. Drove a vehicle while under the influence of alcohol or illegal drugs? 4 3 2 1 0
- e. Purposely damaged or destroyed property that did not belong to you? 4 3 2 1 0

5. Do you have other **significant** psychological, behavioral, or personal problems that you want treatment for or help with? (**Please describe**) Yes No
1 0

v1. _____

6. What is your gender? (If other, please describe below) 1 - Male 2 - Female 99 - Other

v1. _____

7. How old are you today? |_|_| Age

7a. How many minutes did it take you to complete this survey? |_|_|_| Minutes

Staff Use Only

8. Site ID: _____ Site name v. _____

9. Staff ID: _____ Staff name v. _____

10. Client ID: _____ Comment v. _____

11. Mode: 1 - Administered by staff 2 - Administered by other 3 - Self-administered

13. Referral: MH ___ SA ___ ANG ___ Other ___ 14. Referral codes: _____

15. Referral comments: v1. _____

Scoring

Screener	Items	Past Month (4)	Past 90 days (4,3)	Past year (4,3,2)	Ever (4,3,2,1)
IDScr	1a – 1f				
EDScr	2a – 2g				
SDScr	3a – 3e				
CVScr	4a – 4e				
TDSr	1a – 4e				

GAIN-SS copyright © Chestnut Health Systems. For more information on this instrument, please visit <http://www.gaincc.org> or contact the GAIN Project Coordination Team at (309) 451-7900 or GAINInfo@chestnut.org

gaincc.org
gaininfo@chestnut.org

APPENDIX E: IOWA Infant Feeding Attitude Scale

The Iowa Infant Feeding Attitude Scale

For each of the following statements, please indicate how much you agree or disagree by circling the number that most closely corresponds to your opinion (1 = *strong disagreement* [SD], 2 = *disagreement* [D], 3 = *neutral* [N], 4 = *agreement* [A], 5 = *strong agreement* [SA]). You may choose any number from 1 to 5.

	SD	D	N	A	SA
*1. The nutritional benefits of breast milk last only until the baby is weaned from breast milk.	1	2	3	4	5
*2. Formula feeding is more convenient than breast-feeding.	1	2	3	4	5
3. Breast-feeding increases mother-infant bonding.	1	2	3	4	5
4. Breast milk is lacking in iron.	1	2	3	4	5
5. Formula-fed babies are more likely to be overfed than are breastfed babies.	1	2	3	4	5
*6. Formula-feeding is the better choice if a mother plans to work outside the home.					
7. Mothers who formula-feed miss one of the great joys of motherhood.	1	2	3	4	5
*8. Women should not breast-feed in public places such as restaurants.	1	2	3	4	5
9. Babies fed breast milk are healthier than babies who are fed formula.	1	2	3	4	5
*10. Breast-fed babies are more likely to be overfed than formula fed babies.	1	2	3	4	5
*11. Fathers feel left out if a mother breast feeds.	1	2	3	4	5
12. Breast milk is the ideal food for babies.	1	2	3	4	5
13. Breast milk is more easily digested than formula.	1	2	3	4	5
*14. Formula is as healthy for an infant as breast milk.	1	2	3	4	5
15. Breast-feeding is more convenient than formula feeding.	1	2	3	4	5
16. Breast milk is less expensive than formula.	1	2	3	4	5
*17. A mother who occasionally drinks alcohol should not breast-feed her baby.	1	2	3	4	5

APPENDIX F: Navigate-PARC Informed Consent Letter

Navigate
4410 Health Sciences Bldg
Mail Stop 677
East Carolina University
Greenville, NC 27858-4353
(252) 744-0328
Fax 252-744-6311
navigate@ecu.edu

INFORMED CONSENT FOR ASSESSMENT AND TREATMENT

Client Name: _____

Record Number: _____

I understand that as a client receiving services from Navigate I am eligible to receive a range of services. The type and extent of services that I will receive will be determined following an initial assessment and thorough discussion with me. The goal of the assessment process is to determine the best course of treatment for me. Typically, treatment is provided over the course of several weeks.

I understand that all information shared with the clinicians at Navigate is confidential and no information will be released without my consent. During the course of treatment at Navigate, it may be necessary for my therapist to communicate with others providers involved in my treatment. Under these circumstances, consent to release information is given through written authorization. I further understand that there are specific and limited exceptions to this confidentiality which include the following:

When there is risk of imminent danger to myself or to another person, the clinician is ethically bound to take necessary steps to prevent such danger.

When there is suspicion that a child or elder is being sexually or physically abused or is at risk of such abuse, the clinician is legally required to take steps to protect the child, and to inform the proper authorities.

When a valid court order is issued for medical records, the clinician and the agency are bound by law to comply with such requests.

I understand that a range of mental health professionals, some of whom are in training, provides Navigate services. All professionals-in-training are supervised by licensed staff. I understand that while counseling may provide significant benefits, it may also pose risks. Counseling may elicit uncomfortable thoughts and feelings, or may lead to the recall of troubling memories.

If I have any questions regarding this consent form or about the services offered at Navigate, I may discuss them with my clinicians.

I have read and understand the above. I consent to participate in the evaluation and treatment offered to me by Navigate.

I consent to receive, if deemed necessary in emergency situations, "First Aid/CPR" from Navigate staff trained in these interventions. I also consent to receive emergency care from a hospital or physician.

I understand that I may stop treatment at any time.

Signature

Date

APPENDIX G: Curriculum Vita

Alicia M. Bell

QUALIFICATION SUMMARY:

- Experience in a variety of clinical settings in community mental health, substance abuse, and school settings in direct care, management, and program development
- Personal and professional experience with Marine Corps families
- Proven clinical leadership capabilities in higher education and mental health organizations including clinical supervision, reflective supervision and program development
- Teaching experience with undergraduate and graduate level students online and face to face at East Carolina University
- Successful at establishing partnerships between mental health and primary care organizations, universities, and state level agencies
- Long term, established relationships with stakeholders in North Carolina
- Research and grant involvement related to integrated, holistic care for children, families, and perinatal women in the community and inpatient setting
- Training experience provided to high level, trauma-focused clinicians

EDUCATION:

East Carolina University

Greenville, NC 27858

PhD in Rehabilitation Counseling & Administration

Clinical concentration

Doctoral Candidate

December/May 2016

East Carolina University

Greenville, NC 27858

Master of Science in Substance Abuse & Clinical Counseling

Clinical concentration

December 2016

East Carolina University

Master of Science in Counselor Education
December 2010

Practicum

Easter Seals UCP NC Intensive In-Home Therapy
Family Therapy at Affiliated Medical Group

Internship

August 2010 – December 2010

JT Barber Elementary conducting classroom guidance, individual & family therapy

University of North Carolina at Wilmington

Wilmington, NC 28403

Bachelor of Arts in Psychology, Minor in Sociology

December 2007

PROFESSIONAL LICENSES:

Licensed Professional Counselor: 2010-present, North Carolina Board of Licensed Professional Counselors

Licensed Clinical Addictions Specialist: 2016-present

Licensed School Counselor: 2010-present, State of North Carolina, State Board of Education, Department of Public Instruction

North Carolina Notary Public: 2004-2009

CLINICAL EXPERIENCE:

January 2016-Present: Child First, NC Regional Clinical Director, Eastern NC

June 2014-January 2016: Easter Seals UCP NC & VA, Child Parent Psychotherapy, New Bern, NC, Clinical Supervisor

January 2012-May 2014: Navigate-Pregnancy & Recovery Clinic, College of Allied Health Sciences, Greenville, NC, Graduate Assistant, Clinic Coordinator

October 2012-Present: Easter Seals UCP NC & VA, Forever Families Post Adoption Supports, New Bern, NC & Jacksonville, NC, Group Leader

August 2011-Present: East Carolina University, College of Allied Health Sciences, Department of Addictions and Rehabilitation Studies, Greenville, NC, Graduate Assistant, Doctoral Clinical Supervisor

June 2012-January 2013: Navigate Counseling Clinic, East Carolina University, College of Allied Health Sciences, Department of Addictions and Rehabilitation Studies, Greenville, NC, Graduate Assistant, Clinic Coordinator

March 2012-June 2012: Easter Seals UCP NC & VA, New Bern, NC, Intensive In-Home Supervisor

August 2011-March 2012: Easter Seals UCP NC & VA, Jacksonville, NC, Outpatient Therapist

December 2010-August 2011: Easter Seals UCP NC & VA, New Bern, NC, Intensive In-Home Therapist

December 2009-December 2010: Easter Seals UCP NC & VA, New Bern, NC, Child Placement Coordinator

October 2008-December 2010: Easter Seals UCP NC & VA, New Bern, NC, Individual and Community Supports Supervisor

June 2008-October 2008: RHA Howell Center, New Bern, NC, Behavior Analyst

CERTIFICATIONS:

Child Parent Psychotherapy, Nationally Rostered

ADVANCED CLINICAL TRAINING:

May 2016: Infancy Training by Mary Claire Heffron, New Haven, CT, 2 days

December 2015: Clinical Supervision Training, Child First, 2 days

Summer 2015: Red Cross Disaster Mental Health Training

Summer 2015: Child Parent Psychotherapy, Training Three, 3 days

December 2014: Child Parent Psychotherapy, Training Two, 3 days

Fall 2014: Child Parent Psychotherapy, Booster Training, 2 days

Summer 2014: Child Parent Psychotherapy, Training One, 3 days

Spring 2014: Family Treatment in Substance Abuse and Rehabilitation

April 2013: Motivational Interviewing, Dixon Social Interactive Services

Fall 2012: Advanced Clinical Supervision

June 2011: Trauma Focused Agency Training

May 2011: Application of Structural Family Therapy (35 hour training)

April 2011: Person Centered Thinking

April 2011: An Introduction to Child and Family Teams

2010: Darkness to Light: Child Abuse Training

February 2008: Supervision of a Para Professional

October 2007: Crisis Response: How to Respond When There is a Crisis

COURSES TAUGHT:

Fall 2015, 3150 Introduction to Early Intervention, Child Development and Family Relations, Guest Lecturer, Early Intervention and Trauma, East Carolina University

Fall 2014, 3150 Introduction to Early Intervention, Child Development and Family Relations, Guest Lecturer, Early Intervention and Trauma, East Carolina University

Fall 2014: 2000 Resources in Rehabilitation and Healthcare, Guest Lecturer, Foster Care and Adoption, East Carolina University

Fall 2014: 6050 Ethical and Legal Aspects in Substance Abuse and Rehabilitation Counseling, Guest Speaker, East Carolina University

Summer 2014: 6010 Introduction to Counseling and Rehabilitation, (3), Co-Instructor, East Carolina University

March 2014: 2000 Resources in Rehabilitation and Healthcare, Guest Lecturer, Foster Care and Adoption, East Carolina University

Summer 2013: 6350 Group Counseling for Addictive Behavior, (3), East Carolina University, Teaching Assistant

Summer 2013: 6050 Ethical and Legal Aspects in Substance Abuse and Rehabilitation Counseling, (3), Teaching Assistant, East Carolina University

Fall 2012: 2000 Resources in Rehabilitation and Healthcare, (3), Instructor, East Carolina University

Fall 2011: 2000 Resources in Rehabilitation and Healthcare, (3), Teaching Assistant, East Carolina University

PROFESSIONAL PRESENTATIONS:

Bell, A. (2016, August) *Working with Substance Using Caregivers*. Child First Learning Session 2, Wilmington, NC

Bell, A. (2016, July) *Reflective Supervision*. Child First Learning Session 1, Wilmington, NC

- Bell, A.** & Newsome, H. (2016, July) *Child First in North Carolina*. Trillium 20/20 Vision Conference, Wilmington, NC
- Bell, A.** (2016, February) *Reflective Supervision*. Child First Learning Session 2, Greenville, NC
- Bell, A.** (2016, February) *Working with Substance Using Caregivers*. Child First Learning Session 2, Greenville, NC
- Bell, A.** & Wetherington, K. (2015, November) *Using Child Parent Psychotherapy with Substance Using Pregnant and Postpartum Women and Infants*. North Carolina Infant Mental Health Association Conference, Greensboro, NC.
- Bell, A.,** Wetherington, K. & Detmers, J. (2015, August) *Early Mental Health Intervention in Eastern NC: Child Parent Psychotherapy*. Annual Children's Services State of the Art Conference, New Bern, NC.
- Bell, A.** & Wetherington, K. (2014, November) *Pregnancy and Recovery in an Integrated Healthcare Setting*. North Carolina Infant Mental Health Association Conference, Greensboro, NC.
- Bell, A.** (2014, September) *Substance Abuse & Pregnancy: Effective Treatment for mothers and very young children*. Substance Abuse & Pregnancy Conference, Eastern AHEC, Greenville, NC.
- Bell, A.** (2014, March) *Pregnancy and Recovery in an Integrated Healthcare Setting*. Professional Association for Rehabilitation Counselors, Emerald Isle, NC.
- Sligar, S., **Bell, A.,** Putts, M, Clemmons-James, D., Crawford, C., & Smith, V. (2014, March) *Flipping the Classroom to Teach Counseling Ethics*. National Council on Rehabilitation Education Conference, Manhattan Beach, CA.
- Bell, A.,** Hinton, Q., & Gilbert, G. (2014, February) *Navigate-Pregnancy & Recovery Clinic: Using Motivational Interviewing in an Integrated Healthcare Setting*. Poster session presented at 10th Annual Jean Mills Health Symposium, East Carolina University, Greenville, NC.
- Bell, A.** (2013, November). *Research & Advocacy: How to Make Educated Decisions for your Children*. A Focus on a Better Relationship: Roots, Resources, and Resiliency for Adoption and Foster Families Conference, AHEC, Greenville, NC.
- Sias, S., **Bell, A.,** Clemmons-James, D., Smith, V. & McDougal, J. (2013, October) *Self-Injurious Behavior: A Bi-Modal Approach to Treatment and Wellness*. Licensed Professional Counselor Association of North Carolina Conference.
- Bell, A.** (2013, March). *Beginnings-Pregnancy & Recovery Clinic: Using Motivational Interviewing in an Integrated Healthcare Setting*. Poster session presented at the Professional Association of Rehabilitation Counselors (PARC) Conference.

Crozier, M., Chapin, M., Thomas, J. & **Bell, A.** (2012, September). *Training Doctoral Students to be Distance Educators - Emerging Pedagogical Strategies*. Roundtable discussion presented at the Southern Association of Counselor Educators and Supervisors (SACES) Conference.

Bell, A. (2010, February). *Effect of Token System on Frequency of Verbalizations in Child with Pervasive Developmental Disorder*. Poster session presented at the North Carolina Association for Behavior Analysis (NCABA) Conference.

Bell, A. (2008, February). *Video Modeling and Autism*. Poster session presented at the North Carolina Association for Behavior Analysis (NCABA) Conference.

Bell, A. (2008, September). *Autism Spectrum Disorder-A Workshop for Families and Mentors*. Easter Seals UCP NC & VA, New Bern, NC.

PUBLICATIONS:

Crozier, M., Chapin, M, Thomas, J. & **Bell, A.** (2013). Teaching counseling courses online. Article 78, *ACA VISTA*, <https://www.counseling.org/knowledge-center/vistas/by-year2/vistas-2013/docs/default-source/vistas/training-doctoral-students-to-teach-online>

GRANTS:

Transitions of Hope Grant, 2013, Awarded to Vidant Medical Center, Responsible for implementing the counseling portion of the grant to pregnant and postpartum women with a history of substance use.

Triangle Community Foundation, 2009, Mini-Grant Award, Easter Seals UCP NC & VA, Approximately \$3,000 used for adaptive equipment for client served.

Professional Association of Rehabilitation Counselors 2012, Approximately \$750 for pregnancy and baby related items for pregnant women in Pregnancy & Recovery Clinic substance abuse groups.

PROFESSIONAL/ACADEMIC MEMBERSHIPS:

American Counseling Association (ACA), 2012-2016

Association for Counselor Education and Supervision (ACES), 2013

American School Counseling Association (ASCA), 2013

Chi Sigma Iota Academic and Professional Counseling Honor Society International, member, 2012

Licensed Professional Counselors Association of North Carolina, 2013

North Carolina Infant Mental Health Association (NCIMHA), current

Professional Association of Rehabilitation Counselors (PARC), current

North Carolina Association for Behavior Analysis (NCABA), 2008, 2010

PROFESSIONAL/COMMUNITY SERVICE:

North Carolina Infant Mental Health Association, Board Member, November 2015-present

Easter Seals UCP NC & VA Ready When the Time Comes Crisis Response Team- Team Leader, 2015-January 2016

Easter Seals UCP NC & VA New Bern Leadership Team, September 2014- January 2016

Professional Association of Rehabilitation Counselors, Mental Health Counseling Committee Chair, 2014-2015

Pregnancy & Substance Abuse Conference, Board Member, January 2014-September 2014

Guest Reviewer, Journal of Rehabilitation, December 2013

Pregnancy & Recovery Clinic Baby Drive, 2013

St. Paul Catholic Church, New Bern, NC, Grief Counseling, 2012

Navigate Counseling Clinic Food Drive, December 2012

Project Coordinator, *Juice & Jazz 2009*, Easter Seals UCP NC & VA, New Bern, NC

Project Coordinator/Gift Delivery, Angel Tree, Easter Seals UCP NC & VA, New Bern, NC, 2008 & 2009