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Preschool Teachers' Perceptions of Children Prenatally Exposed to Drugs

A dissertation

presented to

the faculty of the Department of Early Childhood Education

East Tennessee State University

In partial fulfillment

of the requirements for the degree

Doctor of Philosophy in Early Childhood Education

by

Brandie Dillman Maness

May 2018

Dr. Carol Trivette, Chair

Dr. Pamela Evanshen

Dr. Cathy Galyon

Keywords: Prenatal Drug Exposure, Behavior, Teacher Preparation, Teacher Training, Young Children, Preschool Children

ABSTRACT

Preschool Teachers' Perceptions of Children Prenatally Exposed to Drugs

by

Brandie Dillman Maness

With the incidence of prenatal drug exposure increasing, it is important that preschool teachers are prepared and confident in serving the needs of children affected by this exposure. Teachers need more training and education to prepare them for working with children with prenatal drug exposure.

The purpose of this sequential mixed-methods study was to explore the perceptions, training, and shared experiences of preschool teachers when working with 4- and 5-year-old preschool children who have experienced prenatal drug exposure. The researcher invited 77 preschool teachers in northeast Tennessee working in either Head Start or Tennessee Voluntary Pre-K Initiative programs to complete an initial quantitative survey – of which 53 participated. Of the survey participants, 34 reported they might have worked with a child with prenatal drug exposure. Six of those teachers who said they had experience with children with prenatal drug exposure participated in a follow up semi-structured interview with the researcher.

The findings revealed that preschool teachers were favorable toward children with prenatal drug exposure regarding the children's ability to learn. Preschool teachers were already using many effective interventions (e.g., working one-on-one with the child, offering flexible seating options, repetition of information) that they may have used with other children with special needs, but they were eager for more information about the best way to work with these children. School leaders and those in teacher preparation programs would be excellent advocates in spreading

knowledge and translating medical knowledge into resources more applicable to the teaching and childcare profession. It is important that the information become more accessible to all teachers and stakeholders in education.

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DEDICATION

To my husband, Rocky, for being so supportive and for lighting a fire under me when I needed it most. For allowing me to cry into your shoulder countless times when I wanted to give up because it was too hard, too much work, took too much time, etc., etc. You are the most patient man on the planet. I love you more than you'll ever know.

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CHAPTER 1

INTRODUCTION

Humans have been using drugs and alcohol for thousands of years. According to the Social Issues Research Centre (SIRC) (1998), “The first documentary evidence of alcoholic beverages was written in Sumerian around 3200 BC,” but there is evidence of brewing beer dated “back to 4000 BC” (Para. 5). In the 1800s there is documentation suggesting doctors were providing women opium for pain relief as well as records that some of these babies were born exhibiting symptoms of drug withdrawal (Jones, 2016).

Human biology and environment plays a large role in drug dependence (National Institute on Drug Abuse (NIDA), 2014). NIDA (2014) states that while people initially participate in drug use because of peer pressure or for escape from the pressures of life, a cycle of use and misuse of substances may occur as a result. A child’s home environment and family situation can influence the child’s substance use later in life when raised in a home where older family members are engaged in risky substance use (NIDA, 2014). Furthermore, traumatic experiences in childhood and adolescence may be influential in the trajectory of a child’s potential to abuse substances as he or she matures (National Child Traumatic Stress Network (NCTSN), 2008).

For the purpose of this study, prenatal drug exposure refers to cases of children born to mothers who – at any point before the child’s birth – used or abused marijuana; cocaine; methamphetamines; benzodiazepines; opioids such as heroin, oxycodone, and hydrocodone; or opioid replacement drugs such as methadone and buprenorphine. This prenatal use exposes the developing infant to any substance the mother uses by passing it through the umbilical cord. The most frequently used substances include nicotine; alcohol; prescription drugs such as opioids and benzodiazepines; or illegal drugs such as heroin, cocaine, methamphetamine, and marijuana

(Bailey, McCook, Hodge, & McGrady, 2012). Women who receive prenatal care and are addicted to opioids often switch to a replacement drug such as buprenorphine or methadone. It is believed that these substances have less harmful side effects for the fetus versus suddenly ceasing drug use, which can carry serious repercussions – ones of these being miscarriage (National Association of State Alcohol and Drug Abuse Directors, Inc. (NASADAD), 2015; Nelson, 2013). Though these replacement drugs are thought to be safer, they can still produce withdrawal syndromes and carry repercussions for the unborn child. It is unclear how many newborns will suffer long-term consequences from prenatal substance exposure to legal or illegal opiate use.

Neonatal Abstinence Syndrome (NAS)

Neonatal Abstinence Syndrome (NAS) is a disorder that affects the central nervous system of a newborn baby. A newborn who develops NAS will have been born to a mother who used any one or combination of opiate-based drugs such as heroin, methamphetamine, opiate replacement drugs, or benzodiazepines. According to a review by Kaltenbach (1996), mothers using heroin or methadone were more likely to give birth to babies who developed NAS. Newborns who may have been exposed before birth to drugs will be tested using the Finnegan checklist – a checklist of disturbances on body systems such as the central nervous, gastrointestinal, and respiratory systems – to determine the severity of withdrawal symptoms. Not all newborns exposed to drugs prenatally will develop NAS, but those who do usually are admitted to a neonatal intensive care unit (NICU) (Nelson, 2013; Patrick et al., 2012). During their stay in the NICU, babies are continuously monitored, tested for severity of withdrawal symptoms, and administered treatment accordingly.

Academic and Behavior Outcomes for Children Prenatally Exposed

Prenatal drug exposure can create a number of challenges and risks to children for school success (Kne, Shaw, Garfield, & Hicks, 1994; Sinclair, 1998; Watson, Westby, & Gable, 2007). Children with prenatal drug exposure are more likely than their non-exposed peers to be referred for psychoeducational testing and usually qualify for special education services in school (Sinclair, 1998). They are more likely to exhibit more behavior problems (Dixon, Kurtz, & Chin, 2008; Lester et al., 2009; Richardson, Goldschmidt, Leech, & Willford, 2011). These children are prone to having a more difficult temperament as infants – a characteristic linked to behavior problems in early childhood (Lester et al., 2009). First grade teachers have reported that children exposed to drugs prenatally present more behavior problems even when the teacher is unaware of the prenatal exposure (Delaney-Black et al., 1998).

Teacher Preparation and Training

Early childhood professionals should be well educated about the needs of children who have been exposed to drugs prenatally because of concerns and risk factors that the prenatal drug exposure may present when these children enter early care centers and schools. The available research supports the opinion that all teachers need more training and information about prenatal drug exposure (Chapman & Elliott, 1995; Kim, Sugai, & Kim, 1999; Watson, Gable, & Tonehon, 2003). In the research literature, preschool teachers have reported that they did not feel adequately prepared for the challenges faced in teaching children with prenatal drug exposure (Chapman & Elliot, 1995). They found that most general education teachers did not receive training or practical experience about prenatal drug exposure during their undergraduate education but may have received at least one special education course if they pursued graduate-level studies.

Most teachers of young children are required to attend professional development opportunities regularly to uphold licensure and other certifications. The quality of these trainings may not be regulated; it is unclear if they use current research on quality professional development for teachers. Professional development offerings that lack quality are those without opportunities for participants to be engaged, fail to go into depth, and therefore are not beneficial for preschool teachers (Desimone, Porter, Garet, Yoon, & Birman, 2002). Teachers may receive information about prenatal drug exposure during these sessions but may have trouble applying the training information without guidance. Many childcare and preschool administrators and teachers report some of their greatest concerns as being their personal lack of experience, knowledge, and training opportunities concerning children with prenatal drug exposure (Chapman & Elliot, 1995).

Teacher Attitudes

Preschool teacher attitudes toward children possibly exposed to drugs prenatally have mostly been left out of the literature. Teacher attitude encompasses how teachers feel about working with children with prenatal drug exposure in the classroom in all areas of education, especially concerning the child's academics and behavior. Some studies suggested that teachers and directors in childcare (ages 3 and younger) as well as teachers of grades kindergarten through ninth have an overall negative attitude toward young children with prenatal drug exposure (McMillen & Simeonsson, 1997; Watson & Westby, 2003). McMillen and Simeonsson (1997) demonstrated that this negative attitude is especially the case for childcare teachers with limited training about prenatal drug exposure. It is vital that teachers of young children and directors of childcare centers and preschools know and understand the challenges that young

children with prenatal drug exposure face in the classroom. These professionals must understand the challenges so they can provide appropriate support and intervention.

Statement of the Problem

Teachers need more thorough training and education for working with children with prenatal drug exposure. In 2013 it was estimated that out of approximately 4 million live births in the United States, an estimated 10-11% of babies were born to mothers who used harmful substances at some point during their pregnancy (Substance Abuse and Mental Health Services Administration (SAMHSA), 2016). These infants may have been labeled prenatally drug- or substance-exposed or diagnosed with the drug-withdrawal condition called Neonatal Abstinence Syndrome (NAS). During the time between 2000 and 2009 in Tennessee the incidence of neonatal abstinence syndrome increased from 0.7 per 1,000 births to 5.1 per 1,000 (Warren, Miller, Traylor, Bauer, & Patrick, 2015).

As children with prenatal drug exposure make their way into childcare centers, preschools, and primary schools, it is important for education professionals working with these younger age groups to understand what supports children prenatally exposed to drugs need academically and behaviorally. Past studies have indicated that children who were prenatally exposed to drugs displayed more problematic behaviors (Kne et al., 1994; Lester et al., 2009; Richardson et al., 2011; Twomey et al., 2013) and qualified for special education services more often than children who were not exposed (Lambert & Bauer, 2012; Sinclair, 1998). Previous research also has shown that when elementary and middle school teachers are not properly prepared to serve children with prenatal drug exposure, they are less likely to make appropriate accommodations for them in the classroom (Watson & Westby, 2003).

Purpose of the Study

The purpose of this sequential mixed-methods study was to explore the perceptions, training, and shared experiences of preschool teachers when working with children who have experienced prenatal drug exposure. Additionally, this study gathered data about preschool teachers' preparation to work with this group of children. The data gathered included the types of preparation and training – if any – preschool teachers have received relevant to prenatal drug exposure. There also are data about the type of training preschool teachers indicated they still need to be successful in meeting the needs of children who may have been prenatally exposed to substances.

Research Questions

Eight research questions guided this study. There were four quantitative questions and four qualitative questions:

Quantitative Research Questions

Quantitative Research Question 1. *What are the most prevalent behavior or academic concerns reported by preschool teachers?*

Quantitative Research Question 2. *What are the resources preschool teachers have available to help children prenatally exposed to drugs with whom they work?*

Quantitative Research Question 3. *What barriers do preschool teachers report they encounter when working with children who have been exposed to drugs prenatally?*

Quantitative Research Question 4. *To what extent do preschool teachers feel prepared to work with children with prenatal drug exposure?*

Qualitative Research Questions

Qualitative Research Question 1. *What professional development experiences have preschool teachers had around the topic of prenatal drug exposure?*

Qualitative Research Question 2. *Are there any specific experiences with children prenatally drug exposed that preschool teachers share?*

Qualitative Research Question 3. *What do preschool teachers understand about how prenatal drug exposure affects children?*

Qualitative Research Question 4. *How have preschool teachers' experiences with children with prenatal drug exposure shaped their current teaching practices?*

Significance of the Study

There are significant gaps in the literature regarding the attitudes, training, and confidence of teachers related to working with children prenatally exposed to drugs. This gap is especially evident for preschool teachers. Today's literature is 15-20 years old; it is unknown if preschool teacher training is getting better or is still lacking. This study addressed these gaps by updating information about what preschool teachers were thinking when it came to working with children prenatally drug exposed, how prepared they felt to work with these children, and what resources they had to serve the children. Information also was collected about what types of training and preparation preschool teachers said they needed to assist in serving their students who may have been exposed to drugs prenatally.

The research gathered from this study will assist in improving practice for preschool teacher trainers, college personnel in teacher preparation programs, school district leaders, and preschool directors. This information will help professionals in leadership roles understand what

resources preschool teachers need to enhance their confidence and ability to serve young learners exposed to drugs prenatally.

Definition of Key Terms

Twelve key terms were used throughout this study and are important to define:

Executive function skills: Skills a person needs to organize, plan, and sustain tasks. Focus, mental organization, self-control, and remembering instructions are all skills of executive functioning (Lambert & Bauer, 2012).

Head Start: A federally-funded, non-profit organization that emphasizes serving children living in poverty and their families with the goal that these children meet their full potential and are prepared for school. Head Start programs are located in many settings including public school buildings, community centers, stand-alone locations, and churches (Head Start, 2016).

Illicit drug use: When legal or illegal drugs are purchased and used in a manner that is unregulated and unintended (Ackerman, Riggins, & Black, 2010).

Licit drugs: Legal drugs – including prescription drugs – purchased and used within the limitations of the law including methadone, suboxone, buprenorphine, and prescription opioids. Licit drugs are used *within the law* but may be misused (SAMHSA, n.d.).

Opioids: A class of drugs used to alleviate pain. Heroin is an illegal example of an opioid. Prescription drugs such as oxycodone (OxyContin), hydrocodone (Vicodin), morphine, and codeine are legal opioids (Bandstra, Morrow, Mansoor, & Accornero, 2010).

Prenatal drug/substance exposure: This occurs when a pregnant woman uses or misuses potentially harmful substances and exposes her developing fetus to the substances (Thompson, Levitt, & Stanwood, 2009).

Preschool teachers: Those professional teachers who work with children age 4 and 5 years.

Replacement drug therapy: Treatment for opiate addiction that uses prescription medications deemed by medical providers as *safer* with less harmful effects than those of illicit drugs. Methadone and buprenorphine are common opiate replacement drugs used to treat pregnant women with an opiate addiction that may also be used to treat neonatal abstinence withdrawal symptoms in newborns (Hudak & Tan, 2012).

State-funded preschool programs: There are voluntary preschool programs in Tennessee funded by the state and located in public school districts. These programs serve low-income populations (Tennessee Department of Education (TNDOE), n.d.).

Teacher attitudes: Feelings, beliefs, and opinions teachers express regarding prenatally drug-exposed children (Watson & Westby, 2003).

Teacher preparation: Educational experiences such as college-level courses, professional development seminars, workshops, and training sessions that prepare preschool teachers to work with prenatally drug-exposed children (Chapman & Elliot, 1995).

Teacher resources: The prior knowledge, professional development experiences, and other professionals to whom teachers have access for assistance and guidance in working with prenatally drug-exposed children (Watson et al., 2003).

Chapter Summary

Chapter 1 explained the purpose for this study, which is a concern over the number of children being exposed prenatally to harmful substances in northeast Tennessee. This chapter provided an overview of the history of drug use and the background of why people engage in risky behavior with substances. Complications resulting from prenatal drug exposure were discussed as well as some research on teacher attitudes and perceptions specific to prenatal

substance exposure. This shows the need for updated and more complete research into teacher attitudes and preparation for serving children prenatally exposed to drugs. The research questions were introduced as well as key terms used in the study.

Chapter 2 provides a more complete review of the literature on neonatal abstinence syndrome, short- and long-term effects of prenatal drug exposure on children including effect on development and behavior, the academic and social challenges for children with prenatal drug exposure, and teacher attitudes and perceptions of children with prenatal drug exposure. The importance of this study is discussed in more detail in Chapter 2.

CHAPTER 2

LITERATURE REVIEW

Incidence of Prenatally Drug-Exposed Newborns

While drug use during pregnancy has been a serious concern for centuries (Jones, 2016), there has been an increase in awareness over the last 40 to 50 years. During the 1970s to 1980s, the United States saw an increase in the number of babies born to mothers who misused drugs. These babies came to be known as *crack babies*. Our society has once again experienced an increase in births to women who misused drugs in the past 10 to 15 years. These infants may exhibit any number of complications once they are born; it depends on the type of substance used by the mother and how long during the pregnancy the fetus was exposed to drugs.

Some prenatally drug-exposed newborns exhibit drug withdrawal symptoms known as Neonatal Abstinence Syndrome (NAS). However, not all prenatally exposed infants develop NAS, which creates a challenge for health care providers in ensuring the proper care is administered to some newborns at risk for having been exposed to substances prenatally. Medical providers rely on the mother's self-report or perform drug testing on the newborn when they suspect drug use. Reported cases of NAS have increased dramatically in the last decade across the United States. Patrick et al. (2012) reported that in 2009 the estimated number of infants diagnosed with NAS was around 13,539 or approximately one each hour. According to NAS data from hospital discharge records obtained between 2000 and 2009, this is nearly triple the rate from 2000 (Patrick et al., 2012). During that same time in Tennessee, the incidence of NAS increased from 0.7 to 5.1 per 1,000 births (Warren et al., 2015). In Tennessee, the rate of incidence increased 16-fold between 2000 and 2014 – much higher than that of the nationwide 3-fold increase (Patrick et al., 2012; Warren et al., 2015). While there is currently no uniform

system to track the incidence of NAS among the 50 states, most states have created systems for tracking purposes. In 2013, Tennessee became the first state to begin an official statewide tracking system for NAS (Miller & Warren, 2013). According to a 2013 Tennessee Department of Health report published following the first year of reporting, the majority of cases were reported in the Appalachian region of east Tennessee. In particular, Sullivan County had the highest incidence of NAS cases at 54.7 per 1,000 births in Tennessee followed by the northeast region (consisting of the counties of Carter, Greene, Hancock, Hawkins, Johnson, Unicoi, and Washington) with 41.6 per 1,000 births (Miller & Warren, 2013).

Most infants prenatally exposed to drugs will enter the public school system and be educated in a regular classroom by teachers who were trained in a general education curriculum in college. Most general education curriculums in teacher preparation programs include minimal training experience in special education (Watson et al., 2003) – a knowledge base that would be helpful in preparing teachers for working with children with risk factors related to prenatal drug exposure. In the childcare or preschool setting, the teacher may not have education past a high school diploma. What limited literature exists about teacher training concerning prenatal substance exposure shows that more than half of the surveyed teachers reported not feeling prepared to work with this group of children and were not knowledgeable about this group of children, so they do not feel effective in meeting their students' needs (Chapman & Elliott, 1995; Kim et al., 1999). When early childhood special education teachers were asked if they received any college training related specifically to teaching students who had been prenatally exposed to drugs, these preschool teachers reported that they had received none in their undergraduate studies, and only 12% had special education courses in their graduate studies (Chapman & Elliot, 1995). Meanwhile, it has been reported that university-level general teacher preparation

programs do not provide training specific to prenatal drug exposure (Watson et al., 2003).

Teacher perceptions and attitudes toward children with prenatal drug exposure is another area often overlooked in the literature. It is particularly concerning that when teachers do not feel adequately prepared to meet the needs of children with prenatal drug exposure, they are not willing to accommodate for any special needs they may have (Watson & Westby, 2003). Asking teachers about prenatally-exposed children provides insight into the challenges they face when working with children with PDE as well as help to identify teachers' training needs to do so (Kim et al., 1999).

Neonatal Abstinence Syndrome (NAS)

Neonatal Abstinence Syndrome (NAS) describes the condition of drug withdrawal developed by neonates born to women who have used legal and illegal drugs during the course of pregnancy. While it is true that NAS is now entering the spotlight because of the dramatic increase in cases over the past decade, it is not a new problem. This withdrawal syndrome first came to the attention of medical professionals and researchers in the late 1960s and well into the 1970s. This is when pediatrician Loretta Finnegan, who is noted for her research and efforts in serving newborns with prenatal drug exposure, noticed a problem in the NICU at the hospital where she worked in Philadelphia (Nelson, 2013). When research initially began on infants with NAS, heroin was the drug of choice. Today, heroin is still widely used during pregnancy (Nygaard, Moe, Slinning, & Walhovd, 2015; Shankaran et al., 2007) but there are many substances that mothers use either as a single drug or combined with other drugs often referred to as polydrugs. Some cases of NAS are the result of opioid maintenance treatments that use controlled substances like methadone and buprenorphine to replace more harmful drugs such as heroin (NASADAD, 2015; Patrick et al., 2012; Warren et al., 2015). Warren et al. (2015) report

the sources of substance abuse for the majority of NAS cases in Tennessee in the year 2013 were the result of supervised prescription drug use (46.4%); illegal prescription drug use was the next greatest cause of NAS (40.2%). Replacement drugs are prescribed to prevent the mother from experiencing extreme withdrawal symptoms (Nelson, 2013). The most extreme side effect of sudden discontinuation of addicting substances is miscarriage (NASADAD, 2015; Nelson, 2013). Replacement drugs do not prevent the development of NAS for the baby, rather they delay withdrawal for the mother and baby until after delivery. Various prescription opioid painkillers also are problematic in many areas, especially east Tennessee. Other substances used by some mothers during pregnancy include barbiturates, alcohol, and marijuana. In 2013, 63% of NAS diagnoses reported in Tennessee were the result of the mother using at least one substance, often an opiate, prescribed to her by a health care provider (Warren et al., 2015).

Symptoms

Infants exposed prenatally to opioids are at the highest risk of development of NAS and neurological problems (Bandstra et al., 2010; Simmat-Durand & Lejeune, 2012). Bandstra et al. (2010) reported that 60-80% of babies born to mothers who used heroin or methadone developed NAS. In the case of opioid exposure – thought to bring about the most extreme symptoms of withdrawal – symptoms of NAS can present as soon as 8 hours after birth (Hudak & Tan, 2012). However, symptoms of withdrawal will be the most severe approximately 48 to 72 hours after birth (Nelson, 2013). According to the literature, the first symptoms exhibited by newborns suffering from NAS may include tremors, diarrhea, and extreme irritability accompanied by an unmistakable shrill cry (Bersani et al., 2013; Kocherlakota, 2014; Logan, Brown, & Hayes, 2013). There also may be seizures, tight muscle tone, and mottling with uneven venous patches of pink lines on the skin. The symptoms that follow will vary depending on what substance the

mother was using during pregnancy, how long the fetus was exposed, and when the fetus was last exposed (Bersani et al., 2013; Kocherlakota, 2014; Nelson, 2013).

Assessment

After confirmation of exposure either by toxicology screening or maternal admission of drug use, periodic assessments for withdrawal symptoms begin. The most popular measurement scale for diagnosing and assessing the severity of NAS is the Modified Finnegan Scoring System. Commonly referred to as *The Finnegan*, this tool was modified from Finnegan's original Neonatal Abstinence Scoring System (Nelson, 2013). The Finnegan is used to assess drug withdrawal symptoms every 4 hours with scoring beginning when the infant is 2 hours old in cases of suspected drug exposure. Assessment may begin later if a newborn develops symptoms of withdrawal. In most hospitals, infants with a Finnegan score of eight on two consecutive assessments begin pharmacological treatment for NAS (Bersani et al., 2013; Logan et al., 2013; Nelson, 2013).

Treatment of NAS

There are two methods of treatment for infants suffering from NAS: nonpharmacological (treatment without medication) and pharmacological (treatment with medication).

Nonpharmacological treatment is preferred by the American Academy of Pediatrics (AAP) and should be the first step in care implemented after an NAS diagnosis is confirmed.

Nonpharmacological interventions are often successful in mild cases of NAS (Kocherlakota, 2014) eliminating the need for more prolonged and costly pharmacological treatment.

Nonpharmacological treatment calls for creating a calming non-stimulating environment in an effort to reduce external factors that may agitate an infant with NAS. Treatment practices include swaddling, applying gentle pressure to the infant's head and body, very frequent rocking, and

nonnutritive sucking (Kocherlakota, 2014; NASADAD, 2015; Sublett, 2013). Breastfeeding is strongly recommended for babies with NAS if the mother is receiving substance replacement drugs because of the potential benefits for building the relationship between mother and baby (Tolia et al., 2015) and for reducing the severity of NAS symptoms (NASADAD, 2015). Other nonpharmacological methods include massage, aromatherapy, music therapy, waterbeds, and prolonged skin-to-skin contact with the mother, also known as kangaroo care (Maguire, 2014).

The American Academy of Pediatrics (AAP) (1998) cautions against pharmacological intervention because of an associated increased length of stay in the NICU and because of the potential negative effect on the mother and infant bond. If an infant fails to respond satisfactorily to any of the previously mentioned nonpharmacological interventions and continues to have a Finnegan score greater than eight, the infant should begin pharmacological treatment. The percentage of infants needing pharmacological intervention ranges widely. Some of the literature reports approximately 50% to 70% (Logan et al., 2013) and some report 27% to 91% (Kocherlakota, 2014). It has been shown, however, that the greater the infant's birth weight and the more advanced the gestational age, the greater the likelihood that an infant will need treatment (Kaltenbach et al., 2012). There is no standard protocol by which providers determine a treatment plan. In a survey completed by Sublett (2013), half of NICU units responding reported having clinical guidelines for treatment in place. Morphine is the most widely used drug for treating NAS followed by methadone, buprenorphine, and clonidine (Agthe et al., 2009; Sublett, 2013). For nonopiate-derived NAS cases, phenobarbital is usually used for treatment (Kocherlakota, 2014).

Developmental Effects of Prenatal Drug Exposure on Infants and Children

Because the effects of drugs are individualized, there is no universal blanket to cover every potential outcome of prenatal drug exposure (Ross, Graham, Money, & Starwood, 2015). However complicated the topic, potential impacts of prenatal drug exposure on a child have been well-documented (Bandastra et al., 2010; Lester et al., 2009; Lester et al., 2002; Shankaran et al., 2007; Simmat-Durand, Genest, & Lejeune, 2014; Simmat-Durand & Lejeune, 2012). The majority of this research has found that prenatal drug exposure has detrimental consequences not only for the newborn and the developing baby but throughout early childhood and beyond. In the short term, drug-exposed newborns may require NICU care in a hospital setting (Nelson, 2013; Patrick et al., 2012). In the long term, children with prenatal drug exposure may display deficits in cognitive ability, delays in motor control, and behavioral problems (Bandastra et al., 2010; Bennett, Bendersky, & Lewis, 2008; Levine et al., 2008; Molnar, Levitt, Eiden, Das, & Schuetze, 2014).

Drug use among pregnant women is a serious health concern across the United States (Ross et al., 2015). Ross et al. (2015) conducted a review to explore the effects of specific types of drugs on the prenatal and postnatal development of humans as compared to other animals. Potentially the most concerning of their findings is that a reputable argument can be made that legal drugs like alcohol and tobacco cause more long term developmental issues than illegal drugs like cocaine and marijuana (Ross et al., 2015). Figure 1 provides an excellent summary of the effects to a developing child exposed prenatally to substances of concern.

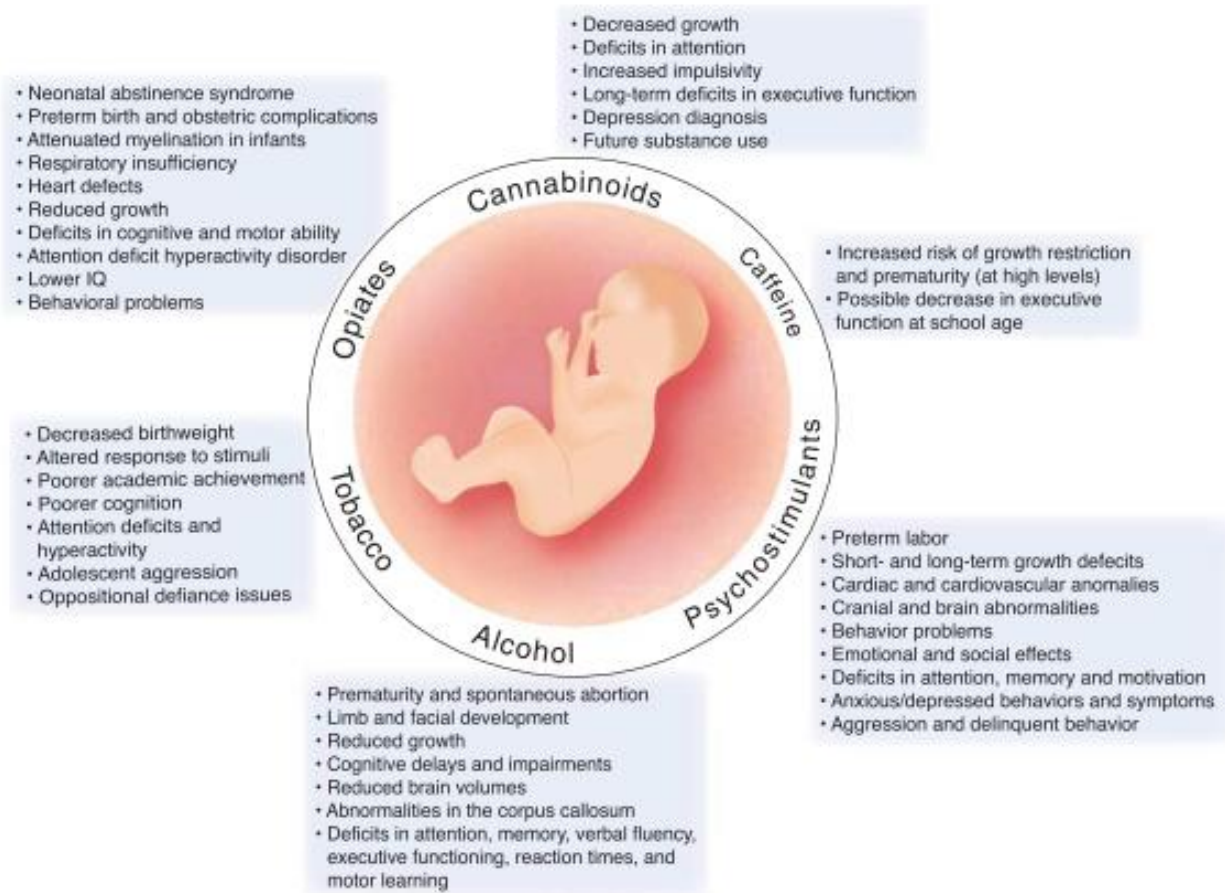


Figure 1. A figure to summarize the effects of prenatal exposure to specific substances (Ross et al., 2015, p. 77).

Normal “brain development proceeds in overlapping phases” (Shonkoff & Phillips, 2000, p. 186) (see Figure 2). Brain development begins within a few days after conception and continues into adulthood (Shonkoff & Phillips, 2000). During this time, the child’s early experiences are vitally important. Information pathways called synapses are formed and pruned, along with a myriad of other things happening in the developing brain (Shonkoff & Phillips, 2000). Synapse development and pruning is most prolific during the early years of life. By the end of preschool, a child will have all the synapses he or she will have as an adult; others will have been pruned away (Shonkoff & Phillips, 2000). All experiences – physical, emotional,

visual, and psychological – will affect the healthy development of the brain and prepare, or ill prepare, the child for the rest of life (Shonkoff & Phillips, 2000).

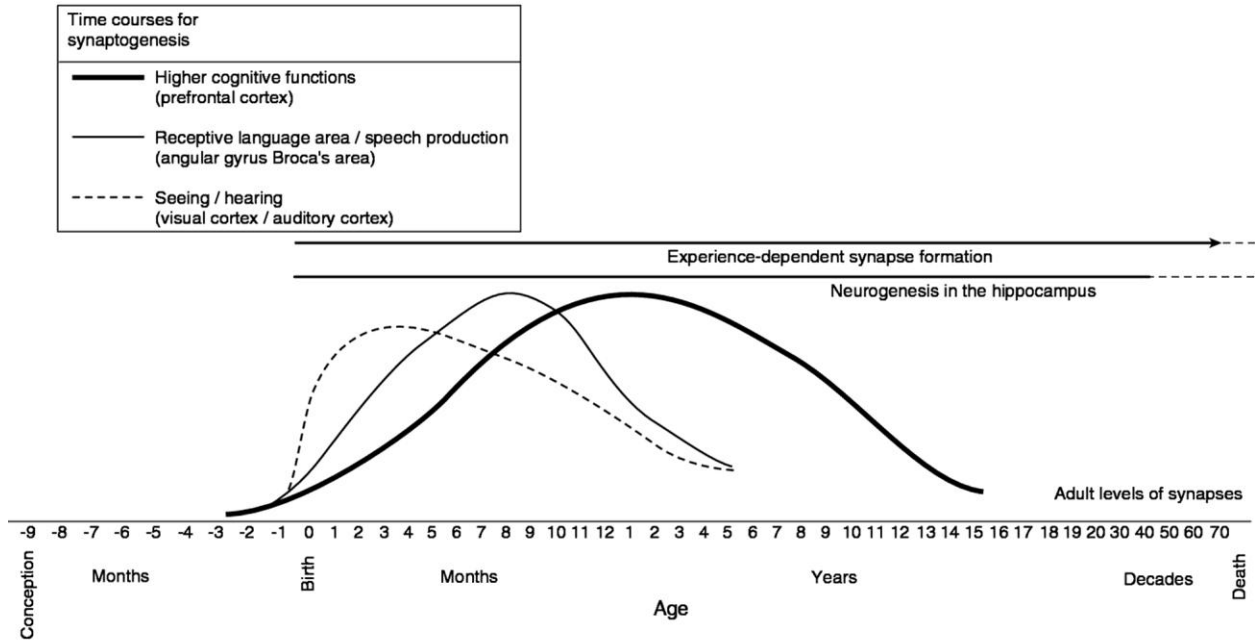


Figure 2. Human brain development (Shonkoff & Phillips, 2000, p. 188).

Prenatal drug exposure can be detrimental to human development in all areas. These detriments depend on many variables including the type of drug, time of exposure during pregnancy, frequency of drug use, and various maternal factors. A review by Bandstra et al. (2010) found several studies showing that drug exposure increased overall risk for prematurity, decreased birth weight, and an increase in impairments in self-regulation. Similar results were reported in a review by Shankaran et al. (2007) for prenatal cocaine exposure. When examining data obtained from a variety of sources, birth weight, premature delivery, birth length, and head circumference were all adversely affected by prenatal drug exposure (Shankaran et al., 2007). Maternal smoking during pregnancy compounds these effects on infant development – birth weight in particular. Bailey et al. (2012) found that smoking during pregnancy created double the

negative impact of illicit drug use on birth weight. Prenatally drug-exposed newborns also were reported to be more irritable, unresponsive, easily over-stimulated, and suffered a more insecure bond with the mother than infants not exposed (Bandstra et al., 2010).

Minnes, Lang, and Singer (2011) conducted a review of the literature related to the effects of prenatal exposure to tobacco, marijuana, stimulants, and opioids. The review corroborated most other studies in terms of prenatal cocaine and opioid exposure related to decreased birth weight, birth length, and head circumference. Four of the studies reviewed found a decrease in weight, length, and head circumference at birth (Minnes et al., 2011). The review also showed that children who suffered marijuana exposure during pregnancy had more difficulty with reading, spelling, and higher-order thinking through age 16 (Minnes et al., 2011). Marijuana was associated with altered brain function in MRI tests of children prenatally exposed (Minnes et al., 2011). The authors found six studies using brain imaging of children prenatally exposed to drugs that showed changes in brain composition. By using advanced brain imaging techniques such as MRI, the studies showed a number of deficiencies in the brains of children and adolescents exposed to substances prenatally such as decreased grey matter (where the bulk of the central nervous system is housed) and overreaction to stimuli (Minnes et al., 2011).

A review by Lester and LaGasse (2010) evaluated 42 follow-up studies of children with prenatal exposure to cocaine. The children in the studies were between the ages of 4 and 13. The authors categorized the studies into outcomes that included behavior problems, language, cognition, and IQ, among others; they found the most studies on behavior outcomes. Of 18 studies related to behavior, 10 showed negative effects of prenatal cocaine exposure (Lester & LaGasse, 2010). Studies of mental health components (referred to as *psychopathology* by the authors) included one showing an association between prenatal cocaine exposure, ADHD, and

oppositional defiance disorder; another study investigated the connection between exposure and suicidal ideation without finding any effects. Preadolescents who experienced prenatal cocaine exposure were found to have smoked cigarettes by age 10.5. There were 14 studies on IQ with only five showing negative effects of cocaine exposure. Seven of eight language outcomes studies reported negative effects on language development. Sustained attention was the focus of seven studies with six finding negative outcomes for children with prenatal cocaine exposure. School performance was studied in seven studies with three showing negative effects from prenatal cocaine exposure. It is unclear whether the challenges these children face as they grow are directly related to the substance exposure, environmental factors, or simply due to genetics (Bennett et al., 2008; Kaltenbach, 1996; Lester et al., 2002; Simmat-Durand et al., 2014).

Cognitive

A study in France conducted a follow-up on a cohort of children born to women who had used two or more substances during pregnancy. Simmat-Durand et al. (2014) wanted to assess the combination of prenatal substance exposure and the mother's social situation during pregnancy, child health since birth, and number of substances to which the child was exposed during pregnancy. The mothers used a combination of drugs that generally consisted of tobacco, opiate replacement drugs, marijuana, alcohol, and benzodiazepines (Simmat-Durand et al., 2014). There were 145 children between the ages of 1 and 11 in the cohort; all the children were born to mothers who reported using more than one substance while expecting their child. Of this cohort of children, 14% had diagnosed learning problems and 22% demonstrated problem behaviors (Simmat-Durand et al., 2014). The babies were more likely to be born prematurely, spend time in the NICU, and had greater variability from average measurements of the head circumference, weight, and height (Simmat-Durand et al., 2014). Among the children prenatally

exposed to multiple substances during pregnancy, there was a higher instance of being separated from the birth mother (about 28% of the sample) at the time Simmat-Durand et al. (2014) collected the study data. While most of the school-age children were attending school regularly, 14% of the children exhibited learning difficulties, and 22% had behavior problems at school – particularly those prenatally exposed to more than two substances (Simmat-Durand et al., 2014). Consumption of alcohol during pregnancy compounded the problems. Those problems included fetal growth restriction (Simmat-Durand et al., 2014). It is interesting to note that all but one of the fetal deaths in the follow-up study occurred in women who consumed alcohol (Simmat-Durand et al., 2014).

Bennett et al. (2008) examined the effects of gender and home environment on 231 children beginning at age 4 and concluding at age 9. Of this sample of children, 91 were exposed to cocaine prenatally (43 boys and 48 girls). The children in the study were administered the Stanford-Binet at age 4, 6, and 9 years old; the mothers participated in semi-structured interviews and were administered the Peabody to measure IQ. The mother's verbal IQ was positively related to IQ scores for both boys and girls (Bennett et al., 2008). They also found that cocaine-exposed boys had statistically significant lower IQ scores at ages 4 and 6 than did girls with prenatal cocaine exposure and non-exposed boys and girls at the same age (Bennett et al., 2008). The boys demonstrated deficits in cognitive function, control of inhibitions, and emotional regulation that were especially pronounced in the areas of “central processing, abstraction, arithmetic skills, [and] motor skill” (Bennett et al., 2008, p. 925). As for their findings on the postnatal environment, they agreed with other studies related to the impact on the development of children prenatally drug-exposed. Their findings suggest that a child with prenatal drug exposure who lives in a stimulating home environment with a mother possessing a higher verbal

IQ also will have a higher IQ at ages 4 and 6 than their peers who were in a less stimulating home environment (Bennett et al., 2008).

The Maternal Lifestyle Study (MLS) has been the largest longitudinal study to follow a cohort of mother-child dyads to assess for the effects of cocaine and opiate exposure on children's behavioral, mental, and motor outcomes (Lester et al., 2002). Lester et al. (2002) began the study during the early 1990s at four research sites; the study is ongoing with periodic releases of follow-up data. In the cohort for the 1-month follow-up, there were 658 prenatally cocaine or opiate exposed children and a non-exposed comparison group of 730 children. The researchers analyzed data from the NICU Network Neurobehavioral Scale (NNNS) and a cry analysis conducted on a 30-second recording of the infant's cry. The NNNS was developed specifically for the MLS for use in studies measuring prenatal exposure to cocaine, opiates, and nicotine (Lester et al., 2002). This scale was developed to be a predictor for developmental concerns for infants who were part of a high-risk pregnancy.

In a follow up to the MLS study conducted by the same researchers Messinger et al. (2004) examined the impact of cocaine and opiate exposure on the motor, mental, and behavior of 1,227 toddlers – 572 of which were prenatally exposed to cocaine, opiates, or both. Data were collected on the children at each year of age until 3 years old. The Bailey Scales (BSID-II) were used to test mental and motor skills, and the Behavioral Rating Scale (BRS) was used to measure engagement, emotional regulation, and motor quality. Both of the measures were given at ages 1, 2, and 3. Exposure to cocaine prenatally correlated with deficits in mental skills, whereas opiate exposure was related to deficits in psychomotor performance (Messinger et al., 2004). Interestingly, cocaine exposure did not contribute to a decline in mental scores suggesting that prenatal cocaine exposure itself may be more of a risk factor leading to mental delays than the

sole contributing factor (Messinger et al., 2004). There also was no significant relationship between prenatal cocaine exposure and psychomotor skills, nor was there a significant relationship between opiate exposure and mental performance (Messinger et al., 2004). Opiate exposure however resulted in slightly decreased motor performance as well as a penchant for behavior problems as assessed by the BSID-II (Messinger et al., 2004). Messinger et al. (2004) also found that both exposed and non-exposed 3-year-old children demonstrated mental scores that were below the standard score.

Watson et al. (2007) suggested that problems with executive functioning were the core of the cognitive and behavioral problems that children prenatally exposed to substances exhibited. According to the authors, these children typically “exhibit learning difficulties manifested in fine-motor-control deficits, auditory processing deficits, language delays and disorders, and mathematical comprehension difficulties” (Watson et al., 2007, p. 26). The problems with executive functioning included self-regulation, attention deficits, distractibility, and difficulty organizing behavior. Further, they stated that even if a child scored within the normal intelligence range on traditional IQ tests, he or she may have shown signs of these cognitive deficits (Watson et al., 2007). Children with PDE were challenged when faced with tasks that required attention shifting, working memory, abstraction, planning, and problem solving (Watson et al., 2007).

Behavioral

Nature versus nurture appears to be relevant in the research when considering the presentation of behavioral problems in children prenatally exposed to drugs. There has been plenty of documentation that prenatal drug exposure has detrimental effects on child behavior (Dixon et al., 2008; Lester et al., 2009; Richardson et al., 2011; Twomey et al., 2013). However,

what the research is divided on is the role of the home environment versus the role of the exposure substance in the alteration of a child's normal development. There is a growing body of research to suggest that the child's postnatal environment is a major factor in the development of problematic behaviors for a child with PDE and not just the PDE alone (Kaltenbach, 1996; Lester & LaGasse, 2010; Twomey et al., 2013).

A review of the literature conducted by Dixon et al. (2008) focused on challenging behaviors exhibited by children prenatally exposed to substances. The authors found 10 studies dealing with the effects of the postnatal environment on the behavior of children with PDE. Of the 10 studies, nine showed that the type of environment – positive or negative – had a respective impact on a child's behavior. Dixon et al. (2008) found increasing attention from researchers on the impact of the postnatal environment on the exhibition of challenging behaviors from children with PDE. According to the review, every researcher who considered the postnatal environment as a factor on child behavior found significant effects (Dixon et al., 2008).

Twomey et al. (2013) examined prenatal methamphetamine exposure, behavior problems at age 5, caretaker risk factors, and home environment at age 30 months. The researchers hypothesized that the combination of prenatal methamphetamine exposure, lower quality home environment, and caretaker risk factors would have a negative impact on child behavior. "The quality of the home environments was lower for MA[methamphetamine]-exposed children who lived with their biological mothers" (Twomey et al., 2013, p. 68). Biological mothers were more likely than other primary caregivers to continue using tobacco, alcohol, and illegal drugs (Twomey et al., 2013). The study findings showed that participants had more than double the risk of the comparison group to meet the clinical definition for externalizing behavior problems at the age of 5.

A difficult temperament in infancy – a characteristic resulting from prenatal drug exposure (Lester et al., 2009) – has been associated with increased behavior problems in early childhood. This information corroborates that children with PDE are reported to be at higher risk for teacher-reported behavior problems (Delaney-Black et al., 1998). Delaney-Black et al. (1998) conducted a comparison study between 102 children ages 6 and 7. The teacher-observed behaviors of 27 children prenatally exposed to substances were compared with a control group of 75 non-exposed peers. Teachers were unaware of the exposure status of the children. Although no specific percentages were given regarding how many children scored as having behavior problems, the teachers reported more behavior problems at a statistically significant level with the group of children with prenatal exposure than the control group (Delaney-Black et al., 1998).

Sinclair (1998) examined the characteristics of Head Start children with and without prenatal drug exposure in relation to the occurrence of emotional and behavioral disorders. Out of 142 children between the ages of 3 and 5, 30 had a confirmed case of prenatal drug exposure based on a review of their medical records (Sinclair, 1998). Forty-seven percent of the children with prenatal drug exposure versus 35% of non-exposed children had been identified as having emotional and behavioral disorders (Sinclair, 1998). Referrals for a special education kindergarten class were higher for children with prenatal exposure (50%) versus their non-exposed peers (29%). Additionally, academic problems were observed in 43% of children prenatally drug-exposed in comparison to 18% of the non-exposed group, while speech and language problems were observed in more than 50% of the exposed and 35% of non-exposed participants (Sinclair, 1998). Sinclair (1998) suggested that prenatal drug exposure is a risk factor for emotional and behavioral disorders and that schools should be made aware of students' drug exposure status early on so as to aid in the identification of behavioral disorders sooner.

Lester et al. (2002) found general effects on reactivity, respiratory, and neural control components of the cry analysis. Infants exposed to cocaine showed effects relative to the amount of exposure (Lester et al., 2002). The researchers found lower arousal and higher excitability in infants with prenatal cocaine exposure, and further that “poor regulation and higher excitability was attributable to heavy cocaine exposure and that the lowest arousal scores were in the some cocaine exposure” group (Lester et al., 2002, p. 1188). Lester et al. (2002) were not able to connect any abstinence or withdrawal effects to cocaine exposure. There were, however, more symptoms of abstinence in infants exposed to opiates. Marijuana use showed some effects as well. The *heavy* marijuana use group showed higher excitability, and the *some* marijuana use group showed more signs of withdrawal (Lester et al., 2002). The loudest and highest-pitched cries came from infants prenatally exposed to both cocaine and opiates (Lester et al., 2002).

In a study by Watson and Westby (2003), 34 school-age children (grades kindergarten through nine) who had been documented as prenatally drug-exposed were assessed for difficulties at school through teacher interviews, surveys, and classroom observations conducted by the researchers. The children studied were exposed to drugs both prenatally and after birth through continued parental drug use in the home. The authors found that 91% of the children had received special education services. The largest disabilities reported were learning disabilities (32%), speech-language impairments (26%), and emotional-behavioral disorders (24%); further concerns included grade retention, frequent school changes, and poor attendance (Watson & Westby, 2003).

When surveying 85 preschool general or special education teachers, Kim et al. (1999) were interested in collecting a list of some of the greatest concerns the educators held in working with children having been prenatally exposed to drugs. The teachers were not asked to name any

children, but to think of working with the children in general. The teachers noted limited attention span as the greatest learning problem (55% of teachers concerned) and becoming easily frustrated (55% of teachers) as a top behavior concern (Kim et al., 1999); hyperactivity (48% of teachers) was another behavior concern. Other problems listed as concerns by the teachers were lack of self-control and speech and language delays (Kim et al., 1999). When asked to name the most difficult problems experienced in children with PDE, teachers identified short attention spans (29%), disruptiveness (21%), hyperactivity (14%), impulsivity (14%), lack of self-regulation (12%), and frequent tantrums (10%) (Kim et al., 1999). All problems noted can be categorized as negative, thus implying that the preschool teachers in this sample had a generally negative perception of children prenatally exposed to substances.

While most studies show agreement that prenatal drug exposure can create a myriad of problems in a child's development, one observational study in Great Britain collected data on 62 children between the ages of 4 and 9 prenatally exposed to heroin and amphetamines (Topley, Windsor, & Williams, 2008). The findings of the study showed that 74% of the children did not exhibit educational concerns such as problems with learning, behavior, and concentration; only 17.7% of the children in the follow-up study received extra school supports, and none of the children had a special education plan in place at school (Topley et al., 2008). While the Topley et al. (2008) study did not agree with other studies discussed, it is important to note that the educational system in Great Britain differs from that of the United States, and the requirements to qualify for special education services may differ.

Supporting Children with Prenatal Drug Exposure

Support strategies for working with school-age children with PDE are similar to those that have been found effective for use with children exhibiting symptoms of ADHD or with

autism (McLaughlin, Williams, & Howard, 1998; Watson et al., 2007). Academics and behavior are two important areas that should be addressed for the success of children with PDE in any school setting. These two vital areas for success often play off one another because a deficit in one area will eventually affect the other. Stimulant medications similar to those traditionally used for treatment of ADHD and ADD have also been used with these children at school as an enhancement to behavioral and academic interventions.

The classroom environment is another important consideration for children with PDE. When children with PDE enter the school setting, there will likely be a new set of challenges facing them. Kne et al. (1994) wrote about a project that aimed to address concerns for children prenatally exposed to drugs. The project employed the skills of a school nurse, a retired elementary teacher, two university medical students, two education specialists, a retired elementary school principal, a former university research associate, community volunteers, and medical students trained to work one-on-one with students in order to meet the specialized needs of children prenatally drug-exposed (Kne et al., 1994). The project used small class sizes and individualized intervention plans specific to each child. These stakeholders created the “positive, predictable, and supportive classroom climate...essential for these children to make progress,” (Kne et al., 1994, p. 253).

Teacher Preparation and Teacher Attitudes

Children with PDE face a number of challenges in life. Among these challenges are risks for falling behind in school, requiring special education services, exhibiting problem behaviors, and having poor focus. Because of these risks, it is vitally important that early childhood educators be informed and empowered to make decisions about how to best support these children in the classroom. There are few research studies that explore preschool teacher

preparation and training for working with children with prenatal drug exposure. The few studies that have explored teacher preparation and training show that educators are not receiving effective training and preparation to provide them with the best tools for serving students who may have been prenatally exposed to drugs.

Chapman and Elliott (1995) interviewed a group of Head Start teachers and a group of early childhood special educators working with 3- to 5-year-old children in five southeastern states in the US. The authors examined the types of preparation and experiences teachers working with prenatally cocaine-exposed children received and what concerns and further preparation the teachers said they still needed. In the survey of the two groups of teachers, the majority of the professionals reported being unprepared to teach children who were prenatally cocaine-exposed (Chapman & Elliot, 1995). The teachers reported that they did not receive any undergraduate courses or practicum experience in working with children exposed to drugs prenatally, and very few received graduate school training in the needs of these children. Of the training that these teachers received, they reported that conferences and seminars were the most effective means of training; this is the only method of training the majority ever had regarding working with children with PDE (Chapman & Elliot, 1995).

Ninety-four percent of the special education group participants and 95% of the Head Start group reported they had received training from conferences and seminars. Eighty-five percent of the early childhood special education group reported conferences and seminars to be *effective* or *very effective*; 95% of the Head Start group reported the same about those training methods they experienced (Chapman & Elliott, 1995). Educators' greatest concerns in working with children with PDE could all be addressed through proper training and coaching. The top three concerns about working with children with PDE from each group were collected from an open-ended

question included on the researchers' survey. According to Chapman and Elliott (1995) the top three concerns of early childhood special educators were "lack of experience" (85%), "lack of off-campus or summer opportunities for development in this area" (72%), and "lack of knowledge regarding family dynamics" (60%) (p. 124). Chapman and Elliott (1995) found that the top three concerns for Head Start educators were "lack of practicum or supervised hands-on-experiences with this population" (90%), "lack of course work related to children exposed to substances" (86%), and "lack of knowledge regarding infant/child development" (65%) (p. 124).

Teacher Attitudes

According to values and beliefs' theories, people develop their system of values, beliefs, and attitudes early in life through interactions with their environment and the people with whom they interact in those constructs of the environment (Bronfenbrenner, 1994; Rokeach, 1973). There is limited knowledge regarding preschool teacher attitudes about children prenatally exposed to drugs, but what does exist shows that perceptions are not generally positive (Kim et al., 1999). Teachers who are unaware of prenatal drug exposure in their students tend to be more punitive and focus more on the child's deficits than on his or her strengths (Watson & Westby, 2003). Training educators to work with prenatally drug-exposed children has been shown to improve educator attitudes toward these children. "Informed teachers will neither require the student to sit still for long periods of time nor will they punish the student for not paying attention because educators will be considering the behavior as a manifestation of the student's disability" (Watson et al., 2007, p. 31).

Kim et al. (1999) explained why asking preschool teachers about their training needs for working with children with PDE is important. The reason is that preschool teachers can provide insight into the problems that they experience with children with prenatal drug exposure and

because preschool teachers can, “assist in identifying their training needs for preservice and inservice planning and programs” (Kim et al., 1999, p. 208). The majority (76%) of preschool teachers surveyed by Kim et al. (1999) reported that their schools were not adequately prepared to serve children with prenatal drug exposure. Additionally, 58% of the same teachers reported more teacher training was needed on prenatal drug exposure (Kim et al., 1999). Needing *more information* about educating children with drug exposure was a response chosen by 88% of surveyed preschool teachers (Kim et al., 1999).

According to Watson and Westby (2003), teachers who have prepared and are better educated regarding the needs of a child prenatally exposed to drugs have better attitudes toward these children than those teachers who are not as informed or prepared (Watson & Westby, 2003). When Watson and Westby (2003) conducted interviews with teachers in kindergarten through ninth grade to explore their attitudes and perceptions of children with prenatal drug exposure, they found defined teacher behaviors toward this group of children. The teachers who were not aware of prenatal drug exposure status and its effects, “believed the children were responsible for their behaviors and that they could behave or do their work if they wanted” (Watson & Westby, 2003, p. 208) therefore causing a misinterpretation of the students’ needs.

As the incidence of prenatal substance exposure and NAS appears to be on the rise at alarming rates in the US (Patrick et al., 2012) and in particular northeast Tennessee (Warren et al., 2015), it has never been more important that early childhood educators be knowledgeable and prepared to address the needs and risks of this population (Watson & Westby, 2003). The impact of prenatal drug exposure is initially observed physically (low birth weight, shorter birth length, and smaller head circumference). As the child grows and develops, deficits begin to manifest more in ways that are not always obvious. The long-term effect of prenatal drug

exposure is not clear, however academics and other demands of the school setting are challenging for these children (Kne et al., 1994; Watson et al., 2007). Some challenges most often observed for these children include deficits in executive functioning, focus, and special education referrals (Bandstra et al., 2010; Bennett et al., 2008; Levine et al., 2008; Molnar et al., 2014). Challenging behavior is also a concern of many caregivers and the preschool teachers of prenatally drug-exposed children (Delaney-Black et al., 1998).

Quality preschool teacher preparation and an increased knowledge of prenatal drug exposure have been documented to reduce the effects of the risk factors that these children face (McMillen & Simeonsson, 1997; Watson et al., 2007). Better knowledge leads to more compassionate teacher attitudes and an increased willingness to implement appropriate strategies for the child (McMillen & Simeonsson, 1997; Watson & Westby, 2003). Preschool teacher preparation and support should be combined to produce the most appropriate and beneficial environment for learning for children prenatally exposed to drugs.

Chapter Summary

This chapter presented a review of the literature available about prenatal drug exposure and teacher attitudes and training. Some topics covered included neonatal abstinence syndrome, developmental and behavioral effects of prenatal drug exposure, challenges that PDE can present for children socially and academically, and teacher preparation and attitudes concerning children with PDE.

In chapter 3, the methodology for this study will be explained. The types of programs approached to participate will be described. Descriptions will be given of the survey instrument, interview protocol, and for the plan of analysis.

CHAPTER 3

RESEARCH METHODOLOGY

This study used sequential mixed methods to explore the attitudes, preparedness, and shared experiences of preschool teachers who work with children ages 4 and 5 with prenatal drug exposure in northeast Tennessee in relation to children with prenatal drug exposure. Teachers' feelings about their preparation and self-efficacy in teaching and meeting the needs of children with prenatal drug exposure were also explored. There is a lack of research from the perspective of teachers concerning their attitudes about working with children prenatally exposed to drugs. There also is a need for further and more current research related to teachers' perceptions of their preparedness to serve this population and the training they have received specific to prenatal drug exposure.

A review of the literature showed that the research is old and consisted primarily of survey data. Existing literature revealed that teachers self-report being undertrained and uninformed about the needs of children prenatally exposed to drugs (Chapman & Elliott, 1995; Kim et al., 1999). Previous research also found that teachers tend to not only have a poor attitude toward children who were exposed to drugs prenatally, but they may also be less willing to make accommodations for these children when uninformed of the prenatal exposure status (Watson & Westby, 2003). This study adds to and updates the existing information regarding teacher attitudes and teacher training specifically related to students prenatally exposed to drugs.

Research Questions

Eight research questions guided this study. There were four quantitative questions and four qualitative questions.

Quantitative Research Questions

Quantitative Research Question 1. *What are the most prevalent behavior or academic concerns reported by preschool teachers?*

Quantitative Research Question 2. *What are the resources preschool teachers have available to help children prenatally exposed to drugs with whom they work?*

Quantitative Research Question 3. *What barriers do preschool teachers report they encounter when working with children who have been exposed to drugs prenatally?*

Quantitative Research Question 4. *To what extent do preschool teachers feel prepared to work with children with prenatal drug exposure?*

Qualitative Research Questions

Qualitative Research Question 1. *What professional development experiences have preschool teachers had around the topic of prenatal drug exposure?*

Qualitative Research Question 2. *Are there any specific experiences with children prenatally drug exposed that preschool teachers share?*

Qualitative Research Question 3. *What do preschool teachers understand about how prenatal drug exposure affects children?*

Qualitative Research Question 4. *How have preschool teachers' experiences with children with prenatal drug exposure shaped their current teaching practices?*

Research Design

A sequential mixed-methods study design was selected. This mixed methods design used the constructivist paradigm to inform the study. The constructivist worldview is an appropriate approach as the aim of the study is to understand the “phenomena, formed through participants

and their subjective views” (Creswell & Clark, 2011, p. 40). The sequential mixed-methods design began with cross-sectional survey research (a quantitative method) followed by in-depth interviews of voluntary participants from the survey sample to understand the shared experience of working with children who were exposed to drugs prenatally. Figure 3 illustrates how the data collection progressed.

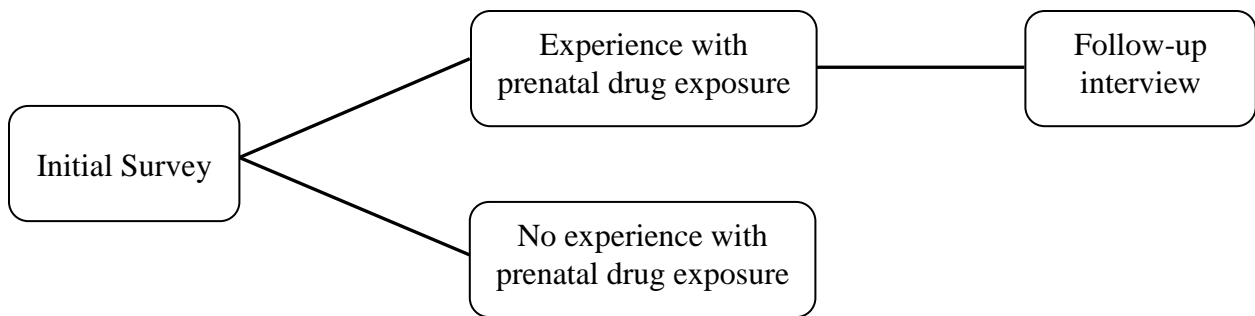


Figure 3. Progression of data collection

An initial survey was sent to 77 preschool teachers of 4- and 5-year-old children in Head Start and Voluntary Pre-K (VPK) programs in northeast Tennessee. The survey consisted of an initial question for the teachers that asked if, to the best of their knowledge, they had worked with any children prenatally exposed to substances. If teachers indicated they had worked with children prenatally exposed to drugs, they were asked five more questions about their perceptions of their own preparedness, the resources they used or wished they had access to, and what challenges they experienced. Questions two and three were multiselect questions, and the final three questions used a Likert scale. If a teacher reported that he or she had not worked with children prenatally drug exposed, they were asked similar questions about what they would expect when working with these children.

Teachers who acknowledged that they had worked with children with prenatal drug exposure were invited to participate in a follow-up interview. The purpose of the interview was

to learn more about the teacher's experiences, preparation, perceptions, and expectations surrounding children with prenatal drug exposure. The interview was used to encourage a conversation about experiences the teacher had with children with prenatal drug exposure. The conversation also included information about training and resources the teacher did or did not have access to, as well as what knowledge the teacher had about the impact of prenatal drug exposure on children.

Beginning the study with a survey served to give a snapshot of how many teachers had experienced teaching children with prenatal drug exposure, what resources those teachers had used, and what resources they lacked. The interview served to facilitate a better understanding of the teachers' thoughts, feelings, experiences, and needs in order to paint a clearer picture of teacher attitudes regarding children with prenatal drug exposure. According to Creswell and Clark (2011), "Not only are multiple data sources helpful in understanding research problems but there are other advantages of using mixed methods. The strength of one [quantitative] method may offset the weaknesses of the other [qualitative]" (p. 17).

Researcher Background

The researcher's career experiences with young children have been varied and informative over the past 12 years. She has 9 years experience as a classroom teacher and works as a fourth-grade teacher at a public school in northeast Tennessee. She considers herself fortunate to have had numerous opportunities as a full-time doctoral student where she has served as an early childhood education practicum instructor in higher education, a research assistant on various projects, and a behavioral health consultant working across multiple disciplines with medical school faculty members, residents, and graduate students from psychology and social work programs.

Participants

The target population for this study included teachers working in classrooms funded by the Voluntary Pre-K for Tennessee Initiative (VPK) in northeast Tennessee and a local Head Start program. Teachers of 4- and 5-year-old children from both programs were invited to participate. According to the qualifications for employment set by each program and by the fact sheets, these programs have similar education and training expectations for the teachers (Head Start, 2016; Tennessee Department of Education (TNDOE), n.d.). The programs serve similar populations of children and their families at the same ages beginning at 4 until the child goes to kindergarten; the programs accept 3-year-old children as space allows. Both of the programs prepare children for kindergarten with basic academic skills such as learning to write one's name, counting, and learning the alphabet. Head Start is a comprehensive program with four areas of importance: family involvement, health, social services, and school readiness. Tennessee's VPK programs are funded by state grant money; Head Start is funded by federal program money (Head Start, 2016; TNDOE, n.d.).

The Head Start system in northeast Tennessee falls under the umbrella of Upper East Tennessee Human Development Agency (UETHDA) that serves the counties of Greene, Hancock, Sullivan, Carter, Johnson, Hawkins, Washington, and Unicoi. Head Start is a federally-funded program that offers partial and full-day programs and aims to provide high quality childcare and development of school readiness for children whose families meet specific low-income financial requirements. Head Start accepts 4-year-old and some 3-year-old children as space permits.

Tennessee's VPK programs are housed in public schools across the region in school systems in Hawkins, Greene, Carter, and Johnson counties. These counties were chosen not only because they coincide with the areas served by the Head Start programs, but more specifically because these areas have the highest occurrence of prescription drug and opiate abuse and misuse and cases of neonatal abstinence syndrome according to data from the Tennessee Department of Health (Miller & Warren, 2015). Because of this, it was expected that the preschool programs in these counties were more likely to be serving children prenatally exposed to prescription drugs and opioids. In addition, publicly-funded prekindergarten programs are designed to serve families that fall within a low-income demographic – the demographic most likely to be caring for children prenatally drug-exposed (Patrick et al., 2012).

According to the United States Bureau of Labor Statistics (2018), preschool and kindergarten teachers are primarily female (97.7%) and White (77.1%). Tennessee's VPK lead teachers must be licensed by the state, have prekindergarten endorsement, and hold a bachelor's degree. It is preferred for assistant teachers in VPK to have at least a child development associate (CDA) certification or higher. The actual percentage of assistant teachers meeting this requirement was 56% during the 2016-2017 school year (TNDOE, n.d.); 96% of preschool teachers working in Head Start hold an associate degree or higher, and 73% hold at least a bachelor's degree (Head Start, 2016).

After the participating preschool teachers completed the survey, they were asked if they were interested in a follow-up interview with the researcher. Eight preschool teachers initially expressed interest by providing their contact information – 3 of whom completed the interview. Participants in the qualitative study were a subgroup of the quantitative sample; therefore, the demographics for this group were the same as those of the survey participants.

Sampling Procedures

UETHDA oversees 51 Head Start classrooms in eight counties of northeast Tennessee.

The UETHDA Head Start program director agreed to include the program's teachers in the study. The Head Start director forwarded an initial recruitment email (see Appendix A) to Head Start teachers on behalf of the researcher with a statement of her approval for them to participate in the study. The director forwarded a reminder email from the researcher to the same teachers 3 weeks later.

VPK programs in northeast Tennessee are housed in public elementary schools. Each school district in the region has at least one VPK classroom. Within each school district, there was typically an administrator responsible for early childhood education who oversaw the district's program. The administrators' titles varied among the districts. Electronic contact was made with each school district's administrator, and approval was obtained from Hawkins County School District, Johnson County Schools, Elizabethton City Schools, Kingsport City Schools, Greeneville City Schools, and Carter County Schools for 26 classrooms. During the recruitment process, school district administrators received a formal recruitment letter (see Appendix A) via email with a follow-up phone call to the director if no response had been received within 3 business days. If there was still no response, another phone call was made in 1 week along with another email later in the day. When the contacted early childhood administrator was not who approves research in the district, the appropriate contacts were made via phone, email, or both. The district's research approval procedures were followed to obtain consent from the appropriate contact for the district. These procedures vary among the school districts.

Teacher Survey

Once the appropriate approval was gained from all school districts, the designated administrator was asked to forward the formal recruitment letter from the researcher, which included a link to the digital Survey Monkey survey as well as the administrator's statement of approval for teachers to participate in the study. The researcher's formal recruitment letter included a summary of the researcher's credentials, an introduction to the survey, an overview of the teachers' expectations, and information about the follow-up interview opportunity. Three weeks later, district contacts were asked to forward an email reminder for teachers to participate in the researcher's survey. At the completion of the survey, participants were given the link to a landing page within Survey Monkey where they could enter their email address into a drawing for a \$10 Amazon.com gift card.

At the initial survey closing date, only 38 responses had been received. At this time, teachers were on summer vacation, and the survey was suspended until teachers returned to their classrooms for the new school year. The survey window was extended accordingly. In late July, the final month of teachers' summer breaks, the researcher followed up with program administrators to inform them of the study progress and ask permission to contact teachers once again. The researcher was invited to speak during a scheduled Head Start preservice training when teachers returned for meetings and training in preparation for the new school year. She collected survey responses from the teachers at the training. A paper version of the survey was given to these teachers. They were asked to respond if they had not already completed the survey electronically at the end of the previous school year.

Interview Recruitment

An interview served as a follow-up to the initial survey. Interview participants who completed the initial survey responded that they had experience teaching prenatally drug-exposed children and agreed to participate in a follow-up interview. After the initial roll out of the survey, eight teachers indicated interest in the follow-up interview. These eight teachers were contacted, and three completed interviews.

As with the survey, there was not a satisfactory number of interviews (three interviews total) completed at the end of the initial interview window. After sending multiple emails and phone calls to teachers who provided contact information, the snowball sampling method was attempted. After this method was unsuccessful, the researcher contacted administrators from programs who did not yet have representation in the interview portion of the study. These final contacts were successful in securing another three interviews.

The 6 teachers who consented to participate in the interview were contacted to schedule an interview time. Once the teachers were sent the informed consent document, they were given a week to decide if they would participate. In an effort to reduce demands on the teacher and to conduct interviews in an environment that was convenient and comfortable for participants, the researcher agreed to travel to each teacher's school or other preferred location for the interview. Skype video conferencing was an option for the meeting method but was not used by any participants. Each interview was audio recorded, conducted in private, and coordinated with the teacher in advance through personal communication either by email or by telephone. After completing the interview, participants' names were placed into a drawing for a \$20 Amazon.com gift card. The drawing was conducted by Google's random number generator by limiting the numbers to between 1 and 6 to coordinate with each participant's interview number.

Instrumentation

For the purpose of this study, the researcher created a survey to collect the desired data; the interview protocol also was created by the researcher. Both of these were created after completing the literature review so the instruments would be influenced by the current literature gaps.

Quantitative Survey

A self-report electronic survey was used to initiate data collection for the study. The flexibility of using a survey allowed for the collection of the experiences of many participants quickly and efficiently (Ruel, Wagner, & Gillespie, 2016). To collect the desired information, the researcher created a study-specific survey administered using Survey Monkey. The survey served several purposes. It was used to collect a quick snapshot of teacher experiences with children having prenatal drug exposure and the resources they have access to. The survey was also used to collect a pool of candidates for further interview. The electronic survey consisted of two sections. Participants were directed to one of the two sections based on whether they chose yes or no for the first question.

Survey for teachers having worked with a child prenatally drug exposed. A *Yes* response to the first question of the survey presented a section containing three follow-up questions (see Appendix B for Yes version). Questions 2 and 3 in the follow-up section were multiple-choice questions; the remaining three questions used a Likert scale. Questions 2 through 6 included an open response line entitled *Other* where participants were given the opportunity to list responses not provided by the researcher. Table 1 displays an alignment of the quantitative research questions with their corresponding survey questions.

Table 1

Quantitative Research Questions Aligned with Survey Questions

Quantitative Research Question	Survey Question
<u>Research Question 1.</u> What are the most prevalent behavior or academic concerns reported by preschool teachers?	<u>Survey Question 3:</u> What challenges did you experience with these children? Check all that apply.
<u>Research Question 2.</u> What are the resources preschool teachers have available to help children prenatally exposed to drugs with whom they work?	<u>Survey Question 4:</u> How often do you utilize the following resources and strategies to assist you in meeting the needs of children you know have been prenatally drug-exposed? Select all that apply.
<u>Research Question 3.</u> What barriers do preschool teachers report they encounter when working with children who have been exposed to drugs prenatally?	<u>Survey Question 5:</u> How much do you agree with the following statements regarding the challenges you feel when working with prenatally drug-exposed children?
<u>Research Question 4.</u> To what extent do preschool teachers feel prepared to work with children with prenatal drug exposure?	<u>Survey Question 6:</u> Please indicate how much you do or do not agree with the following statements in relation to prenatally drug-exposed children.

Survey for teachers not having worked with a child prenatally drug exposed. A response of *No* to question 1 presented the participant with three follow-up Likert questions (see Appendix C for the *No* version). This section included questions that were the same as numbers 4 through 6 on the *Yes* version, but the wording was slightly adjusted to probe for these teachers' perceptions and to learn what they would do. For instance, survey question four from the *Yes* version was reworded to, "How often do you think you would utilize the following resources to assist you in meeting the needs of prenatally drug-exposed students?"

Participant demographics. Teacher demographics (see Appendix D) were collected on both the *Yes* and *No* versions of the survey as follows: years of teaching experience, current teaching position, education level, degree major, gender, race, age range of children taught, and type of preschool (Head Start or Tennessee VPK). The options for these demographics are forced-choice answers with a fill-in-the-blank option entitled *Other* for current teaching position, college major, child age range primarily worked with, type of preschool program, and race or ethnicity. The final item invited participants to input an email address in order to be entered into a drawing for an Amazon.com gift card for completing the survey. A solicitation at the conclusion of the *Yes* version of the survey informed participants of the follow-up interview opportunity.

Qualitative Interviews

The researcher conducted face-to-face interviews. Each semi-structured, one-on-one interview between the researcher and the participant lasted approximately 20 to 30 minutes. During the course of the interview, participants were asked open-ended questions from a predetermined script in order to explore their perceptions of children with prenatal drug exposure. Each interview was audio-recorded and transcribed by the researcher to collect data about participants' perceptions, preparedness, feelings, and stereotypes that surround teachers' duties in working with children prenatally exposed to drugs.

In order to address specific gaps and outdated information in the literature, development of interview questions followed a thorough review of the literature on teacher attitudes and the literature on teacher training specific to working with children exposed prenatally to harmful substances. The review of literature outlined in Chapter 2 showed a deficit in research of preschool teachers' attitudes regarding young children prenatally exposed to street drugs and

prescription opioids. Further, there was little research about teacher training and teacher preparation to serve this population of children (Chapman & Elliott, 1995; Kim et al., 1999). Personal communication with practicing pediatricians and with pediatric residents also influenced the questions included in the survey.

Each interview was semi-structured and included questions about different aspects of teachers' experiences among children with prenatal drug exposure they have taught (see Appendix E). The interview began with questions about the teacher's background and how many children with prenatal drug exposure he or she had taught. Further, preschool teachers were asked if the challenges had ever affected their job satisfaction. Additionally, the teachers were asked about their knowledge of prenatal drug exposure, their perceptions of the impact of the child's home environment, and their level of awareness about the concentration of children who had prenatal drug exposure in northeast Tennessee. The interview concluded with an invitation to the teacher to add anything else he or she deemed important for the researcher to know. Table 2 shows the qualitative research questions aligned with their appropriate interview question.

Table 2

Interview Questions Aligned with Qualitative Research Questions

Qualitative Research Question	Interview Question
<p><u>Research Question 1.</u> What professional development experiences have preschool teachers had around the topic of prenatal drug exposure?</p>	<p><u>Interview Question 5:</u> How do you make decisions about how to support these students with these challenges? Who do you consult with when deciding how to support those children? Internet/colleagues/etc.?</p> <p><u>Interview Question 6:</u> What types of prep/training/etc. have you already received to prepare you in working with this population? Do you feel this was adequate preparation for you?</p> <p><u>Interview Question 7:</u> What additional professional preparation do you think would be helpful?</p> <p><u>Interview Question 8:</u> What resources do you feel like you need to manage these challenges that you don't currently have access to?</p>
<p><u>Research Question 2.</u> Are there any specific experiences with children prenatally drug exposed that preschool teachers share?</p>	<p><u>Interview Question 3:</u> What is your greatest concern when working with this population?</p> <p><u>Interview Question 4:</u> Thinking about the prenatally exposed children you've worked with, what are some of the most difficult challenges you can recall having experienced with those children?</p>
<p><u>Research Question 3.</u> What do preschool teachers understand about how prenatal drug exposure affects children?</p>	<p><u>Interview Question 10:</u> In thinking about the children you've worked with, how much of the difficulty do you think is because of the substance abuse during the mother's pregnancy and how much do you think is environmental?</p> <p><u>Interview Question 11:</u> Are there drugs that you think have a more negative effect on children than other drugs (i.e., meth vs. cocaine)? What are your thoughts/opinions on this?</p>
<p><u>Research Question 4.</u> How have preschool teachers' experiences with children with prenatal drug exposure shaped their current teaching practices?</p>	<p><u>Interview Question 4a:</u> For each challenge you experienced, what strategies did you try? Did they work? Why/not do you think?</p>

Validity

A group of four early childhood professionals initially reviewed both the survey scale and the interview protocol. Feedback was consistently positive, as was enthusiasm in anticipation of the findings that the study might yield. The professionals served in varying capacities in early childhood education. They reviewed the initial survey and interview questions for the appropriateness of language for use with preschool teachers. This was done to ensure the questions included terminology that would be easily interpreted by the target population. Two of the professionals were university professors; one had preschool teaching and supervisory experience, and the other had an early childhood special education background. Another of the professionals was a laboratory preschool administrator with teaching experience and experience leading preschool teachers in research. A combined childcare and preschool center director was the fourth reviewer. This director oversees a childcare and preschool program for a major corporation in northeast Tennessee.

Quantitative survey. The four reviewers approved the quantitative questions for appropriateness of language for preschool teachers. There were no concerns about wording nor were there concerns about terms that teachers may not know. Feedback from reviewers was positive, and no changes were suggested.

Qualitative interview. The same four professionals reviewed and agreed that the qualitative questions' language was suitable for preschool teachers. They were interested in hearing what the teachers' responses to the questions would be. One question was added after conferring with one of the university professors. This question asked if the challenges presented by the child or children prenatally exposed were so great that it caused the participant teacher to

consider leaving the profession. This came about after a discussion regarding the stress teachers of young children feel when thinking of how to help children with prenatal drug exposure.

Personal communication with pediatricians and pediatric residents inspired a couple of the questions. The questions came about after a discussion with the doctors about what teachers might know about the number of babies born in northeast Tennessee with prenatal drug exposure. It also was a concern for the pediatricians the researcher spoke with that teachers and childcare workers should know more about the NAS condition and how it affects the growth and development of children. Interview questions 10 and 11 were the result of these conversations, thus resulting in qualitative research question three.

Four interview questions were piloted with 52 participants at a practitioner-focused session at the 2016 East Tennessee State University Annual Early Childhood Conference (see Table 3). The questions were asked during a presentation that provided an overview of prenatal drug exposure and how to support children with prenatal drug exposure in the classroom.

The questions seemed to be understood by the participants and garnered meaningful conversation between the researcher and conference participants. The first question about the teachers' difficult challenges most often received responses such as the children's impulsivity, lack of focus, developmental delays, angry outbursts, and difficulty interacting with peers. Teachers reported that they had not received enough training related to prenatal drug exposure (Chapman & Elliot, 1995). This was confirmed in the second question requesting the type of training teachers had received. One respondent said, "I think all education majors should have to minor in special education with today's kids" (Charlotte, personal communication, ETSU Annual Early Childhood Conference in Johnson City, TN, July 15, 2016). The training most preschool teachers said they needed pointed toward hands-on experiences and strategies to

improve child behavior. Most of the conference session attendees seem to have understood the size of the population of children exposed prenatally to drugs in northeast Tennessee, while some reportedly knew very little. Table 3 lists the questions that were asked and shows some responses from conference participants.

Table 3

Piloted Interview Questions with Select Responses from Conference Participants

Question	Selected Responses from Participants
If you've ever worked with children with prenatal drug exposure, what are some of the most difficult challenges you can recall having experienced with them?	<ol style="list-style-type: none"> 1. "aggression, hitting, cannot pay attention" 2. "inability to focus, lack of impulse control, hyper, difficulty with rules, lie" 3. "impulsiveness, master manipulator, comprehending the consequences, positive or negative, of their words and actions"
What types of prep/training/etc. have you received to prepare you in working with children with prenatal drug exposure? Do you feel this was adequate preparation for you?	<ol style="list-style-type: none"> 1. "I think all education majors should have to minor in special education with today's kids." 2. "Little to no professional training. Learn from trial and error based on each child & family dynamic." 3. "None. I NEED training!"
What training do you feel would be most beneficial?	<ol style="list-style-type: none"> 1. "in class scenarios modeled and practiced" 2. "Our area is SO affected by this! We need intensive training...we will all experience these students. We need to be armed with information to help children and families as they enter our schools." 3. "specific classroom techniques and interventions"
What do you know about the amount of children prenatally exposed to drugs in the northeast Tennessee region?	<ol style="list-style-type: none"> 1. "Growing daily. Drugs are an epidemic." 2. "There are more and more children born addicted." 3. "I don't know much."

Based on feedback from conference participants, it was determined that the questions were appropriate for use with preschool teachers. The experience generated two additional questions for the teacher interview: one question to determine what resources teachers have access to for serving these children and another question to ascertain how much preschool teachers actually know about the population of drug-exposed children in northeast Tennessee.

Data Collection

Data collection took place between March and September of 2017. The survey reached 77 teachers and had an expected return rate of between 60% and 70% based on the return rates of studies that collected survey data from preschool teachers (Chen, McCray, Adams, & Leow, 2014; Stoll, 2015). Fifty-three surveys were returned, making the actual return rate 68.8%. Six interviewees were recruited from the survey respondents.

Quantitative Survey

After participants received the prompt to participate in the study, the electronic survey was scheduled to remain available for 3 weeks. However, at the end of the initial 3 weeks, enough data was not yet collected to complete the survey portion of the study. The survey was available for 12 weeks altogether. At the conclusion of the survey window, data were available for 53 participants, but three of those surveys were incomplete. After the close of the survey, data were collected and the contact information of participants who indicated an interest in participating in the follow-up interview was noted. Data from the survey were downloaded from the Survey Monkey server as a Microsoft Excel file and transferred into the Statistical Package for the Social Sciences (SPSS) for analysis.

Qualitative Interview

The interview was conducted face-to-face with participants at a location agreed upon by the participant and researcher. Three of the interviewees chose to meet at their program site, one chose to meet the researcher at a coffee shop, and two chose to meet at a café. Each interview lasted between 20 and 30 minutes. During the interview, the researcher asked open-ended questions from a script with answers clarified as needed. These open-ended questions were created to align with the questions from the initial survey in order to garner a more complete picture of what the participants had experienced in teaching children with prenatal drug exposure. The interview session allowed the researcher to ask follow-up questions and collect rich information to assist in understanding what the participant had experienced.

The participant interview sessions were documented with a digital recorder. Following each interview session, the audio recordings were transferred to the researcher's personal computer, which was protected with a password and logged in and out of for each session. After transferring the data, all recordings were erased from the digital recorder. The digital recordings were backed up on a password-protected external hard drive. The researcher, the researcher's faculty sponsor, and the East Tennessee State University Institutional Review Board have access to the files. Each participant interview session was assigned a number when transferred from the digital recorder to the computer to ensure teacher privacy. A pseudonym was created for each teacher. The documentation of teachers' real names and pseudonyms was protected using the same method as other data on the researcher's personal computer. All audio files were destroyed at the conclusion of data analysis and after removal from the researcher's personal computer and external hard drive. Interview transcripts are archived for 6 years in a locked cabinet in the ETSU Department of Early Childhood Education.

Data Analysis

Computer-based programs were used to analyze all data. Quantitative data were analyzed with the Statistical Package for the Social Sciences (SPSS). Interview data were initially coded by hand before using the MAXQDA qualitative data analysis program, to ensure the best use of all the interviewee's responses.

Quantitative Survey

Categorical values were predetermined in the quantitative part of this research. This allowed the acquisition of a snapshot in time of participants' experiences. Descriptive statistics of data exported from Survey Monkey were computed by SPSS after conversion from the Microsoft Excel file prepared by Survey Monkey. The first question on the survey asking if the participant had ever worked with a prenatally drug-exposed student was a dichotomous question. It was presented as a percentage of yes and no answers. The measures of central tendency from the Likert scale items presented the mean, median, and mode of each item. Babbie (2012) suggested using the measures of central tendency to gain a general understanding of what is typical among data. This method helped clarify what preschool teachers typically thought of or had experienced relative to working with children with prenatal drug exposure. The demographics of the survey were categorical and presented as frequencies and percentages to show how participants answered the demographic group questions.

Qualitative Interview

The qualitative interview data for this study were coded and themes explored pertaining to the teachers' collective experiences. There were some expected categories, however other themes were not anticipated and were welcome additions to the data. Because of what was learned in the review of literature, some categories expected from the participants included

behavioral challenges, low academics, and developmental delays. A benefit of using qualitative data collection was that the researcher was able “to understand and capture the points of view of other people without predetermining those points of view” (Patton, 2002, p. 21). An additional advantage to adding a qualitative component to this study was the ability to ask more about a participant’s response in that moment of the interview.

As interviews were completed, the digital recordings were transcribed into Microsoft Word. Upon completion of each transcript, member checking was completed by sending the document via email to the corresponding participant. Once the participant agreed that the interview transcript was an accurate representation of the interview, coding began for that interview. The researcher coded the data following recommendations made by Creswell and Clark (2011). The transcripts were first read from start to finish for a general idea without taking notes. The second reading included taking broad careful notes on what was noticed in the participant responses. *Holistic coding* (Saldaña, 2016) with larger chunks of data was used during the second reading. The third reading was done by paragraph to note the participant’s meaning from the overall paragraph. During the third reading, *pattern coding* (Saldaña, 2016) was used to condense the larger chunks from *holistic coding* into more manageable categories. The categories were then put into MAXQDA for final analysis to gather the themes. Intercoder reliability of the categories was checked by a second coder. A graduate student reviewed the interview transcripts to crosscheck the codes created by the researcher. As recommended by Creswell (2014) the goal was to have at least 80% intercoder agreement to ensure reliability of the qualitative analysis. The second coder reviewed all transcripts to determine if the researcher had missed anything that should have been coded, as well as checked for miscodings. The coder

agreed on all 188 quotes that were coded but also found two additional quotes that should have been coded.

Chapter Summary

Chapter 3 began with a brief overview of a justification for the sequential mixed methodology used and a listing of the study's research questions. A detailed description of the steps taken to collect the survey and interview data for the study were given, which included details about the instruments created and used by the researcher. Finally, the procedures for data analysis were outlined.

Chapter 4 presents the findings and analysis of the data. Survey data, results of the interviews, and themes that emerged during analysis of the qualitative data are discussed.

CHAPTER 4

RESULTS

Introduction

The purpose of this sequential mixed methods study was to explore the perceptions, training, and shared experiences of preschool teachers when working with children who have experienced prenatal drug exposure. This chapter is organized in relation to the four quantitative research questions followed by the four qualitative questions.

The quantitative survey was initially administered electronically through Survey Monkey and then on paper to collect more responses when a face-to-face collection opportunity was presented. Survey data were analyzed to find the frequency and percentage of responses for categorical items and by frequency, percentage, and measure of central tendency for the Likert scale items.

The qualitative interview was completed in person with interviewees recruited from the pool of survey respondents. Interview audio was recorded and transcribed; each transcription was sent to its corresponding interviewee for review and revision. The qualitative interview data were initially hand coded before uploading them to MAXQDA for final categorization that lead to the interview themes.

Quantitative Research Questions

Quantitative Research Question 1. *What are the most prevalent behavior or academic concerns reported by preschool teachers?*

Quantitative Research Question 2. *What are the resources preschool teachers have available to help children prenatally exposed to drugs with whom they work?*

Quantitative Research Question 3. *What barriers do preschool teachers report they encounter when working with children who have been exposed to drugs prenatally?*

Quantitative Research Question 4. *To what extent do preschool teachers feel prepared to work with children with prenatal drug exposure?*

Qualitative Research Questions

Qualitative Research Question 1. *What professional development experiences have preschool teachers had around the topic of prenatal drug exposure?*

Qualitative Research Question 2. *Are there any specific experiences with children prenatally drug exposed that preschool teachers share?*

Qualitative Research Question 3. *What do preschool teachers understand about how prenatal drug exposure affects children?*

Qualitative Research Question 4. *How have preschool teachers' experiences with children with prenatal drug exposure shaped their current teaching practices?*

Participant Demographics

Data were collected from 50 preschool teachers. The survey demographics included teacher race and gender, years of teaching, current teaching position, highest education level, degree major, age range of children in current class, and whether they were working in a Head Start or a VPK program. The interview participants were a subgroup of the survey respondents; demographics were confirmed during the interview because of the anonymity of the survey data. The interview participant demographics included teacher race and gender, years of teaching, highest education level, and whether they were working in a Head Start or a VPK program.

Quantitative Survey Demographics

The survey began with a *yes* or *no* question to find out if the teacher had experience with children prenatally exposed to drugs. Table 4 displays teacher responses to this initial question on the survey. Most teachers (68% of respondents) reported having worked with a child who was prenatally exposed to drugs. Whereas 34 teachers reported having worked with the target group of children, demographics were collected on only 33 of them.

Table 4

Frequency and Percent of Teachers Reporting to Have or Have Not Worked with Children with Prenatal Drug Exposure

Response	Frequency (<i>N</i> = 51)	Percentage
Yes	34	68%
No	16	32%

Table 5 presents the years of teaching experience of those preschool teachers who reported having experience with children with prenatal drug exposure. The majority of these teachers taught between 4 and 19 years; all are experienced educators.

Table 5

Years of Experience of Teachers Reporting Having Worked with Children with Prenatal Drug Exposure

Years of Experience	Frequency (<i>N</i> = 33)	Percentage
1-3	1	3.0%
4-9	12	36.4%
10-19	14	42.4%
20-29	6	18.2%
30+	0	0%

Thirty of the 33 teachers (90.9%) reported being a general education teacher. Three participants chose the *other* option. Two of the teachers indicated *Head Start* as their teaching position, and one responded *preschool teacher or early childhood educator*. Figure 4 shows the education level of the preschool teachers who responded to the survey and completed the demographic information. Nearly all of the teachers responding to the survey (97%) had earned at least an associate’s degree. One teacher reported having *some college*, and the majority had earned a bachelor’s degree or higher.

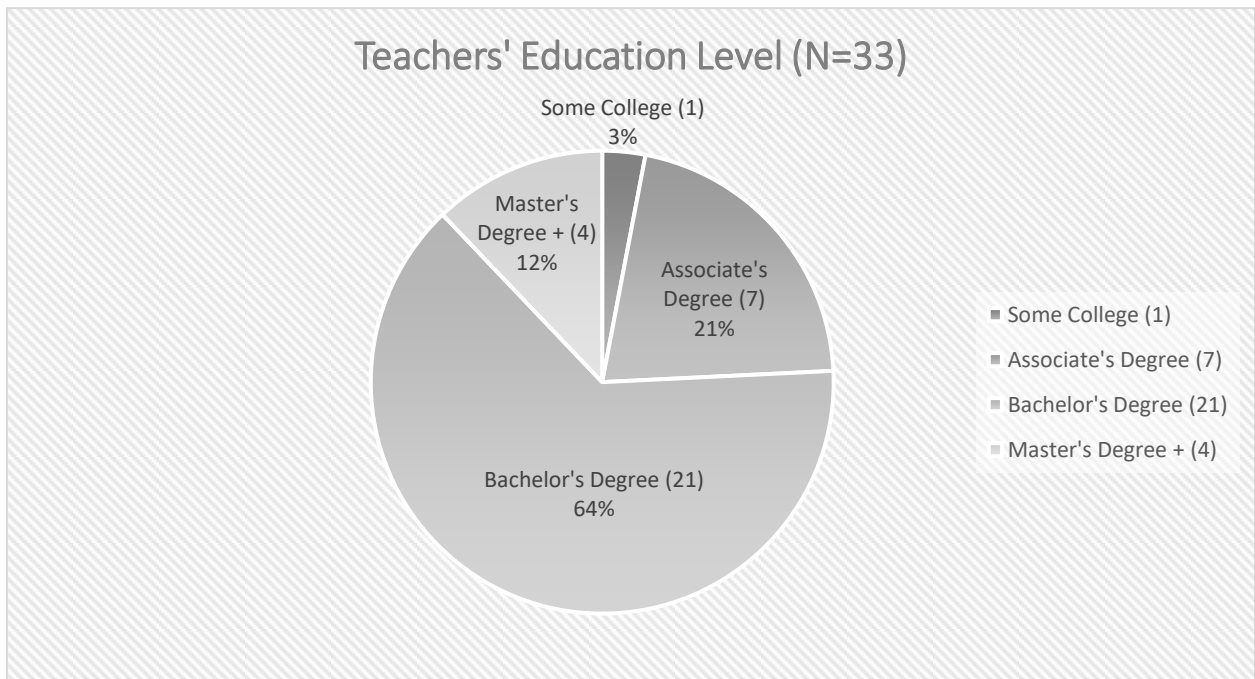


Figure 4. The education level of the 33 teachers responding to the survey

Thirty teachers responded that they had a major in early childhood education, making it the most common academic major of all the preschool teacher participants. There was one respondent for each of the majors of early childhood special education, elementary education, and child and family studies. Table 6 reports the frequency and percentage of the academic majors of participants.

Table 6

Academic Majors of Teachers Reporting Having Worked with Children with Prenatal Drug Exposure

Academic Major	Frequency (<i>N</i> = 33)	Percentage
Early childhood education	30	90.9%
Early childhood special education	1	3.0%
Elementary education	1	3.0%
Child & family studies	1	3.0%

Because the study was focused more on teachers working with children 4 and 5 years of age, the age ranges that the teachers primarily work with were determined. Most of the teachers (24) confirmed they worked with children in the 4- and 5-year-old age range. Eight teachers chose *other* and indicated that they worked with children in the age range of 3 to 5 years; one teacher reported working with ages 3 and under. Table 7 shows the frequency and percentage of the age range choices the teachers gave.

Table 7

Age Range of Children Taught by Teachers Reporting Having Worked with Children with Prenatal Drug Exposure

Age Taught	Frequency (<i>N</i> = 33)	Percentage
3 years and under	1	3.0%
4 and 5 years	24	72.7%
Other	8	24.2%

Note. Those responding *Other* reported working with the age ranges of 3 to 5 years.

Most of the survey respondents were Head Start teachers with 60.6% stating such. However, of the two respondents who selected *other*, one indicated that she worked for Head Start, and the other indicated working for both Head Start and a city school program. As for race, 30 of the participants were White (90.9%), two (6.1%) were Black, and one participant (3%) indicated she was biracial. All teachers identified as female. Figure 5 displays the type of program the teachers worked in.

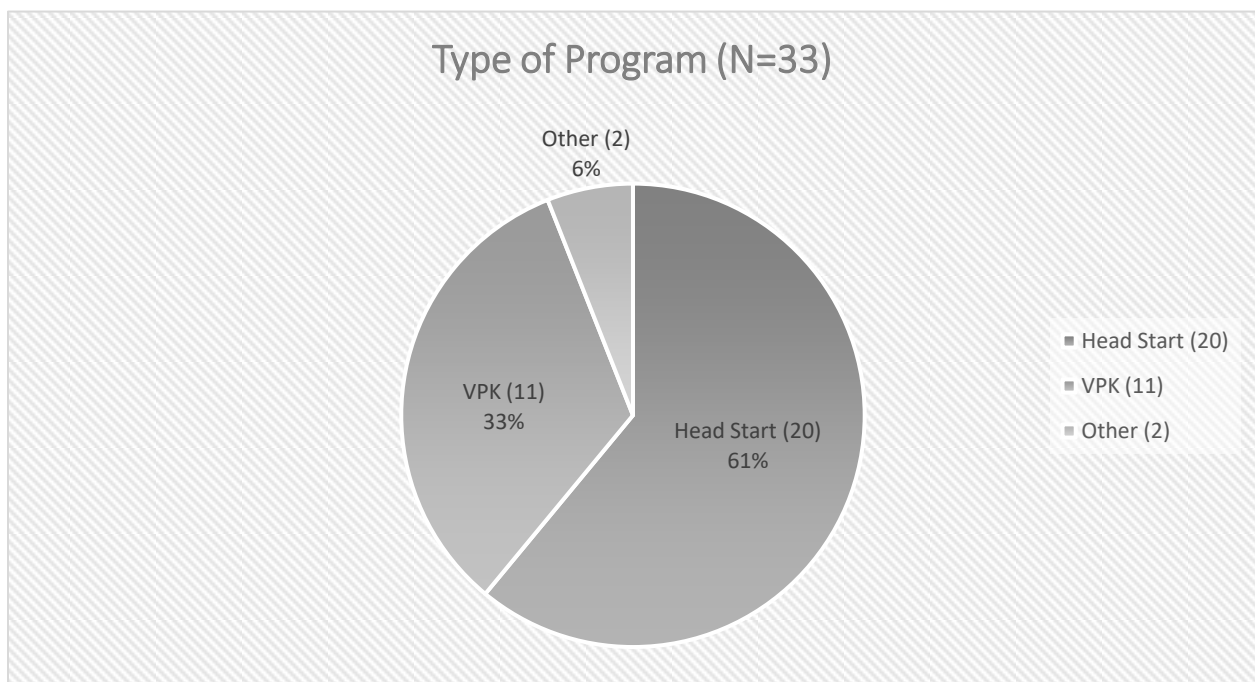


Figure 5. The type of program survey participants worked in

Qualitative Interview Demographics

Both program types were equally represented in the qualitative interviews. Three interviewees worked for Head Start and three for VPK. They were all experienced teachers. Five of the six teachers had at least 10 years of teaching experience to their credit. Most of them implied that they had further practice as a teaching assistant in addition to their lead teaching

experience. The teachers all had at least an associate’s degree with the highest level of education being a master’s degree. The interviewees’ demographics are presented in Table 8.

Table 8
Interviewee Demographics

Interviewee	Type of Program	Years of Teaching Experience	Highest Education Level	Race	Gender
Kate	VPK	10 years	Master’s Degree	White	Female
Margaret	Head Start	20 years	Bachelor’s Degree	White	Female
Kelsey	Head Start	1 year	Associate’s Degree	White	Female
Rebekah	Head Start	11 years	Associate’s Degree	White	Female
Joyce	VPK	18 years	Bachelor’s Degree	White	Female
Patricia	VPK	20 years	Bachelor’s Degree	White	Female

Quantitative Results

Surveys were received from 53 preschool teachers. Thirty-five of the participants reported having worked with a child who they believed to have been prenatally exposed to drugs. One participant stopped responding less than halfway through the survey, so this participant’s data were not included.

Quantitative Research Question 1

What are the most prevalent behavior or academic concerns reported by preschool teachers?

The survey listed many challenges from the literature that were observed or reported in children having been prenatally exposed to drugs. Teachers were instructed to select all of the challenges they had experienced. Responses to this question were collected from 36 teachers.

The top two concerns teachers selected were *lack of focus* and *short attention span*. All but one of the teachers (94.1%) reported experiencing each of these challenges. *Difficulty with directions* and *impulsive* were the next most common challenges (82.4% each) with *hyperactive* next (79.4%). *Lack of self-regulation* and *disruptive* (70.6% each) followed. Teachers were concerned about the children being *easily frustrated* and having *low academic abilities* (64.7% each). Exactly half of the respondents chose *poor social skills* as a challenge. One teacher reported that the children with prenatal drug exposure who she worked with were lacking typical fine-motor skills. Table 9 presents the replies from teachers who responded they had experience with children with prenatal drug exposure. These responses were to the question: “What challenges did you experience with these children? Check all that apply.”

Table 9

Frequency and Percentages of Challenges Experienced by Preschool Teachers Reporting to Have Experience with Children with Prenatal Drug Exposure

Challenge	Frequency (<i>N</i> = 33)	Percentage
Lack of focus	32	94.1%
Short attention span	32	94.1%
Difficulty with directions	28	82.4%
Impulsive	28	82.4%
Hyperactive	27	79.4%
Lack of self-regulation	24	70.6%
Disruptive	24	70.6%
Easily frustrated	22	64.7%
Low academic abilities	22	64.7%
Poor social skills	17	50.0%
Speech and language delays	15	44.1%
Poor memory	14	41.2%
Frequent tantrums	14	41.2%
Inability to organize tasks	13	38.2%
Lower IQ (according to testing)	9	26.5%
Other	1	2.8%

Note: Frequency represents the number of respondents who selected the challenge.

Quantitative Research Question 2

What are the resources preschool teachers have available to help children prenatally exposed to drugs with whom they work?

To answer the research question, the survey included the question, “How often do you utilize the following resources and strategies to assist you in meeting the needs of children you know have been prenatally drug-exposed? Select all that apply.” Interventions were listed according to what teachers regularly have access to, based on the literature and personal knowledge. To calculate measures of central tendency on this survey question, codes ranging from 1 to 4 (1 = not available to 4 = frequently) were assigned to each level of the Likert scale.

Behavioral (85.3%) and academic (77.1%) interventions were used frequently by teachers to help meet the needs of children with prenatal drug exposure. More than half of the teachers (58.8%) rarely or sometimes used other special education interventions. Special education was not available for seven (20.6%) of the surveyed teachers.

In contrast to frequently-used behavioral interventions, behavior consultants were rarely used by 42.9% of preschool teachers. Forty percent used a behavior consultant at least some time during the course of the school year. Therapists such as occupational, physical, and speech and language, were used with varying frequency for most of the teachers (63.3%). Therapists were not available to 36.4% of the participants. Mental health professionals were rarely (38.2%) or sometimes (29.4%) used but were not available to 14.7% of preschool teachers. Workshops and conferences were sometimes or frequently used (66.6%). College course materials were rarely or sometimes used by 70.6% of the teachers to gain information about children with prenatal drug exposure. Prior experiences with children having prenatal drug exposure was not available to

38.2% of preschool teachers. If it was available to them, it was used at least sometimes by 8 (23.5%) teachers.

A few participants did not respond to all the items in this question. The items about behavioral and special education interventions, mental health consultants, course content, and practicum experience were all skipped by one respondent. Two respondents skipped the items about therapists and workshops and conferences. Four of the items were skipped by the same respondent. Table 10 shows the responses to each Likert scale item by frequency, percentage, and mean.

Table 10

Responses to Likert Scale Items by Frequency, Percentages, and Mean

	Not Available	Rarely	Sometimes	Frequently	Mean
Interventions					
Behavioral	0(0%)	2(5.9%)	3(8.8%)	29(85.3%)	3.79
Academic	1(2.9%)	3(8.6%)	4(11.4%)	27(77.1%)	3.62
Special Education	7(20.6%)	10(29.4%)	10(29.4%)	7(20.6%)	2.55
Personnel					
Behavior Consultant	6(17.1%)	15(42.9%)	8(22.9%)	6(17.1%)	2.35
Mental Health	5(14.7%)	13(38.2%)	10(29.4%)	6(17.7%)	2.45
Therapist (OT, PT, SLP)	12(36.4%)	8(24.2%)	7(21.2%)	6(18.2%)	2.25
Professional Development					
Workshops/Conferences	4(12.1%)	7(21.2%)	11(33.3%)	11(33.3%)	2.88
College Course Content	5(14.7%)	12(35.3%)	12(35.3%)	5(14.7%)	2.48
Practicum Experience	13(38.2%)	13(38.2%)	7(20.6%)	1(2.9%)	1.85

Quantitative Research Question 3

What barriers do preschool teachers report they encounter when working with children who have been exposed to drugs prenatally?

To answer the research question, the survey included the question, “How much do you agree with the following statements regarding the challenges you feel when working with prenatally drug-exposed children?” Teachers agreed (17.6% *completely agree* and 44.1% *somewhat agree*) that they *lack resources*. Almost 6% *completely agree* and 29.4% *somewhat agree* that they are *unsure how to help* this group of children. Forty-four percent *neither* agreed nor disagreed that these children would be *better served by special education* teachers instead of them. The teachers showed a positive belief that children with prenatal drug exposure were *able to learn* (78.8% *completely agree* or *somewhat agree*). Most teachers reported that they were not *hesitant* (88.2%) or *uncomfortable* (94.1%) working *with families* of these children. Finally, the survey participants *somewhat agree* (58.8%) or *completely agree* (29.4%) that they have *behavior concerns* about these children. One teacher said, “I feel it depends on the severity of the behavior.” Table 11 displays frequency, percentages, and mean for this survey question.

Table 11

Survey Question Responses to Likert Scale Items by Frequency, Percentages, and Mean

	Completely Disagree	Somewhat Disagree	Neither	Somewhat Agree	Completely Agree	Mean
Lack resources	4(11.8%)	4(11.8%)	5(14.7%)	15(44.1%)	6(17.6%)	3.44
Unsure how to help	5(14.7%)	9(26.50%)	8(23.5%)	10(29.4%)	2(5.9%)	2.85
Afraid they can't learn	22(66.7%)	4(12.1%)	4(12.1%)	2(6.1%)	1(3%)	1.67
Hesitant with family	25(73.5%)	5(14.7%)	3(8.8%)	0(0%)	1(2.9%)	1.44
Uncomfortable with family	24(70.6%)	8(23.5%)	1(2.9%)	1(2.9%)	0(0%)	1.38
Behavior concerns	1(2.9%)	1(2.9%)	2(5.9%)	20(58.8%)	10(29.4%)	4.09
Better served by special education	5(14.7%)	6(17.65)	15(44.1%)	6(17.6%)	2(5.9%)	2.82

Quantitative Research Question 4

To what extent do preschool teachers feel prepared to work with children with prenatal drug exposure?

On the survey the participant was instructed, “Please indicate how much you do or do not agree with the following statements in relation to prenatally drug-exposed children.” Two survey participants stopped completing the survey at this question, leaving 33 responses. An item that questioned the teacher’s level of comfort planning and providing instruction for children with prenatal drug exposure was skipped by one respondent leaving 32 responses. An item asking if

teachers thought these children required more of their time was inadvertently left off the paper survey and resulted in four missing responses leaving 29 responses.

Survey respondents *agreed*, either *somewhat* (54.5%) or *completely* (30.3%), that they *need more training* to work with children with prenatal drug exposure. Over half of the teachers *completely agreed* (51.5%) that children with prenatal drug exposure *require more time* than other children. Few teachers (21.2%) *completely* or *somewhat disagree* that they *need to discuss them* with someone. Teachers were *comfortable talking to administrators* about these children (69.7%). The teachers also felt *comfortable with families* (78.8%). Over half of the teachers (54.6%) indicated that they know how to get *behavior help* if needed. Table 12 shows the frequency, percentage, and mean for survey respondents' answers.

Table 12

Frequency, Percentage, and Mean of Teacher Preparedness Factors

	Completely Disagree	Somewhat Disagree	Neither	Somewhat Agree	Completely Agree	Mean
Well prepared	2(6.1%)	5(15.2%)	5(15.2%)	16(48.5%)	5(15.2%)	3.52
Comfortable planning and instructing	1(3.1%)	2(6.3%)	5(15.6%)	15(46.9%)	9(28.1%)	3.91
They require more time	0(0%)	1(3.0%)	2(6.1%)	13(39.4%)	17(51.5%)	2.93
Need more training	0(0%)	3(9.1%)	2(6.1%)	18(54.5%)	10(30.3%)	4.06
Need to discuss them	3(9.1%)	4(12.1%)	8(24.2%)	8(24.2%)	10(30.3%)	3.55
Uncomfortable talking to administrator	17(51.5%)	6(18.2%)	6(18.2%)	1(3.0%)	3(6.0%)	2.00
Uncomfortable with families	17(51.5%)	9(27.3%)	4(12.1%)	1(3.0%)	2(6.1%)	1.85
Behavior help	9(27.3%)	9(27.3%)	9(27.3%)	4(12.1%)	2(6.1%)	2.42
Negative effect on class	6(18.2%)	1(3.0%)	12(36.4%)	10(30.3%)	14(12.1%)	3.15

Qualitative Results

Data from the six interviews are presented in this section. Results are arranged by research question. Table 2 from chapter 3 revisits the alignment of the qualitative research questions with the interview questions.

Table 2

Interview Questions Aligned with Qualitative Research Questions

Research Question	Interview Question
<p><u>Research Question 1.</u> What professional development experiences have preschool teachers had around the topic of prenatal drug exposure?</p>	<p><u>Interview Question 5:</u> How do you make decisions about how to support these students with these challenges? Who do you consult with when deciding how to support those children? Internet/colleagues/etc.?</p> <p><u>Interview Question 6:</u> What types of prep/training/etc. have you already received to prepare you in working with this population? Do you feel this was adequate preparation for you?</p> <p><u>Interview Question 7:</u> What additional professional preparation do you think would be helpful?</p> <p><u>Interview Question 8:</u> What resources do you feel like you need to manage these challenges that you don't currently have access to?</p>
<p><u>Research Question 2.</u> Are there any specific experiences with children prenatally drug exposed that preschool teachers share?</p>	<p><u>Interview Question 3:</u> What is your greatest concern when working with this population?</p> <p><u>Interview Question 4:</u> Thinking about the prenatally exposed children you've worked with, what are some of the most difficult challenges you can recall having experienced with those children?</p>
<p><u>Research Question 3.</u> What do preschool teachers understand about how prenatal drug exposure affects children?</p>	<p><u>Interview Question 10:</u> In thinking about the children you've worked with, how much of the difficulty do you think is because of the substance abuse during the mother's pregnancy and how much do you think is environmental?</p> <p><u>Interview Question 11:</u> Are there drugs that you think have a more negative effect on children than other drugs (i.e., meth vs. cocaine)? What are your thoughts/opinions on this?</p>
<p><u>Research Question 4.</u> How have preschool teachers' experiences with children with prenatal drug exposure shaped their current teaching practices?</p>	<p><u>Interview Question 4a:</u> For each challenge you experienced, what strategies did you try? Did they work? Why/not do you think?</p>

Qualitative Research Question 1

What professional development experiences have preschool teachers had around the topic of prenatal drug exposure?

Research question one aligned with four of the interview questions. Four interview questions were included to find out about what training and resources teachers have had specific to working with children who have been exposed to drugs prenatally. Three of the questions specifically addressed training, and question eight was about access to resources for teachers. It was thought that a question about resources might result in professional development sessions being a source of support or ideas. After hand coding and analysis in MAXQDA were completed, two themes emerged from the interviewees' responses to these four questions: training and resources. These themes evolved by combining all the individual types of training and resources mentioned by the interviewees. Throughout the interviews, the same types of training and resources were mentioned repeatedly, resulting in the two themes.

Theme 1: Training. The training theme encompasses teacher discussions regarding any type of training or professional development experiences they had about prenatal drug exposure and working with those children. Interview participants were unanimous in expressing their need for more training on how to serve children with prenatal drug exposure. The need for training was mentioned by all interview participants. Margaret brought up webinars as a training idea that no one else mentioned. She liked that she could log on anytime to view the presentation. She said, "webinars are great...it's at everybody's convenience." All interviewees shared an enjoyment for workshops and conferences. Topics specific to prenatal drug exposure suggested by interviewees included behavior, special education aspects, and how drugs affect the children. Joyce said, "...it's just a different way to work with them...it's unknown, and we all need

[training about prenatal drug exposure].” When asked if coaching would be something they may find beneficial, Kate shared that she would be open to something like that; Rebekah was of the opinion that coaching would be okay, but she was adamant that it should take place outside of her teaching time as opposed to real-time coaching. It was evident that all interviewees desired training that would be convenient, immediately applicable, and interactive. Table 13 highlights some of the interviewees’ comments about training they have received.

Table 13
Interviewees’ Comments Regarding Training

Interviewee	Resources
Kate	“[Children with prenatal drug exposure] is one area that I feel like I don’t have a lot that focused on that particular problem. I would like to have more that focused on that. I think we focus more on standards and just your everyday ins and outs and things, but we don’t focus on specific things like that.”
Margaret	“...a concern is having the proper training [about how to best serve children with prenatal drug exposure].”
Kelsey	“I think the hardest part for me is I don’t have much information about what it is that they...the symptoms that they had and how to help them do that. ...unless I just haven’t found the research yet, I haven’t really found anything that would say, you know, this would help. It’s kind of up in the air. There’s not a lot to help figure it out.”
Rebekah	“I feel like I need more all the time. If we get a different challenge, I feel like sometimes, like I’m not a special [education] teacher either. I feel that way a lot. I feel like eh, not really sure about this.”
Joyce	“There’s definitely a need to pinpoint because ...it’s just a different way to work with them, yes. And it’s unknown and we all need it.”
Patricia	“I would love to see us have more training. I think it’s good for new teachers, especially, who haven’t been in that setting to see the characteristics, to see things that they can try.”

Theme 2: Resources. Preschool teachers in Head Start and VPK programs seem to have many resources at their disposal to use for their students with prenatal drug exposure. The resource referred to most often was special education professionals such as a special education teacher, occupational therapist (OT), physical therapist (PT), and a speech and language teacher or specialist (SLP). The next most frequently mentioned resource was the child's parents or guardians, which was not anticipated. However, five of the six interviewees mentioned the importance of involving the child's guardians when making decisions on how to serve the child best. Kelsey stated, "really, just having a good base with the family [is helpful] because they're the ones that's going to try to tell you what they know...they're going to the doctor appointments and things like that."

Three interviewees mentioned the living situations of the children with prenatal drug exposure as being in foster care or living with grandparents and said the children were in excellent home environments in these situations. The next resource mentioned was colleagues, which included administrators, co-teachers, and teaching assistants. The interviewees seemed to have an appreciation for having people around them to be a sounding board and place to go for advice. Other resources included mental health specialists, referral to outside agencies (e.g., child protective services, health department, and charities), Internet searches, prior knowledge, behavior specialist, and college coursework. Access to mental health professionals was mentioned by all three Head Start teachers and not by any of the VPK teachers suggesting this to be a resource specific to Head Start. Table 14 lists the resources mentioned by each interviewee.

Table 14

Resources Interviewees Have Access to

Interviewee	Resources
Kate	Child's parents, coworkers, principal, special education preschool teacher, speech teacher
Margaret	Referral to outside agency, child's parents, prior knowledge, mental health professional on staff
Kelsey	Child's parents, mental health professional on staff, internet searching, college coursework
Rebekah	Mental health professional on staff, speech teacher, behavior specialist, child's parents, college coursework
Joyce	Foster parent, special education department, colleagues
Patricia	Therapists (OT, PT, SLP), colleagues, special education preschool teacher, principal, referral to outside agencies

Interviewees were asked about resources they wish they had access to. Their wish list is sorted by Head Start and VPK because Head Start falls under the same regional director and has access to the same resources whereas VPK resources depend on the location of the program (i.e., what school district they are in and what their resources are).

The Head Start *wish list* contained:

- Reference books such as might be seen with children with other medical issues (e.g., Down syndrome, autism, cerebral palsy)
- Communication with therapists that children visit outside the school program
- Knowledge of behavioral issues and how to manage them

The VPK *wish list* contained:

- Knowledge of behavioral issues and how to manage them
- Knowledge about more strategies and approaches for children with prenatal drug exposure

Behavior management strategies were important for interviewees of both programs. This reiterates the need for immediately applicable training that teachers emphasized during their responses about training.

Qualitative Research Question 2

Are there any specific experiences with children prenatally drug exposed that preschool teachers share?

Interview questions three and four were aligned with qualitative research question two. These interview questions asked preschool teachers to share their greatest concerns about children with prenatal drug exposure, as well as what challenges they had experienced when working with these children.

Theme 3: Concerns. The interviewees shared various concerns – some expected and some unexpected. Concerns were coded 80 times during analysis, with the most prevalent being negative behaviors. Negative behaviors were mentioned 29 times, and based on what was learned from the review of literature, the topic was expected. The variety of behaviors mentioned included misbehaviors and undesired behaviors with the most prevalent behaviors being hyperactivity and anger. Immaturity and defiance were also concerns related to misbehavior. The interviewees specific concerns are listed in Table 15 along with the frequency of times mentioned.

Table 15

Frequency of Areas Mentioned Across All Interviewees

Area	Frequency
Negative behaviors	29
Academics	14
Socioemotional	11
Developmental delays	10
Increasing number of children with prenatal drug exposure	7
Sensory issues	2
ADD/ADHD	1
Speech delay	1
Lack of follow through by parents after referral to services and programs	1

Table 16 shows selected comments about the interviewees' concerns for children with prenatal drug exposure. Many concerns were related to social emotional issues, academics, and development.

Table 16

Interviewee Comments about Their Concerns for Children with Prenatal Drug Exposure

Interviewee	Comment
Kate	<p>"...it just seems like we're dealing with more behavior and more extreme issues now than what we ever had to deal with."</p> <p>"I think there is more of an attention issue with those children."</p>
Margaret	<p>"...not being developmentally at their age level where they should be in, sometimes not all areas, but sometimes it's just one area. But it's very significant in that one area."</p> <p>"...basically, wanting to do what they want to do and not go about the rules...defiant would be a good way to put that."</p>
Kelsey	<p>"...their cognitive development was lower than the rest of the class."</p> <p>"Their ability to learn with whatever it is that's causing their problems. Like with sensory issues."</p>
Rebekah	<p>"They were developmentally delayed, very much."</p> <p>"...lots of times they are being really bad with behaviors, 9 times out of 10. Now not every single one of them, but most of them are."</p>
Joyce	<p>"Their academics [were] lower. Just getting it took more practice for them to learn."</p> <p>"...to get them to build trust for you and know you're a safe person..."</p>
Patricia	<p>"They have a difficult time focusing. They're not always behavior problems, but they're very active, and my biggest concern in the classroom is being able to focus in the upper grades where it really counts."</p>

Qualitative Research Question 3

What do preschool teachers understand about how prenatal drug exposure affects children?

The researcher was curious about what teachers know and have heard about the various drugs and prevalence of prenatal drug exposure cases in the region. This curiosity resulted in the inclusion of two interview questions on the subject of the effect of drugs on children and the statistics of the region. During checks for validity, the second coder found two quotes that should have been coded for drug knowledge. These two instances were added to the final count of drug knowledge.

Theme 4: Drug knowledge. When asked if they thought some drugs had worse effects on children prenatally than other drugs, the responses varied. Three of the six interviewees stated that they believed methamphetamine had the worst effect on children prenatally. All interviewees mentioned they did not know enough about different drugs to know for sure. The problem experienced a few years ago was *bath salts* – a synthetic psychostimulant that was banned in the United States in 2011 (Drug Policy Alliance, 2018). Bath salts were an unexpected substance brought up by Margaret and Joyce. Neither of them chose to elaborate on whether they had any experiences with children who may have been exposed to bath salts.

Overall, interviewees were aware of the region's extremely high incidence of prenatal drug exposure. All but one of the interviewees said that northeast Tennessee had the highest incidence in the state, if not the country; Kate was not familiar with any statistics on the incidence of prenatal drug exposure in the region. Table 17 includes comments from the interviewees about their drug knowledge.

Table 17

Interviewee Comments Regarding Their Drug Knowledge

Interviewee	Comment
Kate	“I don’t know if there’s any correlation there. I mean like one’s worse than the other.”
Margaret	“I think [the effect of the drug on the child] varies.”
Kelsey	“I think meth. The ones that I knew definitely was born with the meth was more severe than the ones that they didn’t necessarily say but were more like prescription abuse.”
Rebekah	“I couldn’t tell you what any of them do. You can tell when somebody’s on something most of the time. But to gauge which one’s worse than others? No.”
Joyce	“I think [drugs] are going to [effect development] as far as the makeup [of their brains and bodies]...and their need in the brain, absolutely.”
Patricia	“I really don’t know enough about that, and that’s probably where the training would come in.”

Qualitative Research Question 4

How have preschool teachers’ experiences with children with prenatal drug exposure shaped their current teaching practices?

One interview question aligned with this research question. The ways teachers accommodate for children with other conditions are similar to accommodations for children with prenatal drug exposure. These accommodations make their way into the teachers’ repertoires and become a fluid part of the teachers’ regular practices. Individualization for children with prenatal drug exposure is at the forefront of the interviewees’ teaching practice. Each of the interviewees

made mention in some way that there is no *one-size-fits-all* approach to serving the children they have worked with who have been exposed to drugs before birth.

The strategies reported by the interviewees were numerous and similar to one another. Rebekah noted that she did not have any strategies specific to prenatal drug exposure but made sure they had extra help and kept them close to her if there were misbehavior concerns. From what she discussed in her interview, her strategies were ingrained in her practice as a teacher and not something she saw as a stand-alone component specific to any one type of child. Table 18 lists the strategies that interviewees reported having used.

Table 18
Frequency of Strategies Mentioned Across All Interviewees

Strategy	Frequency
One-on-one	6
Flexible seating	3
Repeating directions or information	2
Small groups	1
Reduced assignments	1
Find something that interests them	1
Time out	1
Individualized cue	1
Brushing (A technique typically used for sensory disorders using a bristled brush on pressure points.)	1
Individualized goal sheet	1

Theme 5: Strategies. Individualized attention and accommodations were strategies most mentioned in discussion by the interviewees. It is evident that teachers make decisions about strategies for children with prenatal drug exposure based on what they have experienced with all children for whom they have had to make accommodations. The least experienced teacher, Kelsey, is still learning what works for children who need accommodations; she actively seeks out sources of information for new strategies. Kelsey is building her repertoire and practice in this way and seems eager to learn what works and how to serve her students with special needs. Table 19 includes commentary from the interviewees about strategies for working with children with prenatal drug exposure.

Table 19

Interviewee Comments Regarding Strategies They Use

Interviewee	Comment
Kate	“I try to get them more one-on-one as much as I possibly can. If I’m working with a small group, I might let my aide work with them in [another] small group.”
Margaret	“For those children that are very active, I always try to give them something, find something they are interested in.”
Kelsey	“I’ve tried accommodations [specific to the child].”
Rebekah	“No [specific strategies]. They just have to have extra help. [Because of behavior] they are usually by your side anyway.”
Joyce	“It’s hard at a young age. They take things so personal so you...definitely want to make sure that you address the behavior, but you make sure that they know that it’s not them.”
Patricia	“Each child has an individual goal sheet, and it’s just for them. And of course, it’s going to be cognitive; it’s going to be your alphabet, and your letters, your numbers, your shapes and colors. But it can also be for five minutes of sitting at the table and not getting up during lunch. So those kinds of things we work on too with them.”

Conclusion

Results from the quantitative survey showed that preschool teachers share many of the same concerns about children with prenatal drug exposure. Overarching concerns included misbehavior, lack of self-control, and academics. Preschool teachers responding to the survey appear to have many resources and strategies at their disposal including personal experiences with behavioral and academic accommodations and information from workshops and conferences. Teachers show a positive belief that children with prenatal drug exposure can learn, and they report being comfortable working with their administrators and the children's families to help the children succeed. However, they want more training to better prepare them for dealing with children with prenatal drug exposure who they will serve in their roles as general educators to help fill the gap from a lack of special education training.

Five themes emerged from the qualitative data gathered in this study. The emergence of concerns, resources, training, and strategies was expected based on the research questions and the existing literature. Drug knowledge included what the interviewees knew about the effects of drugs on children prenatally and the prevalence of prenatal drug exposure in the northeast Tennessee region. This theme emerged from the data and contributed to the literature as a possible training need for preschool teachers.

Concerns were mentioned the most (80 times). Resources followed with 46 codes, and training was coded 34 times. Drug knowledge regarding strategies and pedagogy were not mentioned nearly as often but were important because of their relationship to the research questions. Table 20 displays the frequency of the themes coded in the qualitative data.

Table 20

Frequency of Study Themes

Theme	Frequency
Concerns	80
Resources	46
Training	34
Strategies	15
Drug Knowledge	15

Chapter Summary

This chapter presented an analysis of the data from this study. The analysis began with the demographics, progressed to the quantitative survey results, and finished with the qualitative interview results.

The final chapter will embark on a further discussion of these findings including application to teacher preparation and training. Connections to the literature will be completed. Limitations and reflections on the study will be shared and recommendations for practice and further research.

CHAPTER 5

DISCUSSION

Introduction

This chapter summarizes the findings presented in chapter 4. Contributions to the literatures and implications will be discussed. The study's limitations are included along with recommendations for further research.

Purpose of the Study

The purpose of this sequential mixed-methods study was to explore the perceptions, training, and shared experiences of preschool teachers when working with children who have experienced prenatal drug exposure. Additionally, this study was used to gather data about preschool teachers' preparation to work with this group of children. The data gathered included the types of preparation and training – if any – preschool teachers have received relevant to prenatal drug exposure. There are also data about the type of training preschool teachers indicated they still need to be successful in meeting the needs of children who may have been prenatally exposed to substances.

Summary of Findings

Teacher training relative to prenatal drug exposure has not improved much over the past 20 years. While preschool teachers expressed concerns over not being trained in special education, they regularly use many strategies applicable to children with special needs, such as strategies used for ADHD or autism, to assist children with prenatal drug exposure. Preschool teachers do not necessarily view children who have experienced prenatal drug exposure in a negative light – they worry about them developmentally and academically. The participating

preschool teachers appear to know about the problem experienced in the region with high birth rates of infants exposed to drugs prenatally. However, they do not appear to be sure about the consequences of the different drugs. The findings revealed encouraging information about preschool teachers and children with prenatal drug exposure.

Quantitative Research Question 1

What are the most prevalent behavior or academic concerns reported by preschool teachers?

To confirm concerns noted in the literature (Chapman & Elliot, 1995; Kim et al., 1999; Watson & Westby, 2003) the same concerns were addressed on the survey. The purpose of this was to explore how the concerns shared by the preschool teachers in northeast Tennessee differed from, or connected with, those reported by preschool teachers in other studies (Chapman & Elliot, 1995; Kim et al., 1999; Watson & Westby, 2003).

The top responses given by preschool teachers in this study align with much of the current research on teacher experiences with children exposed to drugs prenatally. In Lester and LaGasse's (2010) review of the literature pertaining to outcomes of children prenatally exposed to drugs, they found negative effects related to behavior, IQ, and speech and language development. Nearly all preschool teachers in the present study reported their concerns to include lack of focus and short attention span. Research discussed by Watson et al. (2007) listed examples of problems with executive functioning skills such as self-regulation and attention deficits. In the present study, child self-regulation and disruptiveness were commonly experienced by preschool teachers. Both concerns are related to executive functioning. Therefore, a comparison of concerns between preschool teachers in this study to that found in the literature was very similar.

Quantitative Research Question 2

What are the resources preschool teachers have available to help children prenatally exposed to drugs with whom they work?

The researcher questioned if preschool teachers have enough resources available and if a need existed for access to more resources. To explore preschool teachers' resources, the survey was used to ask about the frequency with which specific resources were used. Survey respondents frequently used behavioral and academic interventions in the classroom. The importance of behavioral and academic interventions for children with prenatal drug exposure was discussed in the literature by McLaughlin et al. (1998) and Watson et al. (2007). Strategies traditionally used for children with ADHD and on the autism spectrum are often applicable with children who were exposed to drugs prenatally (McLaughlin et al., 1998; Watson et al., 2007). When asked about the frequency with which survey respondents in the current study used information from professional development opportunities, workshops, and conferences, they replied *sometimes* or *frequently*. In the literature, Head Start teachers and early childhood special education teachers had similar answers regarding their use of information from workshops and conferences (Chapman & Elliot, 1995). The survey respondents in this study reported that college course content was *rarely* or *sometimes* used, and practicum experiences were either *not available* or *rarely* used. It would be useful to know if the teachers who rarely used practicum experience did so because they did not have that experience to draw from or if it was because the experiences they had were not useful. There is some agreement from this study with other research in which preschool teachers reported little to no college coursework or practicum experience with children with prenatal drug exposure (Chapman & Elliot, 1995).

Quantitative Research Question 3

What barriers do preschool teachers report they encounter when working with children who have been exposed to drugs prenatally?

The researcher investigated the various aspects of working with children with prenatal drug exposure and their families that may make preschool teachers feel uncertain. The intention of gathering these data was to find out if preschool teacher perceptions were affected by preconceived notions about these children and their families. Nearly all the preschool teachers in this study were comfortable working with the children and their families. This finding is in contrast to Chapman and Elliot's (1995) results where 60% of preschool teachers in their study indicated that one of their top three greatest concerns was doubts about the dynamics of the children's families. Otherwise, there were many similarities in the results of this study to the findings of Chapman and Elliot (1995). The educators surveyed by Chapman and Elliot reported that they had not received enough training on prenatal drug exposure. They said conferences and seminars were their primary and most helpful source of information on the topic. The preschool teachers in the current study reported similar situations. They had not received enough training on prenatal drug exposure, and workshops and conferences had been most useful for them.

The preschool teachers surveyed in this study seemed to understand that children with prenatal drug exposure have challenges but demonstrated agreement that they are able to learn. In the literature, there is not much regarding teachers' views about whether these children are capable of learning. The results of this study show that teachers report children with prenatal drug exposure are able to learn. Over the past 20 years, there has been a push by educators to recognize children with special needs as individuals who are fully capable of learning just as

much as their typically-developing peers. It is reassuring that teacher perceptions of the capabilities of children with prenatal drug exposure appear to be positive.

Quantitative Research Question 4

To what extent do preschool teachers feel prepared to work with children with prenatal drug exposure?

The teachers in this study shared concerns about their lack of training in prenatal drug exposure in children. Much like Chapman and Elliot (1995) and Kim et al. (1999), teachers reported that they need more training on how to work with children with prenatal drug exposure. Despite a lack of training, the preschool teachers indicated they were prepared to meet the needs of these children. Further, preschool teachers said they had support from their administrators and the children's families. These supports may have helped the preschool teachers feel more competent, along with the various resources discussed here.

Qualitative Research Question 1

What professional development experiences have preschool teachers had around the topic of prenatal drug exposure?

Interviewees suggested training opportunities such as hands-on experiences, resource manuals, and webinars that could be watched at their convenience from anywhere were advisable. While the interviewees were all open to more training, it appeared that convenience was important to them.

All teachers in this study reported that they wanted to know more about behavioral interventions, even though Head Start teachers had access to a behavior specialist. This knowledge may make it easier for preschool teachers to apply the behavioral strategies in real

time and more effectively manage problem behaviors as opposed to waiting to consult with the behavior specialist.

The preschool teachers in this study had access to many resources for children with prenatal drug exposure and their families. Preschool teachers' resources for children with prenatal drug exposure have not been examined much in the literature. Therefore, there is not much in the way of research to compare the amount of resources available to this specific group of teachers to others. Interviewees talked about their prior experience with children with special needs and applied that experience to their students with prenatal drug exposure. These interviewees further shared that they wished they had open communication with the children's therapists to coordinate educational services for the child more effectively.

The preschool teachers in this study wanted standardized information specific to children with prenatal drug exposure that could be easily referenced. They wanted hands-on practice with knowledgeable professionals who could train them for working with these children. They also wanted training that would be immediately applicable to their situations

Qualitative Research Question 2

Are there any specific experiences with children prenatally drug exposed that preschool teachers share?

Concerns shared by the interviewees were greatly related to social emotional issues, academics, and development. The top concerns were negative behaviors, academics, social emotional issues, and developmental delays. Kim et al. (1999) found comparable results from the preschool teachers they surveyed. The preschool teachers in the Kim et al. (1999) study were concerned about short attention spans, easy frustration from the child, hyperactivity, and lack of

self-control. These common experiences among preschool teachers appear to be ongoing concerns that have not changed over time.

Qualitative Research Question 3

What do preschool teachers understand about how prenatal drug exposure affects children?

Preschool teachers' knowledge about drugs and the issues of the region appear to be a training deficit. If there is any research published about teacher knowledge about drugs and the effects of exposure on children, it was not found during a review of the literature. In addition to what teachers knew about drugs, we must wonder if the teachers were aware of the problem of prenatal drug exposure in northeast Tennessee. Statistically, preschool teachers are White females from the middle class. While there are always exceptions, this demographic is not typically associated with drug use and knowledge of street drugs. Most interviewees said drugs could not possibly be good for unborn babies to be exposed to while methamphetamines (*meth*) were the worst. The interviewees were aware of replacement drugs being used and had negative opinions on expectant mothers using these drugs.

Meth and replacement drugs have both been heavily covered in the news media of the region. There have been numerous instances of meth laboratories being invaded by local law enforcement over the last decade, and the effects of meth on the body have been highly publicized. The threat of drug replacement clinics opening in various communities in the region may be another reason for the negative opinions of interviewees in this study. Community members have been vehemently fighting the opening of these clinics via highly publicized protests.

All but one of the interviewees was familiar with the statistics of the area regarding prenatal drug exposure, which has received heavy media coverage. Area neonatal intensive care units have had considerable news coverage that has alerted the public to the concerns of newborns born exposed and addicted to harmful substances. The statewide tracking system for neonatal abstinence syndrome garnered considerable media attention when it was implemented in 2012.

Qualitative Research Question 4

How have preschool teachers' experiences with children with prenatal drug exposure shaped their current teaching practices?

During interviews conducted in this study, preschool teachers reported that their most frequently used strategies included one-on-one attention, flexible seating, and repeating instructions to students. These strategies have become almost second nature to the interviewees, as they have found them to be most effective when working with children who may face more challenges than their peers face. Two of the interviewees' greatest concerns were behavior and academics. The strategies they reported using support their concerns in an effective and logical manner. These strategies are similar to those used for children on the autism spectrum or with ADHD, which also agrees with data from McLaughlin et al. (1998) and Watson et al. (2007) that reported the same strategies with school-age children.

Limitations

For all the strengths of using the sequential mixed-methods design, there were some limitations. As with any qualitative research, there is risk of researcher bias. Throughout the process, objectivity was of the utmost importance to prevent bias from clouding any results or leading interviewees into specific responses.

Time was a limitation. The amount of time the study took proved to be a drawback as data collection came to a halt during the months of June and July because of the summer break. Creswell and Clark (2011) cautioned that this type of design would take longer to implement and listed time as a study challenge.

An additional limitation was the researcher's dependence on another individual to relay survey invitations and reminders. Whereas this was useful in protecting the identity of the respondents, it proved to be difficult for connecting with the target population and was more impersonal.

Finally, the small sample size hindered generalization of the study results to the population. This lack of generalizability was also found because this study focused on a specific region in northeast Tennessee. The factors at work in this region were not necessarily applicable to other regions experiencing issues with prenatal drug exposure.

Conclusions

Throughout the course of this study, it was encouraging to see positivity emanate from the preschool teachers who responded to the survey and participated in the interviews regarding students who they believed had been exposed to drugs prenatally. Based on conversations with teachers in the past, I expected teachers to be afraid of children with prenatal drug exposure – afraid the children would not be able to learn, afraid the children would have behavior problems, and afraid the children would be more than they could handle as general education teachers.

What I found were preschool teachers who showed their care and concern for all children and their willingness to do what was necessary to serve them best. I found teachers who were eager for more knowledge about prenatal drug exposure and for a better understanding of the children who have been affected by it. Preschool teachers already seem to be using everything at

their disposal to make accommodations for the unique needs of children with prenatal drug exposure. Most of these teachers are already doing it right. Teachers already know there is not a one-size-fits-all approach to any child. Preschool teachers approach each child as they should – by addressing the need as it arises and acting accordingly with appropriate interventions.

The goal of providing evidence that preschool teachers feel as though they need more training and preparation has been achieved. This was the need that I felt 8 years ago when I began my doctoral studies. I was a public-school teacher *at my wits' end* with a child who I believed might have been exposed to drugs prenatally. I did not know what to do for this child, and I wanted to know more. My longing to know more is what inspired me to pursue research on teacher support. It was my desire through this study to offer an opportunity to give the preschool teachers of northeast Tennessee a voice for their concerns for children with prenatal drug exposure. It feels as though my goal was accomplished in some small way.

Recommendations for Practice

Findings from this study highlighted the needs shared by preschool teachers for preparing teachers to work with children having prenatal drug exposure. Implications from this research underscored the importance of adding information about prenatal drug exposure to teacher preparation programs at the postsecondary level for all aspiring teachers and teacher assistants. ETSU Annual Early Childhood Conference attendee *Charlotte* made a powerful statement when she said, “I think all education majors should have to minor in special education with today’s kids” (Charlotte, personal communication, ETSU Annual Early Childhood Conference in Johnson City, TN, July 15, 2016). This statement further highlights the need to incorporate more special education training when preparing aspiring teachers for a career in education. An increased focus on prenatal drug exposure in northeast Tennessee over the last 10-15 years has

resulted in a plethora of studies of various aspects of fetal, infant, and child development. A problem is that this information is largely in the medical field, and teachers are eager for access to the information. School leaders and those in teacher preparation programs would be excellent advocates in spreading knowledge and translating medical knowledge into resources more applicable to the teaching and childcare profession. It is important that the information become more accessible to all teachers and stakeholders in education.

Recommendations for Further Research

Whereas the research questions were successfully answered, there were additional questions that materialized during this study. This study was accomplished with preschool teachers working in Head Start and Tennessee Voluntary PreK programs in northeast Tennessee; the programs traditionally serve low-income families and are offered without cost. It would be interesting to expand the study into more regions and types of preschool settings.

There are many children with prenatal drug exposure who have been adopted into middle- and upper-class families. It would be interesting to know what experiences would be shared by teachers working with those families in tuition-based preschools such as those located in public schools, private schools, and churches. It would be interesting to investigate the resources available to preschool teachers in other programs and regions. The findings may answer the question of how the resources and experiences of a large metropolitan area differ from those of rural Appalachia. Expanding the sample beyond Head Start and VPK and into more regions would enable the collection of more data and make the study more generalizable.

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APPENDICES

APPENDIX A

Teacher Recruitment Letter

[Date inserted here]

Dear Fellow Teacher,

Being on the front lines of teaching every day, you gain valuable experience working with children of all ability levels. There is no doubt that early childhood educators are some of the most valuable professionals in the job force. Your experiences with children are invaluable and should be shared.

I am a fellow teacher currently conducting research for my doctoral dissertation into the experiences and perceptions of pre-K teachers related to prenatally drug-exposed children. Prenatal drug exposure for the purposes of this study refers to children exposed to harmful substances such as prescription drugs, heroin, cocaine, etc. during pregnancy. There is not much research currently that gives educators a voice in how prepared they feel, what challenges they face, and what resources they have and still need in order to best serve these children. My population teachers of 4 and 5 year-olds in Northeast Tennessee working in publicly funded programs.

Your participation in this research is voluntary. Please be assured that your confidentiality and anonymity are of utmost importance. Completing the survey (found by clicking the link below) is consent for your responses to be included with the other information from other research participants. The anonymous results of this research will be published in my dissertation and submitted to a professional journal. Information may also be used for presentation at conferences and in workshops for training other teachers and informing administrators of the importance of asking teachers about their experiences. You also have the right to express concerns about completing the survey to me at the number or email address below, to my dissertation committee chairperson Dr. Carol Trivette of the ETSU Department of Teaching and Learning at the email address below, or the ETSU Institutional Review Board at the number listed below.

This survey should take approximately 10-15 minutes of your time. The survey will stay active for 3 weeks until _____. At the end of the survey, you will be offered the opportunity to enter your email address into a drawing for a \$10 Amazon.com eGift Card. If you indicate that you have first-hand experience working with prenatally drug-exposed children, you will also be asked if you are interested in participating in the follow up interview. The interview will be conducted in person by me at your center in a private setting, and take only about 30 minutes. There are no right or wrong answers, but your honest opinions and experiences are valued and I'd love to hear them. Selection of participants for the interview will be randomly selected from those who express interest in the interview. After completing the interview, you will be entered into a drawing for a \$20 gift certificate to A2Z School Supply store.

Thank you for your interest and participation in this study. You are appreciated more than you know!

Please click the link to be taken to the survey.

[survey link inserted here]

Sincerely,

Brandie Maness
ETSU PhD Candidate, Early Childhood Education
(423) 782-6289
manessb@etsu.edu
Contact information for parties mentioned above:
Dr. Carol Trivette, ETSU
trivettecm@etsu.edu

ETSU Institutional Review Board
(423) 439-6053

APPENDIX B

Teacher Survey: "Yes" Version

Thank you for participating in this brief survey designed to learn about teacher experiences with students who were prenatally exposed to drugs. This should take no more than 5-10 minutes to complete. Survey data will be kept confidential and names of participating teachers will not be released. In appreciation for completing the survey, you will be able to enter your email address for a drawing for an Amazon eGift Card valued at \$10.

1. As far as you know, have you ever worked with a child who was prenatally exposed to drugs?
- yes
 - no

If yes, continue to question #2

2. If you answered yes to Q1, how do you know that these children were prenatally exposed? Check all that apply.
- The program director told me.
 - Another staff member told me.
 - A member of community told me.
 - The parents disclosed this information.
 - The child's therapist (i.e., OT, PT, SLP, behavior, etc.) told me.
 - I had previous experience with that child's family.
 - I knew based on observations and interactions with the child and family
 - other: _____

3. If you answered yes to Q1, what challenges did you experience with these children? Check all that apply.
- lack of focus on activities
 - short attention span
 - lack of self-regulation
 - difficulty following directions
 - poor social skills
 - poor memory
 - inability to organize tasks
 - easily frustrated
 - hyperactive
 - speech and language delays
 - disruptive
 - impulsive
 - frequent tantrums
 - lower IQ than non-exposed peers (according to testing)
 - low academic abilities (i.e., not able to learn alphabet, how to write own name, one-to-one correspondence, etc.)
 - other: _____

4. If you answered yes to Q1, how often do you utilize the following resources and strategies to assist you in meeting the needs of children you know have been prenatally drug-exposed? Select all that apply.

	Not available	Rarely (once a year or less)	Sometimes (once a semester)	Frequently (multiple times in a school year)
behavioral interventions such as time out, behavior contracts, modify classroom tasks & expectations	1	2	3	4
academic interventions such as one-on-one assistance, modify tasks & expectations	1	2	3	4
special education professional on staff	1	2	3	4
behavior consultant	1	2	3	4
mental health consultant	1	2	3	4
therapist (OT, PT, SLP)	1	2	3	4
information from workshops/conferences	1	2	3	4
course content specifically about these children during my teacher education courses	1	2	3	4
preservice/practicum experience with prenatally drug-exposed children	1	2	3	4
Other:				

5. If you answered yes to Q1, how much do you agree with the following statements regarding the challenges you feel when working with prenatally drug-exposed children?

	Completely disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Completely agree
I lack the resources to serve them.	1	2	3	4	5
I don't know how to help them.	1	2	3	4	5

	Completely disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Completely agree
I am afraid they can't learn.	1	2	3	4	5
I am hesitant to interact with the family.	1	2	3	4	5
I am uneasy about interacting with these families.	1	2	3	4	5
I am concerned about behavior problems.	1	2	3	4	5
I think they are better served by special educators.	1	2	3	4	5
Other challenges:					

6. If you answered yes to Q1, please indicate how much you do or do not agree with the following statements in relation to prenatally drug-exposed children.

	Completely disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Completely agree
I am well prepared to teach these children.	1	2	3	4	5
I feel comfortable planning and providing instruction for these children.	1	2	3	4	5
I do not have enough time to teach these children considering all the other expectations of me as a preschool teacher.	1	2	3	4	5
These children require more of my attention than other children.	1	2	3	4	5
I need more training and/or professional development opportunities specific to these children.	1	2	3	4	5

	Completely disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Completely agree
I need to discuss these children with someone.	1	2	3	4	5
I feel uncomfortable talking with my administrators about these children.	1	2	3	4	5
I feel uncomfortable working with the families of these children.	1	2	3	4	5
I don't know how to get the behavioral support I need for these children.	1	2	3	4	5
These children affect my classroom negatively.	1	2	3	4	5

Other:

15. Thank you for completing this survey. If you would like to be entered for a drawing for a \$10 Amazon eGift Card, please enter you email address below. If not, choose “no, thank you”. Please press submit when you are finished.

- My email address is: _____
 No, thank you

If yes to Q1, your participation in this survey is greatly appreciated. I am interested in gathering detailed information about teachers’ experiences working with prenatally drug-exposed children. I will be conducting follow up interviews that will be arranged to be conducted at your preschool and last approximately 30 minutes. If you would be willing to participate in this follow-up interview, please select “yes” and enter the best method of contact. If you agree to participate, are selected and complete the follow-up interview, you will be placed into a drawing for a \$20 gift certificate to A2Z School Supply.

- Yes. I am interested in participating in the follow-up interview
 No. Thank you but I am not interested in participating in the follow-up interview

Thank you for your interest in participating in the follow up interview! I look forward to learning more about your experiences. Please provide your name and contact information so that the researcher may contact you for scheduling.

- Name
- Best method of contact?
 - phone : _____
 - email: _____

APPENDIX C

Teacher Survey: “No” Version

Thank you for participating in this brief survey designed to learn about teacher experiences with students who were prenatally exposed to drugs. This should take no more than 5-10 minutes to complete. Survey data will be kept confidential and names of participating teachers will not be released. In appreciation for completing the survey, you will be able to enter your email address for a drawing for an Amazon eGift Card valued at \$10.

1. As far as you know, have you ever worked with a child who was prenatally exposed to drugs?

yes

no

If no, skip to question #7

7. If you answered no to Q1, how often do you think you would utilize the following resources to assist you in meeting the needs of prenatally drug-exposed students? Select how often you would use the following resources.

	Not available	Rarely (once a year or less)	Sometimes (once a semester)	Frequently (multiple times in a school year)
behavioral interventions such as time out, behavior contracts, modify classroom tasks & expectations	1	2	3	4
academic interventions such as one-on-one assistance, modify tasks & expectations	1	2	3	4
special education professional on staff	1	2	3	4
behavior consultant	1	2	3	4
mental health consultant	1	2	3	4
therapist (OT, PT, SLP)	1	2	3	4
information from workshops/conferences	1	2	3	4
course content specifically about these children during my teacher education courses	1	2	3	4
preservice/practicum experience with prenatally drug-exposed children	1	2	3	4

Other:

8. If you answered no to Q1, please indicate how much you agree or disagree with the following statements in working with children who were prenatally exposed to drugs.

	Completely disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Completely agree
I lack the resources to serve them.	1	2	3	4	5
I don't know how to help them.	1	2	3	4	5
I am afraid they can't learn.	1	2	3	4	5
I am hesitant to interact with the family.	1	2	3	4	5
I am uneasy about interacting with these families.	1	2	3	4	5
I am concerned about behavior problems.	1	2	3	4	5
I think they are better served by special educators.	1	2	3	4	5
Other challenges:					

9. If you answered no to Q1, please state how much you do or do not agree with the following statements in relation to your impressions of prenatally drug-exposed children.

	Completely disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Completely agree
I am well prepared to teach these children.	1	2	3	4	5
I feel comfortable planning and providing instruction for these children.	1	2	3	4	5
I do not think I would have enough time to teach these children considering all the other expectations of me as a preschool teacher.	1	2	3	4	5

	Completely disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Completely agree
These children require more of my attention than other children.	1	2	3	4	5
I need more training and/or professional development opportunities specific to these children.	1	2	3	4	5
I need to discuss these children with someone.	1	2	3	4	5
I feel uncomfortable talking with my administrators about these children.	1	2	3	4	5
I would feel uncomfortable working with the families of these children.	1	2	3	4	5
I don't know how to get the behavioral support I need for these children.	1	2	3	4	5
I think these children would affect my classroom negatively.	1	2	3	4	5
Other:					

APPENDIX D

Teacher Survey Demographic Categories

1. How many years of professional teaching experience do you have?

- 1-3
- 4-9
- 10-19
- 20-29
- 30+

2. What is your current teaching position?

- general education classroom teacher
- special education classroom teacher
- other: _____

3. What is your highest level of education?

- high school/GED
- some college
- associate degree
- bachelor's degree
- masters degree or beyond

4. If you have a college degree, what was your major? Select all that apply.

- early childhood education
- child development
- early childhood special education
- elementary education
- secondary education
- child & family studies
- no degree at this time
- other: _____

5. What age range do you currently primarily work with?

- 4 & 5 year olds
- 3 and under
- other: _____

6. Which type of preschool program do you work in?

- Head Start
- state-funded preschool
- other: _____

7. What is your race or ethnicity? Select all that apply

- American Indian or Alaska Native
- Asian
- Black or African American
- Hispanic or Latino
- Native Hawaiian or other Pacific Islander
- White
- Other: _____
- Prefer not to say

8. What gender do you identify with?

- female
- male
- transgender
- prefer not to say

APPENDIX E

Teacher Interview

Thank you again for agreeing to participate in this follow up interview. I'm a doctoral student studying early childhood education at ETSU. Prenatal drug and alcohol exposure has been an increasing concern in our region over the past decade. There is not a lot of research about what teachers think about these children and how they feel about working with them. I'm interested in what teachers think and expect about working with these children and how prepared you feel in serving them. I'd also like to know more about any experiences that you've had working with this population. Does that sound like something you are still interested in contributing to?

1. Can you tell me a bit about your background and experience as a preschool teacher?
2. How many of your students overall do you know were prenatally exposed to substances?
3. What is your greatest concern when working with this population?
4. Thinking about the prenatally exposed children you've worked with, what are some of the most difficult challenges you can recall having experienced with those children? **try to get around 3 top challenges
 - a. For each challenge you experienced, what strategies did you try? Did they work? Why/not do you think?
5. How do you make decisions about how to support these students with these challenges?
 - a. Who do you consult with when deciding how to support those children? internet/colleagues/etc.?
6. What types of prep/training/etc. have you already received to prepare you in working with this population? Do you feel this was adequate preparation for you?
7. What additional professional preparation do you think would be helpful?
8. What resources do you feel like you need to manage these challenges that you don't currently have access to?
9. Was it ever so difficult working with these children that you seriously considered leaving the profession?
 - a. If yes, what kept you from leaving?
10. In thinking about the children you've worked with, how much of the difficulty do you think is because of the substance abuse during the mother's pregnancy and how much do you think is environmental?
11. Are there drugs that you think have a more negative effect on children than other drugs (i.e., meth vs. cocaine)? What are your thoughts/opinions on this?
12. (a)What do you know about the concentration of these children in our region? (b)What kind of changes do you anticipate seeing in the classroom as a result?
13. Do you have anything further you'd like to add?

VITA

BRANDIE DILLMAN MANESS

Education: East Tennessee State University, Johnson City, TN, Early
Childhood, Ph.D., 2018.
East Tennessee State University, Johnson City, TN, Early
Childhood, M.Ed., 2005.
University of Tennessee, Knoxville, TN, Human Ecology, B.S.,
2003.

Professional Experience Classroom Teacher, Elizabethton City Schools, Elizabethton, TN,
2016-present
Behavioral Health Consultant, ETSU Pediatrics, Johnson City, TN,
2015-2016
Doctoral Fellow, East Tennessee State University, Johnson City,
TN, 2013-2015
Classroom Teacher, Sullivan County Board of Education,
Blountville, TN, 2005-2012

Professional Affiliations: National Association for the Education of Young Children
(NAEYC)
Southern Early Childhood Association (SECA)

Awards and Honors: Elizabethton Leads – Learning Leader, Teacher Leadership
Program