

2010-12-09

Risk Factors and Suspected Child Maltreatment

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UNIVERSITY OF MIAMI

RISK FACTORS AND SUSPECTED CHILD MALTREATMENT

By

Lilia Diaz Pino

A DISSERTATION

Submitted to the Faculty
of the University of Miami
in partial fulfillment of the requirements for
the degree of Doctor of Philosophy

Coral Gables, Florida

December 2010

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UNIVERSITY OF MIAMI

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RISK FACTORS AND SUSPECTED CHILD MALTREATMENT

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Risk Factors and Suspected Child Maltreatment

(December 2010)

Abstract of a dissertation at the University of Miami.

Dissertation supervised by Professor Gail C. McCain.

No. of pages in text. (116)

Maltreatment affected an estimated 794,000 children in the 50 States, the District of Columbia, and Puerto Rico in 2007 (United States Department of Health and Human Services [USDHHS], 2009). The purpose of this study was to examine the risk factors of young maternal age, parents' marital status, multiple birth, preterm birth, birth defects/disability, low economic status, and parental substance abuse related to suspected maltreatment of children 3 years of age or younger from the perspective of pediatric nurse practitioners (PNPs).

A cross-sectional survey design, using the Tailored Design Method, was used in this study. A convenience sample consisting of the National Association of Pediatric Nurse Practitioners (NAPNAP) email registry was used for this study with a response rate of 11%. The respondents represented all regions of the United States. Seventy-nine percent of the PNP's ($n=363$) who completed the survey had suspected child abuse or neglect within the last year in a child three years of age or younger compared to 21% of PNPs ($n=96$) who did not suspect child maltreatment within the past year. The prevalence of suspected child maltreatment in the study population was 2.35%.

According to the model examining child risk factors and abuse, the log of the odds of a child being abused was negatively related to preterm birth ($p = .036$) and birth

defects/disability ($p = .001$). Multiple birth was positively related but not significant ($p = .359$). There were no statistically significant child risk factors found in the logistical regression for neglect (preterm birth, $p = .180$; multiple births, $p = .938$; birth defects/disabilities, $p = .234$). When examining the abuse and neglect groups together, the log of the odds of a child being abused and neglected was negatively related to birth defects/disabilities ($p = .030$). Preterm birth ($p = .364$) and multiple birth ($p = .298$) were positively related to the abuse and neglect group but were not significant. According to the model examining parental risk factors and abuse, the log of the odds of a child being abused due to a parent characteristic was negatively related to low economic status, with the proxy being WIC eligibility ($p = .001$) and a history of substance abuse ($p = .031$). The regression for abuse indicated a positive, yet insignificant, relationship with young maternal age ($p = .129$) and single marital status ($p = .816$). The logistic regression for neglect indicated a positive significant relationship with a substance abuse history ($p = .012$). The regression for neglect indicated positive but insignificant relationships for young maternal age ($p = .693$), marital status ($p = .343$), and WIC eligibility ($p = .106$). There were no statistically significant parental risk factors found in the logistical regression for abuse and neglect together (young maternal age, $p = .263$; marital status, $p = .523$; WIC eligibility, $p = .131$; substance abuse, $p = .985$). Findings indicated that child maltreatment is suspected by PNPs in primary care settings, and that PNPs recognize signs and symptoms of abuse and neglect.

Acknowledgments

I would like to take this opportunity to thank the many individuals who have supported and encouraged me throughout my Ph.D. program and research study:

To Beta Sigma Tau, the University of Miami's chapter of Sigma Theta Tau International Honor Society of Nursing and the Florida Nurses Association. I am grateful for the financial support I received from both organizations.

To the National Association of Pediatric Nurse Practitioners (NAPNAP), for allowing me to use your list serve and the continued support received from your research committee.

To Dr. Gail McCain, I thank you for your unwavering support, incredible patience and constructive feedback. This dissertation would not have come to fruition without your guidance.

To my Committee Members, Dr. Walter Lambert, Dr. Barbara Luke and Dr. Elias Vasquez, I thank you for your continued support throughout this process.

To my Family and Friends, I love you all. To my Aunts, Cousins, and Grandparents thank you for loving me and supporting me in all of my academic and personal endeavors. Thank you for all the encouragement when I felt discouraged and the re-focusing when I lost track. My parents, Clara and Eduardo Diaz, thank you for allowing me the space and freedom to learn about the world and to figure out what kind of person I wanted to become. To my sisters, Alicia Diaz Sullivan and Sara Diaz Bruce, you are the best sisters and friends anyone could ask for. Last but not least, to my Husband, Humberto Pino and our boys, Leonardo Sebastian Pino and Bacchus, thank you for making me a better person and for bringing me so much happiness. This dissertation and degree are just as much yours as mine.

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Chapter I

Introduction

This chapter introduces the scope of the problem of child maltreatment, the purpose of the study, and introduction of a conceptual model for child maltreatment. Based upon the conceptual model, definitions of variables are provided as well as the empirical indicators that were used in the study. This chapter concludes with the assumptions for this study.

Scope of the Problem

Maltreatment affected an estimated 794,000 children in the 50 States, the District of Columbia, and Puerto Rico in 2007 (United States Department of Health and Human Services [USDHHS], 2009). The National Data Analysis System (NDAS) reflected that 2.35 per 100,000 children, an estimated 1,760 children in the national population, died as a result of maltreatment in 2009 (USDHHS). Newborn to three years of age was the most vulnerable child population. This population accounted for 78% of fatalities due to maltreatment, with 44% occurring during infancy (birth to 1 year) (USDHHS).

Nurse Practitioners (NPs) are non-physician clinicians who use the unique perspective of nursing to diagnose, treat, and deliver compassionate care to their patients (Partin, 2008). In 2004, the “National Sample Survey of Registered Nurses” estimated that there were 240,461 advanced practice nurses in the United States (Health Resources Services Administration [HRSA], 2005). Pediatric Nurse Practitioners (PNPs) specialize in children’s health care providing a full range of services, from routine health maintenance to critical illness care (National Association of Pediatric Nurse Practitioners [NAPNAP], 2008). Advanced education in nursing and health care allows PNPs to

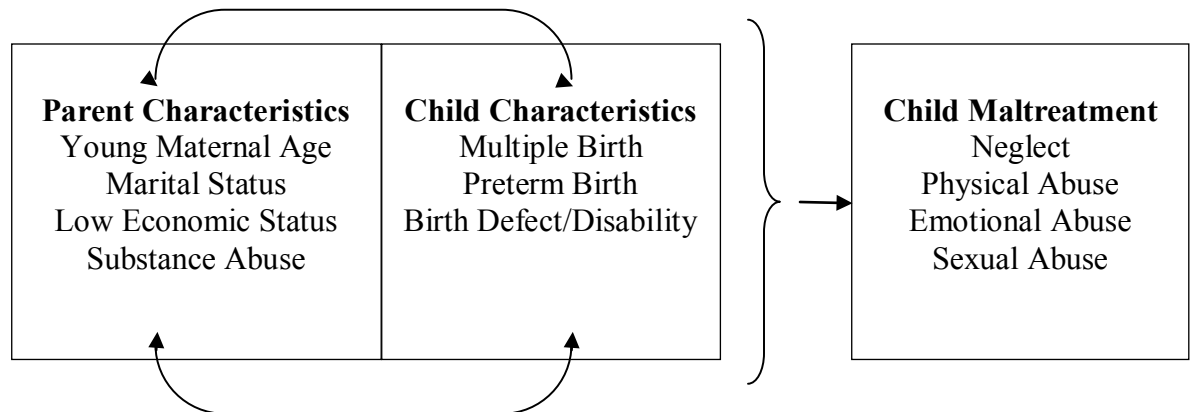
provide individualized quality health care in multiple settings, including primary care, specialty care, and hospital based care (NAPNAP, 2008). The National Association of Pediatric Nurse Practitioners (NAPNAP) advocates prevention, detection, and early intervention for all types of child maltreatment through education, training, and research (NAPNAP, 2007). PNPs, registered nurses and physician assistants who work in the child protection ($n = 104$) field have testified in court, either as evaluators (93%) or experts (79%) in cases of suspected child maltreatment (Kelley & Yorker, 1997). Health care providers who have received some formal education in child abuse are 10 times more likely to report maltreatment (Flaherty, Sege, Binns, Mattson & Christoffel, 2000).

Purpose of Study

The purpose of this study was to examine the risk factors of young maternal age, parents' marital status, multiple birth, preterm birth, birth defects/disability, low economic status, and parental substance abuse related to suspected maltreatment of children 3 years of age or younger. The risk factors were examined from the perspective of a national sample of PNPs. The research questions are:

1. What is the prevalence of suspected maltreatment in children 3 years of age or younger by type: neglect, physical abuse, emotional abuse, and sexual abuse?
2. What is the association between types of maltreatment and the risk factors of young maternal age, parents' marital status, multiple birth, preterm birth, birth defects/disability, low economic status, and parental substance abuse?
3. What are the signs and symptoms that lead practitioners to suspect child maltreatment?

Conceptual Framework of Child Maltreatment



The conceptual framework for this dissertation was based on The Barnard Model of Parent-Child Interaction which was adapted from the Ecological Systems Model in the 1970's (Barnard, 1978; Berk, 2006). This model focuses on the parent and the child as an interactive system. This parent-child system is influenced by the individual characteristics of the parent or child (responses), but is also affected when the individual characteristics are modified to meet the needs of the system (reactions to responses). The parent and child both have tasks to perform within the system. The parent's tasks are to provide a growth-fostering environment for the child, to alleviate the child's distress, and to respond appropriately to the child's cues. The child's tasks are to produce clear cues for the parents and to be responsive to the parents or caregivers during interaction. The parent or the child may alter their behavior to accommodate the other, this is vital if there is "interference" which can cause either the parent or the child to be insensitive to the other's cues, thus breaking down the adaptive process (Barnard).

Characteristics of parent-child dyads that can be considered risk factors for child maltreatment were the focus of this study. The parent characteristics that were studied

included are young maternal age, marital status, low economic status, and history of substance abuse. The child characteristics that were studied included multiple birth, preterm birth and birth defects/disability. Interactions between these parent and child characteristics can lead to a higher occurrence of child maltreatment.

Young maternal age has been associated with an increased incidence of postnatal death and all forms of child maltreatment (Connelly & Straus, 1992; Phipps, Blume & DeMonner, 2002; Spieker, Bensley, McMahon, Fung & Ossiander, 1996; Stevens-Simon, Nelligan & Kelly, 2001; Stier, Leventhal, Berg, Johnson & Mezger, 1993; Weissman, Jogerst & Dawson, 2003). Single parents were at a significantly greater risk of committing physical abuse and neglect, especially in a large family, as each additional child in the home implies additional demands and responsibilities (Mash & Wolfe, 2002). Neglect was the most common form of child maltreatment associated with low economic status (Connell, Bergeron, Katz, Saunders & Tebes, 2007; Mersky et al.; Sedlak & Broadhurst, 1996). Child maltreatment related to low economic status was often attributed to high levels of stress and lack of resources (Connell et al.; Mash & Wolfe; Mersky et al.; Ondersma, 2002; Sedlak & Broadhurst; Weissman et al.). Substance abuse was a leading cause for foster care placement and child maltreatment reoccurrence (McNichol & Tash, 2001). There is a thirty percent co-occurrence of child maltreatment and parental substance problems (Locke & Newcomb, 2003).

Multiple births have been associated with increased rates of child maltreatment compared to singleton births (Dhanani, Nield & Ogershok, 2006; Mathews & MacDorman, 2008; Robarge, Reynolds & Groothuis, 1982). Higher plurality has been

linked with maltreatment because multiple births are usually preterm births with neonatal complications, which can cause economic and physical stressors (Dhanani et al.).

Compared to full-term infants, preterm infants were at an increased risk for all types of child maltreatment (Spencer, Wallace, Sundrum, Bacchus & Logan, 2006). Preterm infants were at increased risk for maltreatment due to congenital abnormalities and chronic illness (Fledelius, 2005). Children with disabilities were 3.4 times more likely to experience maltreatment compared to non-disabled children (Sullivan & Kuntson, 2000). Children with developmental, behavioral, or physical disabilities were at highest risk of being abused or neglected before the age of three (Jaudes & Mackey-Bilaver, 2008).

Young maternal age has been associated with preterm birth and multiple births (Branum, 2006). Young maternal age has been linked to low economic status, lower level of education, and an increase in depression which may increase one's difficulty in coping with the stressors of becoming a parent (Nester, 1998; USDHHS, 2008). Mothers living alone have been linked to increased child maltreatment in children with birth defects/disabilities compared to families with both parents living at home (Committee on Child Abuse and Neglect and Committee on Children with Disabilities, 2001). Children with birth defects placed higher emotional, physical, economic, and social demands on family resources. Limited social and community support placed parents at higher risk for abuse and neglect because these parents may lack respite care and may feel more overwhelmed with the responsibilities of caring for a disabled child (Ammerman & Baladerian, 1993). Controlling for education, income, and use of public assistance,

families with a higher incidence of child neglect and inadequate home environment have documented substance abuse compared to non-abusing families (Ondersma, 2002).

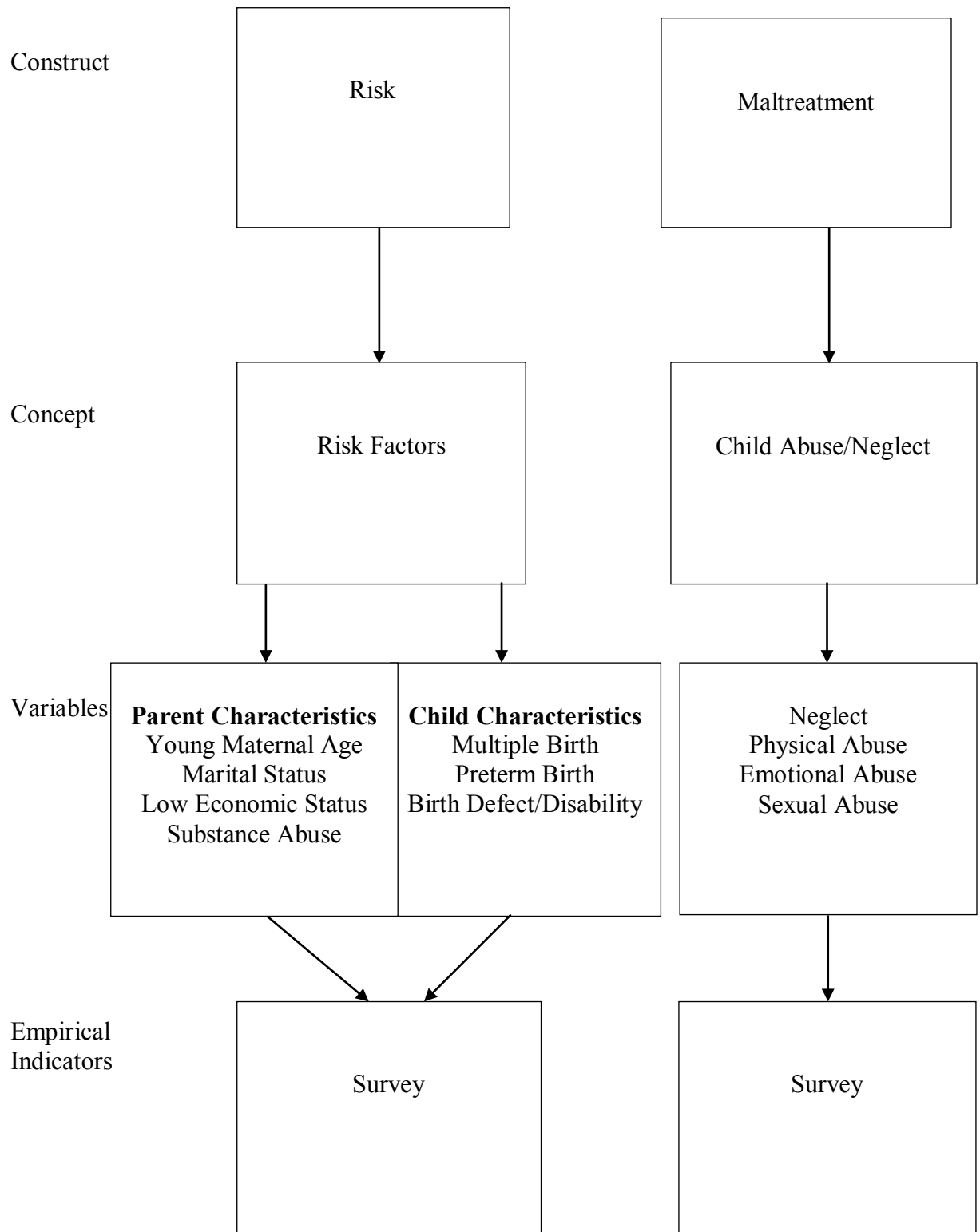
The parent characteristics (young maternal age, marital status, low economic status, and history of substance abuse) and child characteristics (multiple birth, preterm birth and birth defects/disability) have all been linked to child abuse and neglect. Interactions between these characteristics increased the likelihood that a child will experience abuse or neglect.

Risk

The term *risk* has been widely used in literature but is seldom defined. The exact origin of the term *risk* is unknown; however it is thought to be derived from either classical Greek $\rho\iota\zeta\alpha$ (*riza*) meaning root, Arabic رزق (*rizk*) meaning “to seek prosperity,” (Luhmann, 1996) or Latin *riscium* meaning hazard, danger, or peril (Cline, 2004). Derivatives of *riscium* began appearing in 17th century text: *risco* (Italian), *risque* (French), and *rischio* (of uncertain origin) (Oxford English Dictionary, 1989). In modern English, the word *risk* could be used as a noun, as in “hazard, danger; exposure to mischance or peril” or as a verb, as in “to hazard, endanger; to expose to the chance of injury or loss” (Oxford English Dictionary, 1989).

The concept of risk has been widely used in the behavioral sciences, finance, and mathematics. Shattell (2004) conducted a concept analysis of risk using the Walker and Avant method, and addressed the antecedents and consequences of risk. Cognitive ability and prior knowledge/experience were found to be antecedents of risk. Decisions, behaviors, harm and loss were found to be consequences for risk (Shattell).

Substruction of Conceptual Framework



The possibility of “no harm” or “nothing happening” also was believed to be a consequence of risk (Joseph, 1993). From an epidemiological standpoint, the concept of *risk* pertains to vulnerable populations and the probability that an adverse event (illness or death) would occur (Ervin, Nelson & Sheaff, 1999). Risk was often linked with a person’s likelihood of developing a disease. The allocation of human capital, social status and social capital has been studied to reduce this risk (Ervin et al.). Jacobs (2000) examined the concept of risk related to disease, specifically to the risk of developing cancer. Originally used as a neutral term, risk has taken on a connotation of danger (Jacobs). Risks were considered “high” or “low” dependent upon their likelihood of occurring and their level of severity (Georgetown, n.d.).

Risk factors are biological, behavioral, and environmental characteristics that were causally associated with an increased probability of a health event, outcome, or health-related condition such as illness, disability or death (Lalonde, 1974; Last, 1988; Institute of Medicine, 1991). Risk factors could be viewed in three ways: as risk markers, as determinants, or as modifiable risk factors (Ervin, Nelson & Sheaff, 1999). A risk marker was defined as a characteristic that is associated with an increased likelihood that an event will occur (e.g. diabetes is associated with the increased likelihood of an amputation). A determinant was a characteristic that increases the probability of a specific outcome (e.g. increased probability of stroke in the presence of smoking). A modifiable risk factor was a determinant that can be altered to decrease the probability that an adverse outcome would occur (e.g. eating a balanced diet and exercising regularly

will decrease the probability of developing hypertension). There was always a possibility that an adverse outcome would occur within the concept of *risk* (Ervin et al.).

The purpose of this study was to examine the *risk factors* of young maternal age, parents' marital status, multiple birth, preterm birth, birth defects/disability, low economic status, and parental substance abuse related to suspected maltreatment of children 3 years of age or younger. Mothers who ranged in age from 13 to 19 years had rates of child maltreatment reported at 5% to 51% (Flanagan, Call, Adreezzi & Riggs, 1995; Stier, Leventhal, Berg, Johnson & Mezger, 1993; Stevens-Simon, Nelligan & Kelly, 2001). The variance in the maltreatment rates by young mothers suggested other factors might be mediating or moderating the effect of young maternal age. Parents' marital status has been identified as a risk factor for child abuse and neglect. The Chicago Longitudinal Study of child and adolescent maltreatment ($n = 1,411$) indicated that 78% of abused or neglected children were from single-parent families compared to 22% from two-parent families (Mersky, Berger, Reynolds & Gromoske, 2009). In contrast, the Missouri Child Fatality Review indicated that children living with a single parent had a 46% risk of maltreatment compared to 56% for a two-parent household (Schnitzer & Ewigman, 2008). The research findings about whether single or two parent families were at higher risk for child maltreatment were equivocal.

Multiple birth has been a risk factor for child maltreatment because multiple births frequently were preterm births with neonatal complications that cause economic and physical stressors (Dhanani, Nield & Ogershok, 2006). Prematurity was a risk factor for child abuse and neglect. Preterm infants with gestational age of less than 36 weeks

had higher rates (59/1,000) of all forms of child maltreatment compared to full term infants (>37 weeks) (14.8/1,000) (Spencer, Wallace, Sundrum, Bacchus & Logan, 2006). Birth defects/disabilities placed children at higher risk of child maltreatment. Compared to children without disabilities, children with disabilities were exposed to four times as much abuse and ten times as much neglect (Sobsey, Randall & Parrila, 1997). Low economic status and parental substance abuse were risk factors for child abuse and neglect. Child maltreatment occurred more commonly among the poor and disadvantaged (Mash & Wolfe, 2002). Forty-six percent of the abused children in The Chicago Longitudinal Study of child and adolescent maltreatment were living in poverty, with 63% receiving governmental assistance (Mersky, Berger, Reynolds & Gromoske, 2009). Parents who abused alcohol were more prone to become aggressive and violent towards their spouses and children (Miczek, Fish, De Almeida, Faccidomo, & Debold, 2004). There was a thirty percent co-occurrence of child maltreatment and parental substance problems (Locke & Newcomb, 2003). Results from a retrospective, self-reported survey of childhood abuse and parental substance abuse were that 17% of the participants ($n = 8,359$) reported that their parents abused alcohol or drugs (12.9% Father, 2.4% Mother, 1.9% both parents) (Walsh, MacMillan & Jamieson, 2003).

Some evidence has been found in the current literature that young maternal age, parents' marital status, multiple birth, preterm birth, birth defects/disability, low economic status, and parental substance abuse are *risk factors* for child maltreatment. However, none of the evidence was based on a national sample. This study examined the

risk factors for child maltreatment from the perspective of a national sample of pediatric nurse practitioners.

Maltreatment

Maltreatment and abuse have been used interchangeably; however, the United States Department of Health and Human Services (USDHHS) and the Administration for Children and Families (ACF) distinguished maltreatment to include all forms of neglect and abuse (Goldman, Salus, Wolcott, & Kennedy, 2003). For the purposes of this study, the term maltreatment referred to all forms of physical, sexual, and psychological abuse and acute or chronic neglect.

Nationwide there were no common definitions for abuse and neglect because they have been defined differently by the individual states. The Child Abuse Prevention and Treatment Act (CAPTA) was the Federal legislation that sets the minimum standards that each state must integrate into their official definitions (Child Welfare Information Gateway [CWIG], 2006). The minimum definition for abuse and neglect per CAPTA has been: “any recent act or failure to act on the part of the parent or caretaker, which results in death, serious physical or emotional harm, sexual abuse, or exploitation, or an act or failure to act which presents an imminent risk of serious harm” (CWIG). The term maltreatment was often used as there is overlap in definitions between abuse and neglect, which frequently co-occur. Definitions of abuse and neglect reflected widespread societal beliefs regarding a perpetrator’s action that potentially places a child at risk of harm (Goldman et al., 2003).

Neglect

Neglect might be physical, educational, and emotional (Goldman et al, 2003). Physical neglect has been the refusal or delay to obtain health care, abandonment, inadequate supervision, or expulsion from the home (Goldman et al.). Malnourishment and obesity were forms of physical neglect/medical neglect in the United States because children might be denied a balanced diet as recommended by the United States Department of Agriculture (USDA) (Patel, 2005). Educational neglect occurred when a child has special educational needs that are disregarded, as well as absenteeism or failures that are tolerated (Goldman et al.). Emotional neglect consisted of inadequate nurturing or affection, permitting a child to use drugs or alcohol, and tolerating maladaptive behavior without seeking psychological care (Goldman et al.). Examples of emotional abuse have included: 1) a child exposed to parental arguments, and 2) child or parental substance abuse which is ignored (Amato, 2000; Saatcioglu, Erim, & Cakmak, 2006). Neglect was the most common form of child maltreatment with the longest lasting consequences (Berry, Charlson & Dawson, 2003). Children who experienced chronic neglect were much more likely to die than those who experienced a single incidence of physical abuse (Berry et al.).

Physical Abuse

Physical abuse resulted in injury regardless if inflicted intentionally or accidentally, as might be caused by severe discipline (Goldman et al., 2003). Physical abuse has encompassed beating, biting, burning, choking, hitting, kicking, punching, shaking, stabbing, and throwing which typically resulted in bruises, fractures, and death

(Goldman et al.). It has been legally mandated in all states that a thorough health history and physical must be completed on any child when maltreatment is suspected. In a study of 99 infants under 1 year diagnosed with a fracture, the skull and femur were most often fractured (Skellern, Wood, Murphy & Crawford, 2000). Infants less than four months of age have been at a significantly greater risk of intentional fractures (Skellern et al.).

Emotional Abuse

Emotional abuse has encompassed emotional unresponsiveness, spurring, terrorizing, isolating, exploiting or corruption, and denying mental or medical health on the part of the care-giver towards the child (Goldman et al., 2003). Colicky infants, preterm infants, and children with birth defects have had a greater risk for emotional and social developmental delay due to caregiver unresponsiveness (Iwaniec, Larkin, & Higgins, 2006). Ninety percent of parents ($n = 991$) acknowledged the use of psychological aggression towards their children from infancy to two years of age (i.e. angry shouting, cursing, and/or calling a child dumb) (Straus & Field, 2003). Children who have experienced maltreatment of any kind are more likely to exhibit interadult verbal aggression and extreme emotions, such as ambivalence or unresponsiveness (Maughan & Cicchetti, 2002).

Sexual Abuse

Sexual abuse has been defined as any oral, anal, genital, or digital penetration, fondling, or contact without intrusion (Goldman et al., 2003). This included inadequate or inappropriate supervision of a child's voluntary sexual activities, including internet crime, prostitution, and pornography (Goldman et al.). Sexual abuse was common during

childhood, with one-third of women and one-eighth of men affected (Gustafson & Sarwer, 2004). Consequences associated with childhood sexual abuse included substance abuse, depression, eating disorders, and anxiety (Gustafson & Sarwer). Adults, who were sexually abused themselves as children, may become child abusers (Gustafson & Sarwer). Victims of child sexual abuse ($n = 860$) had a two to three fold risk of experiencing adult revictimization, and recurring victims presented with signs and symptoms of post traumatic stress disorder (PTSD) (Arata, 2002).

Maltreatment Risk Factors and Outcomes: Definition of Terms

For the purpose of this study, the **risk factors** for maltreatment were young maternal age, parents' marital status, multiple birth, preterm birth, birth defects/disability, low economic status, and parental substance abuse. The concept of **maltreatment** included the variables of neglect physical abuse, emotional abuse, and sexual abuse. Data was collected regarding the suspicion of maltreatment, the type of maltreatments suspected (neglect, physical, emotional or sexual abuse), and the signs and symptoms that lead to a practitioner's suspicion.

Signs of physical abuse that might seem suspicious included any physical signs of maltreatment, such as bruises, fractures, well-defined burns or cuts, and abdominal or head injury (Kellogg and the Committee on Child Abuse and Neglect, 2007; Shelov & Hannemann, 2005). Parents or children who offered vague or evasive responses regarding causes of physical injury, a child's reluctance to go with a caretaker, and death were signs and symptoms that might have indicated maltreatment (Kellogg et al.; Jaffe-Gill, Jaffe & Segal, 2007). Headaches or stomachaches with no medical cause,

depression, anxiety, aggression, low self-esteem, neediness, nightmares, and social withdrawal were signs and symptoms of potential emotional abuse (Kellogg et al.; Jaffe-Gill, Jaffe & Segal; Shelov & Hannemann).

Signs and symptoms of sexual abuse included: knowledge of sexual acts that is inappropriate for age, refusal to undress in front of others, over compliance or aggression, and fear of a particular person (Jaffe-Gill, Jaffe & Segal, 2007). Sexually transmitted disease, unexplained abdominal pain, increased bedwetting or genital bleeding in a child were signs of sexual abuse (Shelov & Hannemann, 2005). Neglect might have been suspected if a child lacked supervision, had an unkempt and unwashed appearance, or had a chronic illness that went untreated (Kellogg et al., 2007; Jaffe-Gill, Jaffe & Segal). Infants and young children affected by neglect may exhibit failure to thrive with no medical cause, a voracious appetite (eating too much or too quickly when food is provided), and clinginess or indifference to their caregivers or surroundings (Kellogg et al.; Shelov & Hannemann).

Maternal age was operationalized as less than 18 years of age and equal to or older than 18 years of age. **Parents' marital status** was defined as single, married or unknown. **Multiple birth** refers to multiple gestations such as twin, triplet, and quadruplet. Gestational age of greater than 37 weeks was considered **full-term**, while **preterm** was categorized as less than 37 weeks gestation. **Birth defects/disability** were defined as chromosomal or structural anomalies recognized before six years of age (USDHHS, 2002). Common birth defects included congenital heart defects (atrial and ventricular septal deficits, aortic or pulmonary valve stenosis, patent ductus arteriosus,

transposition of the great arteries, hypoplastic left heart syndrome, coarctation of the aorta, and tetralogy of fallot), chromosomal abnormalities (Down syndrome, Fragile X syndrome, hemophilia), neural tube defects (spina bifida, anencephaly), gastrointestinal malformations (esophageal atresia, pyloric stenosis, Hirshsprung's disease, diaphragmatic hernia, gastroschisis, biliary or anal atresia), orofacial abnormalities (cleft lip or palate), metabolic disorders (Phenketonuria, Tay-Sachs), and defects of the limbs (clubfoot, congenital hip dysplasia) (Nicholson, 2007).

Social economic status was related to income, occupation, and education (Cawson, 2002). As this study was dependent on provider recall, the proxy for **low economic status** was the eligibility to be enrolled in the Women, Infants, and Children (WIC) food voucher program. Receiving WIC was designated as low economic status because this service is specifically for low-income Women, Infants, and Children. The Federal Government's definition of low-income was an annual income of \leq \$39,220 for a family of four (Food and Nutrition Service [FNS], 2008). **Substance abuse** was defined as non-medical or maladaptive use of drug, alcohol, chemical, or psychoactive substances irrespective of the consequences (World Health Organization [WHO], 2008). This was operationalized as history of maternal substance abuse (yes, no or unknown).

Assumptions

1. Maltreatment of children 3 years of age or younger were assessed and suspected by PNPs throughout the United States.
2. PNPs could recall cases of abuse and neglect that occurred within the past 12 months.

In closing, an explanation of the scope of the problem, purpose of the study, a conceptual model, and definition of variables related to child maltreatment were presented in this chapter. Chapter two contains a review of current literature detailing the known associations between the risk factors and child maltreatment.

Chapter II

Review of the Literature

This chapter contains a review of current literature detailing the known associations between risk factors and child maltreatment. The conceptual model given in chapter one was used as a framework for this chapter. Each section addresses a study variable and its risk factors for child maltreatment. The first section contains literature regarding young maternal age as a risk factor for child maltreatment. The second section addresses parents' marital status as a risk factor for child maltreatment. The subsequent sections are a discussion of multiple birth, preterm birth, birth defects/disability, low economic status, and substance abuse as risk factors for child maltreatment.

Young Maternal Age

Seven-hundred fifty thousand teenage females aged 15–19 years become pregnant every year in the United States (The Guttmacher Institute, 2006). National vital statistics for 2005 indicated 41 of every 1000 births are to teenage mothers 15-19 years old ($n = 414,593$) (Martin et al., 2007). Linked infant birth/death records from 2005 indicated that teenage mothers under the age of 15 had the highest incidence of infant mortality (16.36 per 1,000) (Mathews & MacDorman, 2008).

Interviews of 182 case-control dyads at an inner-city high school revealed that teenagers of African American, Puerto Rican, and Mexican descent reported dating at earlier ages (Talashek, Alba & Patal, 2006). Early dating was associated with early alcohol consumption (mean age of 13 years), sexual intercourse (mean age of 15), and pregnancy (Talashek et al.). The rate of Black teenage pregnancy decreased 48% from 1991-2005 while Hispanic adolescents had the highest incidence of teenage pregnancy

(82 per 1,000) (Martin et al., 2007). The mean age of conception ($n = 86$) was 16 years in a predominantly African American sample (99%), with 56% enrolled in school during their pregnancy and 99% unmarried (Harner, 2005).

Adolescent mothers who were maltreated as children were at an increased risk for perpetuating abuse and neglect in their children. Adult and adolescent female sex offenders were studied in an outpatient psychiatric clinic in Montreal, Canada (Tardif, Auclair, Jacob & Carpentier, 2005). Of the adolescent offenders ($n = 15$), 73% were separated from or had been abandoned by one of their parents, and 13% had experienced physical abuse. Sixty percent had experienced sexual abuse by the age of 15, with 56% having their first episode of sexual abuse occurring between the ages of 5 and 11. In turn, all 15 adolescents who experienced child sexual abuse had sexually abused a child themselves. Eighty-seven percent of their victims were under five years of age, 60% were male, and sexual fondling (93%) was the most common form of sexual abuse occurring (Tardif et al.).

In a 10-year incidence study of child abuse reports in Iowa, teenage births accounted for 54% of the variance in reported cases of child maltreatment (Weissman, Jogerst & Dawson, 2003). Three sets of linked birth and infant death data files (1985-1986, 1990-1991, and 1995-1996) were analyzed for the association between maternal age and infant mortality in singleton and twin births (Misra & Ananth, 2002). Infants born to younger mothers were at a greater risk of infant mortality, compared to older mothers even after adjustments for gravidity, birth weight and gestation age (Misra & Ananth).

Infants born to Mothers less than 15 years old ($n = 48,294$) were found to have a three- to four- fold increased risk of death (3.2 per 1,000), compared to a cohort (0.8 per 1,000) of 23-29 year olds ($n = 835,471$) (Phipps, Blume, & DeMonner, 2002). Increased rates of postnatal deaths of infants born to adolescent mothers 19 years of age and under ($n = 567,531$) have been associated with substantiated cases of abuse and neglect (Phipps et al.). Of the 1,830,350 data sets studied, there were 2,516 postnatal deaths. Victims of abuse and neglect accounted for 52% of reported deaths (Phipps et al.).

Maternal risk factors for child maltreatment were identified from the Colorado Adolescent Maternity Program (CAMP) (Stevens-Simon, Nelligan & Kelly, 2001). CAMP was a program that integrated obstetricians, pediatricians, physicians who specialized in adolescent medicine, social workers, and dietitians to encourage healthy pregnancies, graduation from high school, and prevention of repeat pregnancies. There were a total of 262 participants, ages 13-19, who were predominantly poor (92% receiving Medicaid), unmarried (94%), and primiparous (8%). The sample was racially and ethnically diverse with 45% White, 32% Black, 22% Hispanic, and 1% categorized as other. Using the Family Stress Checklist the adolescent mothers were assigned to a high risk status ($n = 113$) or low risk status ($n = 149$). Sixty-two percent of the high risk group were not living with a parent, 17% tested positive for marijuana in their urine toxicology, and 32% conceived before turning 16. In follow-up at one year after delivery, 11% of the high risk infants had been maltreated compared to 1.4% of the low risk cohort. By the second year follow-up, the rates of child maltreatment had increased for both high and low risk groups to 22% and 5% respectively (Stevens-Simon et al.).

Forty-five infants born to mothers ages 15-19 were followed for 24 months to detect the incidence of child maltreatment (Flanagan, Coll, Andrezzi & Riggs, 1995). Ninety-eight percent of the mothers were unmarried and receiving government aid. Forty-eight percent were Black, 30% were Hispanic, and 22% were non-Hispanic White. By two years of age 33% ($n = 15$) of the infants had been abused or neglected by their mother (Flanagan et al.). A follow-up study with 103 mother-infant dyads from Flanagan and colleagues' study was conducted when the children turned 4½ years old (Spieker, Bensley, McMahon, Fung & Ossiander, 1996). All mothers were under 20 when they delivered, 80% were White, 58% were unmarried, and 38% received welfare. Twenty-eight percent ($n = 29$) of the mothers had a history of being either physically or sexually abused as children. Twenty-nine percent ($n = 30$) had investigations by child protection services during the study period, with 21% being reported for neglect, 5% for physical abuse, and 3% for sexual abuse of their children (Spieker et al.).

In a cohort study of singletons born at Yale-New Haven Hospital from October 1, 1979 through December 31, 1981, there were 219 sets of index/comparison children (Stier, Leventhal, Berg, Johnson & Mezger, 1993). Index cases were born to mothers 18 years of age and less, while comparison cases were born to mothers older than 18 years of age (Stier et al.). For both groups 80% of the children were the first born, 74% were Black, 17% were Hispanic, 9% were White, and 8% of the mothers either had a history of psychiatric illness and/or substance abuse (Stier et al.). The index group had increased rates of all forms of maltreatment compared to the older group at 17% versus 6% respectively (Stier et al.).

Data from the National Family Violence Survey from 1985 was gathered on women between 18 and 46 years of age ($n = 1,997$) (Connelly & Straus, 1992). It was found that mothers who gave birth at a younger age were at increased risk for abusing their children (Connelly & Straus). Questionnaires were completed by 535 young women who had given birth by age 19 in Washington State (Boyer & Fine, 1992). Twenty-nine percent were 16 years old during their first pregnancy, 25% were 15 years old, 20% were 17, and 18% were less than 12-14. Sixty-four percent ($n = 351$) of the study population had been sexually abused before the age of 17, and 25 had abused their own children (Boyer & Fine).

In Baltimore City, Maryland from 1975-1977, all cases of suspected or confirmed child abuse in children less than four years of age were studied (Benedict, White & Cornely, 1985). Complete data was collected on 532 children from birth certificates and patient records from local hospitals. Fifty-one percent of the abused children ($n = 532$) were born to mothers less than 19 years of age, followed by 32% born to mothers ages 20-24 (Benedict et al.).

Parent's Marital Status

In 2005, births to unmarried women aged 15-44 years ($n = 1,527,034$) increased in all population groups, ranging from 16% for Asian and Pacific Islanders to 70% for non-Hispanic Black women (Martin et al, 2007). The 2005 infant mortality rate for infants of unmarried mothers was 9.61 per 1,000 live births, 45% higher than infants of married mothers (5.25 per 1,000) (Mathews & MacDorman, 2008).

Approximately 50% of the pregnancies in the United States were unintended (Simmonds & Likis, 2005). Inadequate support systems might have led to an increase in

stress and unhappiness related to these pregnancies (Leathers & Kelley, 2000). Ninety-eight percent of primiparous women named the child's father/spouse as the most important support person, closely followed by the grandparents (96%) and friends (88%) (Tarkka, Paunonen & Laippala (1999).

Establishing paternity has been important because it increases the likelihood of child support payments and potential father-child interactions, regardless of a marital relationship (Mincy, Garfinkel, & Nepomnyaschy, 2005). Single parents have been at a significantly greater risk of committing physical abuse and neglect, especially in a large family, as each additional child in the home implies additional demands and responsibilities (Mash & Wolfe, 2002). For teen pregnancies, simply identifying the father on the birth certificate decreased the incidence of postnatal death (Phipps, Blume, & DeMonner, 2002).

The popular belief has been that marriage protects against child maltreatment. However there have been conflicting results among research studies. The Missouri Child Fatality Review data were reassessed from 1992-1999 and results indicated that children living with a single parent or two-parents are at 46% and 56% risk of maltreatment respectively (Schnitzer & Ewigman, 2008). Data from the 1992-1994 Missouri Child Fatality Review were analyzed to examine household composition related to fatal child maltreatment cases (Stiffman, Schnitzer, Adam, Kruse & Ewigman, 2002). During this time there were 175 maltreatment deaths of children under the age of 5, with 31% of the fatal injuries inflicted predominantly by the mother. The majority of maltreatment cases occurred in households with two biological parents (41%), followed by single biological

parents (25%), unrelated adult (17%), other relative (11%) and step-parent (6%) (Stiffman et al.).

Cross-sectional data from the Iowa Department of Human Services were analyzed on confirmed reports of child neglect and physical abuse (Hartley, 2002). Data was collected from December 1995 through February 1998. Sixty percent ($n = 50$) of neglected children and 69% of physically abused children ($n = 48$) lived in households with married parents. Neglect ($n = 50$) was more frequently perpetrated by mothers (54%) than by fathers (14%), whereas physical abuse ($n = 48$) was committed by fathers (65%) with greater incidence than by mothers (31%) (Hartley).

In contrast, data from the Chicago Longitudinal Study of child and adolescent maltreatment indicated that 78% of the participants were from single-parent families ($n = 1,411$) (Mersky, Berger, Reynolds & Gromoske, 2009). Analysis of data revealed 170 cases of child maltreatment in children 6-17 years of age. Fifty-five percent had reported cases of neglect and 28% were physically abused (Mersky et al.). County-level data on children less than 6 years of age were collected in Iowa from January 1984 through December 1993 (Weissman, Jogerst & Dawson, 2003). Single parents with children under 18 years of age accounted for 79% of the variance in reported cases of child maltreatment (Weissman et al.). Forty-one infants considered high risk for maltreatment were discharged from North Carolina Memorial Hospital between May 1975 and June 1976 (Hunter, Kilstrom, Kraybill & Loda, 1978). Ten infants (24%) were victims of abuse and neglect within the first year of life. Ninety percent of the families had a history of previous abuse and neglect, and 60% of the at-risk group was born to an unmarried mother (Hunter et al.).

Multiple Birth

In 2005, multiple births accounted for 3% of all live births and 15% of all infant deaths (Mathews & MacDorman, 2008). Infant mortality increased with higher plurality, at a rate of 105 per 100,000 for quadruplets, 60 per 100,000 for triplets, 30 per 100,000 twins, compared to 6 per 100,000 for singletons (2005 data) (Mathews & MacDorman). Twin gestation pregnancies increased 42% between 1990 and 2005, averaging a yearly increase of 3%, at a rate of 32.2 per 1,000 (Martin et al., 2007). The number of triplet, quadruplets, and quintuplets decreased from 1999, to a rate of 162 per 100,000 in 2005 (Martin et al.).

In recent studies, higher plurality has been linked with maltreatment because multiple births are usually preterm births with neonatal complications, which can cause economic and physical stressors (Dhanani, Nield & Ogershok, 2006). In a case report of twin boys born to a primiparous 19-year-old mother with paternal involvement (marital status unknown), both twins were being evaluated for persistent oral bleeding. The medical history was unremarkable expect for persistent fussiness, poor feeding, and lice infestation. Computed tomography (CT) and bone scans were completed on both children and bilateral rib fractures were diagnosed in both twins. The father admitted he firmly held each child around the chest and shook them on occasion. The oral lacerations under the tongue resulted from insertion of fingers into the oral cavity as a “soothing” technique (Dhanani et al.).

Infant mortality rates for twins were 60% greater than their corresponding singleton group (Luke & Brown, 2006). Twelve percent of all live births ($n = 18,673,439$) were born to mothers under 20 years of age, and had an infant mortality rate

of 3.38 per 1,000 for singletons and 9.48 per 1,000 for twin pregnancies (Luke & Brown, 2007). In contrast, infants born to mothers 20-24 years had a mortality rate of 2.59 for singletons and 7.97 for twins, and mothers 25-29 years had a mortality rate of 1.62 for singletons and 3.68 for twins (Luke & Brown, 2007). However, United States linked birth and infant death data from 1995-2000, showed that infant twins born to younger mothers were not at an increased risk of dying as a result of maltreatment compared to twin infants of older mothers (Luke & Brown, 2007). Of the 36,864 singleton deaths reported, 12% ($n = 4,325$) were due to maltreatment, compared to 13% ($n = 47$) of twin deaths (Luke & Brown, 2007).

In contrast, Wu and colleagues found an overall increase in maltreatment of multiples compared to singletons (2004). Data from Florida's Child Protective Services (CPS) was linked to 1996 birth vital statistics (Wu et al., 2004). There were 189,055 infants born in Florida during the study period, of which 4,496 had documentation of child maltreatment between 3 days of life and 1 year of age. Of the study population, only 3% of the children were from multiple births. However, abuse and neglect was almost twice as likely to be verified in children of multiple births (abuse 28% and neglect 89%) compared to their singleton cohort (abuse 15% and neglect 49%) (Wu et al.).

Three studies published in 1982 and 1985 addressed increased child abuse in twins. Medical records at the University of Kentucky Medical Center were reviewed for child abuse and neglect (Nelson & Martin, 1985). There were 310 abused children (38%) under the age of 4 ($n = 810$). Twin children were more likely to be abused or neglected (55%), compared to singletons (35%). Sixty-nine percent of these infants were born prematurely and 57% were born to single mothers (Nelson & Martin). Data were

collected between September 1977 and June 1980 for 38 sets of twins and a matched singleton group to study the effect of twin birth as a risk factor for maltreatment (Robarge, Reynolds & Groothuis, 1982). In the 38 families of twins, 18% were reported for child abuse ($n = 7$), compared to only 2% of the singleton cohort ($n = 97$). Mothers were the perpetrators in all of the twin cases and eight children from six of the twin families were removed from the home due to the severity of the abuse (Robarge et al.). Forty-eight twin sets were studied at St. Vincent Hospital and Nashville General Hospital in Tennessee (Groothuis et al., 1982). Eleven children from nine families (19%) were reported as child abuse victims, with one child dying due to maltreatment. In families with both twins and a singleton sibling, the singleton sibling was more often the victim of maltreatment (57%) compared to the twins themselves (42%) (Groothuis et al.). This finding suggests that the maltreatment may result from parental stress related to the intensity of childcare for multiple children less than 33 months of age, and not solely to multiple birth.

Preterm Birth

There were 4,138,349 births registered in the United States in 2005 of which 12.7% were preterm (Martin et al., 2007). Preterm birth rates have risen for singleton births as well as multiple gestation pregnancies. In 2005, 11% of singleton births were preterm, an increase of 13% since 1990 (Martin et al., 2007). Preterm infants have been at increased risk for maltreatment due to congenital abnormalities and chronic illness (Fledelius, 2005). Preterm births were second only to birth defects as the leading cause of neonatal mortality (Varney, Kriebs & Gegor, 2004). Preterm birth rates were highest among women less than 17 and greater than 35 years of age (Moore, 2003).

In the United Kingdom preterm and low birth weight infants ($n = 119,771$) had increased rates of all forms of maltreatment (neglect, physical, emotional, and sexual abuse) regardless of socioeconomic status or maternal age (Spencer, Wallace, Sundrum, Bacchus & Logan, 2006). There were complete data on 7,266 preterm births (< 37 weeks gestation) with substantiated reports of child maltreatment. Infants with gestational age of less than 34 weeks ($n = 1,947$) had higher rates (35.4/1,000) of all forms of child maltreatment compared to infants 34-36 weeks ($n = 5,319$) gestation (23.3/1,000), as well as full term ($n = 112,463$) infants (>37 weeks) (14.8/1,000) (Spencer et al.).

In a study of the National Pediatric Trauma Registry for children 5 years of age and younger, child abuse ($n = 1,997$) explained 10.6% of all blunt trauma over a 10 year period, compared to cohort of children with unintentional injuries ($n = 16,831$) (DiScala, Sege, Li & Reece, 2000). Sixty-three percent of the child abuse victims ($n = 1,997$) were 12 months of age or less, and 253 (12.7%) died due to outcomes of abuse. There was a seven fold increase in children who were born preterm in the child abuse group (2.2%) compared to the unintentional injury group (0.3%) (DiScala et al.). In a cohort study of mothers in Baltimore, Maryland in January 1984, there were 22 children reported for neglect and 80 non-maltreated children set as their comparison group (Zuravin & DiBlasio, 1992). All participants were single mothers who gave birth before 18 years of age and were receiving government assistance. The majority of mothers were African American. The neglected children had increased rates of preterm birth (41%) compared to the non-maltreated child group (19%) (Zuravin & DiBlasio). From May 1975 through June 1976 there were 282 preterm infants admitted to the newborn intensive care unit of North Carolina Memorial Hospital (Hunter, Kilstrom, Kraybill & Loda, 1978). Fifty-two

of these infants were considered to be at high risk for child maltreatment based on the family psychological risk inventory. Of the 41 high risk infants discharged to their parent(s), 17% were placed in custody ($n = 7$), 7% died post discharge ($n = 3$), and 24% were abused or neglected ($n = 10$) (Hunter et al.).

Birth Defects/Disability

Birth defects have been the leading cause of infant mortality in the United States, with an estimated 120,000 infants born with birth defects yearly (USDHHS, 2002). Parents of an infant newly diagnosed with a birth defect might have felt overwhelmed, shocked, angry, and doubtful of their ability to properly care for their infant (Bartoshesky & Nicholson, 2006). Birth defects were under the category of special health care needs or disability, which included any physical or mental impairment (Hibbard & Desch, 2007). Seventy percent of all birth defects were of unknown origin and account for 20% of all infant mortality (USDHHS, 2002).

Medicaid data collected on children born between January 1990 and March 1996 were linked with the Illinois department of children and family services records (Jaudes & Mackey-Bilaver, 2008). Using 101,189 records, 34% of the children had a diagnosed developmental, behavioral, or physical disability. Twelve percent ($n = 11,803$) of the study children, ages 0 to 6, had risk indicators for child abuse and neglect. The majority ($n = 7,176$) of the children with and without disabilities were at risk for experiencing abuse and neglect before the age of three. Between the ages of 0 and 6 the risk ratio for child maltreatment was 1.95 for children with behavioral or mental health problems, 1.11 for children with chronic physical conditions, and 1.08 for developmentally delayed children (Jaudes & Mackey-Bilaver).

In a study conducted in Omaha, Nebraska it was found that 1,012 of 4,503 maltreated children between the ages of birth and 21 years had some identified disability (Sullivan & Kuntson, 2000). Compared to their non-disabled cohort ($n = 3,491$), children with disabilities ($n = 1,012$) were 3.4 times more likely to experience maltreatment (Sullivan & Kuntson).

In an older study, children with disabilities were exposed to four times as much abuse and ten times as much neglect compared to children without disabilities (Sobsey, Randall & Parrila, 1997). This study used data from the National Data Archive on Child Abuse and Neglect for 35 child protection service agencies throughout the United States. Sixty-five percent ($n = 216$) of the disabled children who were maltreated were male. Male children with disabilities had higher incidence of physical (71%) and emotional abuse (64%), as well as neglect (71%) compared to their female cohort. Female children with disabilities experienced higher rates of sexual abuse (62%) than males (Sobsey et al.).

Low Economic Status

Child maltreatment occurred more commonly among the poor and disadvantaged, related to a lack of appropriate child care and lack of health care (Mash & Wolfe, 2002). The Third National Incidence Study of Child Abuse and Neglect (NIS-3) indicated children from families with an annual income of \$15,000 or less are 22 more times more likely to experience child neglect compared to families with an income of more than \$30,000 (Sedlak & Broadhurst, 1996).

Maltreatment data from the Chicago Longitudinal Study indicated that for 170 cases of maltreatment in children 6-17 years, 46% lived in poverty conditions (Mersky,

Berger, Reynolds & Gromoske, 2009). Twenty-eight percent experienced physical abuse and 55% were neglected (Mersky et al.). Results from an analysis of the National Child Abuse and Neglect Data System (NCANDS) from 2001-2004 were that 43% of children who were investigated by child protection services ($n = 22,584$) lived in poverty or their families experienced financial difficulty (Connell, Bergeron, Katz, Saunders & Tebes, 2007). Financial problems and poverty were based upon the family's use of public assistance programs, such as food stamps and Medicaid (Connell et al.).

County-level data were collected in Iowa to explore the relationship between child abuse and community characteristics (Weissman, Jogerst & Dawson, 2003). Children under 6 years of age living in poverty accounted for 28% of the variance, parental unemployment accounted for 33% of the variance, and population density accounted for 44% of the variance in reported cases of child maltreatment (Weissman et al.).

Substance Abuse

There was a thirty percent co-occurrence of child maltreatment and parental substance problems (Locke & Newcomb, 2003). Parents who abused alcohol were more prone to become aggressive and violent. In general, roughly half of violent crimes, such as murder, homicide, and aggravated assaults occurred when alcohol had been consumed by the perpetrator (Miczek, Fish, De Almeida, Faccidomo, & Debold, 2004).

Substance abuse was a serious issue that impacted the interactions between children and their families. Substance abuse was a leading cause for foster care placement and child maltreatment reoccurrence (McNichol & Tash, 2001). Child foster care records ($n = 268$) from Southern California indicated that 30% of the children were placed into

foster care due to physical abuse, 29% for neglect, 14% for parental substance abuse, 8% for prenatal drug exposure, 6% for parental mental illness, 5% for sexual molestation, 4% for domestic violence, and 3% for other (McNichol & Tash, 2001).

A retrospective, self-reported survey of childhood abuse and parental substance abuse was included in the Ontario Health Survey of 1990 (Walsh, MacMillan & Jamieson, 2003). Of the participants ($n = 8,359$) 26% experienced physical abuse, and 8.3% disclosed sexual abuse as children. Seventeen percent reported that their parents abused alcohol or drugs (12.9% Father, 2.4% Mother, 1.9% both parents). Males ($n = 3,811$) were more likely to be physically abused than females (30.7% versus 20.5%), and females ($n = 4,548$) had a higher incidence of sexual abuse than males (4.3% versus 12.1%) (Walsh et al.).

In a study conducted in the United States, 32% of abusing mothers ($n = 171$) of elementary age children reported a substance abuse problem (Kinard, 2003). Twenty-five percent of the elementary children experienced sexual abuse, 37% physical abuse, and 38% neglect, with mothers perpetrating abuse in 63% of the cases. Of these mothers, 14% were exposed to substance abuse as children and 29% were abuse victims themselves (Kinard).

Parents ($n = 277$) who were under investigation by the Illinois Department of Children and Family Services (DCFS) were surveyed to assess substance abuse exposure of their infants (Smith & Testa, 2002). The initial survey data compared cases with known in utero substance exposed infants ($n = 142$) to infants with no known substance exposure ($n = 135$). The survey data were linked to child maltreatment reports from June 1995 through March 1998. Twenty-four percent of the families with substance exposed

infants ($n = 142$) had a second investigation by child protection services for an allegation of maltreatment due to parental substance abuse, compared to 8% of the non-substance exposed infants ($n = 135$) (Smith & Testa).

Families ($n = 102$) in the Georgia Department of Family and Children Services with a charge of neglect were compared to 101 non-neglecting families (Ondersma, 2002). The families were matched on education, income, and use of public assistance programs. Demographically, both groups received public assistance (75%), with a mean monthly income of \$606, and the primary caretakers were unmarried (83%) (Ondersma). However, 56% of neglected children ($n = 57$) ages 5-17 were from households with self-reported substance abuse, compared to 6% of the non-neglecting sample ($n = 6$) (Ondersma).

In a case-control study of 14,138 children followed for 8 years after birth, 162 children had an investigation by child protection for maltreatment (Sidebotham, Golding, and The Avon Longitudinal Study of Parents and Children (ALSPAC) Study Team, 2001). Maternal drug and/or alcohol abuse was associated in 8% of the maltreatment cases and with paternal substance abuse in 9% of the cases. The highest incidence of reporting occurred within the first year of life (23.3 per 10,000). The types of maltreatment included physical abuse (32%), neglect (29%), emotional abuse (25%), sexual abuse (11%), and other (3%) (Sidebotham et al.).

The prevalence of alcoholism in Native Indian communities placed children at greater risk for abuse and neglect (DeBruyn, Chino, Serne & Fullerton-Gleason, 2001). Between 1985 and 1987 a case-control study ($n = 254$) was conducted in a Southwest Indian Health Service hospital assessing abused and neglected tribal children by

comparing abused and non-abused tribal children (DeBruyn, Lujan & May, 1992). The target children's data were collected in 1985 and were identified from child protection records. The control children's data were collected in 1986 and were identified using ambulatory patient care records; these children were chosen at random and were included regardless of child abuse or neglect history. Alcohol abuse in the family was present in 93% of the target cases of maltreatment compared to 70% of control children. The target children ($n = 117$) were predominantly male (60%) and living on a reservation (80%), compared to control children ($n = 137$) who were 51% male and living on the reservation (90%). Eighty-eight percent of the target families were investigated due to neglect, and 69% for abuse, compared to the control sample which 35% were reported for neglect and 14% for abuse (DeBruyn et al., 1992).

Summary

Teenage pregnancy has been prevalent in the United States and the research findings have shown an increased risk for all forms of child maltreatment among younger mothers (Benedict, White & Cornely, 1985; Connelly & Straus, 1992; Flanagan, Coll, Andrezzi & Riggs, 1995; The Guttmacher Institute, 2006; Martin et al., 2007; Stevens-Simon, Nelligan & Kelly, 2001; Stier, Leventhal, Berg, Johnson & Mezger, 1993; Weissman, Jogerst & Dawson, 2003). Studies have indicated that infants born to younger mothers are at greater risk of dying as an infant compared to children born to older mothers (Mathews & MacDorman, 2008; Misra & Ananth, 2002; Phipps, Blume, & DeMonner, 2002). Younger mothers who were victims of child abuse or neglect are at greater risk for abusing their own children, compared to mothers without an abuse history (Boyer & Fine, 1992; Spieker, Bensley, McMahon, Fung & Ossiander, 1996; Tardif,

Auclair, Jacob & Carpentier, 2005). However, data have been limited due to the fact that there have been only 5 studies after 2000 (Misra & Ananth; Phipps et al.; Stevens-Simon et al.; Tardif et al.; Weissman, Jogerst & Dawson, 2003).

Contrary to the popular belief that marriage has been a protective factor against abuse and neglect the research has not supported a difference in child maltreatment between single parent and two parent families (Hartley, 2002; Mersky, Berger, Reynolds & Gromoske, 2009; Schnitzer & Ewigman, 2008; Stiffman, Schnitzer, Adam, Kruse & Ewigman, 2002; Weissman et al., 2003). Regardless of marital status, research has indicated that children whose primary care giver cohabitates with another adult might be at greater at risk for maltreatment than children living with one parent (Schnitzer & Ewigman; Stiffman et al.). The data has shown that biological parents, especially mothers, have had the highest incidence of maltreating their children (Hartley, 2002; Mersky et al.; Stiffman et al.; Weissman et al.).

Multiple births have been associated with increased rates of child maltreatment compared to singleton births (Dhanani, Nield & Ogershok, 2006; Mathews & MacDorman, 2008; Robarge, Reynolds & Groothuis, 1982). Increased infant death has been associated with multiple births, compared to singleton births (Luke & Brown, 2006; Luke & Brown, 2007; Misra & Ananth, 2002; Wu et al., 2004). Maltreatment has been linked to higher plurality due to an increased incidence of preterm birth, neonatal complications, and stress (Dhanani et al.; Nelson & Martin, 1985; Varney, Kriebs & Gegor, 2004). However, in one study of families with a set of twins as well as a singleton infants, the singleton siblings were the victims of maltreatment with greater frequency (57%) compared to the twins (42%) (Groothuis et al., 1982).

Compared to full-term infants, preterm infants have been at an increased risk of all types of child maltreatment (Spencer, Wallace, Sundrum, Bacchus & Logan, 2006). Compared to children with unintentional injuries (0.3%), children who experienced abuse and neglect were seven times as likely to be born preterm (2.2%) and to have experienced abuse before 12 months of age (DiScala, Sege, Li & Reece, 2000). Preterm infants who were at higher risk for abuse and neglect at birth had a greater likelihood of being reported to child protection services, being placed into custody and dying after discharge from the newborn intensive care unit (Hunter, Kilstrom, Kraybill & Loda, 1978).

Only three studies were found that link birth defects/disability in children and the link to child maltreatment (Jaudes & Mackey-Bilaver, 2008; Sobsey, Randall & Parrila, 1997; Sullivan & Kuntson, 2000). Children with developmental, behavioral, or physical disabilities were at high risk of being abused or neglected before the age of three (Jaudes & Mackey-Bilaver). Children with disabilities were 3.4 times more likely to experience maltreatment compared to non-disabled children (Sullivan & Kuntson).

There has been some evidence that children living in poverty were at greater risk of child maltreatment due to lack of economic resources and stress (Connell, Bergeron, Katz, Saunders & Tebes, 2007; Mash & Wolfe, 2002; Mersky, Berger, Reynolds & Gromoske, 2009; Ondersma, 2002; Sedlak & Broadhurst, 1996; Weissman, Jogerst & Dawson, 2003). Compared to families with an income of more than \$30,000, children from families with an annual income of \$15,000 or less were 22 more times more likely to experience child neglect (Sedlak & Broadhurst). Neglect was the most common form of child maltreatment associated with low economic status (Connell et al.; Mersky et al.; Sedlak & Broadhurst).

Retrospective studies showed that adult survivors of child maltreatment frequently had parents who abused drugs or alcohol (DeBruyn, Chino, Serne & Fullerton-Gleason, 2001; DeBruyn, Lujan & May, 1992; Kinard, 2003; Ondersma, 2002; Walsh, MacMillan & Jamieson, 2003). Parents with a prior investigation of child maltreatment due to substance abuse were more likely to have a second report of child maltreatment related to substance abuse, compared to parents who had experienced child maltreatment investigations not related to substance abuse (Smith & Testa, 2002).

There were no studies identified that focus on front line care providers and their assessment or experience with child abuse and neglect. This study's purpose was to provide additional information to the body of literature on child abuse and neglect by gathering data from a national sample of PNPs. This data is important, providing insight into the current prevalence and types of child maltreatment in the United States.

In conclusion, this chapter provided a review of the extant research regarding the associations among risk factors and child maltreatment. The following chapter provides detail regarding the research methods. The study design, setting and sample, procedure for data collection, data management and analysis are addressed.

Chapter III

Methods

The previous chapter provided a review of current literature regarding the associations between child maltreatment and the risk factors of young maternal age, parents' marital status, multiple birth, preterm birth, birth defects/disability, low economic status, and parental substance abuse. This chapter details the research methods used during the study. The study design, setting and sample, procedure for data collection, data management and analysis are addressed.

Study Design

This study was a cross-sectional survey design. Data was collected from a national sample of pediatric nurse practitioners working in primary care settings using an on-line survey. This study was non-experimental because there was no manipulation of the study variables. Cross-sectional studies are those that gather data for each subject on a single occasion (Hulley, Cummings, Browner, Grady, Hearst & Newman, 2001). This design affords the researcher the ability to examine the prevalence of a disease, diagnosis, or risk factor (Hulley et al.). Provider recall of suspected child maltreatment risk factors was addressed in this study.

The survey design used for this study was the Tailored Design Method (Dillman, 2000). Originally developed by Dillman (1978) as the Total Design Method, the Tailored Design Method is based upon a social exchange model that uses knowledge of the survey population, survey content, and sponsorship to develop an effect survey that establishes trust, reduces costs, and increases response rates. The Tailored Design uses strategic steps to reduce error and improve accurate responses from participants. Visual design and

layout are vital components to the design method. This allows the participants to interpret and respond to the questions in the same way. Dillman includes personalized correspondence and recommends alternating between survey modes (mail, phone, email), and including a small monetary incentive as steps in the Tailored Design Method. This survey design allows the investigator to pick and choose the steps that best facilitate their research (Dillman, 2000).

The purpose of this study was to examine the risk factors of young maternal age, parents' marital status, multiple birth, preterm birth, birth defects/disability, low economic status, and parental substance abuse related to suspected maltreatment of children 3 years of age or younger.

Setting and Sample

Setting

An on-line survey was available from December 12/18/2009 through 2/19/2010. The survey link was sent to Pediatric Nurse Practitioners (PNPs) members of the National Association of Pediatric Nurse Practitioners (NAPNAP) list serve who work in a primary care setting.

Inclusion and Exclusion Criteria

A convenience sample consisting of the NAPNAP email registry was used for this study. Participants that were included were PNPs who work in a primary care setting. PNPs that work in specialty areas were excluded from the study. Nurse practitioners who were not PNPs were excluded.

Sample Size

The sample size for this study was established using probability sampling, as described in Dillman's Tailored Design Method (Dillman, 2000, p. 206). There are four elements used to conduct a probability sample (N_s): the size of the population from which the sample is drawn (Np), the proportion of the population expected to choose a response (p), the acceptable amount of sampling error (B), and the confidence level (C) (Dillman).

$$N_s = \frac{(Np)(p)(1-p)}{(Np-1)(B/C)^2 + (p)(1-p)}$$

The population that was sampled is the NAPNAP list serve. At the time the study was conducted there were 6,821 members, of which approximately 80% were primary care pediatric nurse practitioners (Np) = 5,457. Having the dichotomous dependent variable of child maltreatment (abuse or neglect) or no child maltreatment, this study used the conservative value of 50/50 for the proportion of the population expected to choose a given response. A confidence interval of 95% was used for this study, allowing for 2 standard deviations. Because the exact number of PNPs was unknown, this study used a range of $\pm 3\%$ to $\pm 5\%$ as an acceptable amount of sampling error. The goal was to reach a sample of 895, which indicates a 16% response rate. If this response rate had not been met after two months, a $\pm 5\%$ sampling error ($N_s = 361$) would have been accepted. The survey was sent to 6,434 PNP members of NAPNAP, of which there were 589 participants, giving a response rate of 11%.

$$894 = \frac{(5500)(.5)(1-.5)}{(5500-1)(.03/1.96)^2 + (.5)(1-.5)}$$

$$361 = \frac{(5500)(.5)(1-.5)}{(5500-1)(.05/1.96)^2 + (.5)(1-.5)}$$

Data Collection

Prior to beginning this study, the researcher obtained approval from the Institutional Review Board (IRB) at the University of Miami and from the National Association of Pediatric Nurse Practitioners (NAPNAP). Once approved, NAPNAP sent an email containing the survey link to potential participants. Informed consent was obtained by having the participants check a box on the first page of the survey indicating that they had read and understood the conditions of participating in the study.

Data collection for this study included the use of a self-administered on-line survey. Advantages of an on-line survey included: high speed returns, participants have time to consider responses, ease of presenting questions, and the low cost of data collection (Fowler, 2002). Disadvantages included needing a valid email address, possible limited sample of email users, difficulty enlisting cooperation, and not having an interviewer involved (Fowler).

Funding for the study was provided by Beta Tau, the University of Miami's chapter of Sigma Theta Tau International Honor Society of Nursing and the Florida Nurses Association. Monies were used to purchase the NAPNAP list serve, to create and have access to the on-line survey, and to provide an incentive for participation. Research has indicated that even a small financial incentive (\$1-2) increases response rates (Field et al., 2002; VanGeest, Johnson & Welch, 2007). Participants had the opportunity to submit their contact information to the primary investigator to be entered into a raffle for one of five iPod shuffles. Emails received with contact information to be entered into the raffle were numbered. Five numbers were drawn by a member of the University of Miami faculty and the iPod Shuffles were sent accordingly.

The research was collected within a two month window (Fowler, 2002). Preliminary emails were sent with a link to the on-line survey. The survey link included an introduction letter with informed consent which was followed by the survey. Participants were asked to complete the survey at their earliest convenience. A link to the survey appeared in NAPNAP's bi-monthly newsletter. This took the place of reminder emails because NAPNAP's research committee only approved use of the list serve once per study. Participants were able to contact the researcher by email or phone for any reason throughout the duration of the study.

Instrumentation

There were a total of 26 questions to be answered on the most recent case of suspected child abuse and neglect, which required approximately 5 minutes to complete. Questions were predominantly nominal in nature. Nominal questions asked participants to pick a category that best fits themselves (e.g. What is your race? – Black, White, Other) (Fowler, 2002). The majority of the questions were closed-ended in nature. Closed-ended questions provided the participants with the list of acceptable responses (Fowler) and have been found to increase response rates (Field et al., 2002; VanGeest, Johnson & Welch, 2007).

Practitioners were asked about the number of child abuse and neglect cases that they had suspected within the past year. These questions were specific to the study variables. Participants were asked to give information pertaining to themselves and their professional practice. Data was assessed in aggregate.

Protection of Human Subjects

Approval to conduct the study was obtained from the Institutional Review Board (IRB) at the University of Miami. IRB approval was required by NAPNAP's research committee before access to the email list-serve was granted.

Along with the survey, the survey link contained a cover letter with an informed consent question. The cover letter explained the purpose of the study, the procedures to be followed, the benefits and risks, and methods that were used for maintaining participant confidentiality. The subjects were informed that their participation was completely voluntary and were given contact information for the researcher as well as the Vice Provost for Research at the University of Miami.

Even though the subject of child maltreatment is of a sensitive nature, there were no risks associated with the survey. There was no direct benefit for the participants. However, participants had the opportunity to submit their contact information to be entered into a raffle for one of five iPod shuffles. The only possible inconvenience identified was the time needed to complete this survey. Participant's identity was kept completely confidential and information was safeguarded by the following steps.

All data was exported from the survey site onto a password protected desktop computer. Only the investigator and her dissertation chairperson had access to these records. Any publication or presentation of the results of this study will be in aggregate form and will not include any information that could directly identify the participants. Subjects were able to decline participation in the study without any penalty.

Data Management

A detailed codebook was created to identify each variable in the study. The codebook included an abbreviated variable name, a descriptive variable label, and the range of possible values (answers). Upon completion of data collection, the data was exported onto a password protected desktop computer at the University of Miami School of Nursing and Health Studies. Data was backed-up on the chairperson's password protected desktop in the principal investigator's office.

Data Analysis

Data analysis was performed using SPSS 17.0 software for Windows. The data analysis was performed in two parts, preliminary analysis and research question testing using logistic regression.

Preliminary analysis included calculation of descriptive statistics for the study variables and demographic characteristics of the sample. Descriptive statistics allowed the researcher to describe the basic features of the study data (Keith, 2006; Trochim, 2006). This typically consisted of the distribution (normal or skewed), the central tendencies (mean, median and mode), the dispersion (standard deviation, range and variance), and assesses any missing data (Keith; Trochim).

Logistic regression analysis was used to determine the odds that an event will occur (O'Connell, 2006). This method of regression allowed the researcher to have a dichotomous dependent variable. Logistic regression analysis allowed the researcher to estimate the effects of the independent variables on the dependent variable by using odds ratios, probability, maximum likelihood and goodness of fit.

There were three research questions to be answered in this study. Research question 1, what is the prevalence of suspected maltreatment in children 3 years of age or younger by type: neglect, physical abuse, emotional abuse, and sexual abuse? Descriptive statistics were used to calculate the frequencies for child abuse and neglect reported by the national sample of PNPs in this study. A percentage of maltreated children were determined based on the number of children 3 years of age or less seen by the PNPs on a yearly basis.

Research question 2, what is the association between types of maltreatment and the risk factors of young maternal age, parents' marital status, multiple birth, preterm birth, birth defects/disability, low economic status, and parental substance abuse? Logistic regression analysis was used to examine the relationship of the independent variables (young maternal age, parents' marital status, multiple birth, preterm birth, birth defects/disability, low economic status, and parental substance abuse) on the dependent variable of child maltreatment (abuse and neglect).

Research question 3, what are the signs and symptoms that lead practitioners to suspect child maltreatment? This question was an open-ended question. Responses were coded and compared for similarities.

In closing, this chapter described the study design, setting and sample, procedure for data collection, data management and analysis that were used in this study. Protection of human subjects was also addressed. The following chapter describes the results of the study.

Chapter IV

Results

The purpose of this study was to examine the risk factors of young maternal age, parents' marital status, multiple birth, preterm birth, birth defects/disability, low economic status, and parental substance abuse related to suspected maltreatment of children 3 years of age or younger. The risk factors were examined from the perspective of a national sample of Pediatric Nurse Practitioners (PNPs). This chapter is a presentation of the study results. This chapter begins with the demographic characteristics of the research participants followed by a description of the study variables (child and maternal demographics) and analysis of the three research questions. Data analysis was performed using SPSS 17.0 software for Windows.

Survey Response

The survey was made available to 6,434 PNP members of NAPNAP, with a response rate of 11% ($n=589$). Correspondence sent to the primary investigator revealed that not all nurse practitioners who received the survey link were eligible to participate. Several indicated that they were retired, others were not currently practicing or practiced in child protection exclusively, and certain practices did not see children in the requested age range (3 years of age or less). Of the 589 respondents, 15 did not consent to participate and 115 consented and indicated that they suspected/did not suspect child maltreatment but did not complete the survey (see Table 1).

The results of this survey were based on 459 complete responses. Thirty percent of the PNPs who participated in the survey were from Southern states, 29% were from the Mid-West, 21% from the North East and 20% were from the Western portion of the

United States. The frequencies and percentages of PNP location by State are listed in appendix A. Nurse Practitioner age and years of practice as an NP were significantly different between those PNPs who suspected maltreatment and those who did not, but the differences were not important. There were significantly more PNPs in urban practices versus rural practices, but this was the same for PNPs who suspected maltreatment and for those who did not. There were significantly more PNPs with specialty training in child maltreatment who suspected child maltreatment compared to those who did not.

PNP's Sample Characteristics

Seventy-nine percent of the PNP's who completed the survey ($n=363$) had suspected child abuse or neglect within the last year in a child three years of age or younger. Table 1 presents the demographic characteristics of the participants in two groups, those who did suspected child maltreatment ($n=363$) and those who did not suspect child maltreatment ($n=96$) within the past year. The number of cases of suspected child abuse and neglect in children three years of age or less within the last year ranged from 0 to 400 cases ($M=4.9$, $SD=20.73$). The age of the PNP's ranged from 23 to 76 years ($M=47.78$, $SD=10.68$). Of the PNPs who completed the survey ($n=459$), the majority were female ($n=448$, 98%) and 94% were white (3% black and 3% other). The PNP's years of practice ranged from less than one to 55 years ($M=12.63$, $SD=9.73$). The majority worked in an urban setting ($n=350$, 77%) versus a rural setting ($n=102$, 23%). Practice type was evenly distributed with 51% working in a public practice ($n=233$) and 49% working in a private practice ($n=221$). Forty-four percent had received specialty training in assessing abuse and neglect ($n=161$). The specialty training varied from 2-3 hours of continuing education credits, conference seminars, SANE (sexual assault nurse

examiner) training, graduate course work, previous employment or rotation through a child protective agency, and state training modules required to maintain a nurse practitioner license. Table 2 provides a summary of the specialty training and appendix B is a listing of the specialty training reported.

Preliminary Data Analysis

The preliminary data analysis included the frequencies and descriptive statistics for all of the child and maternal variables that were examined.

Children Demographic Characteristics

In this study there were 363 cases of suspected child abuse and neglect within the last year, however demographic data was provided for 94% of these cases ($N=340$). The demographic characteristics of the children are presented in Table 3. The majority of the suspected child abuse and neglect occurred in female children (58%) with ages ranging from 0 (less than 1 year of age) to 3 years of age ($M=1.58$, $SD=0.923$). Sixty percent of the children were white, 87% were full-term (37 weeks or more) and 96% were from singleton births.

Maternal Demographic Characteristics

Four maternal characteristics were assessed for this study including age, marital status, eligibility for Women, Infants, and Children (WIC) services, and history of substance abuse. The maternal demographic characteristics are presented in Table 5. Nine percent of the mothers were 18 years of age or younger and 91% were older than 18 years of age. The majority of the women were single ($n=184$, 54 %) and 210 were eligible for WIC services (62 %). A history of substance abuse was reported in 22% of the households where abuse and neglect was suspected.

Table 1: Sample Characteristics

	<u>Suspected Maltreatment</u>		<u>No Suspected Maltreatment</u>		<i>p</i>
	(n = 363) ¹		(n = 96)		
	Mean	SD	Mean	SD	
Practice Size	2166	4869	1587	3401	<i>n.s.</i>
Number of Suspected	6	23	---	---	
NP Age	47	11	49	10	.037
Years of Practice	12	9	15	11	.045
	<u>No.</u>	<u>(%)</u>	<u>No.</u>	<u>(%)</u>	
NP Gender					<i>n.s.</i>
Male	8	(2)	3	(3)	
Female	355	(98)	93	(97)	
NP Race					<i>n.s.</i>
White	340	(94)	91	(95)	
Black	11	(3)	3	(3)	
Other	12	(3)	2	(2)	
Practice Setting					.023
Rural	89	(25)	13	(14)	
Urban	269	(75)	81	(86)	
Practice Type					<i>n.s.</i>
Private	174	(49)	47	(50)	
Public	185	(51)	48	(50)	
Specialty Training					.001

No	202	(56)	71	(74)
Yes	161	(44)	25	(26)

Note: Practice sizes over 3 standard deviations above the mean were removed. There were missing data for all variables except NP Gender, NP Race and Specialty Training. Practice Size ($n = 423$); Number of Suspected ($n = 457$); NP Age ($n = 457$); Years of Practice ($n = 455$); Practice Setting ($n = 454$); Practice Type ($n = 454$).

Analysis of Research Questions

1. What is the prevalence of suspected maltreatment in children 3 years of age or younger by type: neglect, physical abuse, emotional abuse, and sexual abuse?

The researcher was unable to calculate prevalence by type, because practitioners were not asked how many children they suspected experienced each type of abuse. However, the prevalence of overall abuse was calculated using the sum of the practitioners' practice sizes and the sum of the number of children each PNP had suspicions of being maltreated within the past year. Practice sizes above 3 standard deviations (8804) above the mean were removed. The respondents were asked "How many children under the age of three are seen in your practice yearly?" The sum of the practitioners' practice sizes (all children seen by the practice) who suspected child maltreatment in a child 3 years of age or less in the last year was 369,971. This figure did not reflect the number of children seen by any one PNP. Approximately one of every four (25%) patients was seen by a non-physician clinician (Druss, Marcus, Olfson, Tanielian & Pincus, 2003; Hooker & McCaig, 2001; Roblin, Howard, Becker, Adams & Roberts, 2004). Twenty-five percent of the sum of the practice sizes would be 92,493 children seen by PNPs and suspected of being maltreated. Practitioners were asked "How many cases of child abuse and neglect have you suspected within the last year in children aged 3 years or less?" The sum of the number of children suspected of being maltreated by the PNP respondents within the past year was 2,178.

Table 2: Type of Specialty Training in Child Abuse ($n = 186$)¹

	<u>Suspected Maltreatment</u>		<u>No Suspected Maltreatment</u>	
	(n = 142)		(n = 32)	
	No.	%	No.	%
Continuing Education	22	15.5	3	9.4
Conference/Seminar/Workshop/Grand Rounds/Training/In-Service	46	32.4	14	43.8
SANE/SAFE/SCAN	11	7.7	4	12.5
Course for Credit/Teach Content at University	23	16.2	4	12.5
Experience in Child Protection Agency	24	16.9	5	15.6
State Required Training	16	11.3	2	6.2

Note: 186 PNPs stated they received specialty training, however only 174 indicated the type of training.

PNPs indicated the type of abuse and or neglect suspected in 492 of the cases. There were 135 cases of physical abuse, 61 cases of emotional abuse, 60 cases of sexual abuse and 236 cases of neglect reported in this study. Thirty-three percent of the PNP's suspected both abuse and neglect.

The prevalence of suspected child maltreatment equaled the number of suspected cases of child maltreatment ($n = 2,178$) divided by the number of children seen by the PNPs in practice (sum = 92,493). The prevalence of suspected child maltreatment in the study population was 0.02355 or 2.35%.

Table 3: Children Demographic Characteristics ($n = 340$)

	No.	%
Child Age		
0 (less than 1 year of age)	55	17.7
1 year of age	84	27
2 years of age	102	32.8
3 years of age	70	22.5
Child Gender		
Male	144	42
Female	196	58
Child Race		
White	204	60
Black	75	22
Other	61	18
Gestational Age		
Full-term (37 weeks or more)	291	87
Preterm (less than 37 weeks)	43	13
Birthtype		
Singleton	324	96
Twin	14	3.7
Triplet	1	0.3
Birth defect or disability		
No	243	83

Yes	51	17
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Note: There were missing data for all variables except Child Gender and Child Race. Child Age ($n = 311$); Gestation Age ($n = 334$); Birthtype ($n = 339$); Birth defect or Disability ($n = 294$).

There were 51 children (17%) with at least one reported birth defect or disability (6 had multiple defects), Table 4 is a listing of these defects by system.

2. What is the association between types of maltreatment and the risk factors of young maternal age, parents' marital status, multiple birth, preterm birth, birth defects/disability, low economic status, and parental substance abuse?

Logistic regression analysis was used to examine the relationship of the independent variables (young maternal age, parents' marital status, multiple birth, preterm birth, birth defects/disability, low economic status, and parental substance abuse) on the dependent variable of child maltreatment (abuse and neglect). Six logistic regression analyses were done. The first three addressed the relationships between the child variables (multiple birth, preterm birth, and birth defects/disability) and the types of child maltreatment (abuse, neglect, and abuse and neglect). The second set of logistical regressions examined the relationships between the parental variables (young maternal age, parents' marital status, low economic status, and parental substance abuse) and the types of child maltreatment. Table 6 presents the results of the logistic regression analysis of the child risk factors and Table 7 presents the results of the parental risk factors.

According to the model examining child risk factors and abuse, the log of the odds of a child being abused was negatively related to preterm birth ($p = .036$) and birth defects/disability ($p = .001$). That is, if a child was preterm or born with a birth defect/disability they were less likely to be abused. Multiple births were positively related

Table 4: Birth Defects or Disabilities Reported (n = 51)

	No.	(%)
<i>Behavioral</i>		
Autism	2	(3.9)
Attention deficit hyperactive disorder	1	(1.9)
<i>Cardiovascular</i>		
Congenital heart disease	5	(9.8)
Hypoplastic left heart syndrome	1	(1.9)
Coarctation	1	(1.9)
Atrial septal defect	1	(1.9)
Patent foramen ovale	1	(1.9)
<i>Developmental delay</i>		
Cognitive impairment	1	(1.9)
Global delay	7	(13.7)
Gross motor	2	(3.9)
<i>Ear/Nose/Throat</i>		
Vocal cord paralysis	1	(1.9)
Tracheomalacia	1	(1.9)
Deaf status post meningitis with cochlear implants	1	(1.9)
Goldenhar syndrome	1	(1.9)
Cleft palate	1	(1.9)
Cleft lip and palate	1	(1.9)
<i>Endocrine</i>		

Diabetes	3	(5.8)
Congenital hypothyroidism	1	(1.9)
<i>Gastrointestinal</i>		
Gastroschisis	1	(1.9)
Gastrostomy tube due to poor growth	1	(1.9)
Biliary atresia	1	(1.9)
<i>Hematologic</i>		
Hemangioma	1	(1.9)
Brain and retinal hemorrhage	1	(1.9)
Chronic granulomatous disease	1	(1.9)
Acute lymphocytic leukemia	1	(1.9)
<i>Integumentary</i>		
Severe eczema	1	(1.9)
<i>Musculoskeletal</i>		
Muscular dystrophy	1	(1.9)
Cerebral palsy	3	(5.8)
Talipes equinovarus	1	(1.9)
Osteogenesis imperfecta	1	(1.9)
Hypotonia	1	(1.9)
<i>Respiratory</i>		
Apnea	1	(1.9)
Asthma	1	(1.9)
Cystic fibrosis	2	(3.9)

Chronic lung disease	1	(1.9)
<i>Other</i>		
Born addicted	1	(1.9)
Strabismus	1	(1.9)
Stroke related to thrombocytopenia associated with liver failure	1	(1.9)
Down syndrome	1	(1.9)
Hydrocephalus	2	(3.9)
Spina bifida	2	(3.9)

Note: Six children had multiple defects therefore percentage will be greater than 100%.

but not significantly ($p = .359$). There were no statistically significant child risk factors found in the logistical regression for Neglect (preterm births, $p = .180$; multiple births, $p = .938$; birth defects/disabilities, $p = .234$). When examining the abuse and neglect group, the log of the odds of a child being abused and neglected was negatively related to birth defects/disabilities ($p = .030$). Preterm births ($p = .364$) were negatively related and multiple births ($p = .298$) were positively related to abuse and neglect, but were not significant.

According to the model examining parental risk factors and abuse, the log of the odds of a child being abused was negatively related to low economic status, with the proxy being WIC eligibility ($p = .001$) and a history of substance abuse ($p = .031$). That is, if a parent was WIC eligible or had a history of substance abuse they were less likely to be abusive. The regression analysis for abuse found a positive, yet insignificant, relationship with young maternal age ($p = .129$) and marital status ($p = .816$). The logistic regression for neglect indicated a positive significant relationship between a substance

Table 5: Maternal Demographic Characteristics ($n = 340$)

	No.	%
Maternal Age		
18 years of age or younger	31	9
Older than 18 years of age	306	91
Marital Status		
Single	184	54
Married	109	32
Unknown	47	14
WIC eligible		
No	47	14
Yes	210	62
Unknown	83	24
Substance abuse		
No	114	34
Yes	75	22
Unknown	151	44

Note: There were missing data for Maternal Age ($n = 337$).

abuse history ($p = .012$). The neglect regression indicated a positive but insignificant relationship for young maternal age ($p = .693$), marital status ($p = .343$), and WIC eligibility ($p = .106$). There were no statistically significant parental risk factors found in the logistical regression for abuse and neglect (young maternal age, $p = .263$; marital status, $p = .523$; WIC eligibility, $p = .131$; substance abuse, $p = .985$.) Young maternal

age was not found to be a significant risk factor in any of the regressions.

Table 6: Logistic Regression Analysis of Child Risk Factors (n = 340)

	β	SE β	Wald's χ^2	df	p	e^{β}
Abuse						
Constant	.807	.145	30.886	1	< .001	2.242
Preterm births	-.849	.406	4.375	1	.036	.428
Multiple births	.671	.731	.843	1	.359	1.956
Birth defects/disability	-1.026	.320	10.263	1	.001	.359
Neglect						
Constant	.830	.147	31.899	1	< .001	2.293
Preterm births	.687	.513	1.796	1	.180	1.988
Multiple births	.068	.873	.006	1	.938	1.070
Birth defects/disability	.458	.385	1.419	1	.234	1.582
Abuse and Neglect						
Constant	-.453	.138	10.714	1	.001	.636
Preterm births	-.402	.442	.824	1	.364	.669
Multiple births	.734	.706	1.082	1	.298	2.084
Birth defects/disability	-.801	.369	4.707	1	.030	.449

Note: There were missing data for all variables; Preterm births ($n = 334$); Multiple births ($n = 339$); Birth defect or Disability ($n = 294$).

3. What are the signs and symptoms that lead practitioners to suspect child maltreatment?

Practitioners were given a check list of signs and symptoms of abuse and neglect and were instructed to check all that applied for the last case of abuse or neglect that they suspected within the past year. Practitioners also were asked to provide other signs and symptoms that lead to their suspicion in a free response box. The free responses were

grouped into like categories, Table 8 presents the results. Inadequate hygiene, bruises,

Table 7: Logistic Regression Analysis of Parental Risk Factors (n = 340)

	β	SE β	Wald's χ^2	df	p	e^{β}
Abuse						
Constant	2.894	.730	12.727	1	< .001	18.059
Young maternal age	.783	.516	2.304	1	.129	2.189
Marital status	-.095	.408	.054	1	.816	.909
WIC eligibility	-2.580	.809	10.171	1	.001	.076
Substance abuse	-.764	.353	4.677	1	.031	.466
Neglect						
Constant	-.267	.335	.638	1	.425	.765
Young maternal age	-.209	.530	.156	1	.693	.811
Marital status	.424	.477	.900	1	.343	1.529
WIC eligibility	.807	.499	2.614	1	.106	2.240
Substance abuse	1.075	.430	6.248	1	.012	2.930
Abuse and Neglect						
Constant	-.500	.338	2.185	1	.139	.606
Young maternal age	.525	.469	1.253	1	.263	1.690
Marital status	.285	.446	.408	1	.523	1.329
WIC eligibility	-.785	.520	2.275	1	.131	.456
Substance abuse	.007	.380	< .001	1	.985	1.007

Note: There were missing data for Maternal Age (n = 337).

inadequate supervision and clinging or indifference to their caregivers or surroundings were the most reported in the check list. Medical neglect, family member reporting and

inadequate parent/child relationship were most reported in the free response box.

Table 8: Signs and Symptoms that Led to Suspected Child Abuse or Neglect (n = 363)

<u>Signs</u>	No.	(%)
Bruises	65	(17.9)
Inadequate hygiene	65	(17.9)
Inadequate supervision	54	(14.8)
Failure to thrive without medical cause	38	(10.4)
Clinging or indifference to their caregivers or surroundings	25	(6.8)
Fractures	17	(4.6)
Head injuries	16	(4.4)
Neediness	16	(4.4)
Withdrawal from caregivers	12	(3.3)
Well-defined burns	9	(2.4)
Child reluctance to go with caretaker	9	(2.4)
Abdominal injuries	6	(1.6)
Fear of caretaker	6	(1.6)
Genital bleeding or lacerations	6	(1.6)
Gastrointestinal disorders without medical cause	5	(1.3)
Voracious appetite (eating too much or too quickly when food is provided)	5	(1.3)
Cuts	4	(1.1)
Death	3	(0.8)
Sexually transmitted disease	1	(0.3)
<u>Symptoms</u>		

Inappropriate sexual knowledge for age	15	(4.1)
Vague or evasive responses regarding causes of injury	15	(4.1)
Unexplained aggression	7	(1.9)
Increased bed wetting	6	(1.6)
Nightmares	5	(1.3)
<u>Free response data</u>		
Medical neglect (Not making or keeping follow up appointments, non-compliance with medications)	44	(12.1)
Family member reports	20	(5.5)
Inadequate parent/child relationship (Limited bonding/affection, disarrayed state, maternal substance abuse)	13	(3.5)
Evidence of sexual abuse (Blood in diaper, erythema in vaginal area, Dark curly hairs found in diaper)	9	(2.4)
Inconsistent History and Physical exams	6	(1.6)
Other (Munchausen by proxy, torn frenulum, fear of restraints, <u>Plagiocephaly</u>)	5	(1.3)

Note: If a free response fit into a sign or symptom category it was added the overall number. For example, if the free text read “burn” it was added to the “Well-defined burns” total. Multiple signs and symptoms were listed by 95 providers therefore percentage will be greater than 100%.

Participants in this study were also asked if there was anything else that they felt was important related to identifying child maltreatment. One hundred and one PNPs answered this question and their responses were grouped into like categories, see Appendix C. Practitioners identified that poor parent-child interactions (lack of comforting child by parent), “low functioning” and “overwhelmed” mothers were risk

factors for child maltreatment. Other risk factors that they identified from their experiences included: a) domestic violence in home ($n = 4$), b) child adopted or in foster placement ($n = 5$), c) medical neglect ($n = 11$), d) mother partnered with other than biological father of child ($n = 5$), e) family in poor financial status/lack of social support ($n = 7$), and f) mother substance abuser/mentally ill ($n = 13$).

In closing, this chapter included the results of this study. Chapter 5 is a discussion of the findings, limitations and implications of this research.

Chapter V

Discussion

The purpose of this study was to examine the risk factors of young maternal age, parents' marital status, multiple births, preterm birth, birth defects/disability, low economic status, and parental substance abuse related to suspected maltreatment of children 3 years of age or younger. This study was designed to further an understanding of child maltreatment by gathering data from PNPs throughout the United States. The conceptual model for the study was based on The Barnard Model of Parent-Child Interaction which was adapted from the Ecological Systems Model of the 1970's (Barnard, 1978; Berk, 2006).

Having reviewed the literature, it was determined that there are gaps in the existing knowledge regarding child abuse and neglect risk factors. There have been no studies identified that focus on front line care providers and their assessment or experience with child abuse and neglect. While the risk factors of young maternal age, parents' marital status, multiple births, preterm birth, birth defects/disability, low economic status, and parental substance abuse have been shown to be associated with higher incidence of child maltreatment, little research has been published that examined all of these variables in one study. Data analysis involved descriptive statistics, and logistic regression to examine the associations between child maltreatment (abuse and neglect) and risk factors of young maternal age, parents' marital status, multiple births, preterm birth, birth defects/disability, low economic status, and parental substance abuse.

This chapter includes a discussion and interpretation of the research findings. Discussion of the study results is organized by research question. Study limitations,

implications for nursing practice and policy, and opportunities for future research are presented.

Question 1

What is the prevalence of suspected maltreatment in children 3 years of age or younger by type: neglect, physical abuse, emotional abuse, and sexual abuse?

It was not possible to answer prevalence by type, because practitioners were not asked how many children they suspected experienced each type of abuse. However, the prevalence of overall abuse was calculated.

This study was focused on children 3 years of age or younger, with 44.7% being 1 year of age or less, 32.8% age 2 and 22.5% being 3 years of age. The prevalence of suspected child maltreatment in the study sample was 0.02355 or 23.5 of every 1,000 children were suspected of experiencing child maltreatment. This was calculated using the number of suspected cases of child maltreatment reported by the PNPs ($n = 2,178$) divided by the estimated number of children seen by the PNPs in practice (92,493). This finding was similar to the results published in *Child Maltreatment 2008* (United States Department of Health and human Services [USDHH], 2010). Using data from the National Child Abuse and Neglect Data System (NCANDS) collected during the 2008 fiscal year, it was determined that an estimated 772,000 children were victims of child abuse and neglect. Children birth to 1 year of age had the highest rate of victimization, approximately 21.7 per 1,000 (USDHH, 2010).

Unlike the current research study, *Child Maltreatment 2008* presented the prevalence of child abuse and neglect by type. Many children suffered from more than one type of maltreatment, when this occurred the child was counted once for each type of

maltreatment (numbers will exceed 100%). Neglect accounted for more than 70% of the victims, physical abuse was determined in more than 15% of cases, and sexual and psychological abuse both accounted for approximately 10% of childhood victims (USDHH, 2010).

Question 2

What is the association between types of maltreatment and the risk factors of young maternal age, parents' marital status, multiple births, preterm birth, birth defects/disability, low economic status, and parental substance abuse?

Logistic regression analysis was used to examine the relationship of the independent variables (young maternal age, parents' marital status, multiple birth, preterm birth, birth defects/disability, low economic status, and parental substance abuse) on the dependent variable of child maltreatment (abuse and neglect). Six logistic regressions were done in total. The first three addressed the relationships between the child variables (multiple birth, preterm birth, and birth defects/disability) and the types of child maltreatment (abuse, neglect, and abuse and neglect). The second set of logistical regressions examined the relationships between the parental variables (young maternal age, parents' marital status, low economic status, and parental substance abuse) and the types of child maltreatment.

Child Risk Factors

According to the model examining child risk factors and abuse, the log of the odds of a child being abused was negatively related to preterm births ($p = .036$) and birth defects/disability ($p = .001$). Given this data set, if a child was preterm or born with a birth defect/disability they were less likely to be abused. Multiple births were positively

related but not significant ($p = .359$). There were no statistically significant child risk factors found in the logistical regression for Neglect (preterm births, $p = .180$; multiple births, $p = .938$; birth defects/disabilities, $p = .234$). When examining the abuse and neglect group, the log of the odds of a child being abused and neglected was negatively related to birth defects/disabilities ($p = .030$). Preterm births ($p = .364$) and multiple births ($p = .298$) were positively related to the abuse and neglect group but were not significant.

These findings differed from the literature. These results might have been attributed to small sample size with regards to these variables. Preterm births accounted for ($n = 51, 12.7\%$), birth defects/disabilities ($n = 52, 17.4\%$), and multiple births ($n = 17, 4\%$) of the data set. Infants who were preterm and infants with birth defects/disabilities have been reported to be a greater risk for child maltreatment. In a study conducted in the United Kingdom, infants with gestational age of less than 34 weeks ($n = 1,947$) had higher rates (35.4/1,000) of all forms of child maltreatment (neglect, physical, emotional, and sexual abuse) compared to infants 34-36 weeks ($n = 5,319$) gestation (23.3/1,000), as well as full term ($n = 112,463$) infants (>37 weeks) (14.8/1,000) regardless of socioeconomic status or maternal age (Spencer, Wallace, Sundrum, Bacchus & Logan, 2006). In a study conducted in Omaha, Nebraska it was found that 1,012 of 4,503 maltreated children between the ages of birth and 21 years had some identified disability (Sullivan & Kuntson, 2000). Compared to a non-disabled cohort, children with disabilities were 3.8 times as likely to experience neglect, 3.1 times as likely to experience sexual abuse, 3.8 times as likely to experience physical abuse, and 3.9 times as likely to experience emotional abuse (Sullivan & Kuntson).

The results were that there was a positive correlation between multiple births and abuse, but it was not significant probably because of the small number of multiples reported by the PNPs. Current literature indicated that multiple births were a significant risk factor for child maltreatment. Higher plurality has been linked with maltreatment because multiple births are usually preterm births with neonatal complications, which can cause economic and physical stressors (Dhanani, Nield & Ogershok, 2006). An overall increase in maltreatment of multiples compared to singletons was found (Wu, Ma, Carter, Ariet, Feaver, Resnick, et al, 2004). Of the study sample, only 3% of the children were multiple births. However, abuse and neglect were almost twice in children of multiple births (abuse 28% and neglect 89%) compared to their singleton cohort (abuse 15% and neglect 49%) (Wu et al.).

Parental Risk Factors

According to the model examining parental risk factors and abuse, the log of the odds of a child being abused due to a parent characteristic was negatively related to low economic status, with the proxy being WIC eligibility ($p = .001$) and a history of substance abuse ($p = .031$). Given this data set, if a parent was WIC eligible or had a history of substance abuse the child was less likely to be abused. The regression for abuse indicated a positive, yet insignificant, relationship with young maternal age ($p = .129$) and marital status ($p = .816$).

The logistic regression for neglect indicated a positive significant relationship between a substance abuse history ($p = .012$). The neglect regression indicated positive but insignificant relationships for young maternal age ($p = .693$), marital status ($p = .343$), and WIC eligibility ($p = .106$). There were no statistically significant parental risk

factors found in the logistical regression for abuse and neglect (young maternal age, $p = .263$; marital status, $p = .523$; WIC eligibility, $p = .131$; substance abuse, $p = .985$).

The result of no relationship for low economic status and young maternal age differed from the extant research. This result for young maternal age might have been attributed to the small numbers of mothers less than 18 years of age in the sample ($n = 31$, 9%). For the purposes of this study WIC eligibility was the proxy for low economic status and was inversely related to abuse. This inverse relationship was surprising because it differed from previous results. According to the Fourth National Incidence Study of Child Abuse and Neglect (NIS-4) children who were part of low socioeconomic households were more than 3 times as likely to be abused and 7 times as likely to be neglected (Sedlak, Mettenburg, Basena, Petta, McPherson, Greene, & Li, 2010). Results from an analysis of the National Child Abuse and Neglect Data System (NCANDS) from 2001-2004 were that 43% of children who were investigated by child protection services ($n = 22,584$) lived in poverty or their families experienced financial difficulty (Connell, Bergeron, Katz, Saunders & Tebes, 2007).

The positive relationship between parental substance abuse history and neglect was in agreement with the extant body of knowledge. Literature indicated there is a thirty percent co-occurrence of child abuse and neglect and parental substance problems (Locke & Newcomb, 2003). Substance abuse was a leading cause for foster care placement and child maltreatment reoccurrence (McNichol & Tash, 2001). In a retrospective, self-reported survey of childhood abuse and parental substance abuse, 17% ($n = 8,359$) of participants reported their parents abused alcohol or drugs (12.9% Father, 2.4% Mother, 1.9% both parents) (Walsh, MacMillan & Jamieson, 2003). In a study conducted in the

United States, 32% of abusing mothers ($n = 171$) of elementary age children reported a substance abuse problem (Kinard, 2003).

That young maternal age was not found to be a significant risk factor in any of the regression analyses differed from the extant research. In a 10-year incidence study of child abuse reports in Iowa, teenage births accounted for 54% of the variance in reported cases of child maltreatment (Weissman, Jogerst & Dawson, 2003). Infants born to mothers less than 15 years old ($n = 48,294$) were found to have a three- to four- fold increased risk of death (3.2 per 1,000), compared to an infant cohort (0.8 per 1,000) with 23-29 year old mothers ($n = 835,471$) (Phipps, Blume, & DeMonner, 2002). Increased rates of postnatal deaths of infants born to adolescent mothers 19 years of age and under ($n = 567,531$) have been associated with substantiated cases of abuse and neglect (Phipps et al.). Of the 1,830,350 data sets studied, there were 2,516 postnatal deaths. Victims of abuse and neglect accounted for 52% of reported deaths (Phipps et al.).

Question 3

What are the signs and symptoms that lead practitioners to suspect child maltreatment?

Practitioners were given a check list of signs and symptoms of abuse and neglect and were instructed to check all that applied related to the last case of suspected maltreatment in the last year. Practitioners also were asked to provide other signs and symptoms that lead to their suspicion in a free response box. Inadequate hygiene, bruises, inadequate supervision, failure to thrive without medical diagnosis, and clinging or indifference to their caregivers or surroundings were the most reported signs from the check list. Medical neglect, family member reporting of maltreatment and inadequate parent/child relationships were the most reported signs from the free response box.

These findings were in agreement with the current literature. Physical neglect defined as the refusal or delay to obtain health care and inadequate supervision was congruent with PNPs' assessments of neglect in this study (Goldman, Salus, Wolcott, & Kennedy, 2003). Physical abuse resulted in injury regardless if inflicted intentionally or accidentally, as may be the cause from "inadequate supervision" reported by 54 of the PNP participants (Goldman et al., 2003). Physical abuse encompassed beating, biting, burning, choking, hitting, kicking, punching, shaking, stabbing, and throwing which typically resulted in bruises, as reported by 65 PNP participants (Goldman et al.). In a study of 99 infants under 1 year diagnosed with a fracture, the skull and femur were most often fractured (Skellern, Wood, Murphy & Crawford, 2000). Sixteen of the PNP respondents reported "head injuries" and 17 reported "fractures" as signs of maltreatment. Infants less than four months of age were at a significantly greater risk of intentional fractures and 3 deaths were reported by PNP respondents (Skellern et al.).

Emotional abuse included neglect of medical health on the part of the care-giver towards the child and was reported by 44 PNP respondents (Goldman et al., 2003). The majority of these 44 reports pertained to "not making or keeping follow-up appointments" and "non-compliance with medications." There were 38 additional reports from PNP respondents of "failure to thrive without medical diagnosis," and 65 PNP respondents marked "inadequate hygiene" as signs that abuse or neglect was suspected. Malnourishment and obesity were forms of medical neglect in the United States because children may be denied a balanced diet as recommended by the United States Department of Agriculture (USDA) (Patel, 2005). Children who have experienced maltreatment of any kind are more likely to exhibit "clinging or indifference to their caregivers or

surroundings” as was reported by 25 PNP respondents (Maughan & Cicchetti, 2002). Ninety percent of parents ($n = 991$) acknowledged the use of psychological aggression towards their children from infancy to two years of age (i.e. angry shouting, cursing, and/or calling a child dumb) (Straus & Field, 2003). Emotional abuse encompasses emotional unresponsiveness, 13 PNP respondents indicated “inadequate parent/child relationships” such as “maternal substance abuse” and “limited bonding or affection” (Goldman et al., 2003). Colicky infants, preterm infants, and children with birth defects had a greater risk for emotional and social developmental delay due to caregiver unresponsiveness (Iwaniec, Larkin, & Higgins, 2006). Twelve PNP respondents marked “withdrawal from caregiver” and 16 marked “neediness” as signs that abuse was suspected.

Sexual abuse was defined as any oral, anal, genital, or digital penetration, fondling, or contact without intrusion (Goldman et al., 2003). Fifteen respondents indicated “inappropriate sexual knowledge for age” as a sign of suspected abuse. Nine PNP respondents provided more detail regarding the signs that indicated to them that sexual abuse was suspected, including “blood in diaper,” “erythema in vaginal area,” and “dark curly hairs found in diaper.” One PNP respondent acknowledged a sexually transmitted disease, and 6 indicated “genital bleeding or lacerations” as signs of suspected abuse. Sexual abuse has been common during childhood, with one-third of women and one-eighth of men affected (Gustafson & Sarwer, 2004). Consequences associated with childhood sexual abuse include substance abuse, depression, eating disorders, and anxiety (Gustafson & Sarwer). Adults, who were sexually abused themselves as children, have become child abusers (Gustafson & Sarwer).

Victims of child sexual abuse ($n = 860$) have had a two to three fold risk of experiencing adult revictimization, and recurring victims presented with signs and symptoms of post traumatic stress disorder (PTSD) (Arata, 2002).

Limitations

This study was conducted with a convenience sample drawn from the NAPNAP list serve. This was a limitation because not all pediatric nurse practitioners (PNP) in the United States are affiliated with NAPNAP; therefore the sample was limited to only NAPNAP members. Using the NAPNAP list serve was also a limitation because email addresses might not have been available for all eligible participants, or the email address available might not have been a valid email address. Inclusion criteria were that the participant had to be a PNP working in a primary care setting. This limited the sample of PNPs by excluding those who worked in specialty areas.

Of the 589 respondents, 15 did not consent to participate and 115 consented and indicated that they suspected/did not suspect child maltreatment but did not complete the survey. The results of this survey were based on 459 complete responses. The sample size overall was adequate, however, there were only a small number of infants and children with birth defects, from multiple births and born prematurely the study sample. For example, in this data set, only 4% of the children were from a multiple birth ($n = 15$), 13% were preterm births ($n = 43$), and 17% had a birth defect or disability ($n = 51$). Therefore, the findings from this study cannot be generalized.

Another limitation was that the survey questions developed for this study did not undergo pilot testing. The questions were not assessed for clarity or understandability, and therefore there were missing data for many of the variables. Conducting a pilot study

would have allowed for an assessment of the clarity of the survey questions. Data was not adequately collected to answer the first research question for this study, “What is the prevalence of suspected maltreatment in children 3 years of age or younger by type: neglect, physical abuse, emotional abuse, and sexual abuse?” The data that was collected allowed for calculation of suspected maltreatment prevalence overall, but there was not sufficient data collected to calculate the prevalence of suspected maltreatment by type. Had a pilot study been conducted, the survey questions could have been better developed to answer the prevalence question.

Implications of the Study

The results of this study indicated that child maltreatment was prevalent throughout the United States. It also highlighted that our front line providers were knowledgeable, but many lacked special training to assess and report suspected child abuse and neglect. These findings presented significant implications for education and practice.

Educational programs for all health care professionals need to incorporate training for assessment of abuse and neglect of all types, including child maltreatment. Several States have mandatory continuing education courses for assessing abuse and neglect for health care professionals to complete prior to every licensure renewal. If States universally adopted this requirement, all front line providers would receive adequate training in assessment of child maltreatment which may increase compliance with mandatory reporting. Protocols and standards should be better developed for a more systematic approach to assessing and diagnosing child maltreatment. This would have specific implications for researchers who gather data from Child Protection Services.

Having consensus for definitions and a template for forensic interviews and assessments would facilitate more inclusive and complete data sets for practice and research.

Primary care practitioners should have standard screening tools to assess families social support networks and PNP's should be able to provide families with information for local resources (parenting classes, support groups, counseling). PNP's should be aware of common risk factors for child maltreatment and should ask direct questions if maltreatment is suspected to get a better understanding of the situation (e.g. getting a 24 hour diet history when concerned about failure to thrive). PNP's should ask pointed questions about the origins of all injuries presented by a child and educate themselves about patterned injuries (e.g. belt buckle impression). PNP's should evaluate the plausibility of an explanation of how an injury occurred, and weigh the logic of the injury locations given the explanation and child's age. This information would facilitate a PNP to decide whether an injury was due to neglect, inadequate supervision or truly accidental.

Primary care practitioners must not be afraid to report suspected maltreatment. There has been a misconception that involving authorities will result in removing the child from the home. More often, involving authorities has allowed the family to receive services and support, with the goal of keeping the child in the home depending on the severity and other factors (Ruffolo, Evans & Lukens, 2003). After reporting suspected abuse, PNP's should not hesitate to call the police in obvious abuse cases and have the child sent to the local ER. Children under age 2 years with suspected abuse need to have a skeletal survey done, a retinal exam by an ophthalmologist, and possibly a CAT scan of the head (Barnes & Krasnokutsky, 2007; Pandya, Baldwin, Wolfgruber, Christian,

Drummond & Hosalkar, 2009). A child who admits to sexually abuse may have no physical findings on exam (Giardino & Finkel, 2005). The sexual abuse allegation should be taken seriously and reported. PNP's should be aware that parental denial frequently occurs when a child reports sexual abuse.

Recommendations for Future Research

Front line providers offered a unique perspective about their patient population of infants and young children. Many of the providers who completed this study indicated that more research is needed in the area of child maltreatment. Future studies into each of the risk factors used in this study might be conducted. Examples are: Studies to evaluate whether child abuse education has an effect on PNP practice related to child abuse assessment and reporting. Analyzing the prevalence of abuse/neglect reports by medical providers in states that both do and do not mandate child abuse education, to see what is reported and how frequently reports are generated. Exploring the cultural differences affecting discipline methods and what actions would be culturally acceptable or considered maltreatment. Study parent attitudes about parenting styles before/after receiving parenting classes that address child safety and discipline methods. Look at the prevalence of abuse and neglect in families in which the parents were child victims of abuse and neglect.

Summary

In conclusion, this research study contributes to the knowledge of the risk factors of young maternal age, parents' marital status, multiple birth, preterm birth, birth defects/disability, low economic status, and parental substance abuse related to suspected maltreatment of children 3 years of age or younger. Findings indicated that child

maltreatment is suspected by PNPs in the primary care setting and that providers can recall in detail cases of abuse and neglect suspected within the past 12 months.

Findings also indicated that child maltreatment had a prevalence rate of 23.5 per 1,000. This finding was similar to the National data available of 21.7 per 1,000 (USDHHS, 2010). Analysis of child risk factors showed a significant relationship between child abuse and birth defects/disability. Analysis of parental risk factors indicated a significant relationship between child neglect and a history of parental substance abuse. This study highlighted that PNPs recognized signs and symptoms of abuse and neglect, and that practitioners felt that there are multiple risk factors that were important for identifying child maltreatment. The most frequently reported signs of child maltreatment were bruises, inadequate hygiene, and inadequate supervision.

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APPENDIX A

PNP Location by State

State of practice	<i>n</i> = 451	%
Alabama (AL)	3	.7
Alaska (AK)	0	0
Arizona (AZ)	14	3.1
Arkansas (AR)	4	.9
California (CA)	34	7.5
Colorado (CO)	8	1.8
Connecticut (CT)	9	2
Delaware (DE)	0	0
Florida (FL)	15	3.3
Georgia (GA)	16	3.5
Hawaii (HI)	1	.2
Idaho (ID)	2	.4
Illinois (IL)	20	4.4
Indiana (IN)	11	2.4
Iowa (IA)	10	1.2
Kansas (KS)	3	.7
Kentucky (KY)	4	.9
Louisiana (LA)	4	.9
Maine (ME)	1	.2
Maryland (MD)	6	1.3

Massachusetts (MA)	13	2.9
Michigan (MI)	10	2.2
Minnesota (MN)	19	4.2
Mississippi (MS)	2	.4
Missouri (MO)	13	2.9
Montana (MT)	1	.2
Nebraska (NE)	2	.4
Nevada (NV)	2	.4
New Hampshire (NH)	3	.7
New Jersey (NJ)	11	2.4
New Mexico (NM)	2	.4
New York (NY)	38	8.4
North Carolina (NC)	16	3.5
North Dakota (ND)	0	0
Ohio (OH)	26	5.8
Oklahoma (OK)	4	.9
Oregon (OR)	9	2
Pennsylvania (PA)	18	4
Rhode Island (RI)	1	.2
South Carolina (SC)	7	1.6
South Dakota (SD)	0	0
Tennessee (TN)	13	2.9
Texas (TX)	30	6.7

Utah (UT)	3	.7
Vermont (VT)	0	0
Virginia (VA)	10	2.2
Washington (WA)	1	.2
West Virginia (WV)	2	.4
Wisconsin (WI)	29	6.4
<u>Wyoming (WY)</u>	<u>1</u>	<u>.2</u>

Note: State data provided by 451 NPs, data missing for 8 respondents.

APPENDIX B

Specialty Training Reported

- Years ago I took a number of child abuse assessment and examination courses. I have not had recent training.
- Minnesota has extensive resources for education, clinical care and research in child abuse and neglect that goes back more than 30 years. Dr. C.L. is the director of the Midwest Children's Advocacy Center. L.E. is a PNP who works there, one of a long history of PNPs who have been key to that center's development from the very beginning. Cornerhouse in Minneapolis is also very active in this community and interfaces with PNPs.
- I have attended 3 medical training academies (3-4 day intensive education programs) sponsored by the Western Regional Advocacy Programs, primarily in sexual abuse but also physical.
- I have done 2 CME hours outside of the training in my degree.
- New York State mandatory training in child abuse recognition and reporting.
- Conferences and online.
- Grand Rounds at the local School of Nursing.
- Conference sessions on identifying physical symptoms of abuse.
- NY State mandated abuse education for RN's (when I was employed by NYS as an RN).
- Different courses and expert consultants I work with.
- Attended APN in-service.
- Attend Child Abuse Grand Rounds at a large metropolitan Children's Hospital.

- NY State RN continuing education training.
- GA training in grad school.
- Seminars and workshops sponsored by the department of Health, also CASA and Police department.
- In masters program as well as yearly online training through the hospital.
- Specially trained in Child Sexual Abuse Examinations.
- CME lectures
- Part of the SCAN Team at previous hospital and received training from hospital.
- SANE training
- Lectures at master's level.
- Sexual abuse training at a Child protective center.
- Master's thesis was on domestic violence.
- Continuing education lectures.
- Grand rounds.
- We have had facility wide training on being an abuse reporter.
- Years ago I received training through the Carl Perkins Center for child abuse and neglect.
- Graduate courses; in-house continuing education at Children's Medical Center.
- Have attended several conferences in regards to abuse: detection, assessment, interviewing techniques and examination.
- Seminars on signs of abuse and neglect.
- Latest was Stewards of Children an Ohio Initiative-Child Sexual Abuse Prevention.

- Workshop to discuss factors related to abuse and the process for reporting.
- Several academic courses.
- Conference attendance.
- Consultation and training with abuse specialist.
- While in NP school spent a quarter with SANE NPs in a center that evaluated abuse (child advocacy center @ nationwide children's hosp, Columbus, OH).
- 2 eight hour classes on recognizing/assessing abuse/neglect.
- One week course by specialized personnel trained in teaching recognition of child abuse and neglect.
- NY State mandated child abuse course.
- Post-masters program at Husson College, ME; Various CME workshop content; Special training with the Indian Health Service as the Medical Director of our Clinic there.
- Mandatory education every 5 year; Happiest Baby on the Block; Certification exams.
- Yearly child abuse program
- In graduate school (at YSN) was specifically detailed and reviewed in several courses;
attended extensive child abuse conference 2002, attended child advocacy conference 2003, worked with local sexual abuse examiner and DCF while living in CT from 2005-2008 for multiple child abuse and neglect cases.
- During graduate school, continuing education, grand rounds.
- Usually several grand rounds presented each year at the institution I work at.

- I attended a 4 1/2 day conference, "PREP: CAP; An Intensive Review and Update of Child Abuse Pediatrics", sponsored by the AMA.
- As an ER nurse we had 10 hours/year training.
- Courses in school.
- No specialty training beyond school.
- SANE-P
- NAPNAP Educational offerings at the conferences over last 8 yrs. Also evaluation information given at work on identifying and reporting child neglect and abuse.
- Required to take an online training by the state board of NY.
- Course at UTA.
- Seminars/classes/CEU's.
- Stewards of light program at CareHouse in Oakland County Michigan.
- Annual competency modules that review child abuse.
- Workshops/conferences per KY State Law.
- Several workshops by the County of San Diego's Child Protective Services. School nurse and PNP conference speakers, as well.
- I have an MSW and completed a Child Welfare training practicum. I did practicum placement in public childcare agencies and worked for the Department of Children and Families Research Group after finishing training. During my MN program, we had lectures re: child abuse and neglect.

- Workshops at conferences, local NAPNAP chapter CE programs, & American Academy of Pediatrics training curriculum for suspected pediatric physical & sexual abuse.
- I worked with CPS for approx 8 months as a PHN (before I was an NP).
- Original training with HK and KF. Update periodically at seminars and local trainings.
- Additional classes provided by a PNP who is a child abuse and neglect advocate in the county.
- NYS requirement to hold license.
- We are required to take NY State Training Modules.
- Abuse class is required by the state of New York to receive you RN license.
- I have gone to Dartmouth where they have a Child Abuse subspecialty of their pediatric unit.
- Trained in the Wilford Hall Medical Center Pediatric Clinic, USAF when on active duty to be a SCAN team member and then was a member of numerous Suspected Child Abuse and Neglect teams at various US Air Force Bases as a PNP.
- Salt Lake City Primary Children's Hospital Basic Medical Training Academy.
- NCAC Annual Symposium in Child Abuse
- Local DHS Train the Trainer
- Just CEU's through NAPNAP and other conferences.
- Yearly mandatory in-services at the hospital where I work.
- Continuing education courses

- Through our county public health and human services agencies. Recognition and reporting requirements.
- Several in-services from members of the Las Vegas Metropolitan Police Dept Abuse and Neglect division, Child Protective Services, and the Department of Family Services. Also in serviced on examination techniques and findings from ER physicians and specialized nursing staff in the ER.
- SANE training for Sexual Abuse Nurse Examiners
- A specified number of didactic hours followed by hands on examinations. In-service on recognizing signs of abuse. Have attended workshops at conference on abuse and abuse recognition.
- Attended a four day conference specifically on learning how to recognize child abuse, both sexual and physical.
- Continuing education of the seminar type
- Numerous session and in-services by child abuse specialists. Additionally I am required by my employer to take an annual competency on child abuse and neglect.
- I have attended emergency workshops that have discussed the evaluation and detection of NAT and referrals. These workshops are paid for by myself, but are about a variety of topics and very worthwhile.
- Forensic examination training.
- Pediatric SANE course.
- SAFE- Sexual Abuse Forensic Exam
- New York State Child abuse and neglect training and several updates.

- From the county in both recognizing abuse and reporting.
- In a Trauma Nurse Specialist course taken many years ago, plus breakout sessions at various conferences.
- I was a nurse in England for three years and attended a 9 week course on child and elder abuse. I am an adoptive parent and have participated in a 6 week course in the US for child abuse associated with the DCF system. I have completed 4 hours of CEU both online and in person regarding domestic and child abuse in the past 2 years. In Florida it was a requirement for licensure to complete domestic violence CEU for re-licensure. Now it is require every 3rd time or something daft.
- Workshops
- Several courses at NAPNAP, state-mandated Child Abuses assessment in Ohio, SANE training, OJT as hospitalist.
- No specific training but worked in a level 1 Pediatric ER for 13 years where all assessments for sexual assaults on children performed. Assisted in evaluation and observed multiple abuse situations.
- Years ago took a training course to assess and report child abuse and neglect.
- Research done many years ago for my own thesis.
- Drug-abuse awareness.
- Conferences and master project
- It was covered in my NP program at Northeastern University.
- In-services by specialty providers, journal articles and information from an expert in abuse/neglect during my master's program.

- As required by Iowa law I take Child and Elder Abuse training every 5 years.
- classes and certification
- Only those offered via the NAPNAP conference
- CAC in a Children's Hospital
- At NAPNAP conferences
- Continuing education course
- We had a rotation in our NP program working with sexual assault evaluations. I have also attended several lectures over the years on child abuse.
- I have attended workshops and been a part of two abuse teams.
- CARES NW, online CD, Symposium
- A weekend workshop in school & 1 specialized lecture.
- Hired by the University of Medicine and Dentistry which has the State contract for providing health care promotion for children who are placed out of home by the State Division of Children and Families.
- Dr. MF is educator. School of Nursing education. On the job. Past experience.
CE
- I received special training at a 3 day national conference. I also attended the recent AAP prep for child abuse and neglect. I also spent several days at 2 abuse centers and I have participated in a regional peer review in the state.
- Various in-services provided by our Child Abuse team or as a part of all day educational conference.
- Did a rotation in my PNP program at the Kempe Center and have taken CE yearly at the Keystone conference since then.

- As part of my MSN education a day long seminar was held in sexual abuse of children. I have attended two specific child abuse conferences lead by the leading child abuse MD within my state.
- Only routine continuing education sessions.
- I worked at a child advocacy center for 4 years and attended numerous trainings, conferences, presentation, etc. on the topic.
- I come from over 20 years in emergency and trauma nursing and have had a lot of experience with abuse of all ages.
- Coursework mandated by state; additional lectures in PNP program - Recognizing signs of abuse and neglect, How to report in Ohio and Recognizing symptoms of sexual abuse.
- Child sexual abuse workshops & conferences, and former educator in a sexual abuse crisis center, with a focus on child sexual abuse prevention.
- A couple of days with First Witness as a new RN.
- Worked on a burn unit previously and was trained by various professionals on numerous occasions.
- Extensive specialty training in child sexual abuse with some training in physical abuse.
- I trained under a doctor in primary care whose specialty is child abuse. I have also had several classes and workshops in this area.
- I have attended in-service sessions.
- Conferences, in-services.
- I teach the content to undergraduate students.

- I work closely with a colleague who is considered a national expert on child abuse.
- SANE course
- Graduate studies- research that focused on child abuse
- CEU's online and in journals
- Mandatory course, seminars, in-services only.
- From the local child protective services - photos and soft signs of abuse. From the child abuse prevention council on shaken baby syndrome.
- 2 or 3 full day seminars.
- Special Conferences related to trauma, child abuse and neglect. Graduate school, multiple workshops and state conferences through the public health department, local child advocacy center, and Children's hospital Child Development Center that evaluates many children in the foster care system.
- Sexual assault in children - seminar training. 1. Forensic evidence collection 2. Signs and symptoms of abuse 3. Documentation and court testifying tips.
- Continuing education class on this topic.
- Continuing education and experience as a school nurse for 4 years prior to grad school for PNP.
- Company provided in-service and other seminar attendance
- Training received from child abuse/neglect experts at Primary Children's Hospital.
- Bivona Advocacy Center seminar, Annual child abuse reporting certification, Forensic evidence collection: timing considerations.

- Included in NP program coursework.
- I have attended 3 continuing education presentations about abuse. NYS Curriculum; Masters Program. SANE course for sexual abuse.
- CEU presentations on recognizing sexual abuse
- I attended a local chapter NAPNAP conference on Suspected Non Accidental Abuse of Children and attended in-services at the children's hospital that I used to work for.
- Studied 6 months with child abuse specialist.
- SANE
- Teach content in academic program.
- I had worked for several years in our state's child protection agency as a nurse consultant to the caseworkers and received an initial comprehensive orientation, as well as ongoing in-services and training in child abuse and neglect.
- In-services by the hospital child protection team and also a Munchhausen by Proxy expert
- In my graduate program we discussed red flags regarding pediatric assessments and when abuse or neglect is suspected.
- Member of Suspected Child Abuse and Neglect Team at Major Urban Hospital in the past.
- CME topics at conferences and lectures in my PNP program on this topic. That's all though.
- Continuing education at national PNP conferences.

- Had a full two week course several years ago that focused on child abuse. Have attended several conferences on child abuse.
- The institution provides annual training on abuse and neglect.
- P-SANE
- continuing education
- On-going Pediatric Grand Rounds
- All school settings and on-going journal readings
- Worked many years ago on a Sexual Abuse Management Team at a large Children's Hospital
- Required hospital class
- Seminar
- attending seminars
- Various CE and in-service seminars, including how to recognize physical and behavioral signs, sometimes subtle, in children and caregivers.
- I was the primary provider at a child abuse center for 5 years. In addition to OTJ training, I attended several conferences on child maltreatment.
- Seminars
- Continuing Education session at Sacred Heart Children's Hospital in Spokane WA.
- Educational grand rounds offered by the academic facility in which I work
- Nursing grand rounds
- Psychiatry grand round

- Training during school; previously worked at a shelter for abused children and received various training; trained as a CASA (Court Appointed Special Advocate); and worked in the foster care system in NY as a PNP
- Multiple courses, preceptor who is child sexual abuse specialist
- Our institution evaluates sexual abuse victims so was required to go through training for evidence collection, H&P, medications, follow up
- I answered yes b/c I am also the Lead Faculty for a PNP program in our city and am responsible for the content in the PNP courses. I have worked closely with Child Abuse experts to develop lecture content and incorporate this content into our courses.

APPENDIX C

Practitioner's Responses about Identifying Child Maltreatment.

- Be aware of family dynamics and parent - child interactions at visit.
- Need to be aware of subtle symptoms, domestic violence in the home, any concerning statements made by child.
- This child was abused by a white foster parent. She was already removed from her home due to maternal substance abuse. I don't know if the foster parent had a history of substance abuse herself.
- Not following through with prescribed medications or tests.
- Family was displaced by a Hurricane and relocated.
- Low functioning mother caring for high needs child.
- It happened after parents separated and mother acquired a new boyfriend.
- Always consider it as a possibility when things don't add up.
- Providers need to have a much greater degree of suspicion with every child they see.
- My impressions of child interaction with family when I first walk into the exam room. Stranger anxiety vs. not seeking support; or flat affect from child during exam; or lack of parental comforting.
- I work in a private practice with 10 physicians. They are RELUCTANT to report. When I see I ALWAYS report. Have testified many times regarding child abuse. I believe "public care" is reported more.

- Listening to family. The child's parents were together yet not married. Father was in 50's mother was in 30's. They have already had a child removed from home and their was a 2 year old sibling in the home
- In the case of this child, he is the eleventh child for this single mother, so the social history seems to predispose this mother to being overwhelmed and not fully attentive to the child's needs.
- Many of cases seen in my time have been identified as a male abuser.
- Both parents were older (over 55). Mother is wheelchair dependent due to Diagnosis of MS. Thought she could not get pregnant. Unrealistic expectations for child's progress and development.
- We're often one of the few medical people who see these children so it's important to identify maltreatment as it wouldn't be seen otherwise.
- Having a better understanding of the family's social situation. It would help me to have a better feel for interviewing families in an objective way, asking questions phrased to avoid offending.
- Family home environment and support system for care giving and finances.
- Mother had 7 other children and child was Haitian. He was brought here for charity surgical repair.
- This child's mother was chronically ill for many years and died about 18 months ago. He is now cared for by his father who seems to be trying to do his best, but is often physical and neglectful.

- I have found too many providers who are reluctant or do not want to report because of 1) being wrong/incorrect and 2) hurting relationship with family and they will leave practice.
- Inconsistent responses from mother.
- Utilizing rote routine to take a careful psychosocial/PMH/incident history without interrupting historian w/ clarification of pertinent information and a complete PE to tease through most situations.
- Frequent education to subtle signs.
- Child was adopted.
- Reported to DHS but because no physical abuse only documented.
- The relationship between the parents and their cooperation in caring for the child. If one parent feels overwhelmed, he can be resentful and take it out on the child.
- Child seen in several specialty practices with no one concerned that a 3 year old child with a Gastrostomy didn't weigh more than 19 pounds.
- The boyfriend did not look like the child (female).
- Child was 9 months. Under-immunization, lack of well exams, maternal low IQ were factors in this case and in previous cases that I have seen. This child was developmentally delayed.
- Relationship between Mom and Dad; any boyfriends/girlfriends or step parents in the picture; any contributing stress levels in the home, parent present or deployed in the military.
- If you think it is occurring, at least report it to see if will be accepted as a case, rather than not reporting and having a tragedy.

- Social services were ineffective in helping this child. They paid for a taxi for the mom and child to get home so the mom wouldn't drive under the influence. Otherwise 'made a report'.
- Of all the cases I have reported in my 25 years of practice. It is important to remember this is all these children know as being loved or cared for, abuse is their normal.
- To always be alert that child abuse/neglect can happen to anyone in all types of families.
- Listening to the child and watch reactions.
- Personally I find it easier to identify and deal with physical/sexual abuse. There seems to be a number of totally overwhelmed, underserved moms who are so neglectful that it really borders on criminal.
- Poor parenting skills and support system.
- Family was of very low economical status, father unemployed, mom was sole income provider working nights at Wal-Mart, and the family had 5 total children, one already removed by CPS.
- The behavior of the abuser.
- Children from all socioeconomic groups can suffer from neglect and further investigation about abuse should be done if there are indications of neglect.
- Abuse of the mother and intermittent need for a homeless shelter were mitigating circumstances.
- Parents recently separated; mother overwhelmed with 3 children with chronic health problems.

- Mother's coping mechanisms --takes out stress and ignores the needs of her child.
Anger and poor impulse control.
- Was suspected to be caregiver not parent.
- Mother busy with new fiancé.
- Remember it happens in all classes of society.
- Child was brought (has been in several times with similar concerns) in by father who had gotten the child back in a shared custody agreement. Father has a history of depression and anxiety.
- Stressors in the home, lack of finances, abusive boyfriends.
- How insistent the parents are that there is not abuse going on in the home. I asked a simple question and mom returned with "What you think I abuse my kid or make her dirty?" Not appropriate.
- This child was abused by his dad.
- More age specific education.
- Biologic father was the alleged abuser; had been alleged to have abused an older sister; CPS already involved w/ family.
- Education, financial status, and family support.
- Sibling with severe special needs in my opinion contributed to the abuse/neglect in this family.
- Make sure to do thorough skin check (e.g. back, butt) on WCC exams and at other times if abuse is suspected.
- Mom had been in foster care much of her life.
- Domestic violence history.

- Specialized training.
- Suspected abuser was the step brother who had just recently come to live with his new family. He himself had been abused as a child, in his other home & had sexual debut at a young age (11).
- Maternal mental illness. Consistency of caregivers-not leaving child with anybody for the evening. Frequency of moves.
- I was wondering if there are birth centers that use bonding rating scales in there nursing assessments so that pediatricians would be more alert to families that received high scores.
- It is very important to get detailed history from as many sources as possible.
- Mother was passive and defensive.
- I think nurse practitioners are intuitive the ones to identify children. The child I described was later seen by a pediatrician at 9 months with bruises on the face and head and sent home no call DHS.
- The mother had a history of prior children removed from her care. Mother of child was also divorcing father of child who had known and obvious mental delays.
- We identify neglect and abuse related to socioeconomic, educational and cultural differences. These are important factors in determining neglect/abuse in kids.
- father currently in jail.
- It is usually due to young maternal age, ignorance, and learned behavior.
- I believe b/c NPs have the opportunity to look at the family in a holistic manner that we can not only identify but help reduce the effects of abuse & neglect.

- Mom was alcoholic. Child was youngest of 4 children but the only boy. So on one hand was King Baby and yet had been neglected and hadn't been encouraged to crawl or walk but left to sit in infant seat.
- A thorough history. A detailed exam- if possible with a child protection team. Identifying risk factors to prevent child abuse.
- I am seeing an increase in behavior disorders (diagnosed or undiagnosed) that increases the parents' frustration and tendency for physical and emotional abuse.
- The child needed to be admitted from clinic and the parents were reluctant about the admission. The parents asked if we were planning to call DCF (the state agency to report cases of neglect).
- Adults need to take seriously what children less than 5 say. This mother did and I assisted her in calling CPS.
- Parents were separated. Mother suspected father of possible abuse on child.
- Knowledge of Adams classification, knowledge of STIs in pre-pubescent children, knowledge of psychosocial behaviors that may accompany child maltreatment.
- Vigilance, proper use of state and local reporting parameters, use of public health before problems reach a crisis point!
- Mother diagnosed with bipolar psych disorder. Rushes baby to office, urgi-kids or ER frequently. Frequent hospital admissions for "vomiting" GERD ruled out. Suspect early Munchausen's syndrome tendency.
- Objectivity in obtaining info from mother and father, particularly if they are living apart and/or there is a history of domestic or chemical abuse.

- Consider whether or not there is maternal history of psychological issues including the diagnosis of fibromyalgia.
- Living conditions, neighborhood. Custodial parent, guardian or caretaker mental health status.
- As PCP I try to document non-suspicious injuries or bruises noted at all visits, to help pick-up on the children who have frequent bruise or injuries.
- Understanding of cultural differences.
- I believe it is always important to ask open-ended questions and do a thorough head to toe exam on all children. Trust your "gut" if something doesn't seem right also.
- Must be important to understand child's individual developmental stage as well as any conditions (i.e. Autism). Children can play very actively where they may hurt themselves.
- Complex case of a father abusing a child; she would not verbalize the event to Child Advocacy but did to mother and known trust provider. Mother was sexually abused as child so insistent child be heard.
- Inappropriate knowledge of illegal drugs in relation to age i.e. 5 year old who talks about others smoking crack, joints etc.
- It has been my experience that many of my pediatric colleagues are hesitant in identifying & reporting either due to lack of knowledge re: child abuse injuries, or discomfort with the whole process.
- It needs to be a team approach. All staff must be properly aware of things to look for and red flags that indicate potential abuse.

- The child was adopted.
- Multiple caregivers, difficult relations with father of child and father's family, as relayed by birth mother.
- I think that just asking the question when a case presents itself is the most important. Of course reporting every incident is crucial.
- The family refused to believe child's story of family friend sexually abusing, police did not take report because we documented child's description of incident using her vocabulary.
- Divorce in progress with a custody battle.
- Interstate communication of Child Protective Service agencies is improving but still inadequate. Information about individuals and families at risk should be readily available across state lines.
- Doing total body exam and looking for any lesions not compatible with usual play injuries. Children with inappropriate fear responses to being examined.
- Staying current with continuing education.
- Fortunately - we have a good reporting system and received information from local DSS when a mother with previous neglect or abuse is to deliver her next child and what action will likely be taken.
- I think it is important to identify culture practices and teach families that what may have been practiced back home is a form of child abuse and neglect.
- It is very helpful to have a resource such as a Child Protection service with which you can consult if you have suspicions.

APPENDIX D

Informed Consent

Dear NAPNAP Member,

The following survey is for a study being conducted for my PhD dissertation at The University of Miami School of Nursing and Health Studies. The purpose of this study is to examine the risk factors for child maltreatment from the perspective of Primary Care Pediatric Nurse Practitioners (PNPs).

Due to the sensitive nature of this topic, completed surveys will not be linked to individual providers. There are no direct benefits or risks associated with participating in this study.

The survey will take approximately 5 minutes to complete. You will be asked to give information about yourself and your professional practice. You will be asked about the number of child abuse and neglect cases that you have suspected within the past year. There are a total of 26 questions to be answered.

All electronic data will be stored in a password protected computer in the primary investigators office. Only people who are directly involved with the project will have access to those records. When the project is finished and results are reported, no individual will be identified in any way.

On completion of the study a raffle for 5 iPod Shuffles will be held. If you would like to participate in the raffle email Lilia Diaz Pino, lilia@miami.edu, directly with your name and mailing address. Your name, email, and mailing address cannot be linked to the online survey

Your participation is voluntary. You can decline to participate, and you can stop your participation at any time, if you wish to do so, without any negative consequences to you.

Because PNPs provide pediatric primary care they are in a unique situation to describe child abuse and neglect. Thank you in advance for completing this survey.

If you have any questions or concerns about the research, please feel free to contact Lilia Diaz Pino at 786-255-0763 or lilia@miami.edu or Dr. Gail McCain at 305-284-4680 or gmccain@miami.edu. If you have questions regarding your rights as a research participant, contact the University of Miami, Human Subject Research Office at 305-243-3195.

Sincerely,

Lilia Diaz Pino, MSN, ARNP

Doctoral Candidate

By you answering the survey questions, this means you consent to participate in this research project.

- I acknowledge that I am voluntarily consenting to participate in this research study.
- I choose not to participate in this research study.

APPENDIX E

Child Maltreatment Survey

Please fill in your response.

Have you suspected child abuse or neglect within the last year? _____ Yes - If yes, please complete the survey. _____ No - If no, please answer the provider demographic questions only.
How many cases of child abuse and neglect have you suspected within the last year? _____
How many children under the age of three are seen by your practice yearly? _____

Please provide the following information about yourself:

Provider Demographics. Please fill in your response.
1. Age _____ years
2. Gender _____ Female, _____ Male
3. Race _____ Black _____ White _____ Other, please identify _____
4. Years of practice as PNP _____
5. State in which you practice (USA) _____
6. Practice setting _____ Rural _____ Urban
7. Practice type _____ Private _____ Public
8. Have you received any specialty training in assessing abuse and neglect? _____ No _____ Yes, if yes please describe _____ _____

Please think about and describe the most recent case of child abuse or neglect that you suspected.

<p>Please describe the child</p> <ol style="list-style-type: none"> 1. Age _____ years 2. Sex _____ Female Male 3. Race _____ Black White Other, please specify _____ 4. Approximate gestational age _____ Full-term (37 weeks or more) Preterm (less than 37 weeks) 5. Birth type _____ Singleton Twin Triplet Quadruplet Other, please specify _____ 6. Birth defect or disability _____ No Yes, if yes please specify type of birth defect/ disability: _____ 7. What type of abuse or neglect did you suspect? Check all that apply. Physical abuse Emotional abuse Sexual Abuse Neglect <p>Please describe the mother</p> <ol style="list-style-type: none"> 1. Age _____ 18 years of age or younger Older than 18 years of age 2. Marriage status _____ Single Married Unknown 3. Was Mother eligible for Women, Infants and Children (WIC) services? No Yes Unknown 4. History of Substance Abuse _____ 	<p>What were the signs and symptoms that led you to suspect this child was being abused or neglected? Please check all that apply:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> <p>Signs</p> <ul style="list-style-type: none"> ___ Abdominal injuries ___ Bruises ___ Child reluctant to go with caretaker ___ Clinging or indifference to their caregivers or surroundings ___ OMS ___ Death ___ Failure to thrive without medical cause ___ Fear of caretaker ___ Fractures ___ Gastrointestinal disorders without medical cause ___ Genital bleeding or lacerations ___ Head injuries ___ Inadequate hygiene <p>Other, please specify: _____</p> </td> <td style="width: 50%; padding: 5px;"> <p>Inadequate supervision</p> <ul style="list-style-type: none"> ___ Neediness ___ Sexually transmitted disease ___ Voracious appetite (eating too much or too quickly when food is provided) ___ Well defined burns ___ Withdrawal from caregivers <p>Symptoms</p> <ul style="list-style-type: none"> ___ Inappropriate sexual knowledge for age ___ Increased bed wetting ___ Nightmares ___ Unexplained aggression ___ Vague or evasive responses regarding causes of injury </td> </tr> </table> <p>Is there anything else you think is important related to identifying child maltreatment?</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>Signs</p> <ul style="list-style-type: none"> ___ Abdominal injuries ___ Bruises ___ Child reluctant to go with caretaker ___ Clinging or indifference to their caregivers or surroundings ___ OMS ___ Death ___ Failure to thrive without medical cause ___ Fear of caretaker ___ Fractures ___ Gastrointestinal disorders without medical cause ___ Genital bleeding or lacerations ___ Head injuries ___ Inadequate hygiene <p>Other, please specify: _____</p>	<p>Inadequate supervision</p> <ul style="list-style-type: none"> ___ Neediness ___ Sexually transmitted disease ___ Voracious appetite (eating too much or too quickly when food is provided) ___ Well defined burns ___ Withdrawal from caregivers <p>Symptoms</p> <ul style="list-style-type: none"> ___ Inappropriate sexual knowledge for age ___ Increased bed wetting ___ Nightmares ___ Unexplained aggression ___ Vague or evasive responses regarding causes of injury
<p>Signs</p> <ul style="list-style-type: none"> ___ Abdominal injuries ___ Bruises ___ Child reluctant to go with caretaker ___ Clinging or indifference to their caregivers or surroundings ___ OMS ___ Death ___ Failure to thrive without medical cause ___ Fear of caretaker ___ Fractures ___ Gastrointestinal disorders without medical cause ___ Genital bleeding or lacerations ___ Head injuries ___ Inadequate hygiene <p>Other, please specify: _____</p>	<p>Inadequate supervision</p> <ul style="list-style-type: none"> ___ Neediness ___ Sexually transmitted disease ___ Voracious appetite (eating too much or too quickly when food is provided) ___ Well defined burns ___ Withdrawal from caregivers <p>Symptoms</p> <ul style="list-style-type: none"> ___ Inappropriate sexual knowledge for age ___ Increased bed wetting ___ Nightmares ___ Unexplained aggression ___ Vague or evasive responses regarding causes of injury 		

Thank you for your participation.