USING A STRUCTURAL EQUATION MODEL TO EXAMINE CHILD MALTREATMENT POTENTIAL ACROSS ECOLOGICAL SYSTEMS IN A POPULATION OF FAMILIES IN POVERTY

by

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ABSTRACT

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This study was a secondary analysis designed to examine the ecological system indicators of child maltreatment potential. A total of 263 families living within 200% of the poverty level were included in the sample. Results of the study revealed the exosystem indicator of social support had the greatest impact on child maltreatment while maltreatment of the parent as a child (history of maltreatment), an ontogenic system indicator, was the second highest predictor. Additionally, these two indicators were highly correlated within the structural model. The microsystem indicator of parental educational attainment and the macrosystem indicator of belief in corporal

punishment had less of an impact on child maltreatment potential, although their relationship was significant. Furthermore, of the indicators that supported the child maltreatment potential factor, distress had the highest loading, while rigidity appeared to have no substantial contribution within the model and was deleted. The final model, using AMOS statistical software, suggests and adequate fit [chi-square = 50l.98 (p = .031); CFI = .957; PGFI = .596; RMSEA = .044; PCLEOSE = .643]. Final R^2 was equal to .48.

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CHAPTER 1

INTRODUCTION

Child maltreatment continues to be a pervasive problem in the United States despite increased knowledge of the effects of child maltreatment and laws governing the extent to which parents can discipline their children. Maltreatment can result from individual factors related to the parent (Crosnoe, Mistry, & Elder, 2002; Lee & Goerge, 1999; Rodriguez & Price, 2004) or to family dynamics (Lindell & Svedin, 2001; Sedlak & Broadhurst, 1996; Ethier, Couture, & Lacherite, 2004); can be associated with neighborhood factors (Drake & Pandey, 1996; Lee & Goerge, 1999; Drake & Zuravin, 1998); or can result from attitudes and beliefs about what constitutes child maltreatment and the acceptance of corporal punishment as an adequate means of disciplining children (Turner & Finkelhor, 1996).

Because of the risk child maltreatment poses to the physical and mental well-being of the children, it is imperative that child maltreatment indicators be well understood. Numerous studies have identified these indicators; however, this study will expand on previous research by comparing the impact of indicators across ecological systems. This study will answer the question, "Which indicator most associated with child maltreatment potential in each of the ecological systems has the greatest impact on child maltreatment potential in families in poverty?"

Understanding the ecological indicators that pose the greatest risk for child maltreatment can be beneficial to child welfare agencies and others who work with children and their families. Comparing the impact of indicators across economic systems provides an additional component for identifying risk.

1.1 Statement of the Problem

In 2002, an estimated 896,000 children were victims of abuse and/or neglect in the United States, a rate of 12.3 per 1,000 children. As a result of their abuse, 1,400 of those children died. In that same year, more than half (60%) of the child maltreatment cases were the result of neglect; 20% were substantiated on the basis of physical abuse; 10% were substantiated sexual abuse cases; 7% were due to emotional maltreatment; and almost 20% were associated with other types of maltreatment. Totals are greater than 100% because it is possible for a child to be a victim of more than one type of maltreatment. (U.S. Department of Health and Human Services, 2004).

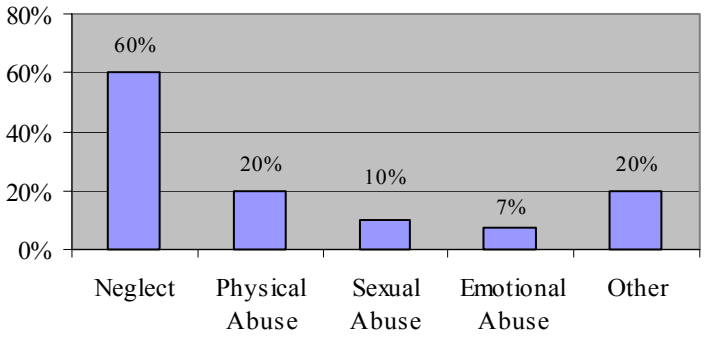


Figure 1. Child Neglect Accounted for the Majority of Child Maltreatment Cases in 2002

Child maltreatment is a concern for children, professionals, and society. Its effects are immediate as well as long-term. Empirical studies associate maltreatment with depression (Spertus, Yehuda, Wong, Halligan, Seremetis, 2003; Wolfe, Scott, Wekerle, Pittman, 2001), post-traumatic stress (Peleikis, Mykletun, Dahl, 2004; Shea, Walsh, MacMillan, & Steiner, 2005), re-victimization (Noll, Horowitz, Bonanno, Trickett, Putnam, 2003; Lang, Stein, Kennedy, & Foy, 2004), self-injurious behavior (Yates, 2004; Deiter, Nicholls, & Pearlman, 2000), aggression (Moffatt, 2003; White & Widom, 2003), dissociation (Hall, 2003; Tyler, Cauce, & Whitbeck, 2004), substance abuse (Mullings, Hartley, Marquart, 2004; Lau, Chan, Lam, Choi, & Lai, 2003), and difficulty with interpersonal relationships (Davis, Petretic-Jackson, & Ting, 2001; Luterek, Harb, Heimberg, Marx, 2004).

Poverty is consistently associated with increases in child maltreatment risk (Berger, 2004; Drake & Pandey, 1996; Lee & Goerge, 1999). Identifying the individual variables most associated with child maltreatment in families in poverty is an essential first step in providing programs and services that assist this population. While most research correlates the individual variables with child maltreatment, this study will compare the impact of indicators across the different ecological levels. By identifying the ecological level indicators that most contribute to child maltreatment in this population, program planners and others who provide services to families in poverty can focus on developing assistance that address risks associated with those ecological levels.

1.2 History of Child Maltreatment

Child maltreatment was originally recognized as a crime in the nineteenth century. The Society of Prevention for Cruelty to Children (SPCC) was founded in 1874 and was organized in New York City under the leadership of the Society for the Prevention of Cruelty to Animals. Later, in 1912, the U.S. Children's Bureau was created as the result of President Roosevelt's 1909 White House Conference on Children (Cicchetti & Carlson, 1989).

In 1962, pediatrician Dr. C. Henry Kempe, along with several other physicians, published a landmark article in the Journal of the American Medical Association, titled "The Battered Child Syndrome". This article documented that significant numbers of parents and caretakers batter their children, sometimes even to death. The article is regarded to be one of the most significant events leading to professional and public awareness of the existence and magnitude of child abuse and neglect (Cicchetti & Carlson, 1989).

In 1967, forty-four states had adopted mandatory reporting laws, while the remaining six states adopted voluntary reporting laws. The mandated reporting laws generally required physicians to report reasonable suspicion of child abuse. Currently, mandated reporting laws exist in all states and required reporting has expanded to include other professionals, while voluntary reporting exists for the general public (National Association of Counsel for Children, 2004).

The Child Abuse Prevention and Treatment Act (CAPTA) was enacted in 1974 (P.L. 93-247). CAPTA provides grants to states in support of prevention, assessment,

investigation, prosecution, and treatment of child maltreatment cases. It also provides grants to public agencies and nonprofit organizations for prevention and demonstration programs, as well as research, training, data collection, and program evaluation (Child Welfare League of American, 2002; U.S. Department of Health & Human Services, 2004). It is the Child Abuse Prevention and Treatment Act that provides the current definition of child maltreatment.

1.3 Definition of Child Maltreatment

The federal definition of child maltreatment is broad. It provides a foundation for the States by identifying a minimum set of acts or behaviors that define child abuse and neglect. States work within that definition to develop their own, more specific, definitions.

The Federal Child Abuse Prevention and Treatment Act (42 USCA § 5106g) defines child abuse and neglect as, "at a minimum, any recent act or failure to act on the part of a 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." It is then left to the States to formulate their own definitions of maltreatment within this context. For example, the state of Texas has chosen to define child maltreatment as "substantial harm or the genuine threat of substantial harm, or the failure to make a reasonable effort to prevent harm" (USDHHS, 2004).

Child maltreatment may involve acts of commission or omission and may be one-time events or patterns of adult-child interaction (Gil, 1983). Maltreatment occurs as child abuse or child neglect. Abuse can be separated into three major categories;

physical abuse, sexual abuse, and emotional abuse. Neglect can present as emotional neglect, physical neglect, educational neglect or medical neglect; however, these are often lumped under the inclusive title "neglect".

Not all child maltreatment cases fit neatly into one category of abuse or neglect but may overlap into two or more categories. For example, a child who has been sexually abused may also have been physically abused.

1.3.1 Physical Abuse

Physical abuse can best be described as physical injury (ranging from minor bruises to severe fractures or death) that occurs as the result of "punching, beating, kicking, biting, shaking, throwing, stabbing, choking, hitting (with a hand, stick, strap, or other object), burning, or otherwise harming a child." (National Clearinghouse on Child Abuse and Neglect, 2004). Observable injury resulting from any of these acts constitutes physical abuse, whether or not the intent was to harm the child (Sedlak & Broadhurst, 1996).

A parent who uses corporal punishment to "correct" a child can be demonstrating abusive behavior if that punishment results in outward signs of injury, such as bruises or welts. It is irrelevant whether the parent set out to cause such harm. Approximately 85% of child welfare cases are the result of overdiscipline (Pitzer, 1996).

Not only is it considered an abusive act to inflict substantial harm on a child, but a parent or other guardian who witnesses such abuse and does not intervene in order to

protect the child may be held accountable, as well. Not acting to protect a child is considered abuse by omission and is punishable by law.

Physical abuse is the most often occurring form of child abuse and is the second most reported and substantiated form of maltreatment, second only to neglect. In 2002, physical abuse accounted for 20% of all child maltreatment cases. Physical abuse alone was implicated in 29.9% of child deaths that year. Physical abuse, combined with other types of abuse or neglect, made up 59.8% of overall child deaths resulting from maltreatment (USDHHS, 2004).

1.3.2 Sexual Abuse

In 2002, 10% of child maltreatment cases were listed as sexual abuse (USDHHS, 2004). Child sexual abuse includes activities "such as fondling a child's genitals, penetration, incest, rape, sodomy, indecent exposure, and exploitation through prostitution or the production of pornographic materials" (NCCAN, 2004). Sexual abuse perpetrators can be known or unknown by the victim; however, the majority of child sexual abuse victims know their perpetrator. While the parent or caregiver is often the abuser, juvenile siblings have also been identified as perpetrators. As with sexual abuse allegations of parents or caregivers, all reports of adolescent sibling perpetrators are assessed by child protection services.

While other forms of abuse experienced by females tend to decrease with age, child sexual abuse incidents increase. Sexual abuse is very low for 0-2 year-old girls; after that rates of sexual abuse rise and remain elevated throughout childhood,

indicating a broad range of vulnerability associated with this type of abuse (Sedlak, & Broadhurst, 1996).

1.3.3 Emotional Abuse

Emotional abuse can best be defined as a "pattern of behavior that impairs a child's emotional development or sense of self-worth. This may include constant criticism, threats, or rejection, as well as withholding love, support, or guidance" (NCCAN, 2004).

All forms of abuse tend to occur in the context of emotional abuse. Perpetrators of abuse use their power to control and manipulate their victims' perceptions of reality. For example, physical abuse victims may be told that they are bad or that they deserved the abuse. Sexual abuse victims are often misled into believing that their abuser's attentions are normal and are testimony of his affection. The distortion of reality and self-image associated with emotional abuse is generally one of the most devastating effects of child maltreatment (Finkelhor, Gelles, Hotaling, & Straus, 1983).

Emotional abuse can be more difficult to identify than other forms of maltreatment (Romeo, 2000). Physical abuse results in observable bruises, broken bones, burns, etc. Sexual abuse, if penetration has occurred, can be determined by a medical examination. Neglect is often observed by caseworkers when visiting in the home or school. Emotional abuse, however, may be difficult to outwardly observe. Very often this type of abuse is overlooked due to a lack of physical evidence.

Unfortunately, even though emotional abuse does not produce external signs of damage to the body, injury occurs internally (Spertus, et al., 2003). Its effects include

increased anxiety, depression, posttraumatic stress and physical symptoms (Spertus, et al., 2003). While emotional abuse may occur apart from any other type of abuse, it is considered the underlying dynamic of all forms of abuse (Hart & Brassard, 1987). Any time a small child is betrayed by a larger, stronger adult--especially one the child depends upon for survival--the event has emotional consequences.

Individuals respond to maltreatment in different ways. While one individual may exhibit aggressive behaviors, another may be more inclined toward withdrawal and depressive-type symptoms. The extent of the maltreatment, the type of abuse the individual experiences, and the victim's relationship to the abuser all affect the outcome.

1.3.1 Neglect

Neglect is the most prevalent form of child maltreatment in the United States. Over half (60.5%) of all substantiated maltreatment cases were due to neglect in 2002, a rate of 7.2 per 1,000 children. In that same year, 37.6% of maltreatment fatalities were due to neglect-only cases. An additional 29% were due to multiple types of maltreatment, many of which involved neglect (USDHHS, 2004).

Child neglect deserves special consideration in terms of poverty. Numerous studies suggest that families in poverty are at higher risk for neglecting their children than those families who have adequate income (Gough, 1996; Dubowitz, 1999; Dubowitz, 1994). According to NIC-3 (2001), children from families with incomes below $15,000 per year are 40 times more likely to experience physical neglect, over 29

times more likely to be emotional neglected and nearly 56 times more likely to be educationally neglected than children whose families earn $30,000 per year or more.

Neglect, however, can be confused with a lack of adequate parenting when the actual cause may be a lack of resources. Berger (2004) suggests that some lower income families lack the resources necessary to create healthy environments for their children and, therefore, may appear neglectful, while Browne & Lynch (1998) report that child protection professionals tend to view neglect more in terms of a deficit in parenting rather than a lack of resources.

Child maltreatment is a significant concern for all of society. Identifying correlates of maltreatment allows for the development of preventive measures to help reduce its occurrence. The empirical literature suggests that poverty may be a major correlate of maltreatment; therefore, it is important to observe child maltreatment risk and variables that may reduce its incidence in this population.

1.4 Poverty

The proposed study will compare indicators of child maltreatment across ecological levels in a population of families in poverty. Poverty continues to be a pervasive problem in the United States, even though the nation in general is wealthy. The poverty rate in 2000 was 11.3%, with a total of 31.1 million people living at or below the federally established poverty level. Married couples accounted for 42.4% of the families in poverty, while female-headed households made up 49.8% of this population. Of the female-headed households, 61.3% had related children 18 years of age or younger (Dalaker & U.S. Census Bureau, 2001).

In 1999, Whites accounted for the largest portion of families in poverty with 45.3% living at or below the poverty level, Blacks made up 27.1%, Hispanics 23%, and Asians 3.8% (Figure 2). However, when considering the percent of each race that lives in poverty, Blacks had the highest rate, with 24.9% of that race living in poverty, 8.1% of Whites live in poverty, 22.6% of Hispanics live in poverty, and 12.6% of Asians live in poverty. (U.S. Census Bureau, 2001).

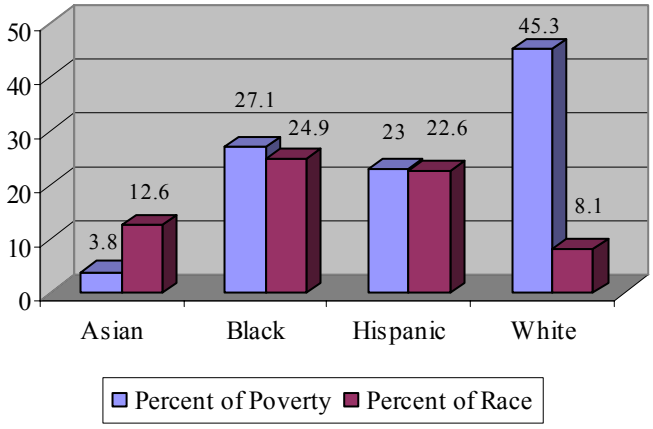


Figure 2. Percent in Poverty by Race

Considerable research has been conducted on poverty and child maltreatment. This study will build on previous research by comparing indicators of child maltreatment in families in poverty across ecological levels in order to determine the ecological level indicator that produces the greatest effect on child maltreatment.

Child maltreatment does not exist independent of external influences. Over the years, several theories have been developed that attempt to explain the causes of child maltreatment. These theories, developed by various disciplines, have been combined

into one inclusive theory of child maltreatment that has been adopted by most child welfare researchers today.

CHAPTER 2

THEORETICAL PERSPECTIVES ON CHILD MALTREATMENT

The Journal of the American Medical Association coined the term "battered child syndrome" in the 1960's (Cicchetti & Carlson, 1991). This term was used to describe the increasing number of children with non-accidental injuries that medical personnel were seeing in their pediatric clinics. Since this "discovery" of child abuse, child welfare researchers have proposed several theories to explain the etiology of child maltreatment. These theories have evolved from a unitary approach to a more global perspective as to the causes of child abuse and neglect (Myers, et al., 2002).

Ecological theory is currently the popular theory for explaining child maltreatment. This multidimensional theory evolved from both the psychological and the sociological perspectives.

2.1 Psychological Perspective

Child maltreatment was identified as a problem by the medical profession in the 1960's. Because medical professionals tend to focus on individual factors related to dysfunction, the first conceptualizations of maltreatment focused on individual attributes and characteristics and discounted social factors as playing any causal role in the etiology of maltreatment (Gelles, 1992). This approach to child maltreatment

became known as the psychological approach and assumes the abuser is in some way pathological or has a mental defect (Zigler & Hall, 1989).

Intervention programs for those using the psychological perspective might consist of abuser-focused treatments, including psychotherapy and parenting classes, with little attention paid to child characteristics or to environmental conditions that might have contributed to the maltreatment (Myers, et al., 2002). This one dimensional approach fails to consider societal factors, such as the community in which the individual lives. Newberger and Newberger (1982) call this a "unitary" theory, one in which the cause of child maltreatment is thought to be a single agent. Critiques of this approach have determined that emotional maladjustment less often results in child maltreatment (Steele, 1974).

The previous two decades of empirical literature reflect a shift toward a more interactive process that takes into account the multiple variables that influence child maltreatment (Myers, et al., 2002). While mental illness may contribute to some maltreatment cases, the cause is often more multidimensional. Therefore, psychological theory alone is used to a lesser degree among social researchers.

2.2 Sociological Perspective

While the psychological perspective uses a "maladjusted individual" approach to understanding child maltreatment, the sociological perspective focuses more on the families' interactions with society and the resulting pressure of that relationship (Zigler & Hall, 2000). Rather than implying a mental defect within the abuser, the sociological perspective assigns the phenomenon of child maltreatment to a societal breakdown

between the individual and his/her family or the society in which he/she functions. Sociological researchers emphasize the role of stress in child maltreatment, the lack of social support, economic factors (such as loss of job), and financial difficulties (Zigler & Hall, 2000).

The sociological perspective also considers child maltreatment a result of social acceptance of violence and political or religious views that value noninterference in families above all (Tzeng & Jackson, 1991). One of the treatment approaches that stems from sociological theory of child maltreatment involves the use of social supports to reduce stress and isolation within families at risk for child maltreatment.

2.3 Ecological Perspective

While the sociological perspective takes a more societal approach to understanding child maltreatment, it fails to consider the impact of individual factors that are central to psychological theory. Over the years, child maltreatment researchers have deviated from reliance on one-dimensional frameworks, such as the psychological and sociological perspectives, to models that recognize the interdependence of multiple causal agents (Myers, et al., 2002).

In 1980, Belsky proposed an ecological model of child maltreatment that incorporated both the psychological perspective and the sociological perspective (Belsky, 1980). This multi-dimensional approach expanded on the previous models to create a new interactive model that considers child maltreatment the result of biological, psychological and sociological characteristics. This new perspective focuses on these characteristics and the interactions that occur between them. The ecological model

proposed by Belsky (1980) includes four levels of analysis: (a) the ontogenic system, (b) the microsystem, (c) the exosystem, and (d) the macrosystem.

2.3.1 Ontogenic System

The ontogenic system is concerned with what the abuser brings to the situation. It involves the childhood histories and personal characteristics of the abuser (Myers, et al., 2002; Zigler & Hall, 2000). Ontogenic factors include the abusers developmental level, their own abuse as a child, their understanding of child development, and their mental health. The occurrence of abuse or neglect in childhood alone is insufficient to explain the phenomenon of child maltreatment (Belsky, 1980); however, the developmental history of the abuser may affect the way in which the individual responds to certain situations at the microsystem, exosystem, or macrosystem levels.

2.3.2 Microsystem

The microsystem focuses on the immediate environment of the child and includes the child himself. Examples of microsystem factors that may lead to child maltreatment include the nature of the family setting, family size, and spousal relationships. Child characteristics include low birth weight, behavior problems, and the child's health (Zigler & Hall, 2000).

It is important to note here that, while children may play a role in their maltreatment, they cannot cause it. Child characteristics, such as a child with behavior problems, may elicit child maltreatment in a parent who is unable to handle such behavior; however, it is the parent's responsibility to handle the situation effectively,

without harming the child. It is not the child's fault if the adult is unable, or unwilling, to do this (Scannapieco & Connell-Carrick, 2005).

2.3.3 Exosystem

It was Belsky's belief that individual and family systems must be viewed as existing within a broader system (Belsky, 1980). The exosystem consists of the immediate systems outside of the family system. Extended families, community factors, and economic structure all make up part of a family's exosystem. Families are consistently influenced, whether negatively or positively, by these external systems. Exosystem factors associated with child maltreatment include unemployment, neighborhood isolation, friends, and extended family (Zigler & Hall, 2000).

2.3.4 Macrosystem

The outermost layer of the ecological model is the macrosystem. This level of analysis consists of "the larger cultural fabric in which the individual, the family, and the community are inextricably interwoven" (Belsky, 1980, p. 328). Societal attitudes toward violence, societal expectations about child discipline, and the level of overall violence in the country are all macrosystem factors that serve to perpetuate maltreatment. Racism can also be a contributing factor to child maltreatment.

The ecological model allows for an interactional, as well as a conceptual, understanding of human behavior and social functioning. The systematic levels of the ecological model interact and transact with each other over time in shaping individual development and adaptation. The impact each level of analysis contributes to the maltreatment is observed, as well as the overall interaction of all the ecological levels.

Analyzing any one level is insufficient for determining maltreatment. It is, therefore, necessary to examine all levels as well as their interactions with each other (Scannpieco & Connell-Carrick, 2005). It is the dynamic interaction between individuals, their families, their communities, and societal beliefs and attitudes that the ecological model uses to determine child maltreatment risk.

2.4 Ecological/Transactional Perspective

Cicchetti and Rizley (1981) expanded on Belzky's conceptual explanation of child maltreatment by adding a transactional aspect to the ecological model. This model is known as the ecological/transactional model of child maltreatment. The ecological/transactional model uses the conceptual context of the ecological model of nested levels and adds an additional dimension of analysis (Lynch & Cicchetti, 1998).

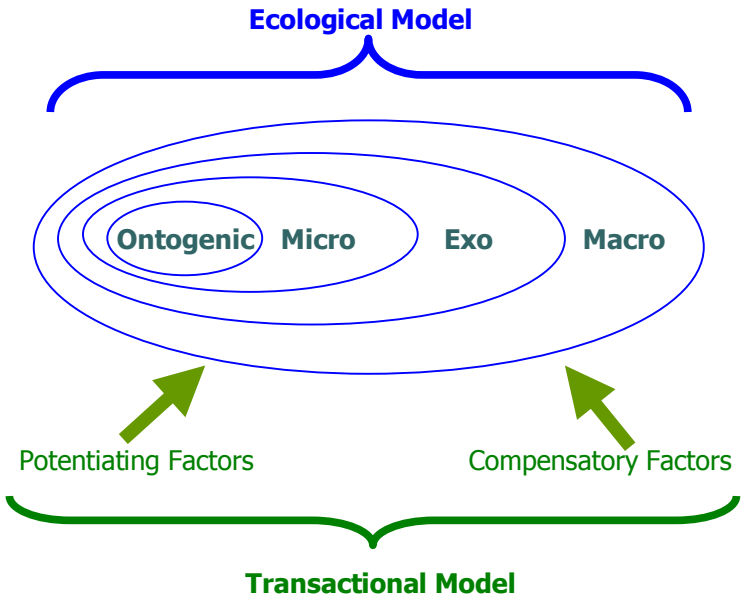


Figure 3. Ecological/Transaction Model

The ecological/transactional model takes into account the biological, psychological, and social composition of the ecological model and adds a transactional dimension that focuses on the transactions among risk factors for the occurrence of maltreatment. These risk factors are divided into two broad categories: potentiating factors, which increase the probability of maltreatment; and compensatory factors, which decrease the risk for maltreatment (Cicchetti & Lynch, 1993). Within these two categories, distinctions are made for transient factors and enduring factors. Transient factors are factors that fluctuate and indicate a temporary state. Enduring factors represent more permanent conditions or characteristics (Cicchetti & Lynch, 1993).

Enduring compensatory factors are protective factors that include relatively permanent conditions that are related to a decrease in child maltreatment risk. These factors may include a parent's history of good parenting, and a history of good, solid support sources (Cicchetti & Lynch, 1993).

Enduring potentiating factors include conditions or attributes that are long-term and increase the risk of maltreatment. These may involve child, parental, or environmental characteristics and may be biological, historical, psychological, or sociological in nature. An example of an enduring potentiating factor might include a previous history of child maltreatment, either experienced by the parent or perpetrated by the parent.

Transient compensatory factors act as buffers to maltreatment and may protect a family from stress. A sudden improvement in financial conditions can be seen as a transient compensatory factor because it reduces the stress of inadequate income;

however, unless the increase in income continues, the effects would be temporary. Transient compensatory factors are not permanent but are associated with decreases in child maltreatment risk.

Transient potentiating factors are those factors that increase the risk of child maltreatment but are more short-term in duration. Examples of transient potentiating factors may include the temporary loss of a job or marital problems. Other stressors that impact a family for the short-term and are associated with increased risk of maltreatment can be seen as transient potentiating factors.

Maladaption is more likely to occur when vulnerability and challenger potentiating risk factors outweigh protective and buffering compensatory influences, whereas adaptation is more likely when the opposite is present. It is not the absence or the presence of potentiating or compensatory factors that provide a specific outcome, but rather their dynamic interaction that is significant. For example, a single mother living in poverty has a high potentiating risk for maltreatment; however, a solid support system may provide a compensatory buffer to the stress of being a single mother in poverty. If the potentiating factors are significant enough, they may reduce the effect of the compensatory factors. A parent who is very limited in compensatory factors may become an abusive parent if he/she experiences even small amounts of potentiating factors. That said, it is important to recognize that risk factors do not cause maltreatment; however, they are indicators of a complex process that can impact the individual to the extent he/she is at risk for maltreating their children.

The ecological/transactional perspective provides a method of analysis and intervention when children have been maltreated by focusing not only on the parent or the child but on their interactions with each other, as well as their social environment, culture, and macro influences. To adequately assess child maltreatment, it is necessary to explore all ecological levels in order to gain a more comprehensive understanding.

The strengths of the ecological/transactional model are numerous. The model is clearly aligned with the person-in-environment mission of social work. It avoids cause-and-effect determinations of individual behavior and instead focuses on maltreatment within an ecological context that includes the individual, family, social environment, and cultural influences. Unlike one-dimensional theories, it explains the exceptions of its premise. Consequently, the ecological/transactional is currently the most comprehensive and rigorous explanatory model used.

2.5 Theoretical Concerns

The majority of reviewed empirical studies failed to include a theoretical basis for their research. Chaffin, Kelleher, and Hollenberg (1996) referred to sociological theory, while Coulton, Korbin, Su and Chow (1995) based their study on community social organization. However, ecological theory was the basis for the majority of studies that addressed theory. The use of ecological theory as a basis for child maltreatment research is consistent with current literature that suggests a move toward multi-dimensional theories instead of the unitary perspectives that once dominated the empirical literature (Myers, Berliner, Briere, Hendrix, Jenny, & Reid, 2002).

CHAPTER 3

EMPIRICAL FINDINGS

3.1 Poverty and Child Maltreatment

Although child maltreatment occurs across all social classes, sufficient research suggests a significant relationship exists between families in poverty and increased risk for child maltreatment (Coulton, et al., 1995, Whipple & Webster-Stratton, 1991; Gelles, 1992). This relationship is supported by ecological/transactional theory, a perspective that focuses on individual, family, community, and society characteristics and the interactions that occur between them that can ultimately lead to child maltreatment.

Since the days of sociological theory, poverty has been associated with child maltreatment. Martin and Lindsey (2003) report that poverty is the most obvious link between welfare recipients and child welfare clients. In other words, families on welfare assistance too often are also clients in the child welfare arena. According to Sedlak & Broadhurst (1996), children in families with a net income of less than $15,000 are 45 times more likely to be victims of neglect than children from families that have net incomes of $30,000 or more. These children are also 16 times more likely to suffer from physical abuse and 18 times more likely to be victims of child sexual abuse. Gelles (1992) expanded on studies like these by adding degrees of violence. He found

that severe violence and very severe violence toward children was significantly related to poverty.

While there is no one way to describe perpetrators who maltreat their children, there are factors that have been associated with individuals who are more inclined to display this behavior. These factors can be addressed using an ecological theory model. Maltreatment of the parent as a child is a factor at the ontogenic level; family size, unemployment, and single-parent households are indicators at the microsystem level; low levels of social support and economic and community conditions are indicators at the exosystem level; and indicators associated with the macrosystem include racial bias and societal beliefs and attitudes regarding discipline and child maltreatment.

3.1.1 History of Child Maltreatment

An ontogenic level factor that is often associated with increased risk of child maltreatment is the parent's own abuse history. As reported earlier in this study, increased risk for child maltreatment appears to be related to poverty (Coulton, et al., 1995, Whipple & Webster-Stratton, 1991; Gelles, 1992). Often, poverty is generational (Payne, 1998); consequently, families who currently live in poverty very possibly also grew up in poverty. Therefore, the parent's childhood will be included as a factor of child maltreatment at the ontogenic level.

Rodriguez and Price (2004) suggest that parent attitude toward their own abuse as children is directly related to their potential to abuse their own children. According to Rodriguez and Price, "merely considering one's own discipline as harsh" (p.856) does not elevate their potential to abuse, rather, it is the attitude the individual has as to

whether they deserved the punishment. Those who felt they deserved the punishment they received had an increased risk for child maltreatment.

3.1.2 Educational Attainment

The relationship between poverty and educational attainment is well-established. Those individuals who are economically disadvantaged are less likely to have education beyond high school than those who are more affluent (Crosnoe, Mistry, Elder, & Glen, 2002). Because education is a primary means to adult success, it is easy to see the relationship between educational attainment and poverty.

Low educational attainment is an influencing factor in child maltreatment (Whipple & Webster-Stratton, 1991) and is associated with more negative parenting styles, especially physical punishment (Zelenko, Huffman, Lock, Kennedy, & Steiner, 2001). Parents with low educational attainment tend to spank their children more than those with higher educational attainment (Eamon, 2001). While spanking alone is not considered abuse, it can easily lead to abuse. It is estimated that 85% or more of child abuse cases each year are attempts to discipline by use of physical punishment (Pitzer, 1996). A parent can easily become overly angry when administering physical punishment and the results all too often are physical child abuse. Therefore, reports on the occurrence and factors associated with corporal punishment are of importance when researching child abuse.

Wolfner and Gelles (1993) compared minor physical punishment of children to parental education and found no significant difference, while Pizter (1996) reported a significant relationship between education and the use of spanking among fathers. Both

Wolfner and Gelles (1993) and Pitzer (1996) reported a great deal of variability among mothers' use of physical punishment and educational levels. In both studies, a significant difference existed between educational attainment of the father and abusive child maltreatment. Fathers who completed less than a high school education were associated with the highest rates of severe violence toward their children, while those with college degrees were the least abusive (Wolfner & Gelles, 1993).

Education is not only a factor when examining maltreatment but can become a consideration once maltreatment has been determined. Family preservation, the ability of the family to remain intact once maltreatment has occurred, is less effective in maltreating families characterized by low educational attainment (Dore, 1993). In order for a child to be returned to a previous maltreating family, the parents must be able recognize their behavior as unacceptable and will need to learn new ways of responding to their children. Parents with higher education may have learned skills through the education process that lower education parents are lacking, such as having the ability to consider opinions that vary from their own.

3.1.3 Parental Age

Young parental age has been associated with child maltreatment (Thomas, D., Leicht, C., Hughes, C., Madigan, A., & Dowell, K., 2003; Lee & Goerge, 1999) and is often related to poverty, as well (MacQueen, 2003; Stewart, 2003; Yampolskaya, Brown, & Greenbaum, 2002). One study of significance (Lee & Goerge, 1999) reports that impoverished mothers who are 17 years of age or younger are 17 times more likely to have a substantiated case of child maltreatment against them than mothers who are 22

years of age or less impoverished. Families that begin before the adults have had time to mature themselves may have increased stress, which can result in intolerance for the natural demands of a child.

3.1.4 Unemployment

Very often, poverty results from the loss of a job or an inability to obtain a job. Frustration and stress can occur after the loss of a job or after unsuccessful attempts at securing employment. Substantial research reveals that unemployment can be a precursor to child maltreatment.

Lindel and Svedin (2001) examined child maltreatment cases in Sweden and sought to identify recurring themes within the families that may be associated with maltreatment. Unemployment was one of the identified risk factors for physical child abuse. According to this study, the majority of parents who maltreated their children were unemployed at the time the abuse occurred.

Sidebotham, Heron, Golding, & The ALSPAC Study Team (2002) also observed a relationship between unemployment and child maltreatment. Over a six-year period, they discovered 64.5% of fathers of children who were maltreated were unemployed, whereas only 23.9% of non-maltreating fathers reported unemployment during the same period. In the same study, female unemployment showed similar effects. This is comparable to Wolfner and Gilles's (1993) research in which mothers who were reportedly unemployed, but were not housewives, had the highest rates of abusive violence toward their children.

Many studies group all forms of child maltreatment into one category. This may be misleading when observing the effects of unemployment. According to Gillham, Tanner, Cheyne, Freeman, Rooney, Lambie (1998), unemployment does not have a uniform effect across all types of child maltreatment. By calculating correlations between unemployment and physical abuse, neglect, and sexual abuse, Gillham, et al. were able to surmise that male unemployment was a strong indicator of child physical abuse and, to a lesser extent, child neglect. Correlations between male unemployment and child sexual abuse, however, were insignificant. According to these results, unemployment does not appear to be an indictor in sexual abuse, only to physical abuse and neglect. This suggests that child sexual abuse has a different ecology, less related to poverty and social disadvantage, than other types of maltreatment (Gilliam, et al., 1998).

Child homicides are the ultimate act of child maltreatment and have been associated with unemployment, as well. Research by Abel (1986) revealed a direct relationship between the incidence of childhood homicide and economic conditions such as high unemployment. In this study, as unemployment rates increased, child homicide rates increases.

3.1.5 Single-Parent Status

According to the 2001 Census Bureau (United States Bureau of the Census, 2002), 6,813,000 households were living below the poverty line in 2001. Of those households, 3,470,000 were headed by single females and 583,000 were headed by

single males. That means over half, or 59.5% (4,053,000), of families in poverty that year were headed by single parents.

The relationship between single-parenthood and child maltreatment has been established in previous studies (NIC-3, 2001; Gelles, 1992; Chaffin, Keller, & Honeyberry, 1996). According to the Sedlak & Broadhurst (1996), children in single-parent families have a 77% greater risk of being victims of physical abuse, are 87% more likely to be physically neglected, and have a 74% greater risk of being emotionally neglected. In a more recent study, Sedlak & Broadhurst (2006) state that children from single-parent households are more likely to experience all types of neglect, not just emotional neglect. They also report that these children are overrepresented among seriously injured, moderately injured, and endangered children. Gelles (1992) confirms the relationship between single-parenthood and severity of child maltreatment and reports higher rates of severe and very severe violence toward children in single-parent households when compared to children in households with dual-caretakers.

Often, the focus of single-parenthood is the single mother. By far, women make up a much larger portion of single-parent households than men. In 2001, only 583,000 (8.6%) (USBC, 2002) of the single-parent households in poverty were headed by men. Previous research suggests that child maltreatment risk may not be similar for single mothers and single fathers. Gelles (1992) states that "poverty has a greater impact on single women's risk of using abusive violence toward their children than it does for single men"; however, the Third National Incidence Study of Child Abuse and Neglect

(NIS-3, 2001) reports that children in single-parent households where the parent is a father were approximately one-third to two-thirds times more likely to be physically abused than those living with only their mothers. There is a need for future research to differentiate between single female and single male heads of households in order to determine the differences that may exist in child maltreatment risk.

Child neglect continues to be the most often reported and substantiated form of child maltreatment and is highly correlated with poverty. Single-parenthood can compound that risk. Single parents often lack support that married parents have. With two-parent households, there is a greater chance that at least one parent will be available to tend to the children at all times, whereas in single-parent households, lack of child care may result in a young child being left unattended.

While single-parenthood has been a factor of child maltreatment in numerous studies, other research opposes this effect. Accordingly, no significant relationship between single-parenthood and child maltreatment was reported by Lee and Goerge (1999) or by Scannapieco and Connell-Carrick (2003) in their studies. This discrepancy necessitates the need for additional examination to determine if single-parenthood is in fact a risk factor.

3.1.6 Household Size

The number of individuals living in a household tends to increase as income levels decrease (Ethier, Couture, & Lacharité, 2004; Groothuis, Altemeier, Robarge, O'Connor, Sandier, Vietze, & Lustig, 1982). Reasons for this relationship can be numerous, although lack of knowledge of birth control or the inability to pay for birth

control are two factors that can be directly related to poverty. Another very real consequence of poverty is that, for economic purposes, families often share their living quarters with other families or family members. Either of these situations creates large households, a condition associated with child maltreatment.

Ethier, et al. (2004) report a 3.13 times higher risk of child maltreatment for children from larger families. This relationship can be understood when one considers the stress involved in nurturing a child. When additional children are included, stress mounts and risk to the children increases.

The Third National Incidence Study (NIS-3, Sedlak, A.J. & Broadhurst, D.D.,1996) found that children from the largest families were physically neglected almost three times the rate as those children from single child family households. According to the report, the incidence of maltreatment is related to the number of dependent children in the family, especially when looking at the categories of physical and educational neglect. Children from the largest families were three times more likely to be educationally neglected, and nearly two times more likely to be physically neglected when compared to children in families with two or three children. Children from the largest families were physically neglected at nearly three times the rate as those who came from single child families.

Groothuis, et al. (1982) compared families of twins and single-birth families in order to determine the effect of large families and close spacing of children. He found that an increase in child maltreatment resulted with the birth of twins, not only for the twins themselves, but for other children in the family. Less spacing between children's

ages and large numbers of children increase stress within the household. "Parents become more punitive, unreasonable, and less supportive as the interval between births decreases" (p.769).

Wolfner and Gelles (1993) observed similar increases in child maltreatment within large families; however, their research shows the relationship to actually be curvilinear, with a peak at four and five children. As family size increased beyond four or five children, the rate of child maltreatment leveled off.

3.1.7 Neighborhoods and Communities

Socially impoverished communities tend to have less positive neighboring and more stressful day-to-day family interactions. This lack of neighborhood support, combined with family stress, can lead to child maltreatment. Garbarino & Kostlney (1992) compared four economically similar communities in Chicago over a period of six years. The child maltreatment rate for two of the communities was comparable at the beginning of the study, 9.1 for the "North" community and 8.4 for the "West" community. After six years, these rates changed to 21.8 for the "North" community and 10.9 for the "West" community, although economic conditions remained similar. Researchers interviewed community leaders, as well as community residents, to determine the differences in these two communities that resulted in such a contrast in child maltreatment rates. What they found was general malaise in the "North" community, whereas the "West" community was more optimistic and involved in community affairs. Residents of the "North" failed to feel a connection to their community. They were unable to identify the name of their community and, at times,

the street on which they lived. The few social agencies that were located in the community were dark and depressed. In contrast, the "West" community had far more social service agencies and the physical spaces in which they were located were more inviting. The community leaders were more involved in the community and were, generally, more optimistic about the future of the community. Unfortunately, too many impoverished neighborhoods take on characteristics similar to that of the "North" community. The atmosphere and appearance of a neighborhood can directly affect its citizens.

Several other studies have been able to link poverty in the community and child maltreatment (Coulton, et al., 1995; Drake & Pandey, 1996; Lee & Goerge, 1999). Coulton, et al. (1995) tested the relationship between maltreatment rates and community social organization. Community social organization, in their study, was based on economic and family resources, residential stability, household and age structure, and geographic proximity of neighborhoods to concentrated poverty. According to Coulton, et al. (1995), "children who live in neighborhoods that are characterized by poverty, excessive numbers of children per adult resident, population turnover, and the concentration of female-headed families are at highest risk of maltreatment" (p. 1274).

Neighborhoods have the potential to affect the type and degree of maltreatment, as well. Drake and Pandey (1996) divided communities into low, moderate, and high poverty areas and looked at their association with three different types of maltreatment: physical abuse, sexual abuse, and neglect. While overall maltreatment increased as the degree of neighborhood poverty increased, the increase in neglect was the most

dramatic. In the lowest poverty areas, 25% of substantiated cases resulted from child neglect; in medium poverty communities, neglect cases made up 47% of substantiated cases; and the higher poverty communities reported that 64% of their substantiated cases were due to child neglect.

Other forms of child maltreatment were associated with neighborhood factors, as well. Substantiated rates of child physical abuse went from 8% in low poverty areas, to 15% in moderate poverty areas, to 23% in high poverty areas. Child sexual abuse showed increases across poverty levels, however, similar to previous research (Drake & Pandey, 1996), the difference was not substantial. While the relationship of sexual abuse to poverty appears be moderate, and physical abuse to poverty appears strong, "the relationship of neglect to poverty can best be characterized as asymptotic" (Drake and Pandey, 1996, p. 1013).

Other studies (Lee and Goerge, 1999) have identified similar interactions between the degree of community poverty and child maltreatment. Lee and Goerge found that children born in communities with child poverty rates 40% or higher were found to be over six times more likely to be victims of neglect than children in communities with child poverty rates less than 10%.

While the majority of studies on poverty appear to take into account families in urban areas, rural poverty can also have a significant impact on child maltreatment. However, the effects of rural poverty may be dissimilar to the effects of urban poverty. One study (Weissman, Jogerst, & Dawson, 2003) conducted in the state of Iowa, where the majority of the population is rural (45% or less of the population resides in urban

portions of metro areas), resulted in reports of higher than average rates of substantiated child maltreatment in impoverished families; however, this association ceased to exist when multivariate analysis was implemented and factors such as availability of health care and social service factors were controlled.

Poor families that live in impoverished communities are often highly mobile and the residents live in fear because of increased crime and illicit drug use in the neighborhoods. As a result, these families tend to isolate and have smaller social networks (Garbarino & Kostelny, 1992). In families headed by single females, this isolation can be even more dramatic. Couples often are able to depend on one another for some support, even when living in impoverished conditions; however, single mothers who become isolated have only themselves to depend on. Because of the prominence of female headed households in poverty, it is imperative that studies of social support and child maltreatment afford special attention on this population.

3.1.8 Social Support

Longres (1995) defines social support as "the comfort, assistance, and/or information one receives through formal or informal contacts with individuals or groups" (p.50). People, as well as agencies and institutions, can be sources of support.

Accessing adequate social support may be a challenge for low-income individuals, especially for single mothers. Poor single mothers are often forced to depend on supports that are within close proximity of where they live. They often lack the freedom to choose with whom they interact. Another problem for this population in accessing adequate support systems is that most members of these women's social

networks are living equally stressful lives and are in need of support themselves. Not only are they unable to receive the support they need, but they may experience additional stress by being unable to provide the support needed by others (Todd & Worell, 2000).

Families with inadequate income who also live in poor communities are especially at risk. Garbarino and Kostelny (1992), in their observation of the association between poor communities and child maltreatment, report that impoverished communities tend to promote isolation. Poor communities are often highly mobile and fear tends to permeate the neighborhood as a result of increased crime rates and drug use. Families who feel isolated from their neighbors and those who do not live within close proximity of their social support systems are at increased risk for child maltreatment (Coohey, 1996; Corse, Schmid & Trickett, 1990).

Previous research relates social support to positive parenting behaviors related to child maltreatment and lack of support to negative behaviors. Crnic and Greenberg (1990) found that mothers' social support moderated the effects of daily hassles of parenting while Jennings, Stagg, and Connors (1991) found that mothers who were satisfied with their social support were more likely to praise their children and less likely to be controlling than mothers who are dissatisfied with their support.

Bishop and Leadbeater (1999) observed comparable results when they compared maltreating and non-maltreating mothers. Maltreating mothers in their study reported "fewer friends in their support networks, reported less contact with friends, and rated the quality of friend support lower" than non-maltreating mothers (p. 178). Similarly,

Hashima and Amato (1994) found that social support was negatively associated with punitive parental behavior, such as yelling and hitting. This effect was magnified when income was low. As income increased, the negative association between support and punitive behavior decreased, suggesting that the protective effect of social support operates mainly for families with low-income.

Inadequate social support has been inversely associated with child neglect, as well as abuse. (Belsky, 1993; Ethier, Palacio-Quintin & Jourdan-Ionescu, 1992; Drake & Zuravin, 1998). A comparison of neglectful and non-neglectful lower socioeconomic parents revealed that neglectful parents reported more life stress, greater loneliness, and weaker informal social support systems than non-neglectful, lower socioeconomic parents (Gaudin, Polansky, Kilpatrick, and Shilton, 1996). Connell-Carrick (2003) found similar trends in a meta-analysis of the child neglect literature. In this comprehensive review, she indicates that mothers who neglect their children have smaller social networks and receive less social and emotional support from their networks than mothers who do not neglect. Coohey (1996) observed similar effects and went on to identify three structural components of social support in neglecting families: fewer network members, fewer total contacts, and fewer network members who live less than one hour away.

While several studies have measured the negative impact of inadequate support systems, few have assessed the positive effects that supports can have (Koch, Browne, Ringwalt, Dufort, Ruina, Stewart and Jung, 1997). In alliance with ecological/transactional theory, certain factors have protective properties with the

capacity to compensate for negative aspects of a person's environment. Social support can function as one of these protective factors. Kotch, et al. (1995) provide empirical evidence that social support can serve to moderate the negative impact of stressful life events that can lead to increased child maltreatment risk. Sidebotham, et al. (2002) report similar findings on the protective properties of social support. Consensus among these studies suggests that, for those families living in crisis, social support can provide buffer to the effects stress.

This view is consistent with the buffering interpretation of perceived social support provided by Cohen and Wills (1985). Their research posits that adequate social support structure in the form of high and diverse numbers of social contacts is likely to prevent an individual from experiencing crisis because a variety of social contacts increases the chance that a support will interfere before a stressful situation becomes a crisis. Individuals who have a large and diverse number of supports are more likely, when met with stressful events, to have their needs met by members of their support system. It is often the breakdown of, or lack of, support structure that ultimately results in a crisis.

Cohen and Wills (1985) suggest that, for families already experiencing crisis, the number of supports an individual has, or the support structure, is less effective than the degree to which their supports are helpful. Cohen and Wills (1985) refer to this as support function. One or two supports that are functionally beneficial can have more of an impact on families in crisis than having several social contacts that are of little benefit. For individuals who are not experiencing crisis or who do not depend on the

intervention of friends and family members for their livelihood, the availability of social support is desirable but is not necessary for personal functioning and wellbeing. But for those who are experiencing crisis, optimally functional social supports can serve as a buffer to reduce stress.

Similarly, Hashima and Amato (1994) found that social support function can have a significant effect on low-income families. In their study of the association between social support and punitive and unsupportive parenting behavior in low-income and high-income families, they observed that, for low-income families, the greater the number of people parents felt they could rely on for assistance, the less likely they were to report problematic parenting behavior.

While research shows that social supports can be used to moderate the effects of stress, not all supports have such a positive influence. There are times when a support may be more problematic than helpful. Todd and Worell (2000) found that problematic social interactions significantly impact psychological well-being and may have a stronger impact on well-being than supportive interactions. Sources of problematic social supports include those supports that invade one's privacy, take advantage of the individual, break promises to provide help, and consistently provoke conflicts or feelings of anger. The most frequently named problematic supports include friends and family members (Todd & Worell, 2000).

While social supports and other exosystem factors can substantially impact the functioning of families, an even broader system referred to as the macrosystem has been associated with increased risk for child maltreatment (Drake & Zuravin, 1998; Gaudin,

1993; Hill, 2001; Krieger, 2003 Marion, 1982). The macrosystem encompasses societal beliefs and attitudes that contribute to increased risk for child maltreatment. Racism and belief in corporal punishment are two indicators that are associated with the macrosystem.

3.1.9 Racism

In 2002, over half (54.2%) of child abuse victims were White, 26.1% were African-American, 11% were Hispanic 1.8% were American Indian or Alaska Native, and .9% were Asian-Pacific Islander. While Whites made up the majority of child maltreatment cases, their rate of maltreatment was one of the lowest. Compared with the African-American rate of 21.7 per 1,000 children and the Alaska Native rate of 20.2 per 1,000 children, only 10.7 out of every 1,000 children of White ethnicity were maltreated that year. Those of Hispanic ethnicity had comparable rates to the White race, with a reported 9.5 cases per 1,000 children. Asian-Pacific Islanders had the lowest rate of just 3.7 child maltreatment cases per 1,000 children (USDHHS, 2004).

Race plays an integral role when determining child maltreatment reports and substantiation rates. As the numbers above illustrate, children who fall into the White ethnic category have one of the lowest substantiated rates of child maltreatment while children of Black ethnicity have the highest rate. Numerous studies address this disparity, often referring to the role of racism in child maltreatment (Ards, Myers, Chung, Malking & Hagerty, 2003; Drake & Zuravin, 1998; Gaudin, 1993; Hill, 2001; Krieger, 2003; Roberts, 2001).

Racism places undue stress on individuals and families. Families in ethnic categories other than the "privileged" White class often have diminished educational and economic opportunities. When minorities are unable to attain their educational or economic goals due to institutional discrimination of the larger culture, stress and frustration arise (Connell-Carrick, 2002). This, ultimately, can lead to stress-related child maltreatment.

The poverty rate among Black families is high. According to the 2001 Census Bureau (United States Bureau of the Census, 2002), 24.1% of Blacks were reported as being in poverty for that year, while only 8% of those who were identified as White were at or below the poverty level. In that year, a family of four met the federal guidelines for poverty if their annual income was at, or below, $18,244.

Blacks are overrepresented in the poverty population as well as in the child welfare arena. The compounding factors of race and poverty make it especially difficult to identify which variable most affects child maltreatment. Because a high percentage of Blacks are living in poverty, and because poverty is associated with child maltreatment, it is difficult to distinguish whether the increase in maltreatment is due to ethnic considerations or due to poverty. This ethnic disparity is justification for the need, when measuring poverty and child maltreatment, to control for racial variances.

3.1.10 Corporal Punishment

Corporal punishment of children by parents is a normative form of discipline in our society (Turner & Finkelhor, 1996) despite strong evidence of its negative effects (Springen, 2000). Corporal punishment is so commonly accepted that it is seen by

many as an unremarkable and almost imperceptible part of their lives (Straus & Donnelly, 1994). In the United States, approximately 61% of parents of children under the age of seven think spanking is an appropriate regular form of discipline (Springen, 2000). Bower (1996) believes that number is closer to 90%. Regardless, corporal punishment can and often does escalate to abuse (Marion, 1982).

In a study of 585 children, tracked from ages 5 to 14, approximately 12% of the children encountered corporal punishment that was so severe as to constitute physical abuse. These abusive incidents produced bruises or other marks that lasted for more than 24 hours or necessitated emergency room treatment (Bower, 1996).

Abuse potential is higher in families who value corporal punishment when the variable of stress is factored in. According to Crouch and Behl (2001), stress and beliefs regarding corporal punishment may interact in such a way that the association between parenting stress and risk for physical abuse varies depending on the parent's belief in the value of corporal punishment. Those parents who are more likely to discipline their children by hitting them may use abusive force at times when they are experiencing excessive stress. A fine line exists between acceptable corporal punishment and abuse. A stressed parent can easily cross that line and hit the child with enough force to leave visible marks.

Violence in the home can be an expected way of life for families who use corporal punishment. Those who use this form of control very often rationalize it as discipline or behavioral modification. Whatever the name, corporal punishment is a

violent act administered by a larger, more powerful person onto a smaller, much weaker individual. The potential for abuse is magnified as the size differential widens.

When violence is condoned, child maltreatment often becomes the unfortunate consequence. In aggressive societies, it is usually the smallest and weakest that bear the brunt of the violence. Society supposedly disapproves of child maltreatment but, at the same time, allows situations to exist that perpetuate abuse.

This review of the empirical literature provides an overview of ecological indicators associated with child maltreatment. This is not a comprehensive list of all possible indicators; however, the indicators selected for discussion in this section cover all ecological levels and are highly supported by previous research.

3.2 Critical Analysis of the Empirical Literature

Participants for this study were selected on the basis of poverty. Poverty has been defined in various ways in previous studies. Gelles (1992) and Sedlak and Broadhurst (1996) used income as the determinant of poverty, while Kotch, Browne, Ringwalt, Steawart, Ruina, Holt, Lowman, & Jung (1995) and Burrell, Thompson, & Sexton (1994) defined poverty as those individuals taking part in government programs aimed at assisting low-income families. Other studies used a combination of measures to determine poverty status. Chaffin, et al. (1996) combined occupational status, educational attainment, and household income, while Coulton, Korbin, Su, & Chow (1995) defined poverty as a combination of poverty rate, unemployment, and higher child/adult ratio. These comprehensive measures are more a definition of socioeconomic status than of impoverishment.

Because this study will examine simple poverty and not the more complex variable of socioeconomic status, the criteria for poverty will include families that are at or below 200% of the federal poverty guideline. This percentage was selected based on the fact that the federally-devised guidelines encompass only those families that are in extreme poverty. Families within 200% of the guidelines are often referred to as the working poor and have many of the same struggles as those who are at or below the poverty level. Many needs-based agencies (i.e. Children's Health Insurance Program) assess poverty using a percentage of the federal guidelines (Bruen & Ullman, 1998).

Poverty as a percentage of the federal guidelines is determined by dividing the family's income into the federal poverty threshold for a family of that size. One hundred percent of poverty would mean the family had an income that was one times that of the poverty threshold. For example, the poverty threshold for a family of two adults and two children in 1994 was $15,029. That family would meet 100% of poverty if they had an income of $15,029, and would meet the criteria of 200% of poverty if they had an income of $30,058 (Boushey & Gundersen, 2001).

The majority of empirical studies accessed for this report operationalized child maltreatment using Child Protective Service reports. Families in poverty tend to be overrepresented in child welfare. Because of their impoverished situation, these families are more visible within the social services arena and are more likely to be reported for child maltreatment, especially neglect (Goerge, Lee, Sommer, Van Voorhis, Mackey, & Howard, 1993; Lindsey, 1994). Using child welfare reports as the

sole means of determining child abuse and neglect can result in inflated child maltreatment figures for families in poverty.

Other child maltreatment measures included the Conflict Tactics Scale (Straus 1980) and the Child Abuse Potential Inventory (CAP) (Milner, 1984). The Conflict Tactics Scale measures conflict and violence between family members. While this may be an adequate measure for determining child abuse, it has not been validated for measuring child neglect. The CAP standardized measure, however, is designed to differentiate those who abuse and those who do not, and has established validity for determining risk of child neglect (Milner & Wimberley, 1979; 1980).

Regression analysis, both multiple and logistic, was the more popular statistical test in previous studies. Correlations and significance tests were often run along with regressions. A few studies collapsed data into categories in order to run Chi-Square analyses; for example, Lindell and Svedin (2001) collapsed children's age into a dichotomous variable (0-6 and 7-14) and implemented chi-square to determine relationships between children's age, unemployment and child maltreatment.

Regression analysis is the most rigorous method of analysis used in the studies. While regression allows for comparison and control of predictor variables, provides information on strength and direction of the predictor and criterion variables, and determines the amount of variance accounted for in the criterion variable, it does not take error into account. Structural equation modeling not only calculates all the analyses involved in regression but also incorporates factor analysis, provides estimates of error, and has the capacity to calculate several analyses at one time, thereby reducing

error. Because of the rigorousness of this type of analysis, structural equation modeling (SEM) will be the method of analysis for this study.

CHAPTER 4

METHODOLOGY

4.1 Introduction

This study will be a secondary analysis. The data were made available by the National Data Archive on Child Abuse and Neglect (NDACAN), Cornell University, Ithaca, NY, and permission was granted for their use in this study. Data were collected for the original study, Neighborhood and Household Factors in the Etiology of Child Maltreatment, by Jill E. Korbin, Ph.D. Professor of Anthropology and Associate Dean of Arts and Sciences at Case Western Reserve University. Funding for the study was provided by the National Center on Child Abuse and Neglect, Administration on Children, Youth and Families, U.S. Department of Health and Human Services, grant #90-CA-1548. The collectors of the original data, the funder, NDACAN, Cornell University and their agents or employees bear no responsibility for the analyses or interpretations presented here.

The original study was a four-year project carried out within the neighborhoods of Cleveland, Ohio and was designed to better understand how neighborhood factors are related to child maltreatment. The first component of the project, conducted in 1990, consisted of qualitative data collection. A quantitative study, developed from the results of the first study, was conducted in 1994. It is the quantitative study that provided the data for this dissertation.

Cleveland, like many other northern cities, experienced economic and geographic changes during the 1980s that contributed to the segregation of poverty to the inner city (Appendix A, Map 1). What led up to this was in part due to the recession of the late 1970s and early 1980s. Cleveland was prosperous during the 1970s, with poverty rates at an all time low of 11%. Jobs flourished during this time and poverty was viewed as temporary for most individuals. A recession in the late 1970s and early 1980s, however, reversed this trend and poverty rates increased to 15%. While the country recovered from the recession, poverty rates did not decrease as much as was expected. The rates remained at around 13%, and were considerably higher in urban areas, despite employment availability. Social researchers began to speculate that some people had become trapped in poverty and were unaffected by improvements in the economy (Coulton & Pandey, 1990).

During the recession, those in poverty were geographically isolated in the inner cities. Researchers speculated this isolation could have resulted from the increase in relocation of manufacturing jobs to the suburbs during this period (Hughes, 1990). As jobs relocated to the suburbs, those who could afford to followed. Hughes explains this led to the out-migration of the middle class from the inner city, to a shortage of males in the inner city who were employed and able to support a family, and to a basic alteration of the family structure of the urban poor. The result was predominantly female-headed households living in the inner city (Appendix A, Map 2), high rates of welfare dependency, and high risk for unemployment (Coulton & Pandey, 1990).

According to the 1990 U.S. Census, female headed households with children under 18 in the city of Cleveland totaled 29,179 (49.9%) and male headed households totaled 4,650 (8%), while married couples with children under 18 made up 42.2% (24,653 households) of the families. Conversely, observation of household types in Cuyahoga County reflects the theory of segregation of single-parent households within the city. In Cuyahoga County, married couples made up the largest portion of family types with 63.7% (105,641) of families with children, whereas female headed households made up 30.4% (50,444) of the county population and male headed households constituted 5.9% (9,727) of those families with children.

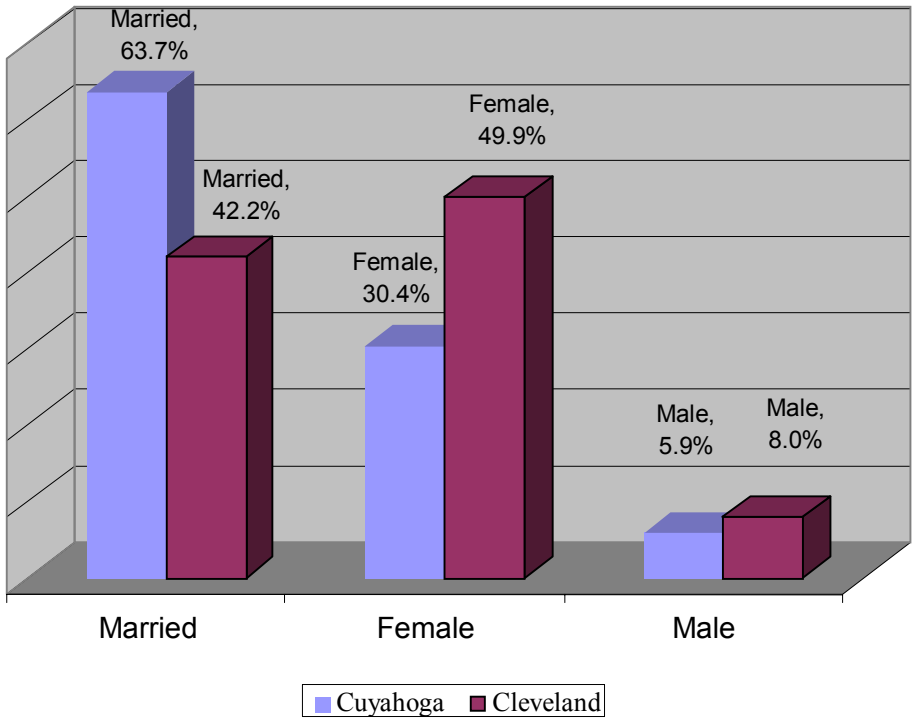


Figure 4. Comparison of Cuyahoga county and Cleveland by family type

Racial segregation was similarly dramatic with more minorities situated within the city than outside the city, and more Whites residing outside the city limits (Appendix A Maps 3-5). Within Cleveland, 49.5% of the population was Black, 7.1% was Hispanic, and 38.4% was White. Outside the city limits, within Cuyahoga County, only 27.1% of the population was Black. Another 3.3% was Hispanic, and Whites made up 66.1% of the population.

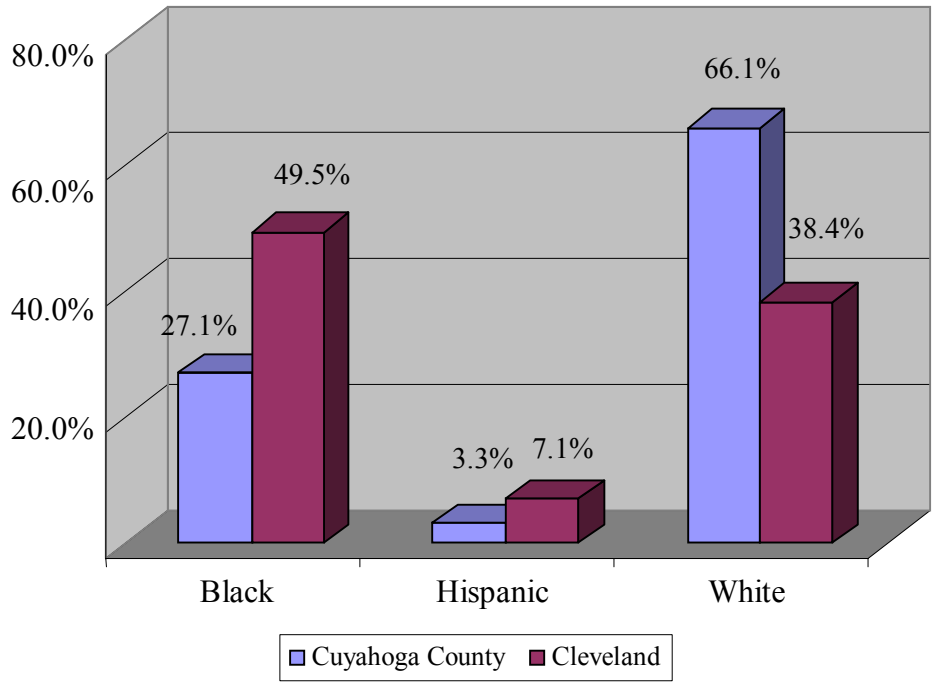


Figure 5. Comparison of ethnicity by residence

These data support the theory that relocation of industry to the suburbs and other areas outside the city led to out-migration of the middle-class to the suburbs and to a restructuring of urban poor to predominantly female-headed households living in the inner city. Segregation of minority populations to the inner city further supports this notion because minorities have historically had higher rates of poverty than Whites.

The original study was implemented in two parts, the first of which involved face-to-face, open-ended interviews with parents in order to determine how they defined child abuse and neglect and viewed its etiology based on the neighborhood they resided in. The second part of the study, based on information obtained during the qualitative

study, involved quantitative data collection that examined the effects of neighborhood social structure on child maltreatment (NDCAN, 2002). The quantitative data will provide the information for this study.

The intent of this research study is to compare the most significant indicator from each ecological system to the others. A total of five hypotheses and 10 sub-hypotheses will guide this dissertation study. These hypotheses include:

1. The ontogenic level indicator will correlate with child maltreatment potential.

   1a. History of child maltreatment of the parent will increase child maltreatment potential.

2. There will be a set of micro level indicators that distinguish child maltreatment potential correlates.

   2a. Parental age will be associated with a decrease in child maltreatment potential.

   2b. Higher ratio of children to adults will increase child maltreatment potential.

   2c. Educational attainment will be associated with a decrease in child maltreatment potential.

   2d. Single-parent status will increase child maltreatment potential.

3. There will be a set of exosystem level indicators that distinguish child maltreatment potential correlates.

   3a. Unemployment will be associated with an increase in child maltreatment potential.

3b. Neighborhood safety will be associated with a decrease in child maltreatment potential.

3c. Neighborhood isolation will increase child maltreatment potential.

3d. Social support will be associated with a decrease in child maltreatment potential.

4. The macro level indicator will correlate with child maltreatment potential.

   4a. Belief in corporal punishment will increase child maltreatment potential.

5. Variation will exist between the different ecological system indicators and child maltreatment potential.

4.2 Sample

The sampling technique for the original study involved a two-stage sample strategy. Census tracts within the city of Cleveland were stratified by impoverishment, child care burden, and race. Twenty census tracts were then randomly selected from the stratifications. The second stage of the sampling process involved random selection of 20 individuals within each selected census tract. Households were eligible for the study if they had at least one child under the age of 18 and at least one parent or guardian living in the home. A total of 400 households met the criteria for inclusion in the study.

Selection criteria for this study were based on household status and income level. Only families that meet the poverty requirement were included. The Federal Guideline for Poverty is widely used in determining poverty status in most needs-based agencies, as well as by the Census Bureau. The guidelines are determined by the minimal cost of food for an individual or family multiplied by three. Consequently,

income guidelines vary according to family size. Family income for the original study was collected as ordinal level data with varying intervals. The first eight brackets included:

01. $0 – 5,000 per year
02. $5,001 – 7,500 per year
03. $7,501 – 10,000 per year
04. $10,001 – 12,500 per year
05. $12,501 – 15,000 per year
06. $15,001 – 20,000 per year
07. $20,001 – 25,000 per year
08. $25,001 – 30,000 per year

The sample for this study was determined using the 1990 Federal Guideline criteria. Most agencies that assist families in poverty use a percentage of the federal guidelines to determine need. Human Service agencies often accept clients at 150% of poverty, whereas the federally based Children's Health Insurance Program (CHIPS) accepts families at 200% of poverty. Because the federal guidelines are set exceptionally low and families within 200% of poverty are often referred to as the "working poor", it would be safe to assume that those within 200% of poverty have the same struggles as those at or below the poverty level. Therefore, poverty status was determined as 200% of the federal guideline for poverty.

A new variable, "poverty", was added to the dataset. This variable contained values for every household size based on 200% of the federal guideline for poverty. The "poverty" variable was then compared to the income level the participant has reported. If the reported income fell at or below 200%, the family was included in the sample.

Sample size determination for SEMs is a controversial issue with statisticians. Currently, there is no one set way to estimate adequate sample size for this type of analysis. Numerous studies have addressed this issue and consideration for the different methods.

Some authors suggest estimating sample size using some traditional "rule of thumb". For example, Comrey & Lee (1992) suggest determining sample size using a minimum value of 50 as very poor, 100 as poor, 200 as fair, 300 as good, 500 as very good, and 1,000 as excellent. According to Gorsuch (1983), sample size is dependent on the number of variables used in an analysis, with a five-to-one ratio being the minimum accepted. Using this method would yield a sample size of 65.

Other statisticians incorporate a minimum value (200 or more observations) in their determination of sample size, as well as ensuring accuracy and reliability of the indicators, and ensuring an adequate number of indicators (more than two) per latent variable (Anderson & Gerbing, 1984; Cohen, Cohen, & Velez, 1990; Gerbing & Anderson, 1995; Jackson, 2001). The sample size for this study will be more than 200 observations. The criterion variable will be a factor with six indicators. Reliability and validity have previously been established for the indicators; likewise, reliability will be determined for the criterion variable in this study, as well.

Number of parameters as a determinant of sample size in SEMs has been suggested by numerous statisticians. This logical relationship stems from the fact that, unlike multiple regression, the number of measured variables in a SEM does not determine the number of parameters to be estimated. Many different models can be

identified from a set of observed variables. For example, a measured variable can be specified as an indicator of one or several latent variables (Bentler & Chou, 1987; Bollen, 1989; Kline, 1998, Marsh, Balla, & McDonald, 1988; Mueller, 1997; Tanaka, 1987; Ullman, 1996). While determining sample size based on number of parameters appears logical, research studies on this relationship have not been encouraging. Jackson (2001) concluded that the number of observations (not the number of observations per parameter) and the reliability of the indicators were the most salient factors affecting structural equation fit indexes. However, in consideration of the parameter estimate, this study will have an estimated 40 parameters. Using this method requires 10 samples per parameter; thus, yielding a total of 400 cases. This study would fall based on this sample size determination. The final sample is estimated to include less than 300 cases.

Power analysis is another commonly used method for determining sample size for SEM (MacCallum, Browne, & Sugawara, 1996). This method focuses on the ability of a sample design to detect any effect between variables. Power analysis is a function of sample size (N), effect size (ES), alpha level (α), and power level/beta (β). These elements are interrelated, and fixing any three elements determines the fourth. Therefore, using this method, sample size determination would require fixing effect size, alpha level, and power level (or beta). Once the researcher has selected the levels of these three elements, the sample size will be known.

Effect size (ES) refers to the magnitude of effects, or the degree to which the null hypothesis is false (Pedhazur & Pedhazur Schmelkin, 1991). The most frequently

used guidelines for effect size were originally proposed by Cohen (1988) as small effect (.2), medium effect (.5), and large effect (.8). For this study, an effect size of .4 would be sufficient for detecting a small to medium effect between social support and stress.

In research, a Type I error refers to rejection of the null hypothesis when it should not have been rejected. This type of error occurs when the results detect a relationship between two variables when none actually exists. Alpha (α) defines the level of Type I error the researcher is willing to tolerate. An alpha level of .10 indicates that the researcher is willing to allow a 10% chance of falsely rejecting the null hypothesis. It is customary for social work research to use a .05 alpha level; therefore, effect size for this study will also be set at the .05 level.

A Type II error refers to failure to reject the null hypothesis when it should have been rejected, or stating that no relationship exists between variables when, in fact, one does exist (Pedhazur & Pedhazur Schmelkin, 1991). Beta (β) symbolizes the design's ability to detect a Type II error. 1- β represents the power of the statistical test, or the power of the test to reject the null hypothesis when it should be rejected. Most authors recommend setting β at .2, thus leading to statistical power of .8 to reject the null hypothesis at a given α for a given ES (Pedhazur & Pedhazur Schmelkin, 1991).

By taking into account effect size, sample size, Type I and Type II errors, power analysis addresses concerns that often arise with the accuracy of significance tests. While significance in these tests depends on if the sample statistic falls within a pre-selected interval, manipulation of the size of the sample can impact the results. Studies that include very large samples easily show significance, while small samples tend to be

statistically not significant at conventional α levels, even when a large difference exists between variables. Determining sample size for this study by using power analysis with an alpha of .05, effect size of .4, and statistical power of .8, would yield a total of 99 cases.

Hoelter's Critical is a measure of sample size that is distinct to SEM. This measure is automatically generated with the AMOS output data and provides information on adequacy of sample size. The purpose of Hoelter's Critical is to estimate a sample size that would be sufficient to yield an adequate model fit for the chi-square test (Hu & Bentler, 1995). It has been proposed that a value greater than 200 is indicative of an adequate sample size for the data. Therefore, Holelter's Critical will be examined to determine if the sample size meets the criteria for this measure, with values greater than 200.

Sample selection will begin with exclusion of families that are not within 200% of the poverty level. Poverty guidelines established by the federal government are extreme and very often needs-based services determine eligibility for services as a percentage of the federal guidelines. For example, the Tarrant County Department of Human Services defines poverty as 150% of the federal poverty level, while the Children's Health Insurance Program accepts families with an income within 200% of the federal established poverty guidelines. The higher amount of 200% of poverty will be used as the inclusion criteria for this study. In 1994, the poverty threshold for a family of four (two parents and two children) was set at $15,029; therefore, using 200%

of the poverty level, a family of four that contains two parents and two children will meet the inclusion criteria if they have an annual income of $30,058 or less.

4.3 Predictor Variables

The intent of this study was to select the indicators with the highest correlation to child maltreatment from each of the ecological systems, then to compare the effects of these indicators. The ecological systems include the ontogenic system, the microsystem, the exosystem, and the macrosystem.

4.3.1 Ontogenic System Indicator

The only indicator of the ontogenic system is a history of abuse of the parent as a child. The authors of the original study collected this data using the Conflict Tactics Scale (Straus & Gelles, 1990). This scale was designed to determine family conflict and the presence of child abuse within the family; however, a modified version was used in this study to measure child abuse in the family of origin.

The CTS is among the most widely used instruments in family violence and child maltreatment research and has shown findings consistent with research and theory on the intergenerational transmission of violence in the family (Carroll, 1977; Straus, Gelles, & Steinmetz, 1980). The authors of the CTS report adequate internal consistency for the instrument. Internal consistency refers to the degree to which the items that make up the scale are correlated with one another (Rubin & Babbie, 2005). For the CTS, reliability coefficients for the reasoning subscale range from .42 to .76, for the verbal aggression subscale coefficients range from .62 to .88 and for the physical aggression subscale coefficients range from .42 to .96 (Corcoran & Fischer, 2000).

Validity determines the extent to which the instrument measures what it is intended to measure. There are several ways to validate instruments. Construct validity is established by comparing the instrument to other measures of similar, or dissimilar, constructs. The CTS correlates with "risk factors of family violence, antisocial behaviors by child victims, levels of affection between family members, and self-esteem", thereby suggesting good construct validity for the scale (Corcoran and Fisher, 2000).

Factorial validity addresses the different constructs that are measured by the instrument and whether the number and type of constructs being measured are what is intended (Rubin & Babbie, 2005). For example, an instrument designed to measure depression might include four indicators that can be defined as sleep difficulties, eating problems, lack of energy, and depressed mood. Factorial validity would require that the factor of depression be supported by the four indicators. Factor structure for the CTS has been supported for reasoning, verbal aggression, and physical aggression (Corcoran & Fischer, 2000).

4.3.2 Microsystem Indicators

Microsystem indicators in this study consist of higher ratio of children to adults in the household, parental age, educational attainment, and single-parent status. For the child/adult ratio, the number of children in the home will be divided by the number of adults.

Parental age was collected at the interval level and was used as such in the analysis. Increased age is empirically associated with a decrease in child maltreatment; therefore, the expectation is that this will be an inverse relationship.

Educational attainment was collected as ordinal level data with the following ranked categories:

1 – Less than 8th grade
2 – 8th grade
3 – 9th grade
4 – 10th grade
5 – 11th grade
6 – 12th/High School
7 – GED
8 – Technical School/Business School
9 – Some College
10 – 2-year degree
11 – 4-year degree/College graduate
12 – Graduate School/Professional School

For the purposes of this study, these categories will be reduced to include the following ranked data:

1 – Less than 8th grade
2 – 8th Grade
3 – 9th Grade
4 – 10th Grade
5 – 11th Grade
6 – 12th Grade/GED
7 – Some College
8 – 2-year Degree
9 – 4-year Degree
10 – Graduate/Professional School

SEM requires continuous level data; however, ordinal data is often used if there are at least five categories. Because educational attainment consists of more than five categories, it is generally acceptable to use this ordinal-level variable in the analysis.

Educational attainment is associated with reduced risk of child maltreatment; therefore, an inverse relationship is expected.

Data for single-parent status were collected as married, single, divorced, separated, widowed and never married. For purposes of this study, single parent status was determined by combining single, divorced, separated, widowed, or never married responses under the inclusive category of "single" and those who reported they were married were included in the "married" category. This variable was dummy-coded with a value of "0" assigned to single status and a "1" assigned to "married" status.

4.3.3 Exosystem Indicators

Variables associated with the exosystem include unemployment, neighborhood isolation, neighborhood safety, and social support. Neighborhood isolation will be measured using items for the neighborhood environment section of the original study. Neither validity nor reliability has been established for this measure. Respondents were required to answer the following items on a Likert scale that ranged from 1 to 10.

1. When the weather is nice, the people living on my street visit with one another outside.
2. The people in my neighborhood visit with one another in their homes.
3. The people in my neighborhood loan things to one another.
4. The people in my neighborhood make sure other's homes are safe when someone is away.
5. On Halloween, most of the children living in my neighborhood go trick-or-treating in my neighborhood.

Neighborhood safety is another exosystem variable included in this study. Similar to the isolation measure, this variable will also be a composite measure of Likert scale items collected by the original researchers for neighborhood environment.

As with neighborhood isolation, validity and reliability have not been established for this measure. The items included in the neighborhood safety measure are as follows:

"How worried are you about the following things in your neighborhood on a scale of 1 to 10, with 1 being very worried and 10 being not worried at all".

1. Having property damaged.
2. Having property stolen.
3. Walking along during the day.
4. Walking alone after dark.
5. Letting children go outside alone during the day.
6. Letting children go outside alone during the evening.
7. Being robbed during the day.
8. Being robbed at night.
9. Being raped.
10. Being mugged or beaten up.
11. Having a child sexually abused by a stranger.
12. Having a child sexually abused by someone they know.
13. Having children kidnapped.
14. Being murdered
15. Being harassed by person of another race or ethnic group.

Unemployment was collected for the participants and for their spouses. These two values will be combined into one variable that reflects unemployment of the household. For a married couple, employment by either the male or the female will constitute employment for the household. Unemployed households will be assigned a "0" value and employed households will receive a value of "1".

Social support, another microsystem indicator, will be operationalized using the Multidimensional Scale of Perceived Social Support (MSPSS). The MSPSS is a 12-item, subjective instrument that assesses the adequacy of one's perceived social support. Internal consistency was established for the MSPSS, with coefficient alphas of .91 and test-retest reliability of .85. (Corcoran & Fischer, 2000). This suggests the MSPSS demonstrates good internal consistency and has adequate stability over time.

Discriminant validity refers to the degree to which the measure correlates with other dissimilar constructs. The MSPSS demonstrates good discriminant validity by its low correlation to anxiety and depressive symptoms. This measure also has good concurrent validity as established with its correlation to depression and to the degree of coronary artery disease in Type A patients (Corcoran and Fisher, 2000).

Factorial validity results for the MSPSS are conflicting. Corcoran and Fischer (2000) and Zimet, Powell, Farley, Werkman, and Berkoff (1990) report good factorial validity; however, Cheng and Chan (2004) report that factorial validity for this instrument has relied exclusively on exploratory factor analysis. Confirmatory factor analysis is generally recognized as the preferred method of testing the theory-based structure of a scale. Exploratory factor analysis always produces a unique solution that fits the data. Conversely, confirmatory factor analysis begins with a theoretical model and tests the extent to which the model fits the data.

4.3.4 Macrosystem Indicator

Belief in corporal punishment will be measured using one item: "Sometimes children need to be spanked or physically disciplined". Scores for this item will be determined using a ten-point Likert scale with a value of "1" meaning the respondent disagreed and "10" meaning the respondent agreed.

4.4 Background or Control Variables

Background variables are those variables that influence the relationship between the predictor and criterion variable indirectly. Background variables included in this study will be gender and race.

Race is nominal-level data and cannot be used in that format in SEM; however, recoding the race variable into a dummy variable to be used in the analysis as "minority status" allows it to be utilized as continuous level data. Dummy coding consists of 1's and 0's. A value of one signifies membership in the category and a value of zero signifies no membership in the category. For example, a dummy coded variable for minority status would have a "1" assigned to every case that was identified as a minority and a "0" assigned to all other cases. A dummy coded variable was constructed in which the minority groups that reside in Cleveland were assigned a value of "1" and Whites were assigned a "0" value.

Gender is similar to race in that it is nominal data; however, gender can easily be converted to a dummy variable by assigning a value of "0" to males and a value of "1" to females. As with race, this would allow the nominal data to be used as continuous data in this analysis.

4.5 Criterion Variable

Criterion variables are those variables that are impacted by the predictor variable(s). In this study, it is hypothesized that indicators associated with ecological systems affect child maltreatment; therefore, the concept of child maltreatment is the criterion variable. Child Maltreatment will be operationalized using the Child Abuse Potential Inventory (CAP). This instrument was designed as a screening tool for the detection of physical child abuse (Milner, 1986); however, the instrument has also demonstrated predictability of child neglect (Gaudin, 1993). The authors of the dataset utilized a modified version of the CAP that includes subscales for distress, rigidity,

unhappiness, problems with family, problems with child and self, and problems with others.

The CAP measure has not been validated for determining risk of child sexual abuse; however, this is not considered a limitation in this study since child sexual abuse appears to be only minimally related to poverty (Drake & Pandey, 1996). Physical abuse and neglect are strongly associated with poverty and will thus be the focus of this study.

The CAP reports high split-half reliability with ranges from .93 to .98. Construct validity has been established with a positive correlation between this instrument and the amount of physical abuse in childhood. The instrument has good predictive validity as well, with a significant correlation of .34 between abuse scores and subsequent confirmed reports of abuse and neglect (Milner, Gold, Ayoub, & Jacewitz, 1984).

4.6 Analysis

The primary statistical methods used in this study are multiple correlation, confirmatory factor analysis, and SEM. It will be necessary to first determine the indicator that provides the highest correlation for each of the ecological systems. To do this, a correlation matrix will be constructed to include all child maltreatment indicators, as well as the child maltreatment potential factor.

Correlations provide information on the strength and direction of the relationship between two variables. Pearson's r presents correlations in a standardized format that allows for greater interpretability and comparison. Pearson's r values range

from -1 to 1, whereby values of zero indicate no correlation and values of -1 or 1 indicate perfect correlation (Pedhazur and Pedhazur Schmelkin, 1991). A negative value is associated with an inverse relationship between the variables, whereas a positive value is associated with a positive relationship. The indicator from each ecological system that provides the greatest correlation value will be selected for inclusion in the SEM model.

SEM takes a hypothesis-testing approach in determining the structural theoretical model of some phenomenon (Byrne, 2001). In structural analysis, the proposed theory is compared to the sample data to estimate goodness of fit. Adequate fit implies support for the hypothesized model.

Regression analysis and factor analysis are the basis of SEM. Regression analysis allows for prediction of the variance in a criterion variable that is associated with the predictor variables. An overall measure of R^2 signifies the amount of variance in the criterion that is accounted for by the predictor variables.

Factor analysis is a procedure that investigates relationships between sets of observed and latent variables (Byrne, 2001). In this study, the child maltreatment factor and its indicators will make up the factor analysis portion of the model, also known as the measurement model in SEM (Byrne, 2001).

Prior to execution of the analysis, it is important to address the critical assumptions of SEM, the first of which is that the data be of a continuous scale. While categorical data can affect Chi-Square and result in attenuation of coefficients, this level of analysis is widely used in social research. When ordinal data are used, is it often

suggested that they have a least five categories and not be strongly skewed (Garson, 2005).

A second assumption of SEM is that the data used should have a multivariate normal distribution (Byrne, 2001). Multivariate normality exists when each variable in the model is normally distributed with respect to each other variable. Violations of linearity can lead to an underestimation of the strength of the correlation coefficients. Probability plots are often used to detect linearity and will be the method for determining linearity in this study (Pedhazur & Pedhazur Schmelkin, 1991).

The third assumption is that the model for structural equation is accurately specified. Model specification is attained by conducting a thorough literature review of the inclusive variables. Model specification requires that all relevant predictor variables that factor into the hypothesized model are included and those that are irrelevant are excluded (Pedhazur & Pedhazur Schmelkin, 1991). While a rigorous review of literature will help to support this assumption, the study is comparing only the most highly correlated indicators of child maltreatment for each ecological system. It will not include all indicators of child maltreatment.

Because SEM is basically many regressions, it is important to consider assumptions of regression analysis, as well. Regression assumes that the predictor variables are measured without error. Random error can lead to biased estimation of regression coefficients (Pedhazur & Pedhazur Schmelkin, 1991). Although measurement error is factored into SEM, it is still necessary to control for error as much as possible. Using measures that are reliable and valid will reduce the amount of error

in the analysis. For this study, validity and reliability have previously been established for many of the predictor variables. While the effects of measurement error in the criterion variable do not lead to bias in the analysis, such errors do lead to attenuation of the standardized regression coefficient (β) (Pedhazur & Pedhazur Schmelkin, 1991). Consequently, the criterion variable in this study has established good validity and reliability.

Multicollinearity occurs when two or more predictor variables are highly correlated. Multicollinearity has adverse effects on regression and can generate results that are uninterpretable (Pedhazur & Pedhazur Schmelkin, 1991). SEM provides a measure to determine multicollinearity. If correlations between predictor variables is .80 or higher, multicollinearity is suspected.

Multicollinearity in SEM is a problem if the goal is to understand how the predictor variables impact the criterion variable. Because the goal for this study is to compare the different ecological indicators by their impact on child maltreatment potential, it will be necessary to control for multicollinearity. To do this, each of the predictor variables will be correlated with the others and any relationship that has a strength of .8 or higher will be assessed to determine if the two variables are measuring the same thing.

Normal linear equations, such as SEM, require the variance of the residuals at all levels of the predictor variables to be similar. This condition, referred to as homoscedasticity, is the opposite of heteroscedasticity. Heteroscedasticity can adversely affect the results of statistical tests of significance and has the potential of

declaring statistically significant results when, if homoscedasticity were present, it would yield insignificant results (Pedhazur & Pedhazur Schmelkin, 1991). Residual plots are effective when checking for homoscedasticity and will be used to determine if the condition exists for this study.

Autocorrelation refers to independence of the residuals and can be interpreted as a problem of structural specification and estimation (Bielby & Hauser, 1977). Errors associated with one variable should not be correlated with errors associated with any other observation (Pedhazur & Pedhazur Schmelkin, 1991). This condition more often arises in time-series or longitudinal designs where subjects are measured repeatedly. Nonetheless, analysis for this study will involve testing for autocorrelation. The Durbin-Watson statistic is valuable in detecting autocorrelation and will be applied in this case. The statistic ranges from 0-4, with small values indicating autocorrelation. Critical values are determined by the sample size as well as the number of predictors in the regression equation (Durbin & Watson, 1950).

After conducting the preliminary analyses to determine if the data are appropriate, the proposed model will be designed. Child maltreatment will be included as a latent variable. Latent variables, also known as factors, are variables that are not directly observed and are identified by their oval shape in the SEM (Byrne, 2001). In order to provide a measure for child maltreatment, the factor will be assigned indictors, or manifest variables, that signify the underlying structure of the factor. In this case, composite measures for each of the CAP subscales will be included as manifest variables that support the child maltreatment factor.

Each of the selected ecological system indicators will be included as manifest variables. Manifest variables are those variables that can be directly observed and are identified in the model by their rectangle shape. The manifest variables, or child maltreatment indicators, will then be regressed on to the child maltreatment factor.

Confirmatory factor analysis will be executed for the child maltreatment factor to determine if the subscales assigned to this factor are actual indicators of the factor. Confirmatory factor analysis is a procedure that investigates relations between sets of latent and observed variables (Byrne, 2001). In this approach, covariation among the observed variables is examined to determine their underlying latent factors. In this case, the subscales should load at a high rate if they are in fact indicators of child maltreatment potential. Loading, in factor analysis, refers to the correlation between the indicator and the factor. Loadings, like correlations, range from -1 to +1, whereas a value of zero is equal to no relation and values nearest to positive or negative one signify strong correlations. Loadings of .5 or more are considered good and loadings between .4 and .5 are acceptable. Any loading that is less than .3 is unacceptable and is not a good indicator of the factor it is meant to represent (Pedhazur & Pedhazur Schmelkin, 1991).

Once structure of the latent variable and its manifest variables has been tested, the four ecological indicators will be entered into the SEM and regressed on to the child maltreatment factor. Therefore, the final design of the SEM will include one latent variable with six indicators that make up the measurement model; and four manifest

variables that include indicators associated with the ontological system, microsystem, exosystem, and macrosystem.

The background variables of age, gender, education, and race will be input to determine any indirect effects they may have on child maltreatment potential. Any regression weights from the background variables to the ecological indicators that are significant will become part of the model structure. The regression weights that are not significant signify little or no interaction between variables and will be excluded.

Once the proposed model has been designed, analysis will begin to determine the fit of the model to the sample data. Goodness-of-fit measures determine the extent to which the model is correlated with the sample moments. In other words, the goodness-of-fit indices compare the "observed covariance matrix to the one estimated on the assumption that the model being tested is true" (Garson, 2005). Several fit indices exist for SEM; however, Chi-Square, the CFI, PGFI and RMSEA will determine the fit for this study.

The chi-square statistic tests the extent to which specification of the factor loadings, factor variances, and error variances for the model are valid (Byrne, 2001). For this reason, chi-square should not be significant since the objective is to develop a model that is valid. Significance for this measure should be .05 or greater.

CFI (comparative fit index) is a goodness-of-fit measure with values that range from zero to one. This measure is derived from comparison of the hypothesized model with the independence model (Byrne, 2001). The objective of SEM is that the proposed model is indicative of the sample data; therefore, the CFI should reflect this. Greater

similarity between the models is associated with higher CFI values; consequently, it is desirable to have a CFI value of .95 or higher (Byrne, 2001).

The PGFI is a parsimony-based index of fit. This statistic takes into account complexity of the model in the assessment of overall fit (Byrne, 2001; Williams & Holahan, 1994). If the model is adequately parsimonious, PGFI statistics should reflect values of .50 or greater.

RMSEA (root mean square error of approximation) asks the question, "How well would the model, with unknown but optimally chosen parameter values, fit the population covariance matrix if it were available?" (Browne & Cudeck, 1993, pp. 137-138). Values less than .05 indicate good fit for this measure, while values as high as .08 represent reasonable errors of approximation in the population (Brown & Cudeck).

AMOS also reports a 90% confidence interval around the RMSEA. While an RMSEA value may be small, a wide confidence interval may suggest imprecision and result in the inability to accurately determine the degree of fit in the population. In contrast, a very narrow confidence interval would suggest good precision of the RMSEA value in reflecting the fit of the model with the population (MacCallum, Browne, & Sugawara, 1996)

Because the purpose of this study is to compare the impact of the different ecological indicators on child maltreatment potential, the individual effects of the four ecological indicators will be examined. As stated previously, SEM is a system of factor analyses and regressions; consequently, the output for SEM will provide regression statistics for the relationship between the four ecological indicators and the child

maltreatment factor. These regression results will allow for comparison across ecological levels.

Finally, a function of SEM is to provide an overall R^2 for the proposed model. The R^2 measures the overall impact the model has on child maltreatment potential. This information will tell us how much variance in child maltreatment potential is accounted for by the four ecological indicators.

In summary, one indicator from each ecological system will be selected based on the degree to which it correlates with child maltreatment potential. A SEM will be designed to include all four ecological system indicators, as well as the child maltreatment potential factor and its observed indicators. Background variables will be tested to determine their effect on the relationships between ecological indicators and child maltreatment potential. From this design, information concerning the factorial make-up of the child maltreatment factor and the regressions from the ecological system indicators to the child maltreatment factor will be analyzed to determine if the model is accurate and is a good fit for the sample data. A comparison will then be made across ecological system indicators to ascertain the degree to which each of the indicators is associated with child maltreatment potential.

4.7 Threats to Internal Validity

Internal validity is most often associated with experimental design and causal relationships. However, exploring threats to the internal validity of research is beneficial regardless of methodology (Pedhazur & Pedhazur Schmelkin, 1991). Because this study is not experimental in design, many of the threats do not apply

including regression to the mean, treatment diffusion, attrition, resentful demoralization, compensatory equalization, and compensatory rivalry. Threats that do apply include history, maturation, instrumentation, and selection.

History may pose a threat because events may have occurred that affect the way the participants responded. These events may act as extraneous variables in the relationship between variables. Without knowledge of the events, it is unlikely they would be entered into the statistical equation and could impact the results.

Instrumentation must be viewed as a threat to the internal validity of the study. The researchers may have, over time, become more proficient at conducting the interviews. The added proficiency could affect the way in which the respondents replied to the questions in the interview.

4.8 Threats to External Validity

External validity refers to the generalizability of findings across the target population, time and setting (Pedhazur & Pedhazur Schmelkin, 1991). The proposed study is generalizable only to poor families living within the census tracts from which the sample was obtained. While this study cannot extend generalization beyond the sample, it is important to note that the authors of the original study reported that the sampled group was similar to other urban Midwestern cities.

CHAPTER 5

RESULTS

The purpose of this study is to identify the indicators that have the greatest impact on child maltreatment from each of the four ecological systems, then to compare these indicators using a structural equation model. This chapter will first describe the sample of families that met the criteria for inclusion in this study. Second, reliability will be established for the Conflict Tactics Scale, the Multidimensional Scale of Perceived Social Support, the neighborhood isolation composite variable, the neighborhood safety composite variable, and the Child Maltreatment Potential Inventory. Third, preliminary tests will determine if the data meet the assumptions for SEM. Fourth, a confirmatory factor analysis will be conducted to examine factor loadings of the Child Maltreatment Potential Inventory subscales on the Child Maltreatment factor. Finally, the structural equation model will be designed and tested to determine fit of the model and provide for comparison of the four indicators.

Prior to analysis, preliminary statistics were run to determine if the data met the assumptions of both SEM and regression analysis. A thorough literature review was conducted to support the expected relationships within the model. Tests were conducted for the normal distribution between the variables, for similarity within the residuals, and for autocorrelation. The results of these tests revealed that the proposed model was accurately specified and that it met the assumptions for the analysis.

One assumption of structural equation modeling is that there are no missing data. As with most social research studies, the data for this analysis were not complete. Several methods have been devised to deal with missing data; however, for this study missing data were replaced with variable averages. For data that were not specific to the neighborhood (for example, age), the average of all ages was computed. The mean for that variable then replaced the missing data. For neighborhood factors, such as neighborhood safety, the data were first stratified by tract number. Means were then determined for the missing data based on tract averages.

5.1 Description of the Sample

Females represented the majority of respondents (86.7%) compared to males (13.3%). The average age was 32.5 years of age with a range from 18 to 62 years. Over half (70%) of the respondents were single, versus 30% who were married. Blacks, Hispanics, and Whites constituted the majority of racial groups. The sample consisted of 145 Blacks (55%), 24 Hispanics (9%), and 87 Whites (33%). Only seven (3%) respondents identified with some other racial group.

Educational attainment ranged from less than an eighth grade education to graduate or professional school. Having a 12^{th} grade education or a GED was the modal response with 95 (36.1%) respondents reporting this as their highest level of education, compared to only one response (.4%) for a less than 8^{th} grade education. Respondents who had some college experience totaled 84 (31.9%), with 13% reporting a 2-year degree, 6% reporting a 4-year degree, and another 6% reporting the completion of

graduate or professional school. Overall, 31.9% (84) respondents reported an educational attainment of less than 12th grade (or GED completion).

Household size consisted of the number of children in the home and the number of adults in the home. The number of children variable was categorized as 0-6 years, 7-11 years, and 12-17 years. A total of 195 (44.6%) children between the ages of zero and six were living in the homes included in the sample. This age group accounted for the largest portion of children, while 129 (29.5%) children ages seven to eleven, and 113 (25.9%) children ages twelve to seventeen constituted the remainder of the 437 children in this study. Adults averaged two per home, with a range of one to five per household.

During the year prior to data collection, 70% (184) of households had at least one adult that was employed. The other 30% (79) stated they were unemployed during the same period.

Table 1. Descriptive Statistics for the Sample

Variable	Respondent Characteristics		
	Mean	n	%
Respondents Age	32.5	263	
Ethnicity			
Black		145	55.0
Hispanic		24	9.0
White		87	33.0
Other		7	3.0
Gender of Respondent			
Female		228	86.7
Male		35	13.3

Table 1. *continued*

Children in Home			
0-6 Years		195	44.6
7-11 Years		129	29.5
12-17 Years		113	25.9
Total Children		437	
Adults in Home	2.0		
Respondent's Marital Status			
Married		91	30.0
Single		172	70.0
Employed in Previous Year			
No		79	30.0
Yes		184	70.0
Educational Attainment			
Less than 8th Grade		1	0.4
8th Grade		6	2.3
9th Grade		21	8.0
10th Grade		22	8.4
11th Grade		34	12.9
12th Grade/ GED		95	36.1
Some College		59	22.4
2-year Degree		13	5.0
4-year Degree		6	2.3
Graduate/Professional School		6	2.3

5.2 Reliability of the Instruments

Five of the measures in this study were either standardized instruments or were composite scores of multiple items. While validity and reliability have been previously established for several of these measures, it is important to determine if the instruments

continue to be valid and reliability with the current sample data. Coefficient alpha provides information on the internal consistency, or reliability, of the items within the measures. Social researchers typically aim for reliability scores of .70 or higher; however, scores as low as .50 and .60 have been determined as sufficient (Nunnally, 1967). Reliability results for each of the instruments is listed in Table 2.

Table 2. Reliability Measures

Instrument	Reliability Results	
	N of Items	Alpha
Child Maltreatment Potential Inventory	106	0.91
Conflict Tactics Scale	20	0.87
MSPSS	12	0.92
Neighborhood Isolation	5	0.68
Neighborhood Safety	15	0.94

Reliability results of .70 or higher were considered very good for this study, while results of .90 or higher were considered excellent. Therefore, the Conflict Tactics Scale (.87), Neighborhood Safety (.94), Multidimensional Scale of Perceived Social (.92), and Child Maltreatment Potential Inventory (.91) very highly reliable. The reliability coefficient for Neighborhood Isolation (.68) was lower than the other measures, however, it was still within the acceptable range.

5.3 Confirmatory Factor Analysis

Child Maltreatment Potential Inventory, the criterion variable in this study, was included in the structural model as a factor supported by its six subscales: distress scale,

rigidity scale, unhappiness scale, problems with family scale, problems with child and self scale, problems with others scale. It is important to determine, prior to analysis, if these subscales are actual indicators of the child maltreatment potential factor; therefore, confirmatory factor analysis was utilized to determine if the factor structure was adequate.

Child maltreatment potential was entered as a latent variable with one-directional paths to each of the manifest indicator variables. Factor loadings varied from .37 for the "problems with child and self" scale to .81 for the "distress" scale.

Table 3. Standardized Parameter Estimates for the Confirmatory Analysis

Item	*Factor Loadings*
Distress	0.81
Rigidity	0.40
Unhappiness	0.52
Problems with Family	0.50
Problems with Child and Self	0.37
Problems with Others	0.66

Using the maximum likelihood method estimation, the confirmatory factor analysis yielded the following fit statistics: $\chi^2 = 15.390$, $p = .081$, CFI = .976, RMSEA = .052, PCLOSE = .417. The non-significant χ^2 with fit statistics that fall within the acceptable ranges signify this to be a good fitting measurement model. The next step was to determine the ecological indicators to be included in the structural model.

5.4 Model Specification

Correlations were run to determine the ecological indicators that had the strongest relationship to child maltreatment potential for each of the ecological systems. The ecological indicators were correlated with one comprehensive child maltreatment measure that was inclusive of all the child maltreatment subscales. Results of the correlation revealed that child maltreatment history (.36) was a significant indicator at the ontogenic system level; educational attainment (-.30) was the strongest correlate at the microsystem level; social support (-.47) was the strongest correlate at the exosystem level; and belief in corporal punishment (.24) was significantly correlated with child maltreatment potential at the macrosystem level.

Table 4. Indicators of Child Maltreatment

Ecological System	Variable	Statistic	
		Correlation	Sig.
Ontogenic System	Child Abuse History	.358**	.000
Microsystem	Parental Age	-.076	.220
	Educational Attainment	-.298**	.000
	Child/Adult Ratio	.057	.361
	Single-Parent Status	.230**	.000
Exosystem	Unemployment	-.241**	.000
	Social Support	-.469**	.000
	Neighborhood Isolation	-.005	.933
	Neighborhood Safety	-.254**	.000
Macrosystem	Belief in Corporal Punishment	.239**	.000

**. Correlation is significant at the 0.01 level.

The selected indicators correlated with child maltreatment in the expected directions. Child abuse history and belief in corporal punishment were positively correlated with child maltreatment potential and educational attainment and social support were negatively correlated with child maltreatment potential. Collinearity statistics for these variables ranged from .901 to .988; therefore, multicollinearity was ruled out.

The selected ecological indicators were next added to the model. This resulted in a design with paths running from the manifest ecological indicators to the child maltreatment factor, which was supported by the child maltreatment indicators.

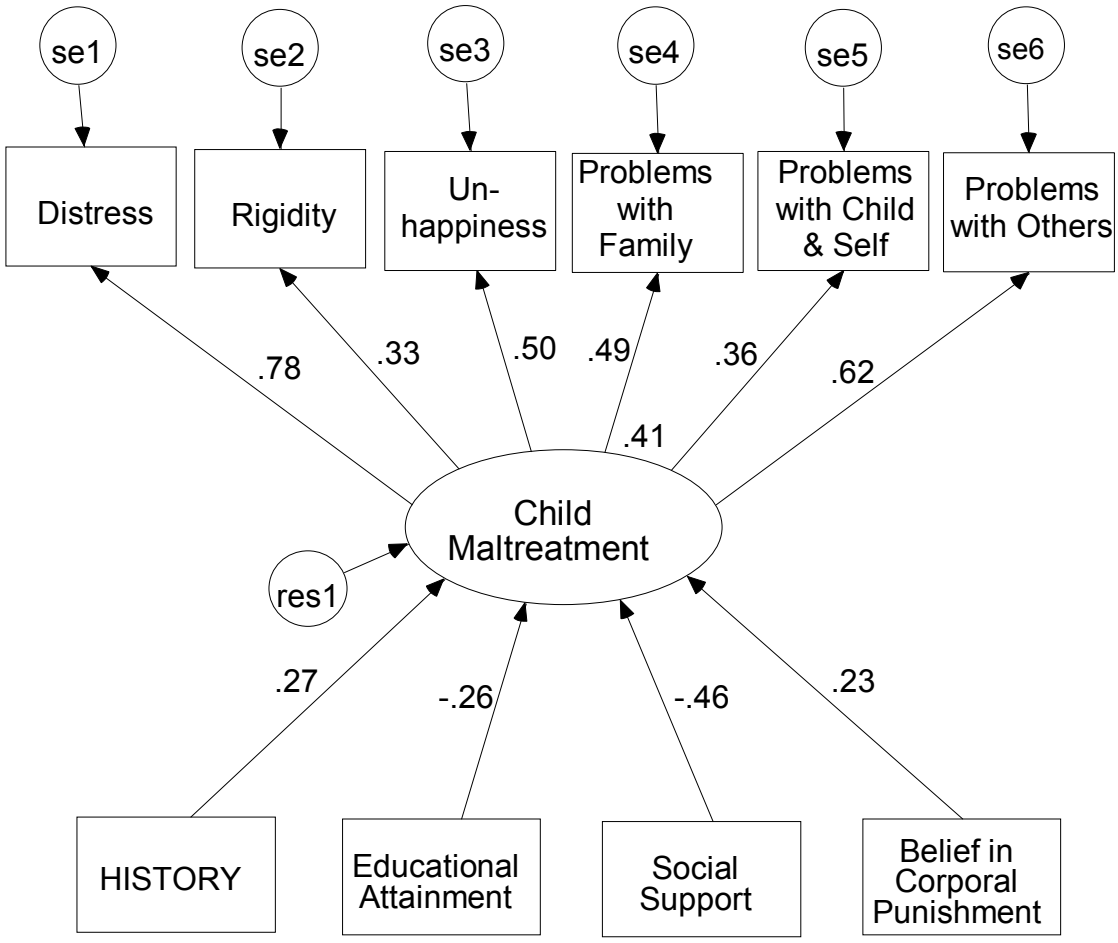


Figure 6. Model 1

For this model, Beta weights ranged from .23 to -.46. Beta weights (β) refer to the degree to which the predictor variable impacts the criterion variable. Social support produced the strongest relationship with β = -.46 or, in other words, for every degree of change in the predictor variable, there was a -.46 change in the criterion variable. For

history, education, and belief in corporal punishment, β was equal to .27, -26, and .23, respectively.

All regression paths were directional in accordance with the empirical literature. Social support and educational attainment were inversely related to child maltreatment potential, while history and belief in corporal punishment were positively associated with child maltreatment potential.

Table 5. Model 1 Results

Model 1	Desired Value	Model Value
χ^2 (p-value)	≥ .05	0.000
PGFI	≥ .50	0.593
CFI	≥ .90	0.859
RMSEA	≤ .05	0.083
PCLOSE	≥ .05	0.003

The proposed model yielded the following statistics: χ^2= 97.94, p = .000, CFI = .859, PGFI = .593, RMSEA = .083, and PCLOSE = .003. The small confidence interval of this model (.064-.103) suggests good precision of the RMSEA value in reflecting the fit of the model with the population.

A significant χ^2, along with fit statistics outside acceptable ranges required examination of the model. The first step was to review the critical ratios for regression weights and factor loadings. Critical ratios that are greater than 1.96 or less than -1.96 suggest a significant relationship between variables. Ratios between -1.96 and 1.96 an insignificant relationship between variables and requires further examination. A perusal

of the critical ratios confirmed that all regressions and variances were within the significant range.

The next step was to look at the modification indices. The indices reflect the extent to which the hypothesized model is appropriately described (Byrne, 2001). For this model, the indices suggested that a path between social support and history of child abuse would result in a decrease in chi-square of approximately 20 points.

The modification indices must be used with caution when adding parameters. It is first important for the researcher to determine if the relationship makes sense. It is also helpful to review the empirical literature before opting to add additional parameters. A review of the literature revealed very few studies that addressed the relationship between child maltreatment history and social support. One study (Leitenberg, Gibson, & Novy, 2004) did not find a significant relationship between these variables. Because of the lack of empirical research and results of the modification indices, it was determined important to observe the model while covarying social support and child maltreatment history.

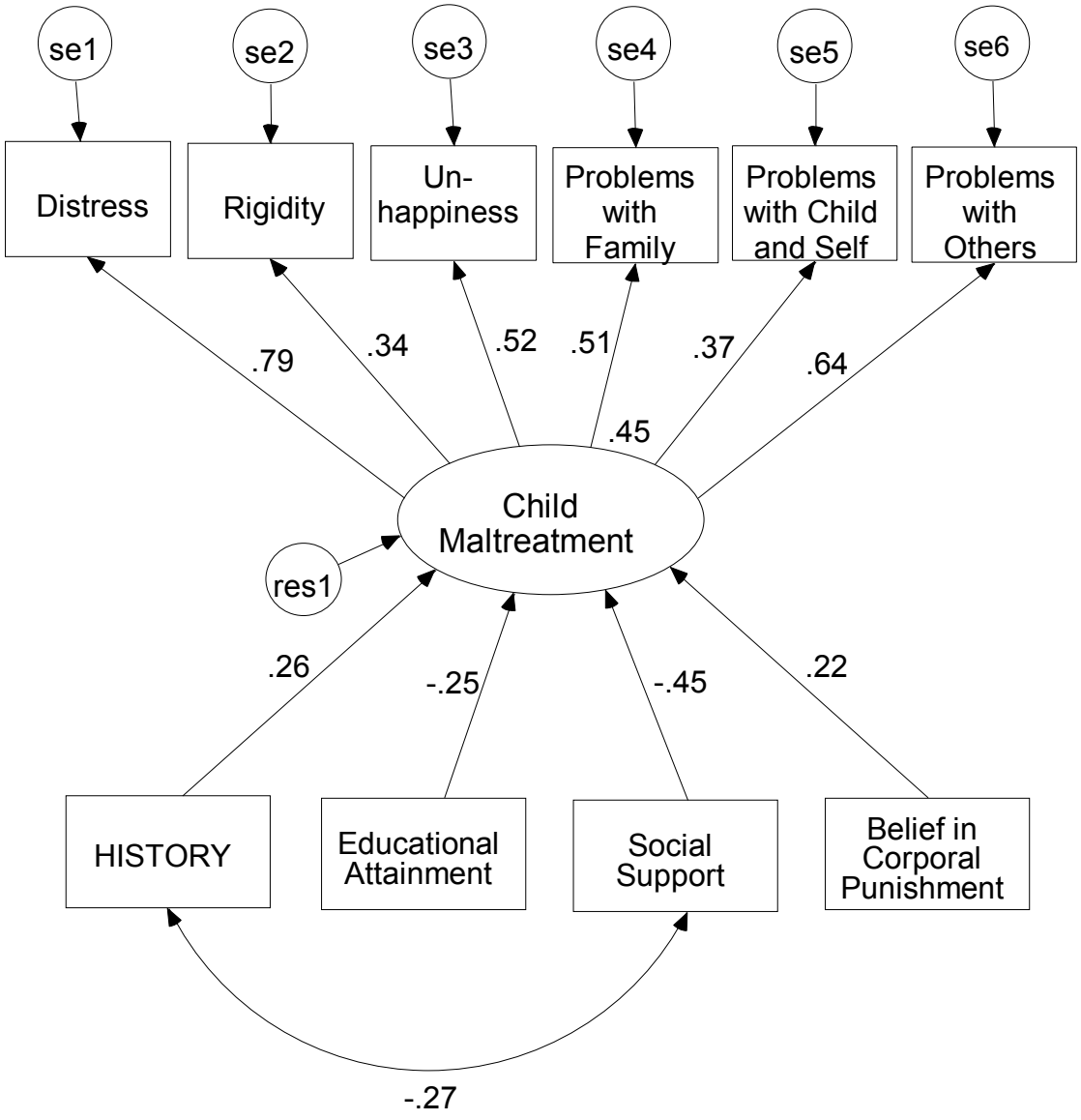


Figure 7. Model 2

While improved, the new model was still not an adequate fit for the data. Chi-square was significant with a p-value of .000; however the actual χ^2 value decreased from 97.936 to 77.843. The PGFI decreased from .593 to .586 suggesting a slightly less

parsimonious model than Model 1. Other fit statistics were more encouraging with CFI increasing from .859 to .901, RMSEA decreasing from .083 to .070, and PCLOSE increasing from .003 to .053. Furthermore, R^2 increased from .41 to .45, suggesting this model accounted for a greater amount of variance in child maltreatment potential.

Social support continued to have the greatest impact of all the ecological indicators; however, slight variation of β existed across the variables. Social support decreased in strength from -.46 in Model 1 to -.45 in Model 2; history of maltreatment decreased from .27 to .26, educational attainment decreased from -.26 to -.25, and belief in corporal punishment decreased from .23 to .22.

Table 6. Model 2 Results

	Model 2 Values	Increase/ Decrease from Model 1
χ^2 (p-value)	0.000	0.000
PGFI	0.586	-0.007
CFI	0.901	0.042
RMSEA	0.070	-0.013
PCLOSE	0.053	0.050

Although Model 2 was an improvement over Model 1, it was still not an adequate representation of the data. Therefore, the model output was reviewed, once again, to determine if a better fit could be achieved.

Critical ratios continued to be significant; however, the rigidity subscale appeared to be somewhat problematic. Inclusion of the ecological indicators resulted in a decrease in the factor loading of this variable (from .40 in the CFA to .34 in the

current model), making it the least contributing indicator of the child maltreatment potential factor; moreover, the modification indices suggested a problem with the variable. These observations led to the judgment that the rigidity variable was problematic and may not fit with the presented model.

The Child Maltreatment Potential Inventory is a standardized measure that has established validity and reliability. The instrument, with its six subscales, was an adequate fit for the overall data in this study; however, inclusion of the four ecological indicators altered the effectiveness of the rigidity subscale. Correlations between the ecological indicators and the child maltreatment potential subscales revealed that rigidity was significantly correlated with only one of the ecological indicators: educational attainment. Furthermore, while all other subscale were negatively correlated with history of child maltreatment, rigidity was positively correlated.

Table 7. Correlations between Ecological Indicators and Subscales

	History	Educational Attainment	Social Support	Belief in Corporal Punishment
Distress	0.384**	-0.245**	-0.432**	0.252**
Sig.	0.000	0.000	0.000	0.000
Rigidity	-0.063	-0.200**	-0.096	0.098
Sig.	0.310	0.001	0.121	0.114
Unhappiness	0.183**	-0.194**	-0.388**	0.110
Sig.	0.003	0.002	0.000	0.074
Problems with Family	0.241**	-0.180**	-0.363**	0.107
Sig.	0.000	0.003	0.000	0.083
Problems with Child & Self	0.000**	-0.204**	-0.219**	0.019
Sig.	0.000	0.001	0.000	0.762
Problems with Others	0.263**	-0.284**	-0.338**	0.178**
Sig.	0.000	0.000	0.000	0.004

While rigidity is a known indicator of child maltreatment, it does not fit well within this model and with the selected ecological indicators. Therefore, a decision was made to delete rigidity from the structural model. The resultant model included five child maltreatment potential subscales, instead of the original six.

Prior to including the new child maltreatment potential structure in the full model, it was necessary to ascertain whether exclusion of the rigidity subscale affected the child maltreatment potential factor structure. Therefore, confirmatory factor analysis was performed. While the first confirmatory factor analysis was adequate,

results suggest that the new model, minus rigidity, was an even better fit. Chi-Square of 6.224 resulted in a p-value of .285. Other fit statistics were as impressive; CFI = .995, RMSEA = .031, and PCLOSE = .608.

Table 8. Confirmatory Factor Analysis Comparison

	Model with Rigidity	Model without Rigidity
χ^2	15.39	6.224
p	0.081	0.285
CFI	0.976	0.995
RMSEA	0.052	0.031
PCLOSE	0.417	0.608

The new factor structure was then included in the model with the ecological indicators. The correlation between social support and history of child maltreatment was maintained and the results of this new model were substantial.

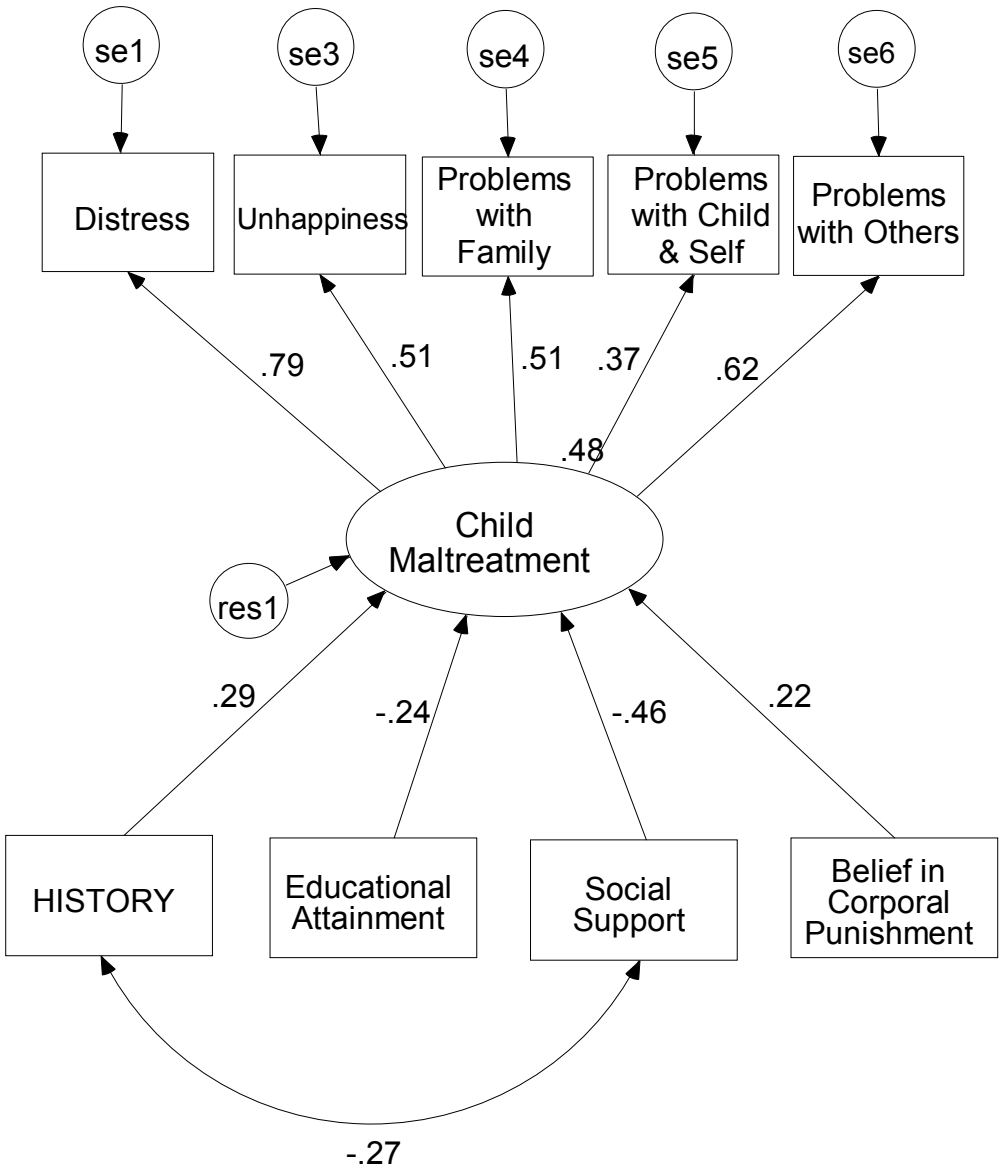


Figure 8. Model 3

The new model (Model 3) resulted in considerable improvement with the following values: $\chi^2 = 42.878$, p = .020, CFI = .957, RMSEA = .050 (90% interval of .02 to .076), and PCLOSE = .474. These results were very encouraging. While χ^2 was still

showing significance, the CFI statistics, in conjunction with the RMSEA and the PCLOSE, led to assessing this model as acceptable. Sample size for this structure was adequate with Hoelter's N values of 238 and 279 for .05 and .01 levels, respectively.

Table 9. Model 3 Results

	Model 3 Value	Increase/ Decrease From Model 2
χ^2 (p-value)	0.020	0.020
PGFI	0.558	-0.028
CFI	0.957	0.056
RMSEA	0.050	-0.020
PCLOSE	0.474	0.421

Rank order of the ecological indicators remained consistent with the previous models; however, slight variation did exist. Social support increased from -.45 to -.46; history of child abuse increased from .26 to .29; and educational attainment decreased from -.25 to -24. Belief in corporal punishment did not change with this model and remained consistent at .22. Overall impact of the ecological indicators resulted in R^2 = .48, an increase of .03 from Model 2 and an increase of .07 from Model 1.

Lastly, the background, or control, variables of minority status and gender were introduced to the equation. Gender was not significantly related to any of the ecological indicator variables, or to the child maltreatment potential factor. Critical values for this variable ranged from -.51 to 1.12, less than the ±1.96 required for significance. Therefore, gender was not included in the model.

Minority status showed significance with the educational attainment variable. The critical value for the regression weight of this relationship was 2.90, with a p-value of .004. Therefore, minority status was added to the model with a direct path to educational attainment.

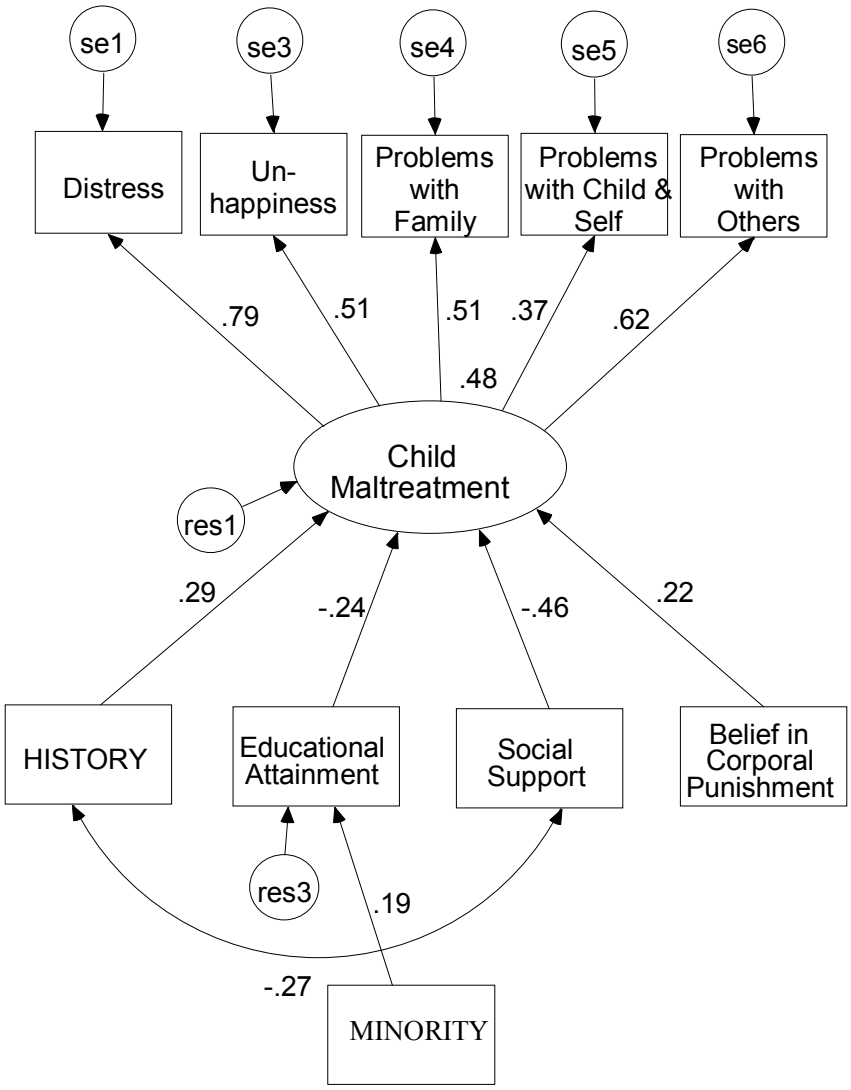


Figure 9. Model 4

Regression paths for this model continued to maintain the rank order of the previous models. Values remained the same as the previous model (Model 3), while inclusion of minority status resulted in a regression path from minority status to educational attainment of $\beta = .19$.

Results of this model were similar to the previous model, with values of: $\chi^2 = 66.296$, $p = .001$, CFI = .945, PGFI = .594, RMSEA = .05, and PCLOSE = .474. Hoelter's critical N .05 and .01 CN values were greater than 200 (227 and 262, respectively). This suggests that the sample size was satisfactory for this analysis.

Table 10. Model 4 Results

	Model 4 Values	Increase/Decrease From Model 3
χ^2 (p-value)	0.001	-0.019
PGFI	0.594	0.036
CFI	0.945	-0.012
RMSEA	0.050	0.00
PCLOSE	0.474	0.00

Two of the fit statistics, RMSEA and PCLOSE did not change from Model 3 to Model 4. Furthermore, two other fit statistics (χ^2 and CFI) resulted in reduced representation of the sample data. The only fit statistic that reflected a greater match from Model 3 to Model 4 was the PGFI, and that difference was only minimal. Therefore, Model 3 appears to be the best fitting model for this data.

The regression paths maintained their rank order across all of the structural models. While variations in β did occur, they were minor. Overall, history varied from .26 to .29; educational attainment varied from -.24 to -.26; social support varied from -.45 to -.46; and belief in corporal punishment varied from .22 to .23.

Table 11. Regression Weights of Predictor Variables Across Models

Predictor	Model			
	Model 1	Model 2	Model 3	Model 4
History	0.27	0.26	0.29	0.29
Educational Attainment	-0.26	-0.25	-0.24	-0.24
Social Support	-0.46	-0.45	-0.46	-0.46
Belief in Corporal Punishment	0.23	0.22	0.22	0.22

These models demonstrate that, of the selected ecological indicators, social support impacts child maltreatment potential to the greatest extent. Furthermore, the three additional indicators offer a substantial contribution. Critical ratios of the beta weights for all the ecological indicators were significant.

R^2 ranged from .41 (Model 1) to .48 (Model 3 and Model 4). R^2 signifies the variance in child maltreatment potential that is attributed to the four ecological indicators; therefore, an R^2 of .48 equates to 48% of the variance in the child maltreatment potential factor that can be attributed to the four ecological indicators (history of child abuse, educational attainment, social support, and belief in corporal punishment).

Effects in SEM can be either direct or indirect and refer to any association that exists between variables. The AMOS program provides data on direct effects, indirect effects, and total effect. Direct effects represent the values of the existing paths that make up the structural equation model. In this model, direct effects only include the paths of the ecological indicators on child maltreatment and the loadings of the child maltreatment potential indicators on the child maltreatment potential factor. The direct effects of the ecological indicators are the regression weights that were discussed previously: history of child maltreatment, .29; educational attainment, -.24, social support, -.46, belief in corporal punishment, .22. Factor loadings of the child maltreatment potential indicators make up the remainder of the direct effects: distress, .788; problems with others, .621; problems with child and self, .373; problems with family, .513; unhappiness, .510.

Indirect effects include the influence of one variable on another that is not specified by a path in the model. Indirect effects associated with social support had the highest values of all the ecological indicators. Values include: distress, -.364; problems with others, -.287; problems with child and self, -.172; problems with family, -.237; and unhappiness, -.236. Total effects are indirect and direct effects combined.

Table 12. Total Effects (Model 3)

	History	Educational Attainment	Social Support	Belief in Corporal Punishment	Child Maltreatment
Child Maltreatment	0.292	-0.236	-0.463	0.217	0.000
Distress	0.230	-0.186	-0.364	0.171	0.788
Problems with Others	0.181	-0.146	-0.287	0.136	0.621
Problems with Child and Self	0.109	-0.088	-0.172	0.081	0.373
Problems with Family	0.150	-0.121	-0.237	0.111	0.513
Unhappiness	0.149	-0.120	-0.236	0.111	0.510

As guidelines for determining fit of theorized model with the sample date, structural equation models use goodness-of-fit measures. Statisticians agree on acceptable values for most of the fit statistics for SEM. Chi-square is expected to be non-significant with a p-value of .05 or higher; CFI values of at least .90 are acceptable; RMSEA values should fall at or below .05; PCLOSE values should be .05 or greater; PGFI values are acceptable at .50 or more; and Hoelter's CN should have values of 200

or greater. These fit statistics allow for the assessment of model fit at many different levels; therefore, it is important to observe fit of the model using several different fit statistics. The many fit statistics used to evaluate this study will provide a more accurate account of the true fit of the model to the sample data.

Table 13. Assessment of Fit for Model 3

Fit Indices	Model Value	Reference Value	Global Model Fit?
χ^2	0.020	$p \geq .05$	No
CFI	0.957	$\geq .90$	Yes
PGFI	0.558	$\geq .50$	Yes
RMSEA	0.050	$\leq .05$	Yes
PCLOSE	0.474	$\geq .05$	Yes
Holter's CN	238	> 200	Yes

All but one of the fit statistics utilized for this study reflect an adequate fit. The Chi-square value (.020) fell below the acceptable .05 level; however, because of the strength of the other fits statistics, this model is considered a good fit.

Table 14. Comparison of Fit Statistics Across Models

	χ^2	p	CFI	PGFI	RMSEA	PCLOSE	R^2
Model 1	97.936	0.000	0.859	0.593	0.083	0.003	0.41
Model 2	77.843	0.000	0.901	0.586	0.070	0.053	0.45
Model 3	42.878	0.020	0.957	0.558	0.050	0.474	0.48
Model 4	56.242	0.010	0.945	0.594	0.050	0.474	0.48

CHAPTER 6

DISCUSSION

The main purpose of this study was to identify the indicators from each ecological system that have the greatest impact on child maltreatment potential, then to compare these indicators using a structural equation model. The four systems that comprise the ecological model are ontogenic system, the microsystem, the exosystem, and the macrosystem.

6.1 Ontogenic Indicator

6.1.1 Hypothesis 1a

Hypothesis 1a focuses on the ontogenic system and indicators within that system that may contribute to an increased risk of child maltreatment potential. The ontogenic system is concerned with what the abuser brings to the situation. It involves the childhood histories and personal characteristics of the abuser (Myers, et al., 2002; Zigler & Hall, 2000). Maltreatment of the abuser as a child is a major ontogenic indicator and one which Belsky (1980) hypothesized is alone insufficient to explain the phenomenon of child maltreatment.

In this study, history of maltreatment was the identified ecological indicator for the ontogenic system, and had a correlation of r = .358. This variable was the second strongest correlate of all the ecological indicators used in the analysis. The association

between history of child maltreatment and child maltreatment potential was maintained within the structural model ($\beta = .292$). The positive value of this relationship indicates that history of maltreatment increases the risk a parent will maltreat his/her own child. This result runs parallel to previous research (Belsky, 1980; Myers, et al., 2002; Zigler & Hall, 2000) that suggests history of child maltreatment is positively associated with child maltreatment. Consequently, Hypothesis 1, that history of child maltreatment is positively associated with child maltreatment, was supported.

6.2 Microsystem Indicators

The microsystem focuses on the immediate environment of the child and includes the child himself. Microsystem indicators selected for this study include parental age, ratio of children to adults, educational attainment, single-parent status, and unemployment.

6.2.1 Hypothesis 2a

Young parental age has been supported in the empirical literature as a correlate of child maltreatment (Thomas, D., Leicht, C., Hughes, C., Madigan, A., & Dowell, K., 2003; Lee & Goerge, 1999). One study of significance (Lee & Goerge, 1999) reports that impoverished mothers who are 17 years of age or younger are 17 times more likely to have a substantiated case of child maltreatment against them than mothers who are 22 years of age or who are less impoverished.

Contrary to previous studies that support a significant relationship between parental age and child maltreatment, the relationship in this study was insignificant, suggesting the relationship was not a meaningful one. However, the direction of the

relationship was consistent with previous studies and suggests that older parents are less at risk for maltreatment than younger parents. Therefore, Hypothesis 2a, which states that parental age is negatively associated with child maltreatment potential was supported; however, the relationship was not significant.

The discrepancy between the result of this study and previous studies could be explained by the fact there was no differentiation between mothers and fathers on the age variable in this study. Most previous research focuses on age of the mother, not age of the father. Further research is recommended to examine the differences that may exist between single mothers and single fathers.

6.2.2 Hypothesis 2b

Family size has been associated with an increase in child maltreatment in previous studies. Ethier, et al. (2004) report a 3.13 times higher risk of child maltreatment for children from larger families and the Third National Incidence Study (NIS-3, Sedlak, A.J. & Broadhurst, D.D.,1996) found that children from the largest families were physically neglected almost three times the rate as those children from single child family households. Likewise, Groothuis, et al. (1982) found an increase in child maltreatment with the birth of twins in a family. This increase was not only for the twins themselves, but for other children in the family. Less spacing between children's ages and large numbers of children increase stress within the household. "Parents become more punitive, unreasonable, and less supportive as the interval between births decreases" (p.769).

Instead of measuring household size, this study examined the effects of ratio of children to adults on child maltreatment potential. This variable was positively associated with child maltreatment potential with a correlation value of .057 and a p-value of .361, suggesting an insignificant relationship. Therefore, results of this study suggest that, as ratio increases, child maltreatment potential increases; however, the relationship is insignificant. As a result, Hypothesis 2b, that states the ratio of children to adults is positively associated with increased risk of child maltreatment potential, was supported in this study; however the relationship was insignificant.

A possible explanation as to why this variable was not significant could be that it is household size and not necessarily the ratio of children to adults that is the determining factor in child maltreatment. Crowded homes increase stress among family members, whether the individuals living in the home are adults or children. Actually, Youssef, Kamel, & Attia (1998) identified crowding as a predictor of the use of corporal punishment.

6.2.3 Hypothesis 2c

Low educational attainment is an influencing factor in child maltreatment (Whipple & Webster-Stratton, 1991) and is associated with more negative parenting styles, especially physical punishment (Zelenko, Huffman, Lock, Kennedy, & Steiner, 2001). Fathers appear to be the most affected by educational attainment and have higher rates of severe violence toward their children than those with college degrees (Wolfner & Gelles, 1993; Pitzer, 1996).

Educational attainment was the strongest correlate of all the microsystem indicators. This makes sense if one considers that advanced educational often requires consideration of others opinions and ideas that often are in conflict with those of the individual. Learning these techniques leads to a person's becoming more open and understanding.

Educational attainment results in a correlation value of -.298, and a p-value in the significant range. This suggests that higher educational attainment is associated with reduced risk of child maltreatment potential. The significance of this variable and its negative direction is comparable to other studies of educational attainment and child maltreatment. In the structural model, educational attainment was the third strongest indicator of child maltreatment potential with a regression weight of -.236. Therefore, Hypothesis 2c, which states that educational attainment is negatively associated with increased risk of child maltreatment potential, was supported.

6.2.4 Hypothesis 2d

The relationship between single-parent status and child maltreatment is highly supported by the empirical literature. Children from single-parent households are more likely to experience all types of neglect than children from two-parent households. Children from single-parent households are also overrepresented among seriously injured, moderately injured, and endangered children (Sedlak & Broadhurst, 1996; Gelles, 1992).

Often, the focus of single-parenthood is single mothers who, by far, make up a much larger portion of single-parent households than men. The few studies that have

been conducted on single fathers suggest a discrepancy between these two genders on single-parenthood and child maltreatment. The single parents in this study were not separated by gender in order to determine their individual impact on child maltreatment; however, the relationship was significant with a correlation of .230.

While single-parenthood has been a factor of child maltreatment in numerous studies, other research opposes this relationship. For example, no significant relationship between single-parenthood and child maltreatment was reported by Lee and Goerge (1999) or by Scannapieco and Connell Carrick (2003) in their research. This discrepancy necessitates the need for additional examination to determine if single-parenthood is indeed a risk factor and to differentiate between single female and single male heads of households in order to determine the differences that may exist in child maltreatment potential.

In this study, single-parent status had the second highest correlation value (.230) of all the microsystem indicators. Therefore, Hypothesis 5, which states that single-parent status is positively associated with child maltreatment potential, is supported.

6.3 Exosystem Indicators

The exosystem consists of the immediate system outside of the family system. Extended families, community factors, and the economic structure all make up part of a family's exosystem. Families are consistently influenced, whether negatively or positively, by these external systems.

6.3.1 Hypothesis 3a

Unemployment is often identified as a risk factor for child maltreatment (Lindel and Svedin, 2001; Sidebotham, et al., 2002; Wolfner and Gilles's, 1993); however, unemployment does not have a uniform effect across all types of child maltreatment and is more likely to be associated with child physical abuse and, to a lesser extent, child neglect. (Gilliam, Tanner, Chine, Freeman, Rooney, Labia, 1998).

Unemployment was significantly associated with child maltreatment potential in this study with a correlation of r = -.241. While this variable was not the strongest indicator in the exosystem, the correlation value was significant. The significance of this relationship, along with the negative finding, supports Hypothesis 3a that unemployment will be negatively associated with child maltreatment potential.

6.3.2 Hypothesis 3b

Socially impoverished communities tend to have less positive neighboring and more stressful day-to-day family interactions. They also tend to be associated with high crimes rates. The lack of neighborhood support in these communities, combined with community safety issues and family stress can lead to child maltreatment (Garbarino & Kostlney, 1992).

Neighborhood safety was not measured by a standardized instrument; rather, this variable was determined by respondents' answers to questions that appeared to measure neighborhood safety. Face validity is the lowest level of validity and is concerned with how a measure appears (Fink, 1995). The items utilized for this measure appeared to be adequate as a measure of neighborhood safety, and factor

analysis identified three factors associated with this measure: safety for possessions, safety for self, and safety for children. Assessment of reliability resulted in a coefficient alpha of .94, suggesting this measure has a high degree of internal consistency. Therefore, this measure appears to be satisfactory for measuring neighborhood safety in this study. However, because it is not standardized and higher levels of validity were not established, caution must be used when assessing the results of this measure.

Nonetheless, neighborhood safety was significantly related to child maltreatment potential in this study. Pearson's r correlation resulted in a value of -.254, suggesting neighborhood safety is inversely correlated with child maltreatment potential; thus, Hypothesis 3b, that lack of neighborhood safety will be negatively associated with child maltreatment potential, was supported.

6.3.3 Hypothesis 3c

Poor communities are often highly mobile and have safety issues that result in increased crime rates and drug use. These conditions tend to promote isolation in impoverished communities (Garbarino and Kostelny, 1992). Families who feel isolated from their neighbors or those who do not live within close proximity of their social support systems are at increased risk for child maltreatment (Coohey, 1996; Corse, Schmid & Trickett, 1990).

The measure for neighborhood isolation in this study was not a standardized instrument. The questions used for this measure had established face validity only. Furthermore, a coefficient alpha value of .68 suggests the measure was marginally adequate. This information provides a possible explanation as to why this variable was

inconsistent with other studies that report an association between neighborhood isolation and child maltreatment.

Correlation results for neighborhood isolation and child maltreatment potential resulted in r = -.005. This was an insignificant finding with a p-value of .993. As a result of the reliability score and the correlation value of this measure, and because adequate validity had not been established, it is the contention of this author that the items used to measure this variable were inadequate and did not measure the concept it was intended to measure. An instrument that yielded higher validity and reliability results may have produced an alternate outcome. Hypothesis 3c, that neighborhood isolation will be positively associated with child maltreatment potential, was not supported in this study.

6.3.4 Hypothesis 3d

Accessing adequate social support is a challenge for many low-income individuals (Todd & Worell, 2000). Impoverished neighborhoods encourage isolation and lack of transportation can inhibit travel to support sources.

Inadequate social support has previously been associated with positive parenting behaviors related to child maltreatment and lack of support to negative behaviors. Maltreating mothers tend to have fewer friends in their support networks, have less contact with friends, and rate the quality of friend support lower than non-maltreating mothers (Crnic and Greensberg, 1990; Hashima and Amato, 1994).

Alternatively, an adequate social support system can have protective properties associated with reduced risk of child maltreatment (Koch, Browne, Ringwalt, Dufort,

Ruina, Stewart and Jung, 1995). By moderating the negative impact of stressful life events, social supports provide a buffering effect between stress and child maltreatment.

Not surprisingly, social support had the greatest impact on child maltreatment potential of all the ecological indicators selected for this study. Social support was significantly correlated child maltreatment potential with a value of -.469. In the structural model, the outcome of this variable resulted in a regression weight of -.46. Consequently, Hypothesis 3d, which states that social support with be negatively associated with child maltreatment potential, was supported in this study.

6.4 Macrosystem Indicators

The macrosystem consists of "the larger cultural fabric in which the individual, the family, and the community are inextricably interwoven" (Belsky, 1980, p. 328). Societal attitudes toward violence and expectations about child discipline are a part of this ecological system.

6.4.1 Hypothesis 4a

Abuse potential is higher in families who value corporal punishment. Stress and beliefs regarding corporal punishment may interact in such a way that the association between parenting stress and risk for physical abuse varies, depending on the parent's belief in the value of corporal punishment (Crouch and Behl, 2001). Those parents who are more likely to discipline their children by hitting them may use abusive force at times when they are experiencing excessive stress. A fine line exists between acceptable corporal punishment and abuse and a stressed parent can easily cross that line.

This study relied on one item to assess belief in corporal punishment. That item was the question, "Sometimes Children Need to Be Spanked". This item was not validated or determined to be reliable; furthermore, one item to assess a variable probably is not providing a comprehensive view of the phenomenon. However, this variable was significantly correlated with child maltreatment potential ($r = .239$, $p = .000$).

Belief in corporal punishment was the only macrosystem variable used in this study and it had the least impact on child maltreatment potential of all the selected ecological indicators. The critical ratio for this path was significant and the regression resulted in $\beta = .22$. The positive relationship between this variable and child maltreatment potential, along with its significance, supports Hypothesis 10, that belief in corporal punishment will be positively associated with child maltreatment potential.

6.5 Ecological System Indicators

6.5.1 Hypothesis 5

Ecological theory is a multi-dimensional approach to determining risk for child maltreatment. This model considers child maltreatment the result of biological, psychological and sociological characteristics and includes four levels of analysis: (a) the ontogenic system, (b) the microsystem, (c) the exosystem, and (d) the macrosystem. Child maltreatment indicators from each of these four levels were compared in order to determine which ecological indicator had the greatest impact on child maltreatment potential.

This study began with the correlation of all the identified ecological system indicators to determine the indicator from each ecological system that had the strongest correlation with child maltreatment potential. Correlation results indicated that social support ($r = -.469$), history of child maltreatment ($r = .358$), educational attainment ($r = -.298$), and belief in corporal punishment ($r = .239$) were the indicators that were the strongest correlates from each of the ecological systems.

These four variables were then input into a structural equation model to determine the impact of the indicators on child maltreatment potential. As with the correlation results, social support ($\beta = -.46$) had the greatest impact, followed by history of child maltreatment ($\beta = .29$), educational attainment ($\beta = -.24$), and belief in corporal punishment ($\beta = .22$).

Furthermore, the structural model that resulted in the best fit included a covariation between history of child maltreatment and social support. This covariation resulted in $r = -.27$, suggesting an inverse relationship in which the direction of one variable results in the opposite direction of the other variable. In other words, the more likely an individual is to have been maltreated as a child, the less likely he/she is to have an adequate social support system. The variation between the ecological indicators supports Hypothesis 5, which states that variation will exist between the different ecological system indicators and their relationship with the child maltreatment potential factor.

6.6 Child Maltreatment Potential Indicators

The Child Maltreatment Potential Inventory was the criterion variable for this study and was indicated by a factor supported by the six subscales of the measure. The subscales include distress, rigidity, unhappiness, problems with family, problems with child and self, and problems with others.

Ecological/Transactional theory considers the four systems of ecological theory, plus adds an additional dimension by dividing risk factors into two broad categories: potentiating and compensatory factors (Cicchetti & Lynch, 1993). The Child Maltreatment Potential Inventory subscales are considered potentiating factors that increase child maltreatment risk. Identifying the contribution of these subscales can provide insight into characteristics of the individual that are associated with child maltreatment potential.

Factor loadings for the confirmatory factor analysis resulted in values from .37 for problems with child and self, to .81 for distress. Stress has been conceptually and empirically associated with child maltreatment in the research literature (Chan, 1994; Whipple & Webster-Stratton, 1991; Kotch, 1997; Hillson & Kuiper, 1994). In a report on the nature of child maltreatment, the National Research Council (USDHHS, 1999), states that maladaptive parenting that arises from a parent's behavioral characteristics, such as an inability to control anger, impulsivity, background of abuse, or poor coping skills, are exacerbated by life events that can lead to stress. Similarly, Burrell, Thompson, and Sexton (1994) suggest that "stress is the most noteworthy correlate of

child abuse potential" (p. 1046) and is also an important correlate of other variables that have previously been associated with child abuse potential, including family resources.

Many researchers have documented the relationship between economic pressures and stress in low-income families (Belle, 1990; Elder, Conger, Foster, & Ardelts, 1992; Lepore, Evans, & Schneider, 1992; McCubbin, Thompson, & McCubbin, 1996; McLoyd, 1990, Williams, Yu, Jackson, & Anderson, 1997). Cadzow and Armstrong (1999) suggest that financial stress for economically disadvantaged families may be one of the most powerful predictors of child physical abuse potential, outweighing other characteristics often used for child maltreatment screening such as history of parental abuse in childhood, single parenting, young motherhood, low levels of education, social isolation, parental substance abuse, and parental psychiatric history (Cadzow & Armstrong, 1999).

The child maltreatment potential indicator of rigidity was deleted from the structural model. In the confirmatory factor analysis, this variable had a factor loading of .40, slightly higher than problems with child and self (.37), the indicator that provided the least contribution to the child maltreatment factor. After inclusion of the ecological indicators in Model 1, the factor loading of the rigidity subscale decreased to .33.

Examination of the modification indices suggested rigidity was highly correlated with problems with others, history of child maltreatment, and the residuals of the child maltreatment potential factor. Correlations between rigidity and the ecological indicators revealed that this subscale was significantly correlated with only educational

attainment, and was negatively correlated with history of child maltreatment. Because of the problematic nature of this variable within the structural model, its low correlation with the ecological indicators, and because it provided the least contribution to the child maltreatment factor, rigidity was excluded from the equation. The remaining five indicators provided support for the child maltreatment potential factor. For the structural model with the best fit, Model 3, variation within the child maltreatment potential indicators ranged from .37 for problems with child and self, to .79 for distress.

While rigidity appeared adequate in the confirmatory factor analysis, this indicator was not an appropriate fit in the structural equation model. Further research to determine the dynamics of rigidity might explain the inadequate fit of this subscale in the ecological model.

6.7 Minority Status

Racism plays an integral role when determining child maltreatment reports and substantiation rates. Racism places undue stress on individuals and families. Families in racial categories other than the "privileged" White class often have diminished educational and economic opportunities. When minorities are unable to attain their educational or economic goals due to discrimination of the larger culture, stress and frustration arise (Connell-Carrick, 2002). This, ultimately, can lead to stress-related child maltreatment.

While racism was not measured directly in this study, minority status was entered as a background variable in order to determine any effect this variable may have on child maltreatment potential. The only significant relationship between minority

status and the ecological indicators was a positive path from minority status to educational attainment. Minority status was coded as 0 = non-minority and 1 = minority status; therefore, this positive path indicates that minorities have higher educational attainment than non-minorities. This finding is noteworthy considering the 1990 U. S. Census reported that 14% of Whites in Cleveland had a degree in higher education, whereas, only 9% of Blacks had more than a high school education. A possible explanation is that educational attainment is related more to poverty than to racial disparity.

Adding a path in the model from minority status to educational attainment did not improve the model and actually reduced the fit with the sample data. Therefore, the inclusion of minority status provided no substantial contribution to the structural model.

In summary, history of child maltreatment, educational attainment, social support and belief in child maltreatment were the four ecological correlates selected for inclusion in this study. Social support and child maltreatment had the strongest associations with child maltreatment. Furthermore, these two variables inversely covaried. Educational attainment and belief in child maltreatment, while maintaining a significant relationship with child maltreatment potential, had less impact than history of child maltreatment and social support. The inclusion of minority status resulted in a significant path from this variable to educational attainment; however, this addition decreased the fit of the overall model.

The child maltreatment potential factor was originally supported by the six subscales in the confirmatory factor analysis; however, the structural model decreased the effectiveness of rigidity. Ultimately, this subscale was deleted from the model.

6.8 Implications for Social Work

Social work is directly tied to expanding and improving the knowledge base of the profession and to providing results that are meaningful to improve the lives of families and their children. The ultimate goal of this research was to compare correlates of child maltreatment potential in order to identify the ecological indicators that provide the greatest contribution to child maltreatment risk. This research informs practice, research, and policy with the goal of improving services provided to families at risk of maltreating their children. This study used the ecological model as a theoretical guide and its evidence of support for this guiding theory of child maltreatment will be discussed.

6.8.1 Implications for Theory

The ecological model of child maltreatment is the guiding theoretical model for this study. The strengths of the ecological model are numerous and the model is clearly aligned with the mission of social work. The model provides for a more comprehensive understanding of child abuse and neglect. Child maltreatment is multidimensional and is the consequence of several different factors and their relationships to one another. Psychologists originally identified individual characteristics of the abuser and sociologists viewed societal impacts related to child maltreatment. Ecological theory not only expands on these views but incorporates them into one dynamic theory that

suggests child maltreatment is the result of conflicts within each ecological system, as well as interactions between these systems.

One major contribution of ecological theory is that it avoids a cause and effect determination of individual behavior and instead focuses on maltreatment from an ecological perspective that includes influences from the individual, the family, the community, and society. This study included variables that represent all ecological levels.

The ecological model was supported by this study. Variables at all levels of the ecological model were found to be statistically significant. The ontogenic level looks at how parents grow up to behave in abusive or neglectful ways. In this study, history of maltreatment as a child was the ontogenic level indicator and was significantly correlated with child maltreatment potential. Individuals maltreated as children were more at risk for maltreating their own children. Children learn what they are taught. If children grow up in abusive households, their understanding of how to best raise children will be different than that of children who grow up in supportive households. Child abuse teaches children that it is acceptable for bigger and stronger people to take out their anger on a smaller, weaker person.

At the microsystem level, educational attainment and parental age were negative correlates of child maltreatment potential, while child to adult ratio and single-parent status were positive correlates. While previous studies suggest that larger family size increases child maltreatment risk, the child/adult ratio used in this study was not a significant correlate.

Significant exosystem level correlates included unemployment, social support, and neighborhood safety. Unemployment and neighborhood safety were negatively correlated with child maltreatment potential. Social support not only had the highest correlation with child maltreatment potential, it also covaried with history of child maltreatment, thus providing support for the ecological perspective that child maltreatment results from interactions within and between ecological systems.

Finally, the macrosystem level indicator was the parent's belief in corporal punishment. This variable was positively correlated with child maltreatment potent and was significant. The variables selected from each of the four ecological levels for inclusion in the structural equation model were: ontogenic level, history of child maltreatment; microsystem level, educational attainment; exosystem level, social support; macrosystem, belief in corporal punishment.

The results of the structural model provide support for ecological theory. Each of the ecological level indicators contributed to the variance in the child maltreatment potential factor, for a combined variance of 48%. Furthermore, the ecological indicators of social support and history of child maltreatment covaried within the model. As demonstrated by this study, the ecological model and the inclusion of multiple levels of variables demonstrates the complexity of the child maltreatment phenomenon.

6.8.2 Implications for Practice

Practice is informed by this study in both assessment and intervention. Assessment of child maltreatment requires knowledge of contributing indicators. Many

previous studies focused on indicators related to particular ecological levels, for example, individual characteristics or societal beliefs. They did not consider a true ecological perspective by examining indicators from all ecological systems. Understanding that each of the ecological systems contributes substantially to child maltreatment will help practitioners broaden their assessment tools to include possible indicators from each of the systems.

Further contributions to advancing knowledge of assessment of child maltreatment potential involve the effects of the individual indicators. This study supports previous research identifying educational attainment, belief in corporal punishment, single parent status, unemployment, and neighborhood safety as indicators of child maltreatment potential. These findings strengthen results of previous studies with similar findings and contribute to the overall knowledge of assessing child maltreatment potential in families in poverty.

Social support and history of maltreatment were the ecological indicators that contributed most to the child maltreatment potential variance. The correlation between these two variables was a major finding in this study and is especially valuable regarding intervention. The finding suggests those with a history of child maltreatment have less adequate support systems than those without a history. History of child maltreatment and social support were the two indicators with the greatest impact on child maltreatment potential; therefore, if a correlation exists, it seems logical that reducing the impact of one variable will result in a reduction in the other. A history of child maltreatment cannot be changed. Once a person is maltreated, they will always

have a history of maltreatment. Conversely, social support can fluctuate throughout a lifetime. Helping individuals who have a history of maltreatment to identify and increase their social supports may substantially decrease their risk of child maltreatment potential by reducing the effects of an inadequate social support system and possibly decreasing the impact of history of maltreatment.

This interaction between the ontogenic and exosystems is supported by ecological/ transactional theory. According to these results, history of maltreatment functions as a potentiating factor and social support as a compensatory factor. History of maltreatment contributes to an increased risk of child maltreatment while social support serves to reduce the risk of child maltreatment. Introducing an adequate support system into an individual's ecological system may reduce the effects of potentiating factors, such as history of maltreatment. Because social support has the greatest impact on maltreatment potential, the amount of change it can affect within the ecological system is probably more than any other single variable.

The instrument used in this study measured social support from family, from friends, and from a significant other. Social support can be measured in various ways. Some support instruments examine types of support rather than where the support originates. This study used only measures of support from family, friends, and a significant other. Therefore, this information can be helpful to practitioners in identifying an individual's support system and examining potential supports that can help an individual with an inadequate support system.

6.8.3 Implications for Research

Research is concerned with discovering the truth. While studies of a particular phenomenon may result in dissimilar outcomes, it is the compilation of research that provides a more complete, in-depth understanding of a phenomenon. Consequently, questions arise from previous research that helps to shape future studies. Several questions emerged from this study that suggest the necessity of additional research in the area of interest.

6.8.3.1 Parental Age

In this study, parental age was not significantly related to child maltreatment potential. The discrepancy between this study's and previous study's results may be explained by gender differences. Most previous research focused on the age of the mother, not the father; whereas this study did not differentiate between the two genders but rather combined them into one category. Age may be more a factor of child maltreatment potential for mothers than for fathers. Further research is recommended to examine any differences between single mothers and single fathers in relation to child maltreatment.

6.8.3.2 Higher Ratio of Children to Adults

Ratio of children to adults was selected as a microsystem indicator in this study because of previous studies that relate large numbers of children in the family to increased rates of child maltreatment. Instead of using number of children, ratio of children to adults was chosen to represent this ecological indicator. This measure did not result in a significant relationship with child maltreatment potential. One reason for

this insignificant finding could be that it is not the ratio of children to adults but the overcrowding that results from having many individuals in a household that is the true indicator of child maltreatment potential.

Overcrowding increases noise levels, which in turn affects an individual's physiology. Too much noise and chaos causes stress reactions that increase blood pressure, heart rate, and levels of stress hormones. It often results in psychological distress, as well (Ulrich, 2002). Therefore, additional research is implicated to determine if it is the total number of individuals in a household rather than the ratio of children to adults that is related to child maltreatment.

6.8.3.3 Rigidity Subscale

The instrument used to measure child maltreatment potential in this study was the Child Abuse Potential Inventory. Numerous studies have shown the CAP to be a reliable and valid tool in measuring child maltreatment risk (Ayoub & Milner, 1985; Ayoub, Jacewitz, Gold, & Milner, 1983; Milner & Ayoub, 1980; Milner, Charlesworth, Gold, & Gold, 1988; Mollerstrom, Patchner, & Milner, 1992; Stringer & La-Greca, 19. 85); however, in this study one of the subscales, Rigidity, did not provide an adequate fit with the data. In addition, this subscale correlated with history of child maltreatment in a way that is inconsistent with the other child maltreatment subscales. While the other subscales were positively correlated with history of child maltreatment, rigidity was inversely correlated. This would suggest that individuals who are maltreated in childhood are less likely to be rigid.

The behavior of the rigidity subscale deviates from other studies. While a possible explanation could be related to the ecological indicators chosen for inclusion in this study or the specific population, further research in this area would help to explain why this subscale reacted as it did in this study.

6.8.4 Implications for Policy

An obvious implication for policy lies in the finding of the impact of the social support indicator on child maltreatment potential. Social support was the indicator that had the greatest effect of all the ecological indicators. This discovery provides confirmation for the location of support agencies within impoverished areas. Low-income neighborhoods are notorious for their lack of social agencies and other resource centers that provide support to area residents. Providing monies and incentives for agencies to build or relocate to these areas may help to reduce child maltreatment rates.

6.9 Study Limitations

This study had several limitations that must be addressed. The discussion of these shortcomings not only provides insight into this study, but also provides specific areas in which future study could be targeted.

One of the major weaknesses concerns the use of secondary data. The indicators selected for this study were based on availability within the data. For the ontogenic system and the macrosystem, only one variable was identified to represent each of those systems. Therefore, there was not way to compare if these were higher correlates than other indicators within those ecological system.

Another limitation that resulted from the use of secondary data was the measurement levels at which the data were obtained. Income was collected as ordinal level data; therefore, it was not possible to determine exact poverty levels for the respondents in the study.

A final limitation addresses generalizability of the study. The data for this study were collected within the city of Cleveland, Ohio. A non-experimental design and lack of probability sampling disallow generalization of the results beyond the sample selection.

6.10 Conclusion

The purpose of this study was to compare the impact of the different ecological indicators on child maltreatment potential. It was supported by the literature review and ecological theory. The findings of this study demonstrated that social support had the greatest impact on child maltreatment potential of all the ecological indicators. History of child maltreatment had the second highest impact, followed by educational attainment and belief in corporal punishment, respectively. Furthermore, history and social support covaried within the theoretical model.

Initially, the child maltreatment potential factor was supported by the six CAP subscales. While the confirmatory factor analysis for this measure revealed adequate structure of this factor, once the ecological indicators were included in the model, the rigidity subscale became problematic. This subscale was subsequently deleted from the model.

The best fitting model for this data included the four selected ecological indicators (history of child maltreatment, educational attainment, social support, and belief in corporal punishment), five of the six CAP subscales, and a covariation between social support and history of child maltreatment.

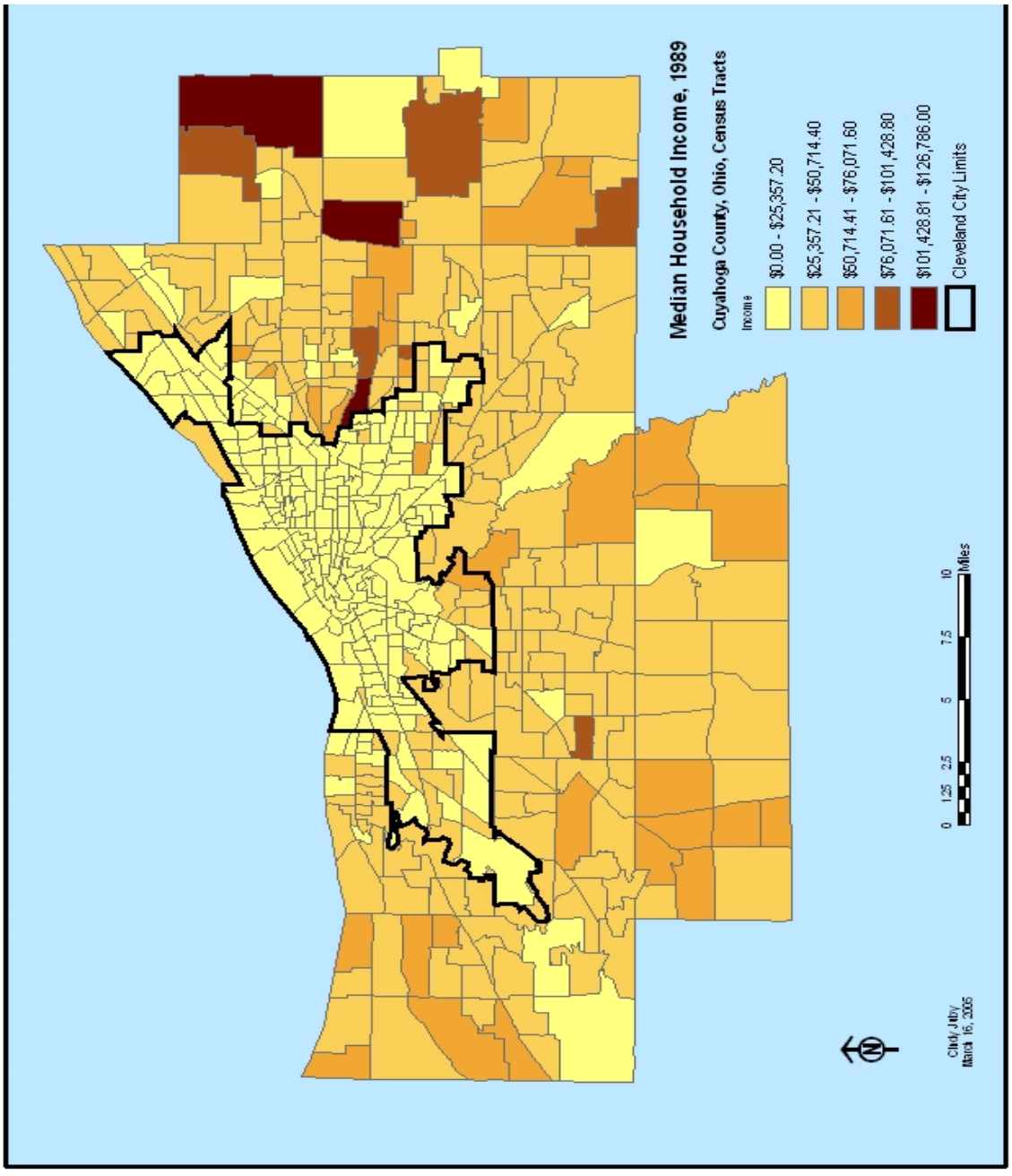
While the ecological indicators in this study were supported by previous research, this study did not include all indicators of child maltreatment risk. Therefore, this study does not imply social support has the greatest impact of all the ecological indicators. Indicators not included in the model may provide a more significant impact than social support. Similarly, it would be inaccurate to suggest that indicators in the exosystem have a greater impact than indicators in other ecological systems.

Further research is needed to examine the relationship between social support and history of child maltreatment. Research is also needed to identify why rigidity did not fit within this theoretical model.

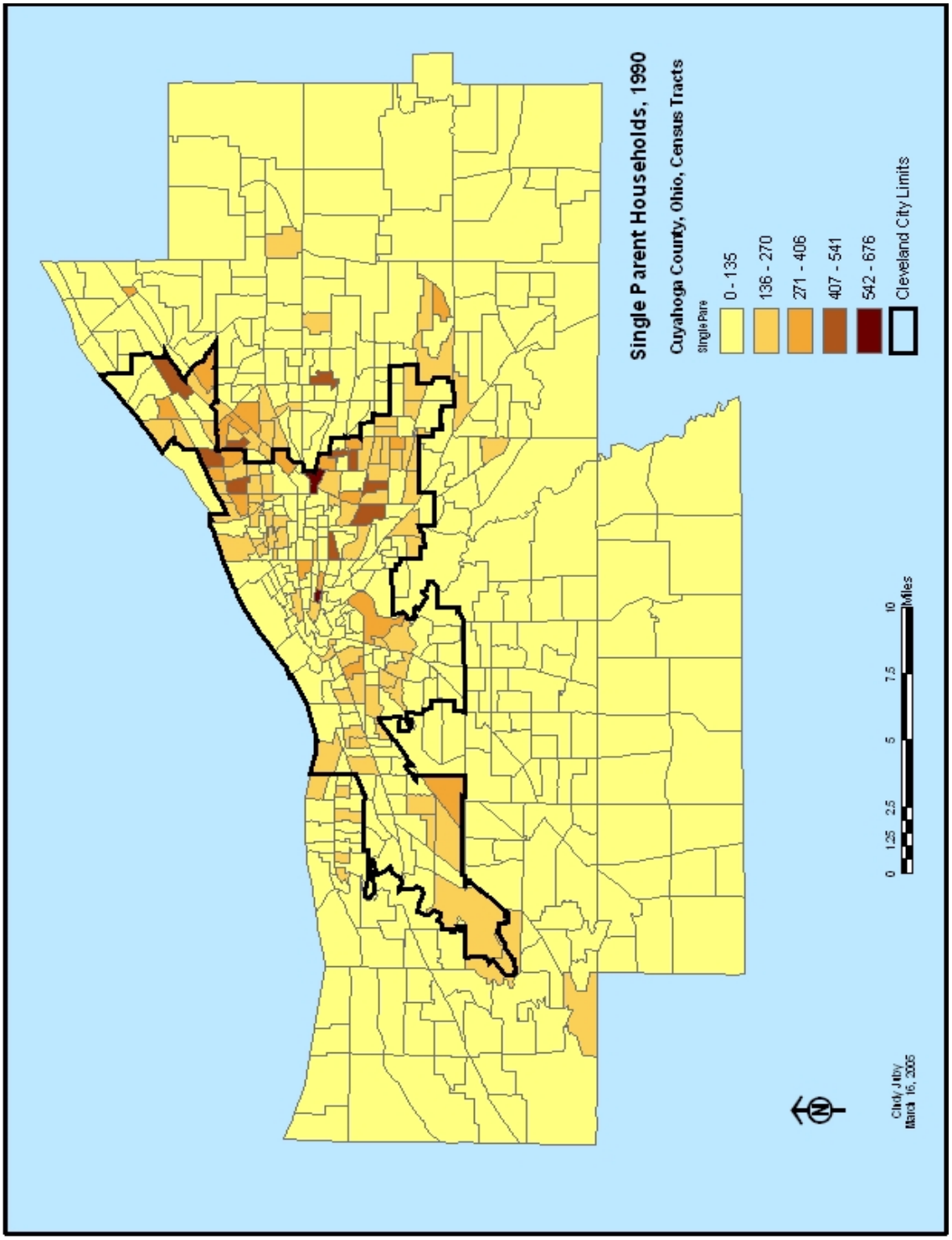
APPENDIX A

GEOGRAPHIC MAPS

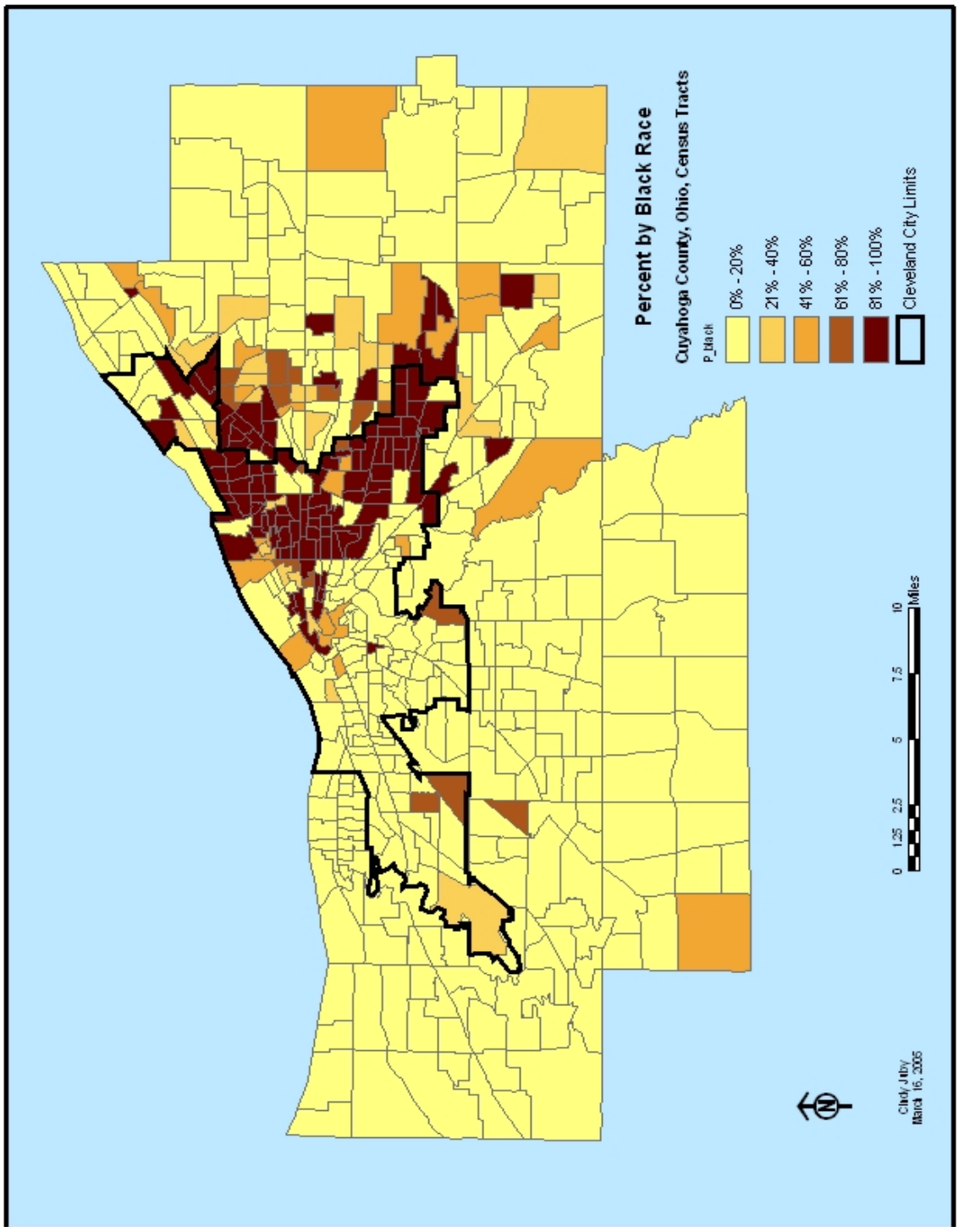
MEDIAN INCOME FOR HOUSEHOLDS IN CLEVELAND, OHIO
(1989 Census Bureau Data)



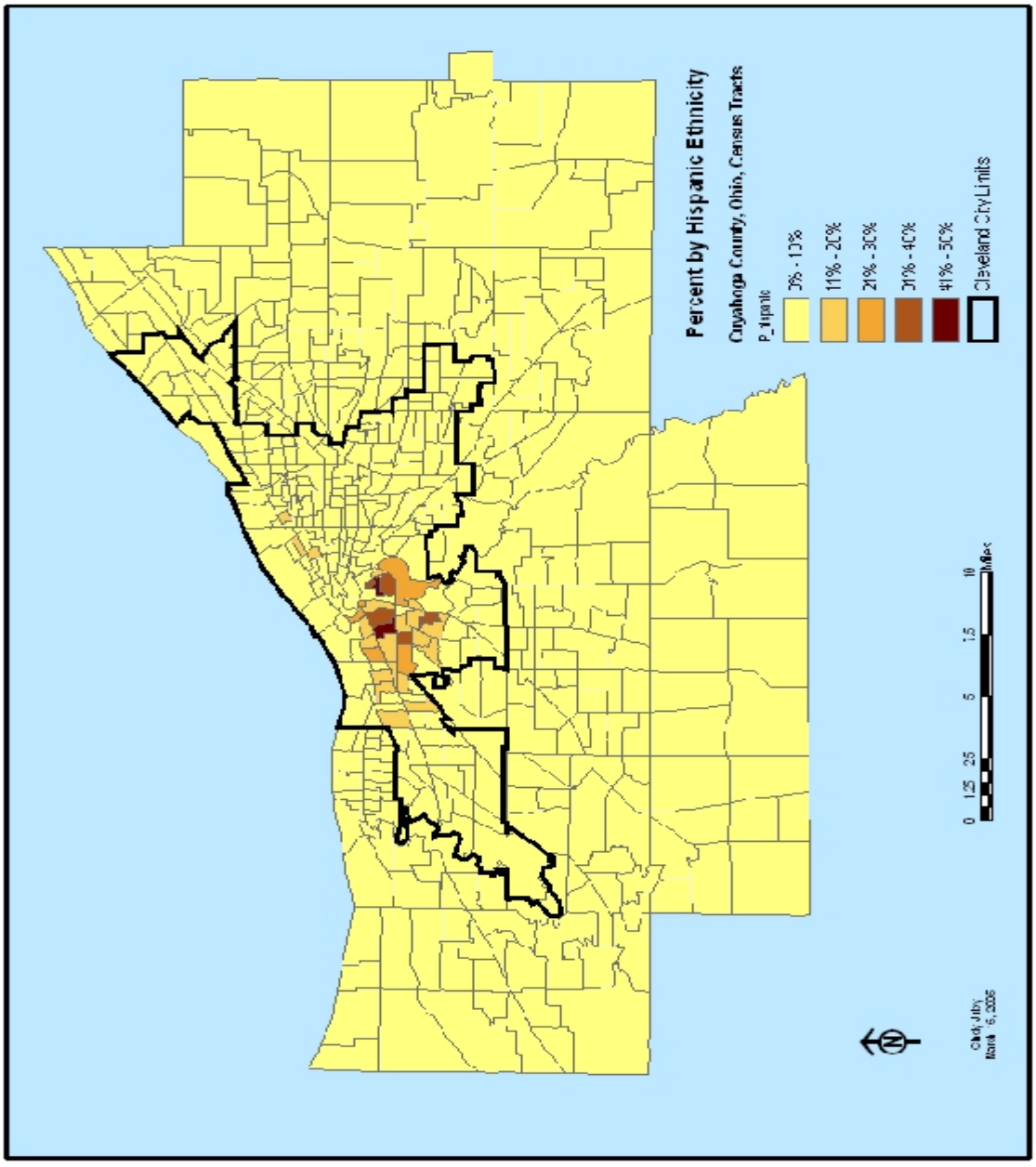
PREVALENCE OF SINGLE-PARENT STATUS IN CLEVELAND, OHIO
(1989 Census Bureau Data)



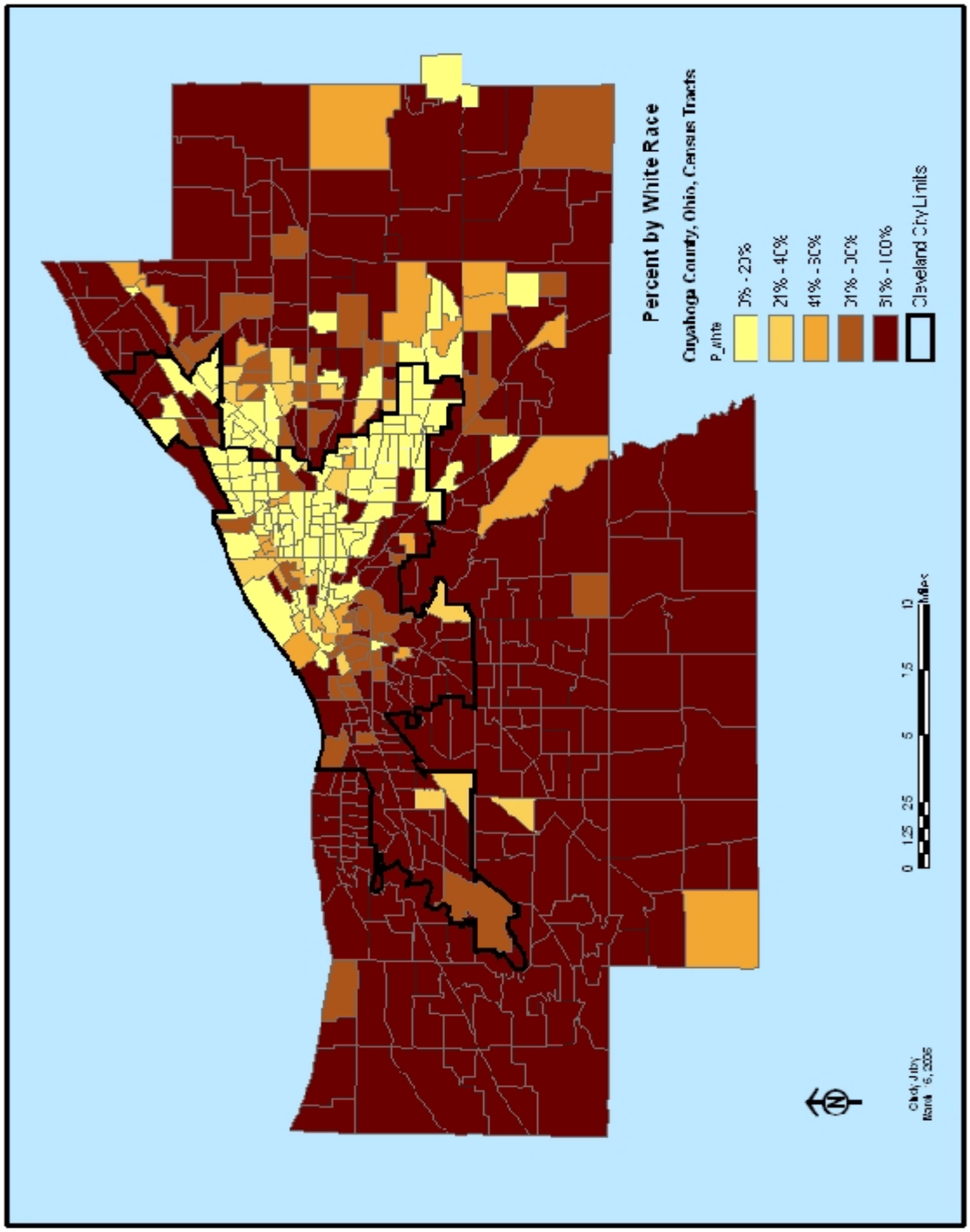
DISTRIBUTION OF BLACKS IN CLEVELAND, OHIO
(1989 Census Bureau Data)



DISTRIBUTION OF HISPANICS IN CLEVELAND, OHIO
(1989 Census Bureau Data)



DISTRIBUTION OF WHITES IN CLEVELAND, OHIO
(1989 Census Bureau Data)



APPENDIX B

DEMOGRAPHIC QUESTIONNAIRE

Demographic Questionnaire

_____ 1. How many children between 0 and 6 years of age live in the household?

_____ 2. How many children between 7 and 11 years of age live in the household?

_____ 3. How many children between 12 and 17 years of age live in the household?

_____ 4. How many adults (over 18) live in the household?

_____ 5. May I ask your age? (Fill in years)

_____ 6. May I ask your marital status?

1. Married 2. Single 3. Divorced 4. Separated
5. Widowed 6. Never Married

_____ 7. Were you employed during the year?

1. Yes 2. No

_____ 8. What is the last grade (educational level) you completed in school?

1. Less than 8th grade
2. 8th grade
3. 9th grade
4. 10th grade
5. 11th grade
6. High School Diploma/GED
7. Some College
8. 2-year Degree
9. 4-year Degree/College graduate
10. Graduate/Professional School

_____9. Would you mind telling which range comes closed to your total family income last year? (Include wages, government checks, pensions, dividends, alimony, interest, etc.)

1. $0 – 5,000 per year
2. $5,001 – 7,500 per year
3. $7,501 – 10,000 per year
4. $10,001 – 12,500 per year
5. $12,501 – 15,000 per year
6. $15,001 – 20,000 per year
7. $20,001 – 25,000 per year
8. $25,001 – 30,000 per year
9. $30,001 – 35,000 per year
10. $35,001 – 40,000 per year
11. $40,001 – 50,000 per year
12. $50,001 – 60,000 per year
13. $60,001 – 75,000 per year
14. $75,000 – 100,000 per year
15. $100,000 – or more per year

10. Gender of respondent (observed)

    1. Female 2. Male

11. Race of respondent (observed)

    1. African American
    2. European American
    3. Hispanic/Latino
    4. Asian American
    5. Native American

APPENDIX C

NEIGHBORHOOD ISOLATION QUESTIONS

Neighborhood Isolation

Respondents answered each question using a scale from 1 to 10, with 1 being "Mostly False" and 10 being "Mostly True".

MOSTLY FALSE MOSTLY TRUE

1 2 3 4 5 6 7 8 9 10

_____ 1. When the weather is nice, the people living on my street visit with one another outside.

_____ 2. The people in my neighborhood visit with one another in their homes.

_____ 3. The people in my neighborhood loan things to one another.

_____ 4. The people in my neighborhood make sure other's homes are safe when someone is away.

_____ 5. On Halloween, most of the child living in my neighborhood go trick-or-treating in my neighborhood.

APPENDIX D

NEIGHBORHOOD SAFETY QUESTIONS

Neighborhood Safety

Respondents answered each question using a scale from 1 to 10, with 1 being "Not Worried" and 10 being "Very Worried".

VERY WORRIED NOT WORRIED

1 2 3 4 5 6 7 8 9 10

_____ 1. Having property damaged

_____ 2. Having property stolen

_____ 3. Walking alone during the day

_____ 4. Walking alone after dark

_____ 5. Letting children go outside alone during the day

_____ 6. Letting children go outside alone during the evening

_____ 7. Being robbed during the day

_____ 8. Being robbed at night

_____ 9. Being raped

_____ 10. Being mugged or beaten up

_____ 11. Having a child sexually abuse by a stranger

_____ 12. Having a child sexually abused by someone they know

_____ 13. Having children kidnapped

_____ 14. Being murdered

_____ 15. Being harassed by persons of another race or ethnic group

APPENDIX E

CHILD ABUSE POTENTIAL INVENTORY

CHILD ABUSE POTENTIAL INVENTORY, modified

Respondents were read each of the following statements and asked to determine if they agreed or disagreed with the statement.

1.	I have always been strong and healthy	A	DA
2.	I like most people	A	DA
3.	I am a confused person	A	DA
4.	I do not trust most people	A	DA
5.	People expect too much from me	A	DA
6.	Children should never be bad	A	DA
7.	I am often mixed up	A	DA
8.	You cannot depend on others	A	DA
9.	I am a happy person	A	DA
10.	I am often angry inside	A	DA
11.	Sometimes I feel all alone in the world	A	DA
12.	Everything in a home should always be in its place	A	DA
13.	Knives are dangerous for children	A	DA
14.	I often feel rejected	A	DA
15.	I am often lonely inside	A	DA
16.	Little boys should never learn sissy games	A	DA
17.	I often feel very frustrated	A	DA
18.	Children should never disobey	A	DA
19.	Sometimes I fear that I will lose control of myself	A	DA
20.	I sometimes wish that my father would have loved me more	A	DA
21.	I have a child who is clumsy	A	DA
22.	My telephone number is unlisted	A	DA
23.	I sometimes worry that I will not have enough to eat	A	DA
24.	I have never wanted to hurt someone else	A	DA
25.	I am an unlucky person	A	DA
26.	I am usually a quiet person	A	DA
27.	Children are pests	A	DA
28.	Things have usually gone against me in life	A	DA
29.	Picking up a baby whenever he cries spoils him	A	DA
30.	I have a child who is bad	A	DA

CHILD ABUSE POTENTIAL INVENTORY (continued)

31.	I sometimes feel worthless	A	DA
32.	My parents did not really care about me	A	DA
33.	I am sometimes very sad	A	DA
34.	Children are really little adults	A	DA
35.	I often feel worried	A	DA
36.	A child should never talk back	A	DA
37.	I am often easily upset	A	DA
38.	I am often worried inside	A	DA
39.	People have caused me a lot of pain	A	DA
40.	Children should stay clean	A	DA
41.	I have a child who gets into trouble a lot	A	DA
42.	I find it hard to relax	A	DA
43.	These days a person doesn't really know on whom one can count	A	DA
44.	My life is happy	A	DA
45.	I have a physical handicap	A	DA
46.	Children should have play clothes and good clothes	A	DA
47.	Other people do not understand how I feel	A	DA
48.	A five year old who wets his bed is bad	A	DA
49.	Children should be quiet and listen	A	DA
50.	I have several close friends in my neighborhood	A	DA
51.	My family fights a lot	A	DA
52.	I have headaches	A	DA
53.	As a child I was abused	A	DA
54.	I do not like to be touched by others	A	DA
55.	People who ask for help are weak	A	DA
56.	I do not laugh very much	A	DA
57.	I have several close friends	A	DA
58.	I have rears no one knows about	A	DA
59.	My family has problems getting along	A	DA
60.	Life often seems useless to me	A	DA

CHILD ABUSE POTENTIAL INVENTORY (continued)

61.	A child should be potty trained by the time he's one year old	A	DA
62.	People do not understand me	A	DA
63.	I often feel worthless	A	DA
64.	Other people have made my life unhappy	A	DA
65.	Sometimes I do not know why I act as I do	A	DA
66.	I have many personal problems	A	DA
67.	I have a child who often hurts himself	A	DA
68.	I often feel very upset	A	DA
69.	My life is good	A	DA
70.	A home should be spotless	A	DA
71.	I am easily upset by my problems	A	DA
72.	My parents did not understand me	A	DA
73.	Many things in life make me angry	A	DA
74.	My child has special problems	A	DA
75.	Children should be seen and not heard	A	DA
76.	It is important for children to read	A	DA
77.	I am often depressed	A	DA
78.	I am often upset	A	DA
79.	People don't get along with me	A	DA
80.	A good child keeps his toys and clothes neat and orderly	A	DA
81.	Children should always make their parents happy	A	DA
82.	Occasionally, I enjoy not having to take care of my child	A	DA
83.	Children should always be neat	A	DA
84.	I have a child who is slow	A	DA
85.	A parent must use punishment if he wants to control a child's behavior	A	DA
86.	Children should never cause trouble	A	DA
87.	I usually punish my child when it is crying	A	DA
88.	A child needs very strict rules	A	DA
89.	Children should never go against their parents' orders	A	DA
90.	I often feel better than others	A	DA

CHILD ABUSE POTENTIAL INVENTORY (continued)

91.	As a child I was often afraid	A	DA
92.	Children should always be quiet and polite	A	DA
93.	I am often upset and do not know why	A	DA
94.	My daily work upsets me	A	DA
95.	I sometimes fear that my children will not love me	A	DA
96.	I often feel very lonely	A	DA
97.	People should not show anger	A	DA
98.	I often feel alone	A	DA
99.	Right now, I am deeply in love	A	DA
100.	My family has many problems	A	DA
101.	Other people have made my life hard	A	DA
102.	I laugh some almost every day	A	DA
103.	I sometimes worry that my needs will not be met	A	DA
104.	I often feel afraid	A	DA
105.	A person should keep his business to himself	A	DA
106.	As a child I was knocked around by my parents	A	DA

APPENDIX F

CONFLICT TACTICS SCALE

CONFLICT TACTICS SCALE, modified

Respondents were told, "Here is a list of some things that your parents might have done when they had a disagreement with you when you were growing up, that is, up to the time you finished high school. For each one, please circle how often would they do this."

How often would they:

	Never	Once	Twice	3-10 Times	11-20 Times	More Than 20 Times
1. Discuss an issue calmly	0	1	2	3	4	5
2. Get information to back up their side of things	0	1	2	3	4	5
3. Bring in or try to bring in someone to help settle things	0	1	2	3	4	5
4. Insult or swear at you	0	1	2	3	4	5
5. Sulk and/or refuse to talk about it	0	1	2	3	4	5
6. Stomp out of the room or house	0	1	2	3	4	5
7. Cry	0	1	2	3	4	5
8. Do or say something to spite you	0	1	2	3	4	5
9. Threaten to hit/ throw something at you	0	1	2	3	4	5
10. Throw, smash, hit or kick something	0	1	2	3	4	5
11. Throw something at you	0	1	2	3	4	5
12. Push, grab or show you	0	1	2	3	4	5
13. Slap or spank you	0	1	2	3	4	5

CONFLICT TACTICS SCALE (continued)

	Never	Once	Twice	3-10 Times	11-20 Times	More Than 20 Times
14. Kick, bite, or hit you with a fist	0	1	2	3	4	5
15. Hit you or try to hit you with something	0	1	2	3	4	5
16. Beat you up	0	1	2	3	4	5
17. Burn or scald you	0	1	2	3	4	5
18. Threaten you with a knife or gun	0	1	2	3	4	5
19. Use a knife or gun	0	1	2	3	4	5
20. Did either of your parents use physical punishment when you felt you didn't deserve it?	0	1	2	3	4	5

APPENDIX G

MULTIDIMENSIONAL SCALE OF PERCEIVED SUPPORT

MULTIDIMENSIONAL SCALE OF PECEIVED SOCIAL SUPPORT

Respondents were asked to mark their answers to the following questions about their relationships with friends and family with 1 being "STRONGLY DISAGREE" and 5 being "STRONGLY AGREE".

	STRONGLY DISAGREE				STRONGLY AGREE
1. There is a special person who is around when I am in need.	1	2	3	4	5
2. There is a special person with whom I can share my joys and sorrows.	1	2	3	4	5
3. My family really tries to help me.	1	2	3	4	5
4. I get the emotional help and support I need from my family.	1	2	3	4	5
5. I have a special person who is a real source of comfort for me.	1	2	3	4	5
6. My friends really try to help me.	1	2	3	4	5
7. I can count on my friends when things go wrong.	1	2	3	4	5
8. I can talk about my problems with my family.	1	2	3	4	5
9. I have friends with whom I can share my joys and sorrows.		1	2	3	4
5					
10. There is a special person in my life who cares about my feelings.	1	2	3	4	5
11. My family is willing to help me make decisions.	1	2	3	4	5
12. I can talk about my problems with my friends.	1	2	3	4	5

APPENDIX H

AMOS OUTPUT

AMOS OUTPUT FOR MODEL 3

Notes for Group (Group number 1)

The model is recursive.
Sample size = 263

Variable counts (Group number 1)

Number of variables in your model: 16
Number of observed variables: 9
Number of unobserved variables: 7
Number of exogenous variables: 10
Number of endogenous variables: 6

Parameter summary (Group number 1)

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	7	0	0	0	0	7
Labeled	0	0	0	0	0	0
Unlabeled	8	1	10	0	0	19
Total	15	1	10	0	0	26

Assessment of normality (Group number 1)

Variable	min	max	skew	c.r.	kurtosis	c.r.
Educational Attainment	1.000	10.000	-.216	-1.431	.505	1.670
History	5.000	90.000	1.303	8.626	1.220	4.039
Belief in CP	1.000	10.000	-.777	-5.147	-.654	-2.166
Social Support	12.000	60.000	-1.306	-8.646	1.455	4.817
Distress	.000	261.000	1.220	8.079	.812	2.689
Problems w/ Others	.000	24.000	.205	1.357	-.861	-2.850
Probs. w/Child & Self	.000	29.000	1.339	8.866	1.088	3.600
Problems with Family	.000	38.000	1.718	11.375	2.167	7.172
Happiness	.000	50.000	1.617	10.708	2.840	9.401
multivariate					19.787	11.402

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments: 45
Number of distinct parameters to be estimated: 19
Degrees of freedom (45 - 19): 26

Result (Default model)

Minimum was achieved
Chi-square = 42.878
Degrees of freedom = 26
Probability level = .020

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Child_Maltreatment	<---	Social Support	-1.966	.264	-7.448	***	par_1
Child_Maltreatment	<---	Belief	3.370	.893	3.773	***	par_2
Child_Maltreatment	<---	History	.754	.155	4.854	***	par_8
Child_Maltreatment	<---	Educational Attain.	-6.731	1.644	-4.095	***	par_9
Prob. w/ Others	<---	Child_Maltreatment	.095	.011	8.837	***	par_4
Prob. w/Child & Self	<---	Child_Maltreatment	.054	.010	5.391	***	par_5
Prob. w/ Family	<---	Child_Maltreatment	.109	.015	7.390	***	par_6
Distress	<---	Child_Maltreatment	1.000				
Unhappiness	<---	Child_Maltreatment	.102	.014	7.350	***	par_7

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
Child_Maltreatment	<---	Social Support	-.463
Child_Maltreatment	<---	Belief	.217
Child_Maltreatment	<---	History	.292
Child_Maltreatment	<---	Educational Attain.	-.236
Prob. w/Others	<---	Child_Maltreatment	.621
Prob. w/Child & Self	<---	Child_Maltreatment	.373
Prob. w/Family	<---	Child_Maltreatment	.513
Distress	<---	Child_Maltreatment	.788
Unhappiness	<---	Child_Maltreatment	.510

Covariances: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Social Support	<-->	History	-52.679	12.412	-4.244	***	par_3

Correlations: (Group number 1 - Default model)

	Estimate
Social Support <--> History	-.272

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Social Support	117.608	10.275	11.446	***	par_10
Belief	8.796	.769	11.446	***	par_11
History	319.621	27.925	11.446	***	par_12
Educational Attain.	2.608	.228	11.446	***	par_13
res1	1113.282	200.091	5.564	***	par_14
se3	63.164	6.059	10.425	***	par_15
se4	70.297	6.754	10.409	***	par_16
se5	38.237	3.481	10.984	***	par_17
se6	30.648	3.196	9.590	***	par_18
se1	1298.073	196.496	6.606	***	par_19

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
Child_Maltreatment	.476
Distress	.621
Prob. w/Others	.385
Prob. w/Child & Self	.139
Prob. w/Family	.263
Unhappiness	.260

Modification Indices (Group number 1 - Default model)

Covariances: (Group number 1 - Default model)

			M.I.	Par Change
Social Support	<-->	Educational Attain.	6.195	2.592
se3	<-->	Social Support	4.144	-10.816

Variances: (Group number 1 - Default model)

	M.I.	Par Change

Regression Weights: (Group number 1 - Default model)

	M.I.	Par Change

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	19	42.878	26	.020	1.649
Saturated model	45	.000	0		
Independence model	9	427.194	36	.000	11.867

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	31.738	.966	.942	.558
Saturated model	.000	1.000		
Independence model	100.160	.628	.535	.502

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.900	.861	.958	.940	.957
Saturated model	1.000		1.000		1.000

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.722	.650	.691
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	16.878	2.719	38.916
Saturated model	.000	.000	.000
Independence model	391.194	328.327	461.509

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.164	.064	.010	.149
Saturated model	.000	.000	.000	.000
Independence model	1.631	1.493	1.253	1.761

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.050	.020	.076	.474
Independence model	.204	.187	.221	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	80.878	82.386	148.749	167.749
Saturated model	90.000	93.571	250.747	295.747
Independence model	445.194	445.908	477.343	486.343

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	.309	.255	.393	.314
Saturated model	.344	.344	.344	.357
Independence model	1.699	1.459	1.968	1.702

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	238	279
Independence model	32	36

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