AN ABSTRACT OF THE DISSERTATION OF

Jennifer R. Shepherd for the degree of Doctor in Philosophy in Human Development and Family Studies presented on March 22, 2012.
Title: Poverty and Child Neglect: Subtypes of Neglect and Stress as a Mediator.

Abstract approved_____
Samuel Vuchinich

This study examined the association between poverty and child neglect. The existence of a general association has been established for some time. However, there is much debate, and little detailed research, on the specific processes that create this association. This study focused on the form of neglect that involves the most health risk for children—physical neglect. It was hypothesized that poverty should increase the likelihood of a specific type of physical neglect, neglect of safety and basic needs, occurring more than other types. Using official child protective services data from a national data set three types of physical neglect were examined: abandonment, lack of safety or basic needs, and inadequate supervision. Hypothesis 1 was that poverty increases the odds of safety/basic needs neglect more than it influences the odds of either abandonment neglect or inadequate supervision neglect, controlling for prior neglect. Hypothesis 2 focused on a test of whether the link between poverty and physical neglect is not direct, but is instead mediated by caregiver stress. Three waves of longitudinal data were used for this test to establish causal time order between poverty and stress, and between stress and physical neglect.

This study analyzed data from the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN), Assessments 0-3 from the National Data Archive on Child Abuse and Neglect at Cornell University. The data was analyzed using multinominal logistic regression for both models. The results did not confirm Hypothesis 1, though the analysis was limited somewhat due to low frequencies of some physical neglect types in certain age groups. Hypothesis 2 was confirmed showing that the effect of poverty on physical neglect was completely mediated by caregiver stress for the abandonment and safety/basic needs types of physical neglect. Implications of the results for research on the effects of poverty on child neglect, and for preventing child neglect are discussed.

Poverty and Child Neglect: Subtypes of Neglect and Stress as a Mediator

by

Jennifer R. Shepherd

A DISSERTATION

submitted to

Oregon State University

in partial fulfillment of
the requirements for the
degree of

Doctor of Philosophy

Presented March 22, 2012
Commencement June 2012

Doctor of Philosophy dissertation of Jennifer R. Shepherd presented on March 22, 2012.

APPROVED:

_____

Major Professor, representing Human Development and Family Studies

_____

Chair of the Department of Human Development and Family Sciences

_____

Dean of the Graduate School

I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my dissertation to any reader upon request.

_____

Jennifer R. Shepherd, Author

ACKNOWLEDGEMENTS

The author expresses sincere appreciation to all of the members of her doctoral committee: Samuel Vuchinich, Patricia Moran, Clara Pratt, and Katherine MacTavish. A special thanks to Samuel Vuchinich for his unwavering patience, guidance, support, and encouragement.

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

TABLE OF CONTENTS (Continued)

Page

LIST OF FIGURES

LIST OF TABLES

Poverty and Child Neglect: Subtypes of Neglect and Stress as a Mediator

CHAPTER 1: INTRODUCTION

Child neglect is the most common form of maltreatment of children in the United States (DiLeonardi, 1993). Approximately 71% of child abuse and neglect reports are for neglect (U.S. Department of Health & Human Services, 2008), and more children die from neglect than from abuse (Brown, 1987). Census Bureau data indicate that 72,964,519, or 18.6 percent children were living in poverty in 2009 (U.S. Census Bureau, 2009). Almost all studies about child neglect have found a correlation between neglect and poverty (Polansky, Gaudin, Ammons, & Davis, 1985; Giovannoni & Billingsley, 1970; Polansky & Gaudin, 1983). However, establishing convincing evidence for causal association and the direction of influence has been more challenging. Part of the reason for this is that there are different types of child neglect and each may have a different linkage to poverty. Jones and McCurdy (1992) found that physical neglect is most associated with poverty than other types such as educational or emotional neglect. It is important to specify more clearly how it is that poverty contributes to different types of neglect, as a better understanding can lead to better ways to prevent or intervene in child neglect cases. Because of new longitudinal data, this study can establish the temporal ordering of poverty, and other factors that should theoretically lead to physical neglect. Time order is an essential element of evidence for causation. In addition, because three waves of data are available in the data set analyzed for this study, the longitudinal data can provide evidence to test whether the effect of

poverty is mediated by caregiver stress, i.e., time 1 poverty →time 2 caregiver stress → time 3 physical neglect.

The "neglect of neglect" in research has been an issue for years, as physical abuse and neglect have been combined into a general category of child maltreatment or abuse instead of studying them as separate topics (Wolock & Horowitz, 1984). The topic of child neglect has received considerably less attention (Polansky, Hally, & Polansky, 1976; Trube-Becker, 1977; Cowen, 1999) by researchers compared to physical and sexual abuse despite its high prevalence and harmful impact (Dubowitz, 1999). This is unfortunate since child neglect is the most common form of child maltreatment (DiLeonardi, 1993; Pelton, 1995), and the consequences of child neglect are more severe than other types of maltreatment (Friedman & Morse, 1974; Reidy, 1977; Trube-Becker, 1977; Tyler, Allison, & Winsler, 2006). The Second National Incidence Study indicates that of all subtypes of maltreatment, physical neglect is most associated with poverty and Aid for Families with Dependent Children (AFDC) status (Jones & McCurdy, 1992). The lack of more recent detailed research studies of the poverty-neglect connection is partly due to challenges with appropriate longitudinal data collection. These include privacy issues, mobility of family members in the poverty context, and legal issues involved with human service investigations involving neglect. Over the past 10 years, research on abuse and neglect has turned instead to topics such as the neuroscience of the effects of maltreatment, early prevention, and polyvictimization (Vieth, 2010). Although these are important areas, a better understanding of the nature of the poverty-neglect linkage has at least as much potential for reducing the

negative impacts of child maltreatment in the United States. One goal of this study is to provide findings that can contribute to filling the gap on the poverty-neglect association.

A primary background for the study is the existing literature on the poverty-neglect association. This will be considered in the Literature Review section. This section leads to a statement of the specific research hypotheses to be tested in this study. A second impetus for this study is the extensive data collected by the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) (Browne, Curtis, Dubowitz, English, Kotch, Runyan, Landsverk, Litrownik, Schneider, and Thompson, 2005). This unprecedented study provides new opportunities for longitudinal analysis of the poverty-physical neglect association described. The Methods section will describe the data and the statistical analysis plan.

CHAPTER 2: LITERATURE REVIEW

Importance of Research

In the Federal Fiscal Year (FFY) of 2008, 772,000 children were victims of maltreatment in the United States (U.S. Department of Health & Human Services, 2008). During FFY 2008, there were more victims of neglect than victims of every other type of maltreatment combined: 71.1 percent of victims experienced neglect, 16.1 percent were physically abused, 9.1 percent were sexually abused, 7.3 percent were psychologically maltreated, 2.2 percent were medically neglected, and 9.0 percent of victims experienced "other" types of maltreatment (i.e. abandonment, threat of harm to a child, congenital drug addiction) (U.S. Department of Health & Human Services, 2008). Please note that these maltreatment type percentages total more than 100 percent because of children who were victims of more than one type of maltreatment were counted for each maltreatment.

Neglect

Definition

Zuravin and DePanfilis (1997) define child neglect as "failure of the primary caregiver to provide a child with the basic necessities of life, such as food, shelter, clothing, medical and mental health care, education, and supervision of the child's activities." Polansky's (1987)widely accepted definition of child neglect is "a condition in which a caretaker responsible for a child, either deliberately or by extraordinary inattentiveness, permits the child to experience avoidable present suffering and/or fails to provide one or more of the ingredients generally deemed essential for developing a person's physical, intellectual, and emotional capacities."

The American Psychological Association Committee on Professional Practice and Standards (1999) defines neglect as "the failure of the primary caretaker to provide an adequate level of care and be responsible for the child's basic needs." The Oregon Department of Human Services (OAR 413-015-1000) (2008) defines neglect as "failure through action or omission, to provide and maintain adequate food, clothing, shelter, medical care, supervision, protection, and nurturing."

Categories of Neglect

Gaudin (1993) classified physical neglect into five subtypes: physical neglect, inadequate supervision, emotional neglect, educational neglect, and medical neglect. The Oregon Department of Human Services (OAR 413-015-1000) (2008) also categorizes neglect into five categories: physical neglect, medical neglect, lack of supervision and protection, desertion, and psychological neglect. The Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) categorized physical neglect into seven categories: refusal of health care, delay in health care, abandonment, expulsion, other custody issues, inadequate supervision, and other physical neglect (Browne, Curtis, Dubowitz, English, Kotch, Runyan, Landsverk, Litrownik, Schneider, and Thompson, 2005).

Poverty

By definition, poverty is "inadequate income necessary to purchase a minimally adequate standard of living" (Scarborough, 1993, p. 82). Poverty is measured by comparing an individual's or family's pretax income to a set of federally established dollar amounts known as poverty thresholds (Scarbrough, 1993). The poverty line was created by the Social Security Administration in 1964

(Orshansky, 1965). In the early 1960s, data showed that families spent about one third of their income on food. Consequently, the poverty line was calculated from the estimated annual costs of a minimal food budget designed by the U.S. Department of Agriculture (USDA) and then multiplied by three, a method of calculating poverty that continues today (U.S. House of Representatives, Committee on Ways and Means, 1996). The poverty line varies by family size (Seccombe, 2001).

The U.S. Census Bureau found that the real median household income in the United States in 2009 was $49,777 (U.S. Census Bureau, 2010). The Office of Management and Budget defines poverty threshold for a family of four in 2009 to be $21,954 (U.S. Census Bureau, 2010). Census Bureau data indicate that 18.6 percent of children were living in poverty in 2009 (U.S. Census Bureau, 2010).

Race, gender, family structure, and parental education all have a considerable effect on the likelihood of poverty (Seccombe, 2001). Minority families are more likely to live in the most extreme poverty, with incomes less than 50 percent of the poverty line (Wertheimer, 1999).

Poverty is Associated with Child Neglect

One theory is that child maltreatment occurs due to poverty, isolation, and other factors that the individual cannot control (Faulkner & Faulkner, 2004). There is considerable evidence that poverty is associated with child maltreatment, particularly neglect (DiLeonardi, 1993; Drake & Pandey, 1996; Sedlak & Broadhurst, 1996). Although most parents living in poverty do not abuse their children, children of parents living in poverty and low-income families are highly

over-represented in the incidence of child abuse and neglect (Pelton, 1994). In fact, several researchers have found this to be true. For example, Billingsley's (1970) early study found a clear relationship between neglect and poverty. Wolock and Horowitz's (1979) study found that poorer families were more likely to maltreat their children, particularly in the form of neglect or a combination of neglect and physical abuse. Pelton (1978) indicated there is considerable evidence of a strong relationship between poverty and child abuse and neglect and that every national survey of reported child abuse and neglect has shown that the prevalence of reports involve families that are from the lowest socioeconomic levels. Wolock and Horowitz (1979) conducted a study that found that the poorer families were more likely to maltreat their children, especially in the form of neglect.

Correlations between Poverty and Neglect

A study by the National Center on Child Abuse and Neglect (NCCAN, 1998) found that families with annual incomes below $15,000 were five times more likely than higher income families to be reported for neglect (Berrick & Duerr, 1997). In fact, maltreatment and neglect in families in poverty is estimated to be 22 times more common than in families that are above the poverty line (Sedlak & Broadhurst, 1996).

Almost all studies regarding child neglect have found a correlation between neglect and poverty, and efforts have been made to determine the factors that may cause some poor families to neglect their children and other poor families to provide adequate parenting (Polansky, Gaudin, Ammons, & Davis, 1985;

Giovannoni & Billingsley, 1970; Polansky & Gaudin, 1983). The next section will discuss reasons for the association between poverty and neglect.

Reasons for the Poverty-Neglect Association

Child abuse occurs in all social classes. However, there are risk factors such as poor housing, poverty, and unemployment that can be used as predictors of abuse (Jose, 2005). This section will discuss reasons associated with poverty that may contribute to the association between poverty and neglect.

Public scrutiny. Pelton (1978) wrote an important early paper suggesting that that poor people are unfairly targeted in that they are more open to public scrutiny, are more likely to be known to social and law enforcement agencies whose workers have the chance to enter their homes (Faulkner & Faulkner, 2004). Conversely, middle and upper class families are less open to scrutiny by public officials, as they are less likely than poor people to utilize public agencies for help (Pelton, 1978). Consequently, the socioeconomic distribution of reported maltreatment cases does not reflect all cases and there are proportionately more cases among middle and upper class families that are unreported compared to lower class families (Pelton, 1978). In fact, there is no basis for asserting that if middle and upper class families were more open to public scrutiny that there would be proportionately as many abuse and neglect cases among them (Pelton, 1978).

Degrees of poverty. Pelton (1994) indicated that child abuse and neglect are related to the extent of poverty or the extent of material hardships the family encounters. Additionally, studies have shown that the most severe injuries from child maltreatment have happened in the poorest families (Pelton, 1994). In

Giovannoni and Billingsley's (1970) study, they found the highest rate of child neglect took place in families living in the most extreme poverty. Therefore, poverty being related to child neglect and abuse as well as to the severity of maltreatment (Pelton, 1994) is still the case today.

Money management. Poverty is exemplified by having limited money to buy necessary items (Pelton, 1994). With these conditions, money management becomes increasingly important and can otherwise create the potential for severe harm (Pelton, 1994). Many families who receive public assistance run out of money before the end of the month because these grants are insufficient to sustain the family (Pelton, 1994). Parents who have less money must be good at managing their money to avoid running out of money so that they can afford to pay for necessities for their children (Pelton, 1994). Although Pelton's study was 17 years ago, this is relevant because the Temporary Assistance to Needy Families (TANF) legislation changed the way welfare payments were made. However, the money management issue is the same regardless of whether the as Aid to Families with Dependent Children (AFDC) or TANF programs were in place.

Supervision. Pelton (1994) indicated that poverty is also characterized by unsafe home conditions and neighborhood conditions. Because of the environmental hazards, parents must be more diligent in supervision their children otherwise it is more possible to blame parents for not preventing their danger.

Social isolation. Faulkner and Faulkner (2004) indicated that one current theory is that abuse occurs as a result of factors that are out of the control of the individual, such as isolation. Rates of social isolation amid neglectful parents

surpass parents in a demographically matched control group (Polansky et al., 1985). The social isolation and lack of support that families in poverty experience make them difficult to reach and serve, part of which may be due to their lack of trust of persons outside the family (DiLeonardi, 1993).

Neighborhoods. Drake and Pandey (1996) found that concentrated neighborhood poverty is a risk factor that is linked to all types of child maltreatment, although, neglect was most powerfully associated with poverty. The researchers found a lower rate of neglect in low poverty areas and higher neglect rates in moderate and high poverty areas. In the high poverty neighborhoods, the majority of maltreatment cases were those of neglect, with neglect comprising 60 percent of all reports and 64 percent of substantiated reports. If poverty and maltreatment were only associated because of the stressors associated with poverty, then this study would not have found such a dramatic difference in incidence of maltreatment between neighborhoods of different poverty levels. For instance, the researchers noted less neglect in low poverty areas and a much higher proportion of neglect in moderate to high poverty areas (Drake and Pandey, 1996).

Fewer Economic Resources. Using correlational analysis, Carter and Myers (2007) found positive associations between physical neglect and five poverty related variables: Medicaid, unemployment, receiving Food Stamps, AFDC, and Women, Infants, and Children (WIC). Although this analysis showed an association between the poverty related variables and physical neglect, the logistic regressions showed that none of the poverty related variables were statistically significant in predicting physical neglect (Carter & Myers, 2007). However, the poverty variable

was found to be statistically significant when it was included with all explanatory variables (Carter & Myers, 2007). Primary caretakers who had mental health or substance abuse problems were the two strongest predictors of physical neglect (Carter & Myers, 2007). Berger (2006) found that poor families who had more economic resources, such AFDC benefits or food stamps, were less likely to have Child Protective Services (CPS) interventions.

Physical Neglect Variable

There are different types of neglect recognized by state CPS agencies and researchers. Each of these types of neglect includes subtypes of the maltreatment (Browne et al., 2005). Definitions of child maltreatment and their subtypes differ depending on the inquirer and the agency involved (i.e. legal system, child welfare, medical) (Erickson & Egeland, 1996; Gustavsson & Segal, 1994). Definitions differ depending on whether one takes a legal, medical, psychological, social service, or lay perspective (Erickson, & Egeland, 1996). However, in this case, the definitions that will be used are those provided in the LONGSCAN CPS Maltreatment Data. This study will look solely at the category of physical neglect, as this type of neglect is most likely to be caused by poverty (Jones & McCurdy, 1992). The following section will outline the types and subtypes of physical neglect as well and define each of the subtypes of physical neglect.

Physical neglect includes refusal of health care, delay in health care, abandonment, expulsion, other custody issues, inadequate supervision, and other physical neglect (Browne et al., 2005).

Refusal of health care is the "failure to provide or allow needed care in accord with recommendations from a competent health care professional for a physical injury, illness, medical condition, or impairment (Browne et al., 2005, p. 307)."

Delay in health care is the "failure to seek timely and appropriate medical care for a serious health problem which any reasonable layman would have recognized as needing professional medical attention (Browne et al., 2005, p. 308)."

Abandonment is the "desertion of a child without arranging for reasonable care and supervision. This category includes cases where children were not claimed within two days, and where children were left by parents/substitutes who gave no (or false) information about their whereabouts (Browne et al., 2005, p. 308)."

Expulsion includes "other blatant refusals of custody, such as permanent or indefinite expulsion of a child from the home without adequate arrangement for care by others, or refusal to accept custody of a returned runaway (Browne et al., 2005, p. 308)."

Other custody issues include "custody-related forms of inattention to the child's needs other than those covered by abandonment or expulsion. For example, repeated shuttling of a child from one household to another due to apparent unwillingness to maintain custody, or chronically and repeatedly leaving a child with others for days/weeks at a time (Browne et al., 2005, p. 308)."

Inadequate supervision is a "child left unsupervised or inadequately supervised for extended period of time or allowed to remain away from home

overnight without the parent/substitute knowing (or attempting to determine) the child's whereabouts (Browne et al., 2005, p. 308)."

Other physical neglect includes "conspicuous inattention to avoidable hazards in the home; inadequate nutrition, clothing, or hygiene; and other forms of reckless disregard of the child's safety and welfare, such as driving with the child while intoxicated, leaving a young child unattended in a motor vehicle, and so forth (Browne et al., 2005, p. 308)."

Poverty's Effect on Neglect

For research purposes, subtypes of neglect can be condensed into three basic types of physical neglect: Abandonment, inadequate supervision, and safety and basic needs. Based on the previous research cited above, I predict that poverty will have different effects of the different subtypes of physical neglect.

Abandonment

Poverty will have a limited effect on abandonment because kin networks outside of poverty typically will accept a child blood relative with a biological parent in desperate poverty. For example, some caregivers leave their child with an alternate caregiver so they can participate in a culture of drugs, criminal activities, or other compulsions, without providing a timeframe of when they will reclaim their child. In such contexts, poverty itself is not the primary consideration of whether to abandon a child.

Inadequate Supervision

Poverty will also have a limited effect on caregivers providing inadequate supervision. Caregivers do not need economic resources to provide many forms of

supervision to their children, such as monitoring, curfew, when their children are playing outside. In addition, caregivers in poverty, due to limited employment opportunities, may be able to spend more time in the household supervising the child.

Safety and Basic Needs.

Poverty will be most related to safety and basic needs. Cowen (1999) defines child neglect as "the failure of the child's parents or caretakers to provide the child with the basic necessities of life." Without economic means, caregivers will likely have difficulty obtaining and maintaining minimally adequate and safe housing, will have difficulty maintaining enough food throughout the month, and may not have money to buy their child adequate clothes and/or clothes that are weather appropriate.

Stress

Poverty and Caregiver Stress

Poverty can be considered a "risk" for child maltreatment in that it increases chronic and acute stressors that act cumulatively in undermining parental care (Vondra, 1986). Levels of parental stress are considerably higher in low socioeconomic status environments (Gephart, 1997). Parents who are poor have a high level of stress related to their situation (Brooks-Gunn, Duncan, & Maritato, 1997; Seccombe, 1999). It is reported that parents with low and unstable incomes have more emotional distress and see themselves as less effective parents (Seccombe, 2001). Financial hardship involves long-term stressors such as

inadequate housing, residence in a dangerous and/or resourceless neighborhood, inability to pay for practical services, and lack of transportation to access affordable resources (Vondra, 1993).

Some of the most vulnerable poor families have the least social support (Letiecq, Anderson, & Koblinsky, 1998). Having less social support may add to parental stress. Nelson, Saunders, and Landsman (1993) found that chronically neglecting caregivers have more people to support with the name amount of money, on average, compared to newly neglecting caregivers and unconfirmed neglecting caregivers. Increased social support has been shown to reduce the amount of stress that poor families experience (Bowen & Chapman, 1996).

There is substantial empirical support that lower income individuals experience a disproportionate amount of stress in comparison to those in higher income brackets (Alder, Boyce, Chesney, Cohen, Folkman, Kahn, 1994). Evans and Kim (2003) found this stress mediates the relationship between more distal socioeconomic status indicators, such as income and mental health outcomes. In other words, stress can exacerbate socioeconomic stressors. Wadsworth and Santiago (2008) found that stress mediated the modest relationship between psychopathology and income-to-needs ratios, maternal education, and occupational status. Several types of stress are predominant among the poor, such as experiences with economic strain, family conflict, and exposure to violence (Wadsworth, Raviv, Reinhard, Wolff, Santiago, & Schachter, 2008). One or two stressors alone may not produce ill effects, but multiple stressors exacerbate one another and thus create a cumulative risk for psychological symptoms (Evans, 2003), which recently has

been termed “poverty-related stress” (Wadsworth & Santiago, 2008). Researchers found that experiencing more exaggerated involuntary responses to stress appears to exacerbate the damaging effects of poverty-related stress on psychopathology, particularly anxiety symptoms (Wolff, Santiago, & Wadsworth, 2009).

Caregiver Stress and Neglect

Several researchers have reported an association between child neglect and low income (Brown, Cohen, Johnson, & Salzinger, 1998; Chaffin, Kelleher, & Hollenberg, 1996), but poverty is not the whole explanation for neglect (Dubowitz, Papas, Black, & Starr, 2002). In other words, poverty may indirectly cause heightened parental stress, among other factors. Thus, examining parental characteristics and indicators of poverty associated with child neglect is necessary to sorting out the poverty-neglect relationship (Carter & Myers, 2007). Neglecting mothers were found to be more bored, depressed, restless, lonely, and less pleased with and interested in life than control group mothers (Wolock & Horowitz, 1979; Zuravin, 1988a). Neglectful mothers were found to be under the most stress (Friedrich, Tyler, and Clark, 1985). In cases where poverty co-occurs with neglect, there are typically other risk factors (Vondra, 1993).

Giovannoni & Billingsley (1970) found that there was a higher incidence of extreme poverty among neglectful families. Pelton (1994) has suggested that people vary in their ability to cope with poverty and its stressors. Both evidence and logic suggest that the relationship between poverty and child abuse and neglect is mediated by an interaction between individual differences in the cognitive ability to cope with poverty and the extent of the dangerousness and inadequacy of the

material conditions of the family's environment. For people living in poverty, adequacy of childcare is dependent upon their ability to cope with poverty. However, adequacy of childcare is also relative to the adequacy of the environment. What is adequate care in one environment may be inadequate in a more dangerous one. The diligence of care necessary to protect a child in the dangerous environment is greater than in a safer one.

There are multiple potential reasons that caregivers neglect their children, some of which were discussed above. Of these reasons, parental stress, caused by a variety of reasons, may be a primary motive for caregivers neglecting their children. Because of this, this study will test for stress as a mediator for poverty causing neglect.

Drug Abuse

Substance abuse among neglectful caregivers has been found at higher rates than comparison groups in studies (MacMurry, 1979; Wolock & Horowitz, 1979; Zuravin & Greif, 1989). A 1999 study by the National Center on Addiction and Substance Abuse at Columbia University found that children whose parents abused substances were four times more likely to be neglected than children of parents who did not abuse substances (Reid, Macchetto, & Foster, 1999). Further, a study by Carter and Myers (2007) found that caregivers with mental health problems and with substance abuse issues were twice as likely to be substantiated for physical neglect.

Along with the neuropharmacological effects (e.g., rate of drug metabolism,

severity of withdrawal) of drugs, the neglect of children is likely to be also influenced by the cost, time spent seeking drugs, and context of consumption (Dunn, Tater, Mezzich, Vanyukov, Kirisci, & Kirillova, 2002). Recurring substance withdrawal, featured by agitation and depression, also increases the risk for child neglect (Colten, 1982).

Ecological Theory

The ecological theory of human development contains four organizational concepts: the microsystem, mesosystem, exosystem, and macrosystem (Bretherton, 1993). These describe the structure of the ecological environment of the individual from which development comes about (Bretherton, 1993). In the ecological theory, contexts are defined from the viewpoint of the developing person, in this case, the child who has experienced physical neglect (Bretherton, 1993).

The microsystem is a pattern of activities, social roles, and interpersonal relations experienced by the child (Bronfenbrenner, 1994). The mesosystem is the interlinked group and processes taking place between two or more settings containing the child, including the family, which is the primary context in which human development, takes place (Bretherton, 1993; Bronfenbrenner, 1994). The child's exosystem consists of two or more settings, one of which does not include the child directly but which affects the child indirectly through parental behavior (Bretherton, 1993; Bronfenbrenner, 1994). Last, the macrosystem includes the belief systems, resources, hazards, lifestyles, opportunity structures, life course

options, and patterns of social interchange that are embedded in each of these broader systems (Bretherton, 1993; Bronfenbrenner, 1994). The chronosystem is the passage of time (Bronfenbrenner, 1994).

Poverty is a characteristic of the economy, which is part of the culture, government, and society circles. Child neglect is an element of family responsibility. The ecological theory allows for conditions of stress in the family, influences of kin and social support networks, as well as social services available in the community. Essentially, the outer circles have effects on the inner circles, including on the child.

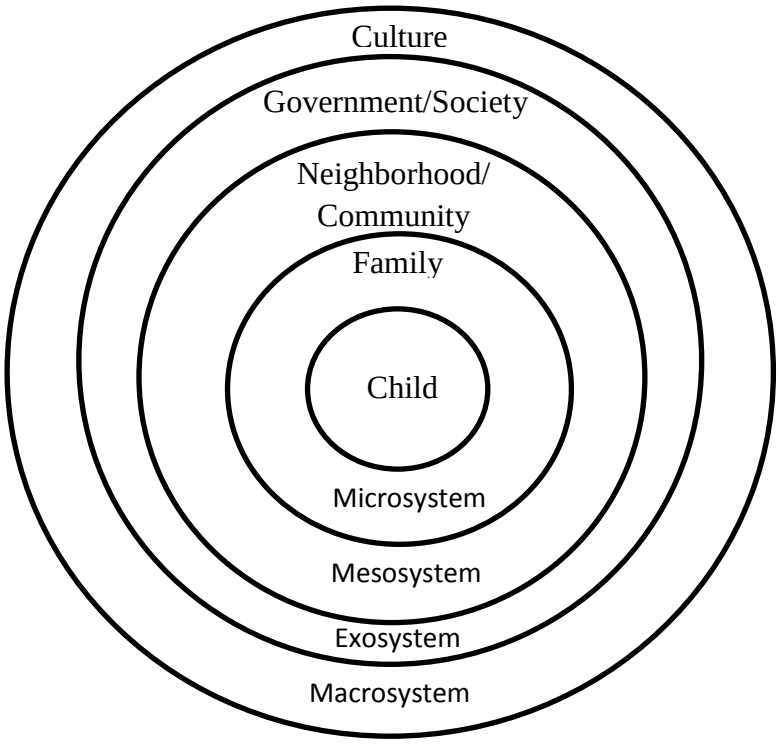

Figure 2.1. Bronfenbrenner's Ecological Theory of Human Development

The statistical analyses tests these hypotheses in multinomial logit models with the three neglect types and no neglect as categorical outcomes, and poverty (time 1), stress (time 1) and substance use (times 2 and 3) as predictors.

Drake and Pandey (1996) propose that studies about maltreatment across economic classes must distinguish between subtypes of abuse, as rates of the different types of maltreatment may be different among different economic classes. Although they suggest studying subtypes of abuse, this study takes their advice one-step further by studying the subtypes of neglect specifically.

This study contains two research questions. First, does poverty have a greater effect on the incidence one type of physical neglect, safety and basic needs, more than the other two physical neglect types (inadequate supervision, and abandonment)? Second, does stress at time 2 mediate the effect of poverty at time 1 on neglect at time 3 with caregiver drug abuse at time two controlled? This uses the design features of the LONGSCAN data to test for evidence of a causal association by establishing time order, including prior physical neglect, and thus eliminating even unmeasured confounder variables as alternative hypotheses.

CHAPTER 3: METHODS

The hypotheses were tested using an archived data set, Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) Assessments 0-3. These data were collected by researchers in five different regions of the United States with public access available through the National Data Archive on Child Abuse and Neglect (Browne et al., 2005).

This chapter includes four major sections: (1) description of the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) Data (Browne et al., 2005), (2) the methods for preparing the data for analysis, (3) the variables, and (4) statistical methods.

Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) Data

Data

The data used in this study were collected between 1991 to 1997 from five regions of the United States. Data were collected longitudinally every two years on 1,354 children who were less than 4-years-old in 1991. One part of the data was collected in face-to-face interviews with parents. The data on caregiver stress and poverty were used in this study. A second part of the data was based on maltreatment, local CPS referrals, and investigations. This included each referral, types of allegations, and substantiation conclusions on incidences of maltreatment for each child. These were coded semi-annually from state official CPS agencies

(Browne et al., 2005). The data used in this study focused on the physical neglect, poverty status of the household, caregiver stress at time 2 (child ages five and six), and caregiver substance use at times 2 and 3 variables. Because physical neglect may be occurring in an investigated allegation that does not provide enough legal evidence to substantiate, this study does separate tests of Hypotheses 1 and 2 for alleged physical neglect and substantiated (founded) physical neglect.

Sample

Study participants consisted of five pooled cohort samples in the continental United States grouped by geographic region (i.e. East, Midwest, Northwest, and South). The Eastern, Midwest, and Northwest samples were from urban areas. The Southwest sample was from a suburban area. The Southern sample was a combination of urban, suburban, and rural communities. Combined initial recruitment samples included 1,354 children, but 350 additional children were included because they were eligible shortly after the initial recruitment. The Eastern cohort contained 282 children; all were selected from three pediatric clinics serving low-income, inner city children. The Midwestern sample contained 245 children, two-thirds of whom were recruited from families reported to CPS and one-third selected from neighborhoods. The Northwestern cohort consists of 254 children who were judged by CPS to be at moderate risk of maltreatment following a report to their agency for suspected child maltreatment. The South cohort consists of 243 children who were identified as high risk at birth by a state public health tracking

effort. The Southwest cohort consists of 330 children who entered a county dependency system due to confirmed maltreatment (Browne et al., 2005).

Attrition

Of the 1,354 children originally in the LONGSCAN study, data were collected on 1,248 children at Time 1 (92%), 1,235 (91%) were followed up at wave 2, and 1,140 (84%) were interviewed at wave 3 (Appleyard, Yang, and Runyan, 2010). By age 8, 113 had dropped out of the study (16%). Most of these dropouts were among children who had been placed for adoption and whose adoptive parents chose to stop involvement in the study (Appleyard et al., 2010). Additionally, eight children had died by age eight (Appleyard et al., 2010). Data from the children who died were deleted from the sample. An additional 346 children were recruited in wave 2. These cases were used in the analyses that examine only waves 2 and 3.

CPS Maltreatment Data

Trained abstractors reviewed CPS files of LONGSCAN participants at each of the five data collection sites. Abstractors took data from two specific sections of the CPS file. They used the allegation narrative of the report that was referred for investigation by CPS (what was reported) and the summary narrative of the investigation of the allegations (the conclusions drawn from the investigation). To be abstracted as LONGSCAN data, allegations and substantiations must clearly indicate that the LONGSCAN child is part of the report. Because this was a multi-

site study and CPS procedures varied somewhat between the different sites, abstracting maltreatment information from these two sections of the CPS file is an attempt to standardize the data across sites.

The abstractors, or coders, were trained to establish inter-rater reliability. Coders were instructed to find the necessary pieces of information in the CPS file, how to code the relevant information, and how to classify maltreatment type and severity according to the classification systems. Raters then independently coded a set of at least 10 vignettes that were excerpts from real CPS files. Reliability was assessed by comparing percent agreement of the trainees' ratings with the designated "gold standard." Raters must have achieved 90 percent agreement with the designated expert for the codes and ratings.

Preparing the Data

Data for this study were obtained from the National Data Archive on Child Abuse and Neglect (http://www.ndacan.cornell.edu). A series of SPSS syntax commands were used to create the data set analyzed here. Those SPSS syntax commands are given in the Appendix.

Missing Values

There are a few reasons for missing data, including absence or reference to the information to collect, the allegation or summary narrative being too vague or incomplete, or because there not the allotted six different types of maltreatment (Browne et al., 2005).

Hypothesis of Poverty Having Differential Effects on Types of Physical Neglect

Dependent Variable: Neglect

The CPS maltreatment data were obtained directly from county CPS files at five data collections sites of CPS files of the LONGSCAN participants (NDACAN, 2005). The data were classified into 7 broad types of maltreatment and 30 subtypes of maltreatment. In the case of the neglect data, this data were classified into seven types of neglect under which were multiple subtypes of neglect (Browne et al., 2005). The LONGSCAN classifies neglect into three types of maltreatment: physical neglect, educational neglect, and emotional neglect. Each type of neglect included subtypes of the maltreatment (Browne et al., 2005). For this study, the focus was on physical neglect categories described below.

This portion of the study will test for a longitudinal association between poverty and the three physical neglect types: abandonment, inadequate supervision, and safety and basic needs. For hypothesis 1 the study tests whether poverty influences the incidence of safety/basic needs neglect more than it affects the other physical neglect types. This study uses the design features of the LONGSCAN data to test for evidence of a causal association by establishing time order and eliminating confounder variables due to the statistical control of prior physical neglect. Because of the longitudinal design, the cause (poverty) precedes the effect (neglect), this analysis can provide new evidence that poverty influences some types of physical neglect more than others do.

Variables for Neglect

The variable description for physical neglect is described as "refusal of health care, delay in health care, abandonment, expulsion, other custody issues, inadequate supervision, and other physical neglect" (Browne et al., 2005). Categories of physical neglect are described in the following text.

Refusal of health care is defined as "Failure to provide or allow needed care in accord with recommendations from a competent health care professional for a physical injury, illness, medical condition, or impairment" (Browne et al., 2005, p. 307). Delay in health care is defined as, "Failure to seek timely and appropriate medical care for a serious health problem which any reasonable layman would have recognized as needing professional medical attention" (Browne et al., 2005, p. 308).

Abandonment is "Desertion of a child without arranging for reasonable care and supervision. This category includes cases where children were not claimed within two days, and where children were left by parents/substitutes who gave no (or false) information about their whereabouts" (Browne et al., 2005, p. 308). Expulsion is defined as "Other blatant refusals of custody, such as permanent or indefinite expulsion of a child from the home without adequate arrangement for care by others, or refusal to accept custody of a returned runaway" (Browne et al., 2005, p. 308).

"Other custody issues" is defined as "Custody-related forms of inattention to the child's needs other than those covered by abandonment or expulsion. For

example, repeated shuttling of a child from one household to another due to apparent unwillingness to maintain custody, or chronically and repeatedly leaving a child with others for days/weeks at a time" (Browne et al., 2005, p. 308).

Inadequate supervision is when a "Child left unsupervised or inadequately supervised for extended period of time or allowed to remain away from home overnight without the parent/substitute knowing (or attempting to determine) the child's whereabouts" (Browne et al., 2005, p. 308).

Other physical neglect, or what this study coined "safety and basic needs," is defined by "Conspicuous inattention to avoidable hazards in the home; inadequate nutrition, clothing, or hygiene; and other forms of reckless disregard of the child's safety and welfare, such as driving with the child while intoxicated, leaving a young child unattended in a motor vehicle, and so forth" (Browne et al., 2005, p. 308).

Independent Variable: Poverty

Past studies utilizing correlational analysis have established a positive association between substantiated physical neglect and five poverty related programs: Medicaid, unemployment and receiving Food Stamps, AFDC, and WIC (Carter & Myers, 2007). The proposed analysis will define poverty simply as whether the family is above or below the poverty line based on their income and family size.

This study will use the LONGSCAN Caregiver Demographics dataset to determine whether a family is experiencing poverty (Browne et al., 2005). This data is taken from the Caregiver Demographics survey that collects demographic information from caregivers. This data includes the variable for the family's total income (DE6A13) and how many people are dependent on that income (DE6A14) (Browne et al., 2005). This includes the family's total income per year from all sources after all taxes and deductions are taken out. This variable starts at families making less than $5,000 per year and includes 11 ranges of income, each $5,000 apart with the highest income being over $50,000 per year. These variables will be converted to a dichotomous variable indicating whether the family is below the U.S. poverty level or not. This dichotomous variable will be calculated using the U.S. Census Bureau's (2010) poverty threshold for a family of four in 2009 to be $21,954. This number will be divided by four so each person's income being $5488.50 and under will be considered to be in poverty (1 = poverty). Those above $5488.51 will not be considered to be in poverty (0 = not in poverty).

Statistical Analysis

For the hypothesis involving the predicted association between poverty and the different types of neglect (Figure 3.1), a longitudinal multinomial logistic regression model will be used. The outcome variable will be the four possible categories of physical neglect (no physical neglect, abandonment, inadequate supervision, and safety and basic needs). The model will provide tests for whether poverty influences the odds of each of the four categories of physical neglect

occurring rather than no physical neglect, controlling for prior physical neglect. Separate models will be done for predicting wave 2 neglect from time 1 poverty, and wave 2 neglect from wave 3 poverty. Tests for which types of neglect are more influenced by poverty will be done with comparisons between the effects of poverty on the various types of neglect. Based on the hypotheses above, it is expected that poverty will increase the odds of safety/basic needs neglect more than it influences the odds of either abandonment neglect or inadequate supervision neglect.

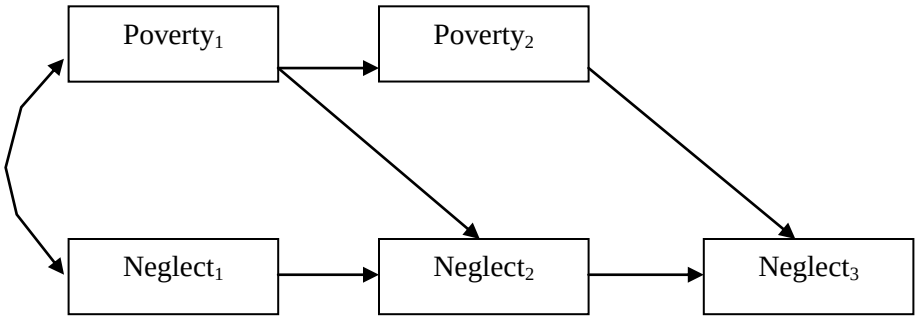

Figure 3.1. Longitudinal model of the effect of poverty on child neglect.

Hypothesis 2: Poverty Causing Neglect Mediated by Stress

This analysis focused on tests for whether poverty at time 1 predicts caregiver stress at wave 2, which in turn predicts physical neglect types at wave 3, statistically controlling for time 1 poverty and wave 3 substance use. As in hypothesis 1, the analysis considered these effects on the three types of physical neglect separately.

Independent Variable: Poverty

As with the previous analysis, this test considered poverty (i.e., whether the family is above or below the poverty line based on their income and family size) as a predictor of physical neglect through a direct path, and an indirect path with stress as a mediator of the effect of poverty on physical neglect.

The analysis used the LONGSCAN Caregiver Demographics dataset to determine whether a family is experiencing poverty (Browne et al., 2005). These data are taken from the Caregiver Demographics survey. These data include two relevant variables for assessing poverty-- the family's total income (DE6A13) and the number of people who are dependent on that income (DE6A14) (Browne et al., 2005). These variables will be converted to a dichotomous variable (0 = not below the poverty line, 1 = below the poverty line).

Mediating Variable: Stress

Stress was measured at age six using the Everyday Stressors Index (ESI) to determine the caregiver's level of stress. This index is designed to assess problems encountered daily by low-income mothers with young children. The ESI includes 20 questions covering five problem areas: role overload, financial concerns, parenting worries, employment problems, and interpersonal conflict (Browne, et al., 2005). Respondents rate how much each problem bothers them, on a four-point scale ranging from one (not bothered at all) to four (bothered a great deal).

Summing the responses to all the items creates a composite score, with possible scores range from 20 to 60. Higher scores indicate greater stress.

Control Variable: Substance Abuse

The variable of substance abuse is taken from the CPS Maltreatment Data. This variable is marked as "yes" if the caregiver has a history of substance abuse or any current substance abuse that limits their capacity and ability to effectively parent the child. "Yes" is marked even if the substance does not have a direct impact on the specific CPS referral. The dichotomous variable will equal 1 if yes, 0 otherwise.

Statistical Analysis

Data will be analyzed using multinomial regression to test for longitudinal mediation. This can provide evidence of causal association between poverty and the different types of child neglect due to the temporal ordering of the cause (poverty) and mediator (stress) and the outcome (physical neglect). Much of the literature in this area has been cross-sectional, and there is a deficit in research using a longitudinal mediation pathway. This longitudinal study examines caregiver stress as a mediator while controlling for caregiver drug abuse. Providing evidence of causation requires three things: association, time order, and eliminating alternate explanations. This analysis can provide new evidence that poverty causes some types of physical neglect more than others do. In Figure 3.2, the subscripts represent the different waves of data, each separated by two years. The mediation

hypothesis will be supported if there are statistically significant paths, (1) between time 1 poverty and time 2 stress, and (2) between time 2 stress and time 3 physical neglect, when time 1 poverty is in the model (Baron & Kenny, 1986). Substance use will be included as a statistical control because it is known to be related to child neglect. The following multinomial logistic regression model will be estimated. The model focuses on the effect of the three predictors on the odds each of the three types of physical neglect occurring rather than no physical neglect occurring. There is one equation for each type of physical neglect. $\mathrm{P(physical\ neglect_1)}$ refers to the probability of type one physical neglect occurring, and so on for the other similar terms. The only difference between the three equations is which of the three types of physical neglect is in the numerator in the term left of the equal sign—physical neglect$_1$, physical neglect$_2$, physical neglect$_3$. Physical neglect$_1$ is abandonment, physical neglect$_2$ is inadequate supervision, and physical neglect$_3$ is safety and basic needs.

$$\ln\left(\frac{\mathrm{P(physical\ neglect_1)}}{\mathrm{P(physical\ neglect_0)}}\right) = a + b_1(\mathrm{poverty_1}) + b_2(\mathrm{stress_2}) + b_3(\mathrm{drug\ abuse_3})$$

$$\ln\left(\frac{\mathrm{P(physical\ neglect_2)}}{\mathrm{P(physical\ neglect_0)}}\right) = a + b_1(\mathrm{poverty_1}) + b_2(\mathrm{stress_2}) + b_3(\mathrm{drug\ abuse_3})$$

$$\ln\left(\frac{\mathrm{P(physical\ neglect_3)}}{\mathrm{P(physical\ neglect_0)}}\right) = a + b_1(\mathrm{poverty_1}) + b_2(\mathrm{stress_2}) + b_3(\mathrm{drug\ abuse_3})$$

Using the logit transformation allows the effects of the predictors (the b terms in the equation) to be expressed in a straightforward way as odds ratios. For example, if

the odds ratio for b_1 above is estimated at 1.2, it means that being below the poverty line at time 1 increases the odds of physical neglect at time 3 by 20 percent.

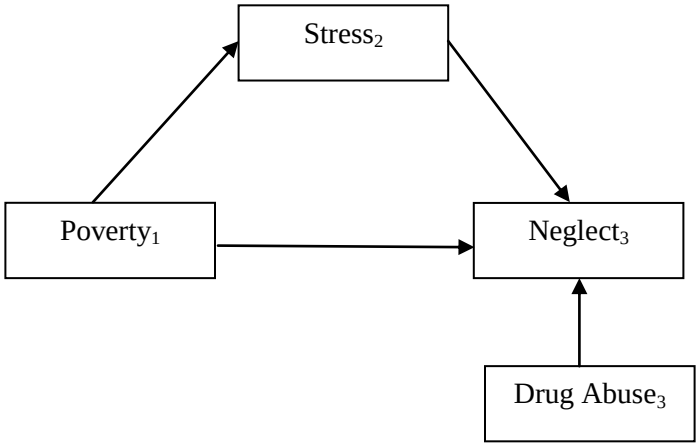

Figure 3.2. Proposed mediation path model: Causation of child neglect by poverty, mediated by caregiver stress, controlling for drug abuse.

CHAPTER 4: RESULTS

Child Demographics

The LONGSCAN Study contains 1,354 eligible children who entered the study at age 4 or less. An additional 350 older children were added in later waves. So analyses of later waves only will include 1704 children. Sex of the child was almost split in half, with 48.8 percent of children being male and 51.2 percent of children being female. The majority of children in this study being Black (48.3%) followed by White (27.6%), and mixed race (14.0%). The children's first language spoken at home was mostly English (96.8%).

Caregiver Demographics

The following demographics represent the child's caregiver. These data were collected when the child was between the ages of zero and four-years-old. In terms of race-ethnicity, most caregivers were Black (48.5%), followed by White (35.6%), and Hispanic (8.2%). The majority of caregivers spoke English (95.5%). Most caregivers were single (47.7%), followed by married (31.1%), and then divorced (12.5%). Most caregivers completed grade 12. Most caregivers did not have a high school diploma or pass a high school equivalency test (35.5%). The majority of caregivers were homemakers (40.5%) followed by being employed full-time (17.0%), and then being unemployed but looking for work (16.7%). It was almost split as to whether the caregiver had a husband or male partner living in the home (48.6%) or not (51.1%). 30.6% the caregivers' partners' were employed.

Poverty

In this study, total family income and the number of people dependent on that income were used to determine poverty. Most families' yearly income was between $5,000 to $10,000 (28.2%) followed by families making between $10,000 and $15,000 (16.6%) and then by families making less than $5,000 a year (14.3%). In terms of household economics, the most frequent type of household had four people dependent on their income (25.3%) followed closely by having three people dependent on their income (24.6%). Most families received AFDC (63.2%). Very few families were receiving unemployment (3.6%). The majority of families were on Medicaid (72.2%). Most families were receiving Food Stamps (62.4%). The

majority of families were not on housing assistance (77.1%). Most families did not receive WIC (57.3%).

Child Protective Services

The child neglect data used in this study is based on local official CPS information. As described above, researchers got permission to review the official CPS records on child maltreatment. Referrals to CPS, which are all included in the county-level data, came from different sources. The majority of referrals of children/families to CPS were from the social services field (20.6%), followed by medical professionals (14.1%), and friends and neighbors (12.3%). The majority of referrals to CPS were investigated (83.8%).

The data collected on families for up to six referrals to CPS. In the first referral, 14.4 percent of families were referred for inadequate supervision, 14.3 percent were referred for other physical neglect, or what we deemed "safety and basic needs," and 3.1 percent were referred for the category of abandonment, which included abandonment and expulsion. This trend continued through all six allegations.

Risk Factors

The CPS data provided risk factors related to the families who had been referred to them. Both time 1 and time 2 data show that that the most prevalent risk factor for families is caregiver substance abuse (41.7% and 30.5%, respectively),

followed by domestic violence (11.5% and 8.9%, respectively), and mental illness of the caretaker (7.2% and 6.7%, respectively).

Stress

The Everyday Stressors Index data were collected during wave 2 data collection when children were six-years-old. Caregivers were bothered a great deal most by concerns about how your child(ren) is/are doing in school/day care (20.4%), followed by concerns regarding there not being enough money for basic necessities, such as clothing, housing, food, and health care (19.1%), and then by there not being enough time to do the things they want to (18.3%).

Hypothesis 1: Results for Alleged Neglect

The data provides information on what allegations were made for each referral, and which of the allegations were actually substantiated (founded). Because of the complex medical, legal and other issues regarding the differences between allegations and substantiations, this study does separate analyses for alleged physical neglect and substantiated physical neglect as the outcome variable.

For hypothesis 1, there was a predicted differential association between poverty and the three different types of neglect: abandonment, inadequate supervision, and safety and basic needs (refer to Figure 3.1). This hypothesis was tested using multinomial logistic regression. Two models based on two-year time ordering were estimated. The first tests whether time 1 physical neglect and time 1 poverty predict wave 2 physical neglect. For the second and third waves, the second

tests whether wave 2 physical neglect and wave 2 poverty predict wave 3 physical neglect. The results of these analyses are presented in table 4.1 and 4.2.

There were low frequencies for some types of physical neglect at different ages. As a result, due to the nature of multinomial logistic regression, all the parameters in the models for hypothesis 1 could not be estimated with great accuracy. Because of this, the model results for hypothesis 1 in Tables 4.1 and 4.2 should be interpreted cautiously. Table 4.1 gives the time 1 → wave 2 results for allegations of physical neglect.

Table 4.1 Hypothesis 1, Model 1: Longitudinal model of the effect of time 1 poverty and neglect on alleged child neglect at time 2.

Physical Neglect Time 2	Odds Ratio	p-value
Abandonment		
Neglect at Time 1	NA	NA
Poverty at Time 1	0.14	0.11
Inadequate Supervision		
Neglect at Time 1	21.14**	0.00
Poverty at Time 1	0.15**	0.00
Safety and Basic Needs		
Neglect at Time 1	10.73**	0.00
Poverty at Time 1	0.366*	0.02

*= $p < .05$ **= $p < .01$

This table shows that physical neglect at time 1 is highly predictive of both safety and basic needs (OR=10.73) and inadequate supervision (OR= 21.15) types of neglect at time 2. The low frequency of abandonment neglect at wave 2 precluded estimates for that physical neglect type.

Effects of time 1 poverty on time 2 alleged physical neglect suggest that those households in poverty at time 1 were much less likely to have any type of physical neglect two years later (OR between 0.14 to 0.37, indicating reductions of 96% and 73%). Contrary to hypothesis 1, the effect of poverty on safety and basic needs effect (73% reduction) was less than the effect of poverty on inadequate supervision (96% reduction). These results must be interpreted with caution due to low frequency of some physical neglect types at some ages.

Hypothesis 1: Results for Founded Neglect

The frequency of founded cases is much less than that of alleged cases. This resulted in some low-frequency categories for our analysis of founded cases. As a result the model for the time 1 → wave 2 effect of poverty on physical neglect could not include physical neglect at Time 1. Table 4.2 gives the result estimating effects of time 1 poverty on wave 2 physical neglect. None of the effects of poverty are significantly different from 0. However, the odds ratios suggest that time 1 poverty affects the occurrence of the different types of physical neglect at time 2 differently. Again, contrary to hypothesis 1, the strongest effect is not on safety and basic needs but abandonment (OR=4.3).

Table 4.2 Hypothesis 1, model 2: Longitudinal model of the effect of poverty on founded physical neglect at time 2.

Physical Neglect Time 2	Odds Ratio	p-value
Abandonment		
Poverty at Time 1	4.296	0.24
Inadequate Supervision		
Poverty at Time 1	0.358	0.34
Safety and Basic Needs		
Poverty at Time 1	1.841	0.28

*= $p < .05$ **= $p < .01$

Table 4.3 gives the results for the effect of time 2 poverty and neglect on alleged physical neglect at time 3. It shows a strong effect of neglect at time 2 on all 3 types of alleged physical neglect at time 3. Again the effects of poverty on physical neglect were not statistically significant. However the effect of time 2

poverty on time 3 safety and basic needs (OR=1.84) was in the predicted direction, and as predicted, was larger than the other 2 types, approaching significance at the 0.19 level.

Table 4.3 Hypothesis 1, model 3: Longitudinal model of the effect of time 2 poverty on alleged physical neglect at time 3.

Physical Neglect Time 3	Odds Ratio	Significance
Abandonment		
Poverty at Time 2	0.686	0.76
Neglect at Time 2	7.053*	0.03
Inadequate Supervision		
Poverty at Time 2	0.996	1.00
Neglect at Time 2	5.047**	0.00
Safety and Basic Needs		
Poverty at Time 2	1.802	0.19
Neglect at Time 2	4.123**	0.00

*= $p < .05$ **= $p < .01$

Table 4.4 gives the results for time 2 poverty and physical neglect predicting time 3 founded physical neglect. As expected, it shows strong evidence that time 2 neglect predicts all 3 types of time 3 founded physical neglect. However, there are no significant effects for time 2 poverty on time 3 physical neglects, and the effect on safety and basic needs is less than the other types.

Table 4.4 Hypothesis 1, model 4: Longitudinal model of the effect of poverty on founded child neglect at time 3.

Physical Neglect Time 3	Odds Ratio	Significance
Abandonment		
Neglect at Time 2	14.931	0.06
Poverty at Time 2	3.193	0.41
Inadequate Supervision		
Neglect at Time 2	19.339**	0.00
Poverty at Time 2	4.136	0.12
Safety and Basic Needs		
Neglect at Time 2	18.625**	0.00
Poverty at Time 2	0.890	0.89

*= $p < .05$ **= $p < .01$

Overall, across these models, hypothesis 1 was not confirmed. There was no statistically significant effect of prior poverty on physical neglect type. Some poverty effects did approach significance. Even then, the effect of poverty on physical neglect was strongest in only one of four models (i.e., Table 4.3).

Hypothesis 2: Results for Alleged Neglect

Hypothesis 2 predicted that the effect of poverty at time 1 on physical neglect at time 3 would be mediated by stress at time 2, with drug abuse at time 2 statistically controlled (see Figure 3.2). This model establishes time ordering so that all predictors occur prior to the outcome. The hypothesis predicts no significant effect of poverty at time 1, but significant positive effects for stress and drug use at time 2. A part of this mediation model is an association between poverty at time 1 and stress at time 2. This was examined using a t-test for whether stress at time 2 is

greater for caregivers in poverty at time 1. The rest of the model was then tested using multinomial logistic regression with physical neglect at time 3 predicted by poverty at time 1, stress at time 2, and drug use at time 2. The models were estimated separately for alleged and founded physical neglect.

Caregivers at time 2 who were in poverty at time 1 were more stressed (stress mean = 1.81) than those not in poverty at time 1 (stress mean=1.75) as predicted. This difference was marginally significant in the t-test, $t(1011) = -1.77$, $p < .077$. Table 4.5 shows the results of the rest of the mediation model. The main part of hypothesis 2 was confirmed for abandonment and safety/basic needs. That is, poverty at time 1 did not affect neglect at time 3, but stress at time 2 significantly increased the odds of these 2 types of physical neglect at time 3. More stress at time 2 multiplied the odds of abandonment by 2.642, p = 0.04, and the odds of safety/basic needs neglect by 1.60, p = 0.03. However, the hypothesis was not confirmed for inadequate supervision where poverty at time one had a large effect on inadequate supervision, and stress had no significant effect. Drug use_2 was highly predictive of all three types of physical $neglect_3$ multiplying the odds of their occurrence by about five. This effect was statistically significant for both safety/basic needs (OR = 4.94, p = 0.002) and inadequate supervision (OR=5.75, p 0.01), and approached significance for abandonment (OR=4.77, p = 0.15).

Table 4.5. Hypothesis 2, model 5: Predicting alleged physical neglect at time 3 with $poverty_1$, mediated by caregiver $stress_2$, controlling for drug $abuse_2$.

Physical Neglect Time 3	Odds Ratio	Significance
Abandonment		
Poverty at Time 1	1.301	0.66
Drugs at Time 2	4.769	0.15
Stress at Time 2	2.642*	0.04
Inadequate Supervision		
Poverty at Time 1	4.388**	0.0001
Drugs at Time 2	5.747**	0.01
Stress at Time 2	0.950	0.88
Safety and Basic Needs		
Poverty at Time 1	1.600	0.53
Drugs at Time 2	4.941**	0.002
Stress at Time 2	1.603*	0.03

*= $p < .05$ **= $p < .01$

Hypothesis 2: Results for Founded Neglect

For the founded data, the same models were estimated. The t-test for $stress_2$ being greater for caregivers in poverty at time 1 is the same as the one for the alleged model above because the same families are in both analyses, with the only difference being in the physical neglect codes. For the founded analysis, the alleged but not founded cases are still in the data set as not founded. Therefore, as above, caregivers in poverty at time 1 had higher stress at time 2, and the difference was marginally significant ($p = 0.077$).

The rest of the mediation model for founded physical neglect is given in Figure 4.6. The only statistically significant effects in this model are for drug use_2, with drug use_2 multiplying the odds of physical $neglect_3$ by more than six times.

These effects were significant for abandonment and safety/basic needs (p = 0.03), and approached significance for inadequate supervision (p = 0.07). As predicted, $poverty_1$ did not have a direct effect on physical $neglect_3$. As with the alleged analysis above, the effect of stress was positive for safety/basic needs (OR= 1.78, p = 0.19) and abandonment (OR=2.296, p = 0.32), but not for inadequate supervision (OR=0.648, p = 0.56). Due to a lack of significance, these effects must be interpreted with caution. However since the safety and basic needs effect approaches significance (p = 0.19), it along with the null $poverty_1$ effect may be interpreted as a form of evidence in favor of the hypothesis 2 on mediation. The founded analysis had somewhat lower statistical power to detect significant effects because there were far fewer founded cases than alleged cases of physical neglect. Taken together the alleged and founded models do provide evidence for a mediation model in which early poverty does not affect later physical neglect directly, but rather it increases caregiver stress, which in turn increases the odds of abandonment and safety/basic needs types of physical neglect at time 3.

Table 4.6. Hypothesis 2, model 6: Predicting founded physical neglect at time 3 with $poverty_1$, mediated by caregiver $stress_2$, controlling for drug $abuse_2$.

Physical Neglect Time 3	Odds Ratio	Significance
Abandonment		
Poverty at Time 1	0.537	0.59
Drugs at Time 2	13.94*	0.03
Stress at Time 2	2.296	0.32

Inadequate Supervision		
Poverty at Time 1	1.777	0.42
Drugs at Time 2	7.247	0.07
Stress at Time 2	0.648	0.56
Safety and Basic Needs		
Poverty at Time 1	1.673	0.31
Drugs at Time 2	6.014*	0.03
Stress at Time 2	1.783	0.19

*= $p < .05$ **= $p < .01$

CHAPTER 5: DISCUSSION AND CONCLUSION

Child neglect is the most prevalent and arguably the most dangerous form of child maltreatment. Although here is a well-established association between poverty and child neglect, the processes that lead from poverty to child neglect are not clear (e.g., Drake & Pandey, 1996; Chaffin et al., 1996; Faulker & Faulkner, 2004; Appleyard et al., 2010). Research on this topic has waned recently due to the complexity of these processes. Poverty is generally just acknowledged as a risk factor for child neglect. The present study sought to clarify some of these processes by using a unique longitudinal data set that followed children for four years with data at three time points (Browne et al., 2005), with all children being less than four-years-old at Wave 1. This data also included details on the specific types of neglect that occurred based official CPS data. This provides for a more accurate and fine-grained analysis of the effect of poverty on child neglect. This study focused on the effect of poverty on physical neglect.

The longitudinal data set allows for two important analyses. The first is based on estimating the effects of both prior physical neglect and poverty on current physical neglect. By including prior physical neglect on current physical neglect, the estimate of the effect of poverty statistically controls for all variables that caused prior physical neglect. Prior physical neglect essentially acts as a proxy

for all those complex measured and unmeasured predictors of physical neglect. This kind of statistical control provides for a much more accurate estimate of the effect of prior poverty on current physical neglect. In addition, the temporal ordering establishes time order for a causal interpretation. That is, the cause precedes the effect, and there is time (two years in this analysis) for prior poverty to generate an effect on current physical neglect. The analysis showed that when controlling for prior physical neglect, there was no significant effect of prior poverty on current physical neglect.

This study tested the hypothesis that poverty should influence safety/basic needs physical neglect more than the abandonment or inadequate supervision. However, since there was no significant effect of poverty on any physical neglect type, hypothesis 1 was not confirmed. However, the absence of a significant poverty effect has an interesting *post hoc* interpretation. It suggests that the poverty itself does not cause physical neglect. This is counter to the conventional view that poverty is a cause of neglect. However, it is consistent with the fact that most caregivers in poverty do not neglect their children (e.g., Carter & Myers, 2007). This suggests the importance of a more detailed analysis of the poverty-physical neglect relationship. Hypothesis 2 is provides such an analysis.

Hypothesis 2 states that the effect of poverty on physical neglect is mediated by caregiver stress. Poverty causes caregiver stress, which in turn causes physical neglect. The longitudinal data allows for a test of this that establishes temporal ordering so there is time for a variable to have its effect. In a cross-sectional study,

most common in this field, the causal arrow between variables can go in either direction. The analysis here found strong evidence for this mediated effect for two types of physical neglect—abandonment and safety/basic needs. Again, there was no direct effect of poverty on physical neglect, but there were strong effects for caregiver stress and drug use. This suggests that poverty influences physical neglect by increasing caregiver stress.

This mediational effect was not found for inadequate supervision, which did have a direct effect of poverty on physical neglect, and no effect of stress. This result may be due to inadequate supervision being a less extreme form of physical neglect than abandonment or safety/basic needs in which caregiver stress is lower. In any event, this result suggests that the pathway from poverty to physical neglect differs depending on the type of physical neglect.

Taken together these results suggest that for the most extreme forms of physical neglect (abandonment and safety/basic needs), poverty itself does not cause physical neglect. Instead, it is the caregiver's stress reaction to the poverty that causes the physical neglect. Once stress is taken into account, poverty no longer has a direct effect. This is important in nations that have chronically high levels of poverty, with little indications that poverty can ever be eliminated. Poverty may not necessarily condemn so many children to physical neglect, if stress reaction to poverty can be reduced.

This study had several features that increase the scientific value of the results. The sample was drawn from five different sites across the United States, it included a large proportion of African-American families, the data on physical neglect came from official CPS records, and the data were longitudinal thus allowing time order to be established for some causal interpretations.

There were some limitations. The sample was not a probability sample, thus generalizations cannot be made to the national population. However, it should be noted that most prior longitudinal studies with kind of detailed data have been based in only one state. The study focused only on physical neglect, and it results cannot be extended to other types of child neglect or maltreatment. In addition, the analysis of the founded physical neglect cases was limited due to small frequencies for some types of founded physical neglect. Although the findings for founded cases were similar to the alleged results, the low frequencies for some founded categories resulted in low statistical power to detect significant effects. It is likely that if larger samples sizes were available that some of the non-significant effects in the current analysis would be statistically.

Coding decisions about how to group the many categories of neglect in the LONSCAN data had to be made. Although a systematic approach was used, the data could have been grouped in other ways. For example, the LONSCAN data grouped several neglect types into the safety and basic needs category used in this study (labeled as “other physical neglect” in the LONGSCAN data). The various subtypes could have been divided into different categories since they both cover

different aspects of neglect, such as inattention to avoidable hazards in the home; inadequate nutrition, clothing, or hygiene; and other forms of reckless disregard of the child's safety, and welfare such as driving with the child while intoxicated, leaving a young child unattended in a car. Alternative coding of the subtypes could have led to different results.

This study improved on previous research. As indicated above almost all studies about child neglect have found a correlation between neglect and poverty (Polansky, Gaudin, Ammons, & Davis, 1985; Giovannoni & Billingsley, 1970; Polansky & Gaudin, 1983). However, establishing convincing evidence for causal association and the direction of influence has been more challenging. Part of the reason for this is that there are different types of child neglect and each may have a different linkage to poverty. Jones and McCurdy (1992) found that physical neglect is most associated with poverty than other types such as educational or emotional neglect. However, none of the previous research addressed whether poverty had different effects on the different types of physical neglect as this study did.

If replicated this study could have implications for preventing physical neglect. Families in poverty experience social isolation and lack of social support, making these families difficult to serve (DiLeonardi, 1993). This social isolation is due in part to a lack of trust of persons outside the family. Programs to work with this population must consider this and devise methods to deal with the social isolation and lack of trust (DiLeonardi, 1993). One way to do this is by developing ways to increase families' strengths in order to empower them, thereby increasing

family involvement in programs and reducing caregiver stress. Social isolation and lack of social support are associated with caregiver stress (Chaffin et al., 1996). Programs that address social support may be able to reduce the stress reaction to poverty.

Multidisciplinary teams are an important service component (DiLeonardi, 1993) and matching families with needed services from this multidisciplinary team is essential for beneficial outcomes. Members of the multidisciplinary team could include Self-Sufficiency (TANF, Food Stamps, Oregon Health Plan), the housing department, substance abuse treatment, public health, mental health, parenting support/training, legal assistance, domestic violence intervention, job training. Many of these services are related to caregiver stress and can provide ways of reducing it if well matched with the caregiver and child.

Service accessibility is important for delivery and utilization of services for this population. It is a practical element in being able to deliver services to caregivers and children who need them. For example, having volunteers who are willing to drive families to inaccessible resources, having Self-Sufficiency case managers go to rural areas to meet with families instead of having them come to the Self-Sufficiency office, having public health nurses go to families homes to assess children's health and well-being, having counselors go to families homes for counseling sessions to deal with parental stress, having services set up in schools.

The mediation findings in this study suggest that future research should consider other factors that mediate the effect of poverty on child neglect. Such mediators for consideration include domestic violence, inadequate housing, and social isolation. Faulkner and Faulkner (2004) indicate that as families are pushed to the "breaking point" with poverty, their coping mechanisms are strained. Additionally, Garbarino and Sherman (1980) indicate that a family's own problems appear to be compounded by neighborhood context, and that support systems are needed. Such studies may help identify key intervention points. Future work with larger sample sizes could examine multiple mediators, as well as specific neglect types. Such analyses could clarify the complex link between poverty and child neglect.

An additional consideration for future research is to test for moderators of the effect of poverty on neglect. For example, the effect of poverty on neglect may vary depending on social support. Moderator models can be tested with interaction effects, such as including a poverty-by-social support interaction term in models such as those estimated in this study.

REFERENCES

Alder, N. E., Boyce, T., Chesney, M. A., Cohen, S., Folkman, S., & Kahn, R., L. (1994). Socioeconomic status and health: The challenge of the gradient. *American Psychologist, 49,* 1, 15-24.

American Humane Association (1988). *Highlights of official child neglect and abuse reporting: 1986.* Denver, CO: American Humane Association.

American Psychological Association Committee on Professional Practice Standards (1999). Guidelines for psychological evaluations in child protection matters. *American Psychologist, 54,* 586-593.

Appleyard, K., Yang , C., & Runyan, D. K. (2010). Delineating the maladaptive pathways of child maltreatment: A mediated moderation analysis of the roles of self-perception and social support.

Baron, R. M. & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51,* 1173-1182.

Berger, L. (2006). Children living out-of-home: Effects of family and environmental characteristics. *Children and Youth Services Review, 28,* 158-179.

Berrick, J., & Duerr, M. (1997). Preventing child neglect: A study of an in-home program for children and families. In J. Duerr Berrick, R., Barth, & N. Gilbert (Eds.), Child Welfare research review (V. 2) (p. 65). New York: Columbia University Press.

Bowen, G. L., & Chapman, M. S. (1996). Poverty, neighborhood danger, social support, and the individual adaptation among at-risk youth. *Journal of Family Issues, 17,* 641-666.

Bretherton, I. (1993). Theoretical contributions from developmental psychology. In P. G. Boss, W. J. Doherty, R. LaRossa, W. R. Schumm, S. K. Steinmetz (Eds.), *Sourcebook of family theories and methods: A contextual approach* (pp. 275-297). New York: Plenum Press.

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology, 22,* 6, 723-742.

Bronfenbrfenner, U. (1994). Ecologtical models of human development. In *International Encyclopedia of Education, Vol. 3, 2nd Ed.* Oxford: Elsevier. Reprinted in Gauvain, M. & Cole, M. (Eds.), *Readings on the development of children, 2nd Ed.* (1993, pp. 37-43). New York: Freeman.

Brown, L. (1987). Seeking a national consensus. *Public Welfare, 45,* 1, 12-17.

Brown, J., Cohen, P., Johnson, J. G., & Salzinger, S. (1998). A longitudinal analysis of risk factors for child maltreatment: Findings of a 17-year prospective study of officially recorded and self-reported child abuse and neglect. *Child Abuse and Neglect, 22,* 1065-1078.

Browne, D., Curtin, P., Dubowitz, H., English, D., Kotch, J., Runyan, D. K., Landsverk, J., Litrownik, A., Schneider, M. W., & Thompson, R. (2005). Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) Assessments

0-6 [Dataset]. Available from National Data Archive on Child Abuse and Neglect Website, http://www.ndacan.cornell.edu

Carter, V., & Myers, M. R. (2007). Exploring the risks of substantiated physical neglect related to poverty and parental characteristics: A national sample. *Children and Youth Services Review, 29,* 110-121.

Chaffin, M., Kelleher, K., & Hollenberg, J. (1996). Onset of physical abuse and neglect: Psychiatric, substance abuse, and social risk factors from prospective community data. *Child Abuse & Neglect, 20,* 191-203.

Vieth, V. (2010). Unto the third generation: A call to end child abuse in three generations. Keynote speaker at the Child Abuse and Family Violence Summit Conference.

Cowen, P. S. (1999). Injuries of omission. *Pediatric Nursing*, *25,* 4, 401-416.

Department of Human Services. Child Welfare Policy I-AB.5. (2008). The CPS Assessment Dispositions, OAR 413-015-1000

DiLeonardi, J. W. (1993). Families in poverty and chronic neglect of children. *Families in Society: The Journal of Contemporary Human Services*, *79,* 557-562.

Drake, B. & Pandey, S. (1996). Understanding the relationship between neighborhood poverty and child maltreatment. *Child Abuse and Neglect, 20,* 1003-1018.

Dubowitz, H., Papas, M. A., Black, M. M., & Starr, R. H. (2002). Child neglect: Outcomes in high-risk urban preschoolers. *Pediatrics, 109,* 1100-1107.

Dubowitz, H. (1999). Neglect of children's health care. In Dubowitz, H. (Ed.) (1999). *Neglected children: Research, practice, & policy* (pp. 109-131). Thousand Oaks: Sage.

Erickson, M. & Egeland, B. (1996). Child neglect. I J. Briere, L. Berliner, J. Bulkley, C. Jenny, & T. Reid (Eds.). *The APSAC Handbook on Child Maltreatment* (pp. 4-20). Thousand Oaks, CA: Sage Publications.

Evans, G. W. (2003). A multimethodological analysis of cumulative risk and allostatic load among rural children. *Developmental Psychology, 39,* 5, 924-933.

Evans, G. W., & Kim, P. (2007). Childhood poverty and health: Cumulative risk exposure and stress dysregulation. *Psychological Science, 18,* 11, 953-957.

Faulkner, S. S., & Faulkner, C. A. (2004). Poverty as a predictor of child maltreatment: A brief analysis. *Journal of Poverty, 8,* 1, 103-106.

Friedrich, W., Tyler, J., & Clark, J. (1985). Personality and psychophysiological variables in abusive, neglectful, and low-income control mothers. *Journal of Nervous and Mental Disease, 173,* 449-460.

Friedman, S. B., & Morse, C. W. (1974). Child abuse: A five-year followup of early case findings in the emergency department. *Pediatrics, 54,* 404-440.

Garbarino, J. & Sherman, D. (1980). High-risk neighborhoods and high-risk families: The human ecology of child maltreatment. Child Development, 51, 188-198.

Gaudin Jr., J. (1993). Child neglect: A guide for intervention. The user manual series (National Center on Child Abuse and Neglect). Washington, DC: U.S. Government Printing Office.

Giovannonni, J. M., & Billingsley, A. (1970). Child neglect among the poor: A study of parental adequacy in families of three ethnic groups. *Child Welfare, 84,* 196-214.

Gustavsson, N., & Segal, E. (1994). Critical issues in child welfare. Thousand Oaks, CA: Sage Publications.

Jones, E. D., & McCurdy, K. (1992). The links between types of maltreatment and demographic characteristics of children. *Child Abuse & Neglect, 16,* 201-215.

Letecq, B. L., Anderson, E. A., & Koblinsky, S. A. (1998). Social support of homeless and housed mothers: A comparison of temporary and permanent housing arrangements. *Family Relations, 47,* 415-421.

National Child Abuse and Neglect Data System, Glossary (NCCAN). (August, 1998).

Nelson, K. E., Saunders, E. J., & Landsman, M. J. (1993). Chronic child neglect in *perspective. Social Work, 38 (6), 661-671.*

Orshansky, M. (1965). Counting the poor: Another look at poverty. *Social Security Bulletin, 28,* 3-29.

Pelton, L. (1994). Is poverty the key contributor to child maltreatment? Yes. In E. Gambrill, & T. J. Stein (Eds.), *Controversial issues in child welfare* (pp. 16-22). Needham Heights, MA: Allyn and Bacon.

Pelton, L. (1985). *The social context of child abuse and neglect.* New York: Human Science Press Inc.

Pelton, L., (1978). Child abuse and neglect: The myth of classlessness. *American Journal of Orthopsychiatry, 48,* 4, 608-617.

Polansky, N. (1987). *Damaged parents.* Chicago: University of Chicago Press.

Polansky, N., & Gaudin Jr., J. (1983). Social distancing of the neglectful family. *Social Service Review, 57,* 196-208.

Polansky, N., Gaudin, J., Ammons, P., & Davis, K. (1985). The psychological ecology of the neglectful mother. *Child Abuse and Neglect, 9,* 265-275.

Polansky, N. A., Hally, C., & Polansky, N. F. (1976*). Profile of neglect: A survey of the state of knowledge of child neglect.* Washington DC: U.S. Government Printing Office.

Reidy, T. J. (1977). The aggressive characteristics of abused and neglected children. *Journal of Clinical Psychology, 33,* 4, 1140-1145.

Scarbrough, W. H. (1993). Who are the poor? A demographic perspective. In J. A. Chafel (Ed.), Child poverty and public policy (pp. 55-86). Washington, D.C., The Urban Institute Press.

Seccombe, K. (2001). Families in poverty in the 1990s: Trends, Causes, Consequences, and Lessons Learned. In R. M. Milardo (Ed.). *Understanding families into the new millennium: A decade in review* (pp. 313- 332.

Seccombe, K. (1999). So you think I drive a Cadillac? Welfare recipients' perspectives on the system and its reform. *Needham Heights, MA: Allyn & Bacon.*

Sedlak, A. J., & Broadhurst, D. D. (1996). *The third national incidence study of child abuse and neglect: Final report.* Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families.

Trube-Becker, E. (1977). The death of children following negligence. *Child Abuse and Neglect, 1,* 25-30.

Tyler, S., Allison, K., Winsler, A. (2006). Child neglect: Developmental consequences, intervention, and policy implications. *Child and Youth Care Forum, 35*, 1, 1-20.

U.S. Census Bureau. (2009). Poverty status for the past 12 months. Retrieved December 24, 2010 from http://factfinder.census.gov/servlet/SSTable?bm=y&-geo_id=01000US&-gr_name=ACS_2009_5YR_G00_S1701&-ds_name=ACS_2009_5YR_G00

U.S. Census Bureau. (2010). Income, poverty and health insurance coverage in the United States: 2009. Retrieved December 30, 2010 from http://www.census.gov/newsroom/releases/archives/income_wealth/cb10-144.html

The U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth, and Families. The Child Abuse Prevention Act. The Keeping Children and Families Safe Act of 2008.

Vondra, J. (1986). Socioeconomic Considerations: The family Economy. In J. Garbarino, *Troubled youth, troubled families*. New York: Aldine Publishing Company.

Vondra, J. (1993). Childhood poverty and child maltreatment. In J. A. Chafel (Ed.), *Child Poverty and Public Policy* (pp. 127-159). Washington, DC: The Urban Institute Press.

Wadsworth, M.E., Raviv, T., Reinhard, C., Wolff, B., Santiago, C. D., & Schachter, L. (2008). Indirect effects model of the association between poverty and child

functioning: The role of children's poverty-related stress. *Journal of Loss and Trauma, 13,* 156-185.

Wadsworth M. E., & Santiago, C. (2008). Risk and resiliency processes in ethnically diverse families in poverty. *Journal of Family Psychology, 23,* 399-410.

Wolff, B. C., Santiago, C. D., & Wadsworth, M. E. (2009). Poverty and involuntary engagement stress responses: Examining the link to anxiety and aggression within low-income families. *Anxiety, Stress, and Coping, 22,* 3, 309-325.

Wolock, I., & Horowitz, B. (1979). Child maltreatment and material deprivation among AFDC-recipient families. *Social Service Review, 53,* 175-194.

Wolock, I., & Horowitz, B. (1984). Child maltreatment as a social problem: The neglect of neglect. *American Journal of Orthopsychiatry, 54,* 4, 530-543.

Zuravin, S. (1988). Child maltreatment and teenage first births: A relationship mediated by chronic sociodemographic stress? *American Journal of Orthopsychiatry, 58,* 1, 91-103.

Zuravin, S. J., & DePanfilis, D. (1997). Factor affecting foster care placement of children. *Social Work Research, 21,* 34-42.

Zuravin, S. J., & Grief, G. (1989). Normative and child-maltreating AFDC mothers. *Social Caseworker: Journal of Contemporary Social Work, 74,* 76-84.

APPENDIX

This Appendix gives the SPSS syntax that was used in retrieving the data from the LONGSCAN data CD, and recoding the data for use in the analysis. It is provided here to facilitate the replication of the results presented here.

```
/* This SPSS program was automatically generated by Stat/Transfer */

/* The following line should contain the complete path and name of your raw data file */
/* The last line of this file contains the path to your output '.sav' file */

FILE HANDLE DATA / NAME="C:\temp\data\rnab0603.dat" LRECL=450 .

DATA LIST FILE=DATA/
  ID 1-7 (A)            VISIT 8-10          CENTER 11-12 (A)
  RNA7 13-14            RNA8 15             RNA9A1 16
  RNA9A2 17             RNA9A3 18           RNA10A 19
  RNA10B 20             RNA10C 21           RNA10D 22
  RNA10E 23             RNA10F 24           RNA10G 25
  RNA10H 26             RNA10I 27           RNA10J 28
  RNA10K 29             RNA10L 30           RNA11 31
  RNA12A1 32-34         RNA12A2 35          RNA12A3A 36-37
  RNA12A3B 38           RNA12A3C 39         RNA12A4A 40-41
  RNA12A4B 42           RNA12A4C 43         RNA12B1 44-46
  RNA12B2 47            RNA12B3A 48-49      RNA12B3B 50
```

RNA12B3C 51 RNA12B4A 52-53 RNA12B4B 54
RNA12B4C 55 RNA12C1 56-58 RNA12C2 59
RNA12C3A 60-61 RNA12C3B 62 RNA12C3C 63
RNA12C4A 64-65 RNA12C4B 66 RNA12C4C 67
RNA12D1 68-70 RNA12D2 71 RNA12D3A 72-73
RNA12D3B 74 RNA12D3C 75 RNA12D4A 76-77
RNA12D4B 78 RNA12D4C 79 RNA12E1 80-82
RNA12E2 83 RNA12E3A 84 RNA12E3B 85
RNA12E3C 86 RNA12E4A 87-88 RNA12E4B 89
RNA12E4C 90 RNA12F1 91-93 RNA12F2 94
RNA12F3A 95 RNA12F3B 96 RNA12F3C 97
RNA12F4A 98 RNA12F4B 99 RNA12F4C 100
RNA13A1 101-103 RNA13A2 104-105 RNA13A3A 106-107
RNA13A3B 108 RNA13A3C 109 RNA13A4A 110-111
RNA13A4B 112 RNA13A4C 113 RNA13B1 114-116
RNA13B2 117-118 RNA13B3A 119-120 RNA13B3B 121
RNA13B3C 122 RNA13B4A 123-124 RNA13B4B 125
RNA13B4C 126 RNA13C1 127-129 RNA13C2 130-131
RNA13C3A 132-133 RNA13C3B 134 RNA13C3C 135
RNA13C4A 136-137 RNA13C4B 138 RNA13C4C 139
RNA13D1 140-142 RNA13D2 143-144 RNA13D3A 145-146
RNA13D3B 147 RNA13D3C 148 RNA13D4A 149-150
RNA13D4B 151 RNA13D4C 152 RNA13E1 153-155
RNA13E2 156-157 RNA13E3A 158-159 RNA13E3B 160
RNA13E3C 161 RNA13E4A 162-163 RNA13E4B 164
RNA13E4C 165 RNA1 166-176 (DATE) RNA2 177-187 (DATE)
RNA5 188-198 (DATE) RNA6 199-209 (DATE) RNA13F1 210-212
RNA13F2 213-214 RNA13F3A 215-216 RNA13F3B 217
RNA13F3C 218 RNA13F4A 219-220 RNA13F4B 221
RNA13F4C 222 RNA14A 223 RNA14B 224
RNA14C 225 RNA14D 226 RNA14E 227
RNA15A 228 RNA15B 229 RNA15C 230
RNA16B 231 RNA16B2 232 RNA17A 233
RNA17B 234 RNA17C 235 RNA17D 236
RNA17E 237 RNA17F 238 RNA17AA 239
RNA18A1 240 RNA18A2 241-243 RNA18A3 244
RNA18A4A 245-246 RNA18A4B 247 RNA18A4C 248
RNA18A5A 249-250 RNA18A5B 251 RNA18A5C 252
RNA18B1 253 RNA18B2 254-256 RNA18B3 257
RNA18B4A 258-259 RNA18B4B 260 RNA18B4C 261
RNA18B5A 262-263 RNA18B5B 264 RNA18B5C 265
RNA18C1 266 RNA18C2 267-269 RNA18C3 270
RNA18C4A 271-272 RNA18C4B 273 RNA18C4C 274
RNA18C5A 275-276 RNA18C5B 277 RNA18C5C 278
RNA18D1 279 RNA18D2 280-282 RNA18D3 283
RNA18D4A 284-285 RNA18D4B 286 RNA18D4C 287
RNA18D5A 288-289 RNA18D5B 290 RNA18D5C 291
RNA18E1 292 RNA18E2 293-295 RNA18E3 296
RNA18E4A 297 RNA18E4B 298 RNA18E4C 299

RNA18E5A 300-301 RNA18E5B 302 RNA18E5C 303
RNA18F1 304 RNA18F2 305-307 RNA18F3 308
RNA18F4A 309 RNA18F4B 310 RNA18F4C 311
RNA18F5A 312 RNA18F5B 313 RNA18F5C 314
RNA19A1 315 RNA19A2 316-318 RNA19A3 319-320
RNA19A4A 321-322 RNA19A4B 323 RNA19A4C 324
RNA19A5A 325-326 RNA19A5B 327 RNA19A5C 328
RNA19B1 329 RNA19B2 330-332 RNA19B3 333-334
RNA19B4A 335-336 RNA19B4B 337 RNA19B4C 338
RNA19B5A 339-340 RNA19B5B 341 RNA19B5C 342
RNA19C1 343 RNA19C2 344-346 RNA19C3 347-348
RNA19C4A 349-350 RNA19C4B 351 RNA19C4C 352
RNA19C5A 353-354 RNA19C5B 355 RNA19C5C 356
RNA19D1 357 RNA16A 358-368 (DATE) RNA21C1 369-398 (A)
RNA19D2 399-401 RNA19D3 402-403 RNA19D4A 404-405
RNA19D4B 406 RNA19D4C 407 RNA19D5A 408-409
RNA19D5B 410 RNA19D5C 411 RNA19E1 412
RNA19E2 413-415 RNA19E3 416-417 RNA19E4A 418-419
RNA19E4B 420 RNA19E4C 421 RNA19E5A 422-423
RNA19E5B 424 RNA19E5C 425 RNA19F1 426
RNA19F2 427-429 RNA19F3 430-431 RNA19F4A 432
RNA19F4B 433 RNA19F4C 434 RNA19F5A 435-436
RNA19F5B 437 RNA19F5C 438 RNA20A 439
RNA20B 440 RNA20C 441 RNA20D 442
RNA20E 443 RNA21A 444 RNA21B 445
RNA21C 446 RNA15C2 447 RNA15C3 448
RNA21C2 449 RNA21C3 450 .

VARIABLE LABELS
ID 'LONGSCAN SUBJECT ID'
VISIT 'VISIT NUMBER'
CENTER 'LONGSCAN FIELD CENTER'
RNA7 'Referrant'
RNA8 'Response: investigated?'
RNA9A1 'Child in placement at time of referral?'
RNA9A2 'Type of placement'
RNA9A3 'Allegation related to placement?'
RNA10A 'CPS Maltrt alleg type: None given'
RNA10B 'CPS Maltrt alleg type: Physical abuse'
RNA10C 'CPS Maltrt alleg type: Sexual abuse'
RNA10D 'CPS Maltrt alleg type: Neglect'
RNA10E 'CPS Maltrt alleg type: Dependency'
RNA10F 'CPS Maltr.Alleg Typ:Caretakr absence etc'
RNA10G 'CPS Maltrt alleg type: Emotional maltrt'
RNA10H 'CPS Maltrt alleg type: Moral/legal/educ'
RNA10I 'CPS Maltrt alleg type: Abuse'
RNA10J 'CPS Maltrt alleg type: General neglect'
RNA10K 'CPS Maltrt alleg type: Severe neglect'
RNA10L 'CPS Maltrt alleg type: Don^t know'

RNA11 'Is there any allegation key narrative?'
RNA12A1 'NIS2 Alleged: 12A1: Maltreatment code'
RNA12A2 'NIS2 Alleged: 12A2: Severity code'
RNA12A3A 'NIS2 Alleged: 12A3A: Perpetrator #1 Type'
RNA12A3B 'NIS2 Alleged: 12A3B: Perpetrator #1 Sex'
RNA12A3C 'NIS2 Alleged: 12A3C: Perpetrator #1 Age'
RNA12A4A 'NIS2 Alleged: 12A4A: Perpetrator #2 Type'
RNA12A4B 'NIS2 Alleged: 12A4B: Perpetrator #2 Sex'
RNA12A4C 'NIS2 Alleged: 12A4C: Perpetrator #2 Age'
RNA12B1 'NIS2 Alleged: 12B1: Maltreatment code'
RNA12B2 'NIS2 Alleged: 12B2: Severity code'
RNA12B3A 'NIS2 Alleged: 12B3A: Perpetrator #1 Type'
RNA12B3B 'NIS2 Alleged: 12B3B: Perpetrator #1 Sex'
RNA12B3C 'NIS2 Alleged: 12B3C: Perpetrator #1 Age'
RNA12B4A 'NIS2 Alleged: 12B4A: Perpetrator #2 Type'
RNA12B4B 'NIS2 Alleged: 12B4B: Perpetrator #2 Sex'
RNA12B4C 'NIS2 Alleged: 12B4C: Perpetrator #2 Age'
RNA12C1 'NIS2 Alleged: 12C1: Maltreatment code'
RNA12C2 'NIS2 Alleged: 12C2: Severity code'
RNA12C3A 'NIS2 Alleged: 12C3A: Perpetrator #1 Type'
RNA12C3B 'NIS2 Alleged: 12C3B: Perpetrator #1 Sex'
RNA12C3C 'NIS2 Alleged: 12C3C: Perpetrator #1 Age'
RNA12C4A 'NIS2 Alleged: 12C4A: Perpetrator #2 Type'
RNA12C4B 'NIS2 Alleged: 12C4B: Perpetrator #2 Sex'
RNA12C4C 'NIS2 Alleged: 12C4C: Perpetrator #2 Age'
RNA12D1 'NIS2 Alleged: 12D1: Maltreatment code'
RNA12D2 'NIS2 Alleged: 12D2: Severity code'
RNA12D3A 'NIS2 Alleged: 12D3A: Perpetrator #1 Type'
RNA12D3B 'NIS2 Alleged: 12D3B: Perpetrator #1 Sex'
RNA12D3C 'NIS2 Alleged: 12D3C: Perpetrator #1 Age'
RNA12D4A 'NIS2 Alleged: 12D4A: Perpetrator #2 Type'
RNA12D4B 'NIS2 Alleged: 12D4B: Perpetrator #2 Sex'
RNA12D4C 'NIS2 Alleged: 12D4C: Perpetrator #2 Age'
RNA12E1 'NIS2 Alleged: 12E1: Maltreatment code'
RNA12E2 'NIS2 Alleged: 12E2: Severity code'
RNA12E3A 'NIS2 Alleged: 12E3A: Perpetrator #1 Type'
RNA12E3B 'NIS2 Alleged: 12E3B: Perpetrator #1 Sex'
RNA12E3C 'NIS2 Alleged: 12E3C: Perpetrator #1 Age'
RNA12E4A 'NIS2 Alleged: 12E4A: Perpetrator #2 Type'
RNA12E4B 'NIS2 Alleged: 12E4B: Perpetrator #2 Sex'
RNA12E4C 'NIS2 Alleged: 12E4C: Perpetrator #2 Age'
RNA12F1 'NIS2 Alleged: 12F1: Maltreatment code'
RNA12F2 'NIS2 Alleged: 12F2: Severity code'
RNA12F3A 'NIS2 Alleged: 12F3A: Perpetrator #1 Type'
RNA12F3B 'NIS2 Alleged: 12F3B: Perpetrator #1 Sex'
RNA12F3C 'NIS2 Alleged: 12F3C: Perpetrator #1 Age'
RNA12F4A 'NIS2 Alleged: 12F4A: Perpetrator #2 Type'
RNA12F4B 'NIS2 Alleged: 12F4B: Perpetrator #2 Sex'
RNA12F4C 'NIS2 Alleged: 12F4C: Perpetrator #2 Age'

RNA13A1 'Barnett Alleged: 13A1: Maltreatment code'
RNA13A2 'Barnett Alleged: 13A2: Severity code'
RNA13A3A 'Barnett Alleged: 13A3A:Perpetrat.#1 Type'
RNA13A3B 'Barnett Alleged: 13A3B:Perpetrat.#1 Sex'
RNA13A3C 'Barnett Alleged: 13A3C:Perpetrat.#1 Age'
RNA13A4A 'Barnett Alleged: 13A4A:Perpetrat.#2 Type'
RNA13A4B 'Barnett Alleged: 13A4B:Perpetrat.#2 Sex'
RNA13A4C 'Barnett Alleged: 13A4C:Perpetrat.#2 Age'
RNA13B1 'Barnett Alleged: 13B1: Maltreatment code'
RNA13B2 'Barnett Alleged: 13B2: Severity code'
RNA13B3A 'Barnett Alleged: 13B3A:Perpetrat.#1 Type'
RNA13B3B 'Barnett Alleged: 13B3B:Perpetrat.#1 Sex'
RNA13B3C 'Barnett Alleged: 13B3C:Perpetrat.#1 Age'
RNA13B4A 'Barnett Alleged: 13B4A:Perpetrat.#2 Type'
RNA13B4B 'Barnett Alleged: 13B4B:Perpetrat.#2 Sex'
RNA13B4C 'Barnett Alleged: 13B4C:Perpetrat.#2 Age'
RNA13C1 'Barnett Alleged: 13C1: Maltreatment code'
RNA13C2 'Barnett Alleged: 13C2: Severity code'
RNA13C3A 'Barnett Alleged: 13C3A:Perpetrat.#1 Type'
RNA13C3B 'Barnett Alleged: 13C3B:Perpetrat.#1 Sex'
RNA13C3C 'Barnett Alleged: 13C3C:Perpetrat.#1 Age'
RNA13C4A 'Barnett Alleged: 13C4A:Perpetrat.#2 Type'
RNA13C4B 'Barnett Alleged: 13C4B:Perpetrat.#2 Sex'
RNA13C4C 'Barnett Alleged: 13C4C:Perpetrat.#2 Age'
RNA13D1 'Barnett Alleged: 13D1: Maltreatment code'
RNA13D2 'Barnett Alleged: 13D2: Severity code'
RNA13D3A 'Barnett Alleged: 13D3A:Perpetrat.#1 Type'
RNA13D3B 'Barnett Alleged: 13D3B:Perpetrat.#1 Sex'
RNA13D3C 'Barnett Alleged: 13D3C:Perpetrat.#1 Age'
RNA13D4A 'Barnett Alleged: 13D4A:Perpetrat.#2 Type'
RNA13D4B 'Barnett Alleged: 13D4B:Perpetrat.#2 Sex'
RNA13D4C 'Barnett Alleged: 13D4C:Perpetrat.#2 Age'
RNA13E1 'Barnett Alleged: 13E1: Maltreatment code'
RNA13E2 'Barnett Alleged: 13E2: Severity code'
RNA13E3A 'Barnett Alleged: 13E3A:Perpetrat.#1 Type'
RNA13E3B 'Barnett Alleged: 13E3B:Perpetrat.#1 Sex'
RNA13E3C 'Barnett Alleged: 13E3C:Perpetrat.#1 Age'
RNA13E4A 'Barnett Alleged: 13E4A:Perpetrat.#2 Type'
RNA13E4B 'Barnett Alleged: 13E4B:Perpetrat.#2 Sex'
RNA13E4C 'Barnett Alleged: 13E4C:Perpetrat.#2 Age'
RNA1 'Today^s date'
RNA2 'Child^s Date of birth'
RNA5 'Referral date'
RNA6 'Incident date'
RNA13F1 'Barnett Alleged: 13F1: Maltreatment code'
RNA13F2 'Barnett Alleged: 13F2: Severity code'
RNA13F3A 'Barnett Alleged: 13F3A:Perpetrat.#1 Type'
RNA13F3B 'Barnett Alleged: 13F3B:Perpetrat.#1 Sex'
RNA13F3C 'Barnett Alleged: 13F3C:Perpetrat.#1 Age'

RNA13F4A 'Barnett Alleged: 13F4A:Perpetrat.#2 Type'
RNA13F4B 'Barnett Alleged: 13F4B:Perpetrat.#2 Sex'
RNA13F4C 'Barnett Alleged: 13F4C:Perpetrat.#2 Age'
RNA14A 'Risk Factors in alleg: Substance abuse'
RNA14B 'Risk Factors in alleg: Domestic violence'
RNA14C 'RiskFactors in alleg:Caretakr mental ill'
RNA14D 'Risk Factors in alleg: Child behav probl'
RNA14E 'Risk Factors in alleg:Child fear caretkr'
RNA15A 'Other issues in alleg: Custodial issues'
RNA15B 'Other issues in alleg: Unstable environ'
RNA15C 'Other issues in alleg: Other misc.'
RNA16B 'Is investigat still active?'
RNA16B2 'Ongoing case'
RNA17A 'CPS Findings ConcluCode: None given'
RNA17B 'CPS Findings ConcluCode: Physical abuse'
RNA17C 'CPS Findings ConcluCode: Sexual abuse'
RNA17D 'CPS Findings ConcluCode: Neglect'
RNA17E 'CPS Findings ConcluCode: Dependency'
RNA17F 'CPS Findings ConcluCode: Caretkr absent'
RNA17AA 'Is there a summary key narrative?'
RNA18A1 'NIS2 Findings: 18A1:Conclusion code'
RNA18A2 'NIS2 Findings: 18A2: Maltreatment code'
RNA18A3 'NIS2 Findings: 18A3: Severity code'
RNA18A4A 'NIS2 Findings: 18A4A: Perpetra.#1 Type'
RNA18A4B 'NIS2 Findings: 18A4B: Perpetra.#1 Sex'
RNA18A4C 'NIS2 Findings: 18A4C: Perpetra.#1 Age'
RNA18A5A 'NIS2 Findings: 18A5A: Perpetra.#2 Type'
RNA18A5B 'NIS2 Findings: 18A5B: Perpetra.#2 Sex'
RNA18A5C 'NIS2 Findings: 18A5C: Perpetra.#2 Age'
RNA18B1 'NIS2 Findings: 18B1:Conclusion code'
RNA18B2 'NIS2 Findings: 18B2: Maltreatment code'
RNA18B3 'NIS2 Findings: 18B3: Severity code'
RNA18B4A 'NIS2 Findings: 18B4A: Perpetra.#1 Type'
RNA18B4B 'NIS2 Findings: 18B4B: Perpetra.#1 Sex'
RNA18B4C 'NIS2 Findings: 18B4C: Perpetra.#1 Age'
RNA18B5A 'NIS2 Findings: 18B5A: Perpetra.#2 Type'
RNA18B5B 'NIS2 Findings: 18B5B: Perpetra.#2 Sex'
RNA18B5C 'NIS2 Findings: 18B5C: Perpetra.#2 Age'
RNA18C1 'NIS2 Findings: 18C1:Conclusion code'
RNA18C2 'NIS2 Findings: 18C2: Maltreatment code'
RNA18C3 'NIS2 Findings: 18C3: Severity code'
RNA18C4A 'NIS2 Findings: 18C4A: Perpetra.#1 Type'
RNA18C4B 'NIS2 Findings: 18C4B: Perpetra.#1 Sex'
RNA18C4C 'NIS2 Findings: 18C4C: Perpetra.#1 Age'
RNA18C5A 'NIS2 Findings: 18C5A: Perpetra.#2 Type'
RNA18C5B 'NIS2 Findings: 18C5B: Perpetra.#2 Sex'
RNA18C5C 'NIS2 Findings: 18C5C: Perpetra.#2 Age'
RNA18D1 'NIS2 Findings: 18D1:Conclusion code'
RNA18D2 'NIS2 Findings: 18D2: Maltreatment code'

RNA18D3 'NIS2 Findings: 18D3: Severity code'
RNA18D4A 'NIS2 Findings: 18D4A: Perpetra.#1 Type'
RNA18D4B 'NIS2 Findings: 18D4B: Perpetra.#1 Sex'
RNA18D4C 'NIS2 Findings: 18D4C: Perpetra.#1 Age'
RNA18D5A 'NIS2 Findings: 18D5A: Perpetra.#2 Type'
RNA18D5B 'NIS2 Findings: 18D5B: Perpetra.#2 Sex'
RNA18D5C 'NIS2 Findings: 18D5C: Perpetra.#2 Age'
RNA18E1 'NIS2 Findings: 18E1:Conclusion code'
RNA18E2 'NIS2 Findings: 18E2: Maltreatment code'
RNA18E3 'NIS2 Findings: 18E3: Severity code'
RNA18E4A 'NIS2 Findings: 18E4A: Perpetra.#1 Type'
RNA18E4B 'NIS2 Findings: 18E4B: Perpetra.#1 Sex'
RNA18E4C 'NIS2 Findings: 18E4C: Perpetra.#1 Age'
RNA18E5A 'NIS2 Findings: 18E5A: Perpetra.#2 Type'
RNA18E5B 'NIS2 Findings: 18E5B: Perpetra.#2 Sex'
RNA18E5C 'NIS2 Findings: 18E5C: Perpetra.#2 Age'
RNA18F1 'NIS2 Findings: 18F1:Conclusion code'
RNA18F2 'NIS2 Findings: 18F2: Maltreatment code'
RNA18F3 'NIS2 Findings: 18F3: Severity code'
RNA18F4A 'NIS2 Findings: 18F4A: Perpetra.#1 Type'
RNA18F4B 'NIS2 Findings: 18F4B: Perpetra.#1 Sex'
RNA18F4C 'NIS2 Findings: 18F4C: Perpetra.#1 Age'
RNA18F5A 'NIS2 Findings: 18F5A: Perpetra.#2 Type'
RNA18F5B 'NIS2 Findings: 18F5B: Perpetra.#2 Sex'
RNA18F5C 'NIS2 Findings: 18F5C: Perpetra.#2 Age'
RNA19A1 'Barnett Findings: 19A1:Conclusion code'
RNA19A2 'Barnett Findings: 19A2: Maltrtmnt code'
RNA19A3 'Barnett Findings: 19A3: Severity code'
RNA19A4A 'Barnett Findings: 19A4A:Perpetr.#1 Typ'
RNA19A4B 'Barnett Findings: 19A4B:Perpetr.#1 Sex'
RNA19A4C 'Barnett Findings: 19A4C:Perpetr.#1 Age'
RNA19A5A 'Barnett Findings: 19A5A:Perpetr.#2 Typ'
RNA19A5B 'Barnett Findings: 19A5B:Perpetr.#2 Sex'
RNA19A5C 'Barnett Findings: 19A5C:Perpetr.#2 Age'
RNA19B1 'Barnett Findings: 19B1:Conclusion code'
RNA19B2 'Barnett Findings: 19B2: Maltrtmnt code'
RNA19B3 'Barnett Findings: 19B3: Severity code'
RNA19B4A 'Barnett Findings: 19B4A:Perpetr.#1 Typ'
RNA19B4B 'Barnett Findings: 19B4B:Perpetr.#1 Sex'
RNA19B4C 'Barnett Findings: 19B4C:Perpetr.#1 Age'
RNA19B5A 'Barnett Findings: 19B5A:Perpetr.#2 Typ'
RNA19B5B 'Barnett Findings: 19B5B:Perpetr.#2 Sex'
RNA19B5C 'Barnett Findings: 19B5C:Perpetr.#2 Age'
RNA19C1 'Barnett Findings: 19C1:Conclusion code'
RNA19C2 'Barnett Findings: 19C2: Maltrtmnt code'
RNA19C3 'Barnett Findings: 19C3: Severity code'
RNA19C4A 'Barnett Findings: 19C4A:Perpetr.#1 Typ'
RNA19C4B 'Barnett Findings: 19C4B:Perpetr.#1 Sex'
RNA19C4C 'Barnett Findings: 19C4C:Perpetr.#1 Age'

```
  RNA19C5A 'Barnett Findings: 19C5A:Perpetr.#2 Typ'
  RNA19C5B 'Barnett Findings: 19C5B:Perpetr.#2 Sex'
  RNA19C5C 'Barnett Findings: 19C5C:Perpetr.#2 Age'
  RNA19D1 'Barnett Findings: 19D1:Conclusion code'
  RNA16A 'Investigation Close date, if known'
  RNA21C1 'Describe Other misc issues in summary'
  RNA19D2 'Barnett Findings: 19D2: Maltrtmnt code'
  RNA19D3 'Barnett Findings: 19D3: Severity code'
  RNA19D4A 'Barnett Findings: 19D4A:Perpetr.#1 Typ'
  RNA19D4B 'Barnett Findings: 19D4B:Perpetr.#1 Sex'
  RNA19D4C 'Barnett Findings: 19D4C:Perpetr.#1 Age'
  RNA19D5A 'Barnett Findings: 19D5A:Perpetr.#2 Typ'
  RNA19D5B 'Barnett Findings: 19D5B:Perpetr.#2 Sex'
  RNA19D5C 'Barnett Findings: 19D5C:Perpetr.#2 Age'
  RNA19E1 'Barnett Findings: 19E1:Conclusion code'
  RNA19E2 'Barnett Findings: 19E2: Maltrtmnt code'
  RNA19E3 'Barnett Findings: 19E3: Severity code'
  RNA19E4A 'Barnett Findings: 19E4A:Perpetr.#1 Typ'
  RNA19E4B 'Barnett Findings: 19E4B:Perpetr.#1 Sex'
  RNA19E4C 'Barnett Findings: 19E4C:Perpetr.#1 Age'
  RNA19E5A 'Barnett Findings: 19E5A:Perpetr.#2 Typ'
  RNA19E5B 'Barnett Findings: 19E5B:Perpetr.#2 Sex'
  RNA19E5C 'Barnett Findings: 19E5C:Perpetr.#2 Age'
  RNA19F1 'Barnett Findings: 19F1:Conclusion code'
  RNA19F2 'Barnett Findings: 19F2: Maltrtmnt code'
  RNA19F3 'Barnett Findings: 19F3: Severity code'
  RNA19F4A 'Barnett Findings: 19F4A:Perpetr.#1 Typ'
  RNA19F4B 'Barnett Findings: 19F4B:Perpetr.#1 Sex'
  RNA19F4C 'Barnett Findings: 19F4C:Perpetr.#1 Age'
  RNA19F5A 'Barnett Findings: 19F5A:Perpetr.#2 Typ'
  RNA19F5B 'Barnett Findings: 19F5B:Perpetr.#2 Sex'
  RNA19F5C 'Barnett Findings: 19F5C:Perpetr.#2 Age'
  RNA20A 'Risk Factors in sumry: Substance abuse'
  RNA20B 'Risk Factors in sumry: Domestic violence'
  RNA20C 'RiskFactors in sumry:Caretakr mental ill'
  RNA20D 'Risk Factors in sumry: Child behav probl'
  RNA20E 'Risk Factors in sumry:Child fear caretkr'
  RNA21A 'Other issues in sumry: Custodial issues'
  RNA21B 'Other issues in sumry: Unstable environ'
  RNA21C 'Other issues in sumry: Other misc.'
  RNA15C2 'Other : Code'
  RNA15C3 'Other: Code'
  RNA21C2 'Other: Code'
  RNA21C3 'Other: Code' .

SAVE OUTFILE='C:\temp\data\rnab0603.sav'.
```

```
/* This SPSS program was automatically generated by Stat/Transfer */

/* The following line should contain the complete path and name of your raw data file */
/* The last line of this file contains the path to your output '.sav' file */

FILE HANDLE DATA / NAME="Z:\DIS\esis0404.txt" LRECL=12 .

DATA LIST FILE=DATA/
  ID 1-7 (A)            CENTER 8-9 (A)          VISIT 10
  ESIATOT 11-12 .

VARIABLE LABELS
  ID 'LONGSCAN SUBJECT ID'
  CENTER 'FIELD CENTER'
  VISIT 'VISIT NUMBER'
  ESIATOT 'ESIA: Total Score' .

SAVE OUTFILE='Z:\DIS\esis0404.sav'.
COMPUTE stress14=esiatot/20.

COMPUTE years=DATEDIFF(rna5, bk6a1, "years").
COMPUTE months=DATEDIFF(rna5, bk6a1, "months").

compute incomed= 2500 IF DEA13=1.
compute incomed= 7500 IF DEA13=2.
compute incomed= 12500 IF DEA13=3.
compute incomed= 17500 IF DEA13=4.
compute incomed= 22500 IF DEA13=5.
compute incomed= 27500 IF DEA13=6.
compute incomed=32500 IF DEA13=7.
compute incomed= 37500 IF DEA13=8.
compute incomed= 42500 IF DEA13=9.
compute incomed=47500 IF DEA13=10.
compute incomed=70000 IF DEA13=11.



IF  (RNA18B1=1) foundb=1.
EXECUTE.
IF  (RNA18B1>1) foundb=0.
EXECUTE.

IF  (RNA18C1=1) foundc=1.
EXECUTE.
IF  (RNA18C1>1) foundc=0.
EXECUTE.
```

```
IF  (RNA18D1=1) foundd=1.
EXECUTE.
IF  (RNA18D1>1) foundd=0.
EXECUTE.

IF  (RNA18E1=1) founde=1.
EXECUTE.
IF  (RNA18E1>1) founde=0.
EXECUTE.

IF  (RNA18F1=1) foundf=1.
EXECUTE.
IF  (RNA18F1>1) foundf=0.
EXECUTE.



IF  (RNA18A2=553 | RNA18A2=554 | RNA18A2=555) pnega=1.
EXECUTE.

IF  (RNA18B2=553 | RNA18B2=554 | RNA18B2=555) pnegb=1.
EXECUTE.

IF  (RNA18C2=553 | RNA18C2=554 | RNA18C2=555) pnegc=1.
EXECUTE.

IF  (RNA18D2=553 | RNA18D2=554 | RNA18D2=555) pnegd=1.
EXECUTE.

IF  (RNA18F2=553 | RNA18F2=554 | RNA18F2=555) pnegf=1.
EXECUTE.



RECODE RNA18A2 RNA18B2 RNA18C2 RNA18D2 RNA18F2 (453=1) (454=1)
(SYSMIS=SYSMIS) (455=1) INTO pncodea
   pncodeb pncodec pncoded pncodef.
EXECUTE.

RECODE RNA18A2 RNA18B2 RNA18C2 RNA18D2 RNA18F2 (SYSMIS=SYSMIS)
(456=2) INTO pncodea
   pncodeb pncodec pncoded pncodef.
EXECUTE.

RECODE RNA18A2 RNA18B2 RNA18C2 RNA18D2 RNA18F2 (SYSMIS=SYSMIS)
(451=3) (452=3) (457=3) INTO pncodea
   pncodeb pncodec pncoded pncodef.
EXECUTE.
```

```
DO IF (pncodea = 1 & 2).
RECODE pncodea (1 thru 2=4) (2 thru 3=4) (1 thru 3=4).
END IF.
EXECUTE.



RECODE RNA18A2 RNA18B2 RNA18C2 RNA18D2 RNA18F2 (453=1) (454=1)
(455=1) (SYSMIS=SYSMIS)  INTO pncodea
   pncodeb pncodec pncoded pncodef.
EXECUTE.

RECODE RNA18A2 RNA18B2 RNA18C2 RNA18D2 RNA18F2 (SYSMIS=SYSMIS)
(456=2) INTO pncodea
   pncodeb pncodec pncoded pncodef.
EXECUTE.

RECODE RNA18A2 RNA18B2 RNA18C2 RNA18D2 RNA18F2 (SYSMIS=SYSMIS)
(451=3) (452=3) (457=3) INTO pncodea
   pncodeb pncodec pncoded pncodef.
EXECUTE.

RECODE RNA18A2 RNA18B2 RNA18C2 RNA18D2 RNA18F2 (SYSMIS=SYSMIS)
(453, 454, 455=4)  INTO pncodea
   pncodeb pncodec pncoded pncodef.
EXECUTE.


COMPUTE count=0.
EXECUTE.
IF (founda=1) count= count+1.
EXECUTE.
IF (foundb=1) count= count+1.
EXECUTE.
IF (foundc=1) count= count+1.
EXECUTE.
IF (foundd=1) count= count+1.
EXECUTE.
IF (founde=1) count= count+1.
EXECUTE.
IF (foundf=1) count= count+1.
EXECUTE.
IF (count > 1) pncodea=4.
EXECUTE.
IF (count > 1) pncodeb=4.
EXECUTE.
IF (count > 1) pncodec=4.
EXECUTE.
```

```
IF (count > 1) pncoded=4.
EXECUTE.
IF (count > 1) pncodee=4.
EXECUTE.
IF (count > 1) pncodef=4.
EXECUTE.



CASESTOVARS
  /ID=ID
  /GROUPBY=INDEX
  /COUNT=referrals "".

pneg1=0
pneg2=0
pneg3=0

IF (childage.1 < 5 & founda.1 = 1) pneg1=pncode1.
IF (childage.2 < 5 & founda.2 = 1) pneg1=pncode1.
IF (childage.3 < 5 & founda.3 = 1) pneg1=pncode1.
IF (childage.4 < 5 & founda.4 = 1) pneg1=pncode1.
IF (childage.5 < 5 & founda.5 = 1) pneg1=pncode1.
IF (childage.6 < 5 & founda.6 = 1) pneg1=pncode1.


IF (childage.1 < 5 & foundb.1 = 1) pneg1=pncode1.
IF (childage.2 < 5 & foundb.2 = 1) pneg1=pncode1.
IF (childage.3 < 5 & foundb.3 = 1) pneg1=pncode1.
IF (childage.4 < 5 & foundb.4 = 1) pneg1=pncode1.
IF (childage.5 < 5 & foundb.5 = 1) pneg1=pncode1.
IF (childage.6 < 5 & foundb.6 = 1) pneg1=pncode1.


IF (childage.1 < 5 & foundd.1 = 1) pneg1=pncode1.
IF (childage.2 < 5 & foundd.2 = 1) pneg1=pncode1.
IF (childage.3 < 5 & foundd.3 = 1) pneg1=pncode1.
IF (childage.4 < 5 & foundd.4 = 1) pneg1=pncode1.
IF (childage.5 < 5 & foundd.5 = 1) pneg1=pncode1.
IF (childage.6 < 5 & foundd.6 = 1) pneg1=pncode1.


IF (childage.1 < 5 & founde.1 = 1) pneg1=pncode1.
IF (childage.2 < 5 & founde.2 = 1) pneg1=pncode1.
IF (childage.3 < 5 & founde.3 = 1) pneg1=pncode1.
IF (childage.4 < 5 & founde.4 = 1) pneg1=pncode1.
IF (childage.5 < 5 & founde.5 = 1) pneg1=pncode1.
IF (childage.6 < 5 & founde.6 = 1) pneg1=pncode1.
```

```
IF (childage.1 = 5&6 & founda.1 = 1) pneg2=pncode1.
IF (childage.2 = 5&6 & founda.1 = 1) pneg2=pncode1.
IF (childage.3 = 5&6 & founda.1 = 1) pneg2=pncode1.
IF (childage.4 = 5&6 & founda.1 = 1) pneg2=pncode1.
IF (childage.5 = 5&6 & founda.1 = 1) pneg2=pncode1.
IF (childage.6 = 5&6 & founda.1 = 1) pneg2=pncode1.

IF (childage.1 = 5&6 & foundb.1 = 1) pneg2=pncode1.
IF (childage.2 = 5&6 & foundb.1 = 1) pneg2=pncode1.
IF (childage.3 = 5&6 & foundb.1 = 1) pneg2=pncode1.
IF (childage.4 = 5&6 & foundb.1 = 1) pneg2=pncode1.
IF (childage.5 = 5&6 & foundb.1 = 1) pneg2=pncode1.
IF (childage.6 = 5&6 & foundb.1 = 1) pneg2=pncode1.

IF (childage.1 = 5&6 & foundd.1 = 1) pneg2=pncode1.
IF (childage.2 = 5&6 & foundd.1 = 1) pneg2=pncode1.
IF (childage.3 = 5&6 & foundd.1 = 1) pneg2=pncode1.
IF (childage.4 = 5&6 & foundd.1 = 1) pneg2=pncode1.
IF (childage.5 = 5&6 & foundd.1 = 1) pneg2=pncode1.
IF (childage.6 = 5&6 & foundd.1 = 1) pneg2=pncode1.

IF (childage.1 = 5&6 & founde.1 = 1) pneg2=pncode1.
IF (childage.2 = 5&6 & founde.1 = 1) pneg2=pncode1.
IF (childage.3 = 5&6 & founde.1 = 1) pneg2=pncode1.
IF (childage.4 = 5&6 & founde.1 = 1) pneg2=pncode1.
IF (childage.5 = 5&6 & founde.1 = 1) pneg2=pncode1.
IF (childage.6 = 5&6 & founde.1 = 1) pneg2=pncode1.



IF (childage.1 > 6 & founda.1 = 1) pneg3=pncode1.
IF (childage.2 > 6 & founda.2 = 1) pneg3=pncode1.
IF (childage.3 > 6 & founda.3 = 1) pneg3=pncode1.
IF (childage.4 > 6 & founda.4 = 1) pneg3=pncode1.
IF (childage.5 > 6 & founda.5 = 1) pneg3=pncode1.
IF (childage.6 > 6 & founda.6 = 1) pneg3=pncode1.

IF (childage.1 > 6 & foundb.1 = 1) pneg3=pncode1.
IF (childage.2 > 6 & foundb.2 = 1) pneg3=pncode1.
IF (childage.3 > 6 & foundb.3 = 1) pneg3=pncode1.
```

```
IF (childage.4 > 6 & foundb.4 = 1) pneg3=pncode1.
IF (childage.5 > 6 & foundb.5 = 1) pneg3=pncode1.
IF (childage.6 > 6 & foundb.6 = 1) pneg3=pncode1.


IF (childage.1 > 6 & foundd.1 = 1) pneg3=pncode1.
IF (childage.2 > 6 & foundd.2 = 1) pneg3=pncode1.
IF (childage.3 > 6 & foundd.3 = 1) pneg3=pncode1.
IF (childage.4 > 6 & foundd.4 = 1) pneg3=pncode1.
IF (childage.5 > 6 & foundd.5 = 1) pneg3=pncode1.
IF (childage.6 > 6 & foundd.6 = 1) pneg3=pncode1.


IF (childage.1 > 6 & founde.1 = 1) pneg3=pncode1.
IF (childage.2 > 6 & founde.2 = 1) pneg3=pncode1.
IF (childage.3 > 6 & founde.3 = 1) pneg3=pncode1.
IF (childage.4 > 6 & founde.4 = 1) pneg3=pncode1.
IF (childage.5 > 6 & founde.5 = 1) pneg3=pncode1.
IF (childage.6 > 6 & founde.6 = 1) pneg3=pncode1.




RECODE RNA18A2 RNA18B2 RNA18C2 RNA18D2 RNA18F2 (SYSMIS=SYSMIS)
(453=1) (454=1) (455=1)   INTO pncodea
   pncodeb pncodec pncoded pncodef.
EXECUTE.

RECODE RNA18A2 RNA18B2 RNA18C2 RNA18D2 RNA18F2 (SYSMIS=SYSMIS)
(456=2) INTO pncodea
   pncodeb pncodec pncoded pncodef.
EXECUTE.

RECODE RNA18A2 RNA18B2 RNA18C2 RNA18D2 RNA18F2 (SYSMIS=SYSMIS)
(451=3) (452=3) (457=3) INTO pncodea
   pncodeb pncodec pncoded pncodef.
EXECUTE.


COMPUTE count=0.
EXECUTE.
IF (founda=1) count= count+1.
EXECUTE.
IF (foundb=1 & pncodeb ~= pncodea) count= count+1.
EXECUTE.
IF (foundc=1 & pncodec ~= pncodea &  pncodec ~= pncodeb ) count= count+1.
EXECUTE.

IF (count > 1) pncodea=4.
```

```
EXECUTE.
IF (count > 1) pncodeb=4.
EXECUTE.
IF (count > 1) pncodec=4.
EXECUTE.
```

```
compute pneg1=0.
compute  pneg2=0.
compute pneg3=0.

IF (childage1 < 5 & founda1 = 1) pneg1=pncodea1.
IF (childage1 < 5 & foundb1 = 1) pneg1=pncodea1.
IF (childage1 < 5 & foundc1 = 1) pneg1=pncodea1.
 IF (childage1 < 5 & foundd1 = 1) pneg1=pncode1.
IF (childage1 < 5 & founde1 = 1) pneg1=pncode1.
IF (childage1 = 5&6 & founda1 = 1) pneg2=pncode1.
IF (childage1 = 5&6 & foundb1 = 1) pneg2=pncode1.
IF (childage1 = 5&6 & foundc1 = 1) pneg2=pncode1.
IF (childage1 = 5&6 & foundd1 = 1) pneg2=pncode1.
IF (childage1 = 5&6 & founde1 = 1) pneg2=pncode1.
IF (childage1 > 6 & founda1 = 1) pneg3=pncode1.
IF (childage1 > 6 & foundb1 = 1) pneg3=pncode1.
IF (childage1 > 6 & foundc1 = 1) pneg3=pncode1.
IF (childage1 > 6 & foundd1 = 1) pneg3=pncode1.
IF (childage1 > 6 & founde1 = 1) pneg3=pncode1.
```

```
compute pneg1=0.
compute  pneg2=0.
compute pneg3=0.

IF (childage1 < 5 & founda1 = 1) pneg1=pncodea1.
IF (childage1 < 5 & foundb1 = 1) pneg1=pncodeb1.
IF (childage1 < 5 & foundc1 = 1) pneg1=pncodec1.
 IF (childage1 < 5 & foundd1 = 1) pneg1=pncoded1.
IF (childage1 < 5 & foundf1 = 1) pneg1=pncodef1.
IF (childage1 = 5&6 & founda1 = 1) pneg2=pncodea1.
IF (childage1 = 5&6 & foundb1 = 1) pneg2=pncodeb1.
IF (childage1 = 5&6 & foundc1 = 1) pneg2=pncodec1.
IF (childage1 = 5&6 & foundd1 = 1) pneg2=pncoded1.
IF (childage1 = 5&6 & foundf1 = 1) pneg2=pncodef1.
```

```
IF (childage1 > 6 & founda1 = 1) pneg3=pncodea1.
IF (childage1 > 6 & foundb1 = 1) pneg3=pncodeb1.
IF (childage1 > 6 & foundc1 = 1) pneg3=pncodec1.
IF (childage1 > 6 & foundd1 = 1) pneg3=pncoded1.
IF (childage1 > 6 & foundf1 = 1) pneg3=pncodef1.



*  Recoding pnegs as predictor.  In founded analysis Hyp 1

compute pneg2di=0.
IF(pneg2>0) pneg2di=1.

compute pneg1di=0.
IF(pneg1>0) pneg1di=1.

NOMREG pneg3 (BASE=FIRST ORDER=ASCENDING) WITH poverty6 pneg2di
  /CRITERIA CIN(95) DELTA(0) MXITER(100) MXSTEP(5) CHKSEP(20)
LCONVERGE(0) PCONVERGE(0.000001) SINGULAR(0.00000001)
  /MODEL
  /STEPWISE=PIN(.05) POUT(0.1) MINEFFECT(0) RULE(SINGLE)
ENTRYMETHOD(LR) REMOVALMETHOD(LR)
  /INTERCEPT=INCLUDE
  /PRINT=PARAMETER SUMMARY LRT CPS STEP MFI.


NOMREG pneg2 (BASE=FIRST ORDER=ASCENDING) WITH poverty4.1 pneg1di
  /CRITERIA CIN(95) DELTA(0) MXITER(100) MXSTEP(5) CHKSEP(20)
LCONVERGE(0) PCONVERGE(0.000001) SINGULAR(0.00000001)
  /MODEL
  /STEPWISE=PIN(.05) POUT(0.1) MINEFFECT(0) RULE(SINGLE)
ENTRYMETHOD(LR) REMOVALMETHOD(LR)
  /INTERCEPT=INCLUDE
  /PRINT=PARAMETER SUMMARY LRT CPS STEP MFI.


* Recoding drug1-10 as predictor in founded analysis hyp 2.

compute drugs3=0.
IF(drugs1=1 and childage1>4) drug3=1.
IF(drugs2=1 and childage2>4) drug3=1.
IF(drugs3=1 and childage3>4) drug3=1.
IF(drugs4=1 and childage4>4) drug3=1.
IF(drugs5=1 and childage5>4) drug3=1.
IF(drugs6=1 and childage6>4) drug3=1.
IF(drugs7=1 and childage7>4) drug3=1.
IF(drugs8=1 and childage8>4) drug3=1.
IF(drugs9=1 and childage9>4) drug3=1.
```

```
IF(drugs10=1 and childage10>4) drug3=1.


* Creating Contrast for Pneg1-0123

IF(Pneg1=0) C1=0.
IF(Pneg1=0) C2=0.
IF(Pneg1=0) C3=0.

IF(Pneg1=1) C1=1.
IF(Pneg1=1) C2=0.
IF(Pneg1=1) C3=0.

IF(Pneg1=2) C1=0.
IF(Pneg1=2) C2=1.
IF(Pneg1=2) C3=0.

IF(Pneg1=3) C1=0.
IF(Pneg1=3) C2=0.
IF(Pneg1=3) C3=1.

* Creating Pneg1 Contrasts 012

IF(Pneg1=0) C11=0.
IF(Pneg1=0) C22=0.

IF(Pneg1=1) C11=1.
IF(Pneg1=1) C22=0.

IF(Pneg1=2) C11=0.
IF(Pneg1=2) C22=1.



* For Allegations


RECODE pncodea1 to pncoded1 (1=1) (3=3) (2=2) (4=4) (ELSE=999).
RECODE pncodea2 to pncoded2 (1=1) (3=3) (2=2) (4=4) (ELSE=999).
RECODE pncodea3 to pncoded3 (1=1) (3=3) (2=2) (4=4) (ELSE=999).
RECODE pncodea4 to pncoded4 (1=1) (3=3) (2=2) (4=4) (ELSE=999).
RECODE pncodea4 to pncoded5 (1=1) (3=3) (2=2) (4=4) (ELSE=999).
RECODE pncodea5 to pncoded6 (1=1) (3=3) (2=2) (4=4) (ELSE=999).
RECODE pncodea6 to pncoded7 (1=1) (3=3) (2=2) (4=4) (ELSE=999).
RECODE pncodea7 to pncoded8 (1=1) (3=3) (2=2) (4=4) (ELSE=999).
```

```
RECODE pncodea8 to pncoded9 (1=1) (3=3) (2=2) (4=4) (ELSE=999).
RECODE pncodea9 to pncoded10 (1=1) (3=3) (2=2) (4=4) (ELSE=999).

MISSING VALUES pncodea1 to pncoded1 (999).
MISSING VALUES pncodea2 to pncoded2 (999).
MISSING VALUES pncodea3 to pncoded3 (999).
MISSING VALUES pncodea4 to pncoded4 (999).
MISSING VALUES pncodea5 to pncoded5 (999).
MISSING VALUES pncodea6 to pncoded6 (999).
MISSING VALUES pncodea7 to pncoded7 (999).
MISSING VALUES pncodea8 to pncoded8 (999).
MISSING VALUES pncodea9 to pncoded9 (999).
MISSING VALUES pncodea9 to pncoded9 (999).

compute pneg1=0.
compute  pneg2=0.
compute pneg3=0.

* First Referral

IF (childage1 LE 5 AND pncodea1 NE 999) pneg1=pncodea1.
IF (childage1 LE 5 AND pncodeb1 NE 999) pneg1=pncodeb1.
IF (childage1 LE 5 AND pncodec1 NE 999) pneg1=pncodec1.
IF (childage1 LE 5 AND pncoded1 NE 999) pneg1=pncoded1.
IF (childage1 LE 5 AND pncodef1 NE 999) pneg1=pncodef1.

IF ((childage1 =5) AND pncodea1 NE 999) pneg2=pncodea1.
IF ((childage1 =6) AND pncodea1 NE 999) pneg2=pncodea1.
IF ((childage1 =5) AND pncodeb1 NE 999) pneg2=pncodeb1.
IF ((childage1 =6) AND pncodeb1 NE 999) pneg2=pncodeb1.
IF ((childage1 =5) AND pncodec1 NE 999) pneg2=pncodec1.
IF ((childage1 =6) AND pncodec1 NE 999) pneg2=pncodec1.
IF ((childage1 =5) AND pncoded1 NE 999) pneg2=pncoded1.
IF ((childage1 =6) AND pncoded1 NE 999) pneg2=pncoded1.
IF ((childage1 =5) AND pncodef1 NE 999) pneg2=pncodef1.
IF ((childage1 =6) AND pncodef1 NE 999) pneg2=pncodef1.

IF (childage1 > 6 AND pncodea1 NE 999) pneg3=pncodea1.
IF (childage1 > 6 AND pncodeb1 NE 999) pneg3=pncodeb1.
IF (childage1 > 6 AND pncodec1 NE 999) pneg3=pncodec1.
IF (childage1 > 6 AND pncoded1 NE 999) pneg3=pncoded1.
IF (childage1 > 6 AND pncodef1 NE 999) pneg3=pncodef1.

* 2nd Referral

IF (childage2 LE 5 AND pncodea2 NE 999) pneg1=pncodea2.
IF (childage2 LE 5 AND pncodeb2 NE 999) pneg1=pncodeb2.
IF (childage2 LE 5 AND pncodec2 NE 999) pneg1=pncodec2.
IF (childage2 LE 5 AND pncoded2 NE 999) pneg1=pncoded2.
```

```
IF ((childage2 =6) AND pncodea2 NE 999) pneg2=pncodea2.
IF ((childage2 =5) AND pncodeb2 NE 999) pneg2=pncodeb2.
IF ((childage2 =6) AND pncodeb2 NE 999) pneg2=pncodeb2.
IF ((childage2 =5)  AND pncodec2 NE 999) pneg2=pncodec2.
IF ((childage2 =6) AND pncodec2 NE 999) pneg2=pncodec2.
IF ((childage2 =5) AND pncoded2 NE 999) pneg2=pncoded2.
IF ((childage2 =6) AND pncoded2 NE 999) pneg2=pncoded2.

IF (childage2 > 6 AND pncodea2 NE 999) pneg3=pncodea2.
IF (childage2 > 6 AND pncodeb2 NE 999) pneg3=pncodeb2.
IF (childage2 > 6 AND pncodec2 NE 999) pneg3=pncodec2.
IF (childage2 > 6 AND pncoded2 NE 999) pneg3=pncoded2.

* 3rd Referral

IF (childage3 LE 5 AND pncodea1 NE 999) pneg1=pncodea3.
IF (childage3 LE 5 AND pncodeb1 NE 999) pneg1=pncodeb3.
IF (childage3 LE 5 AND pncodec1 NE 999) pneg1=pncodec3.
IF (childage3 LE 5 AND pncoded1 NE 999) pneg1=pncoded3.

IF ((childage3 =5) AND pncodea1 NE 999) pneg2=pncodea3.
IF ((childage3 =6) AND pncodea1 NE 999) pneg2=pncodea3.
IF ((childage3 =5) AND pncodeb1 NE 999) pneg2=pncodeb3.
IF ((childage3 =6) AND pncodeb1 NE 999) pneg2=pncodeb3.
IF ((childage3 =5) AND pncodec1 NE 999) pneg2=pncodec3.
IF ((childage3 =6) AND pncodec1 NE 999) pneg2=pncodec3.
IF ((childage3 =5) AND pncoded1 NE 999) pneg2=pncoded3.
IF ((childage3 =6) AND pncoded1 NE 999) pneg2=pncoded3.

IF (childage3 > 6 AND pncodea3 NE 999) pneg3=pncodea3.
IF (childage3 > 6 AND pncodeb3 NE 999) pneg3=pncodeb3.
IF (childage3 > 6 AND pncodec3 NE 999) pneg3=pncodec3.
IF (childage3 > 6 AND pncoded3 NE 999) pneg3=pncoded3.

* Fourth Referral

IF (childage4 LE 5 AND pncodea1 NE 999) pneg1=pncodea4.
IF (childage4 LE 5 AND pncodeb1 NE 999) pneg1=pncodeb4.
IF (childage4 LE 5 AND pncodec1 NE 999) pneg1=pncodec4.
IF (childage4 LE 5 AND pncoded1 NE 999) pneg1=pncoded4.


IF ((childage4 =5) AND pncodea1 NE 999) pneg2=pncodea4.
IF ((childage4 =6) AND pncodea1 NE 999) pneg2=pncodea4.
IF ((childage4 =5) AND pncodeb1 NE 999) pneg2=pncodeb4.
IF ((childage4 =6) AND pncodeb1 NE 999) pneg2=pncodeb4.
IF ((childage4 =5) AND pncodec1 NE 999) pneg2=pncodec4.
IF ((childage4 =6) AND pncodec1 NE 999) pneg2=pncodec4.
```

```
IF ((childage4 =5) AND pncoded1 NE 999) pneg2=pncoded4.
IF ((childage4 =6) AND pncoded1 NE 999) pneg2=pncoded4.

IF (childage4 > 6 AND pncodea4 NE 999) pneg3=pncodea4.
IF (childage4 > 6 AND pncodeb4 NE 999) pneg3=pncodeb4.
IF (childage4 > 6 AND pncodec4 NE 999) pneg3=pncodec4.
IF (childage4 > 6 AND pncoded4 NE 999) pneg3=pncoded4.

* 5th Referral

IF (childage5 LE 5 AND pncodea1 NE 999) pneg1=pncodea5.
IF (childage5 LE 5 AND pncodeb1 NE 999) pneg1=pncodeb5.
IF (childage5 LE 5 AND pncodec1 NE 999) pneg1=pncodec5.
IF (childage5 LE 5 AND pncoded1 NE 999) pneg1=pncoded5.

IF ((childage5 =5) AND pncodea1 NE 999) pneg2=pncodea5.
IF ((childage5 =6) AND pncodea1 NE 999) pneg2=pncodea5.
IF ((childage5 =5) AND pncodeb1 NE 999) pneg2=pncodeb5.
IF ((childage5 =6) AND pncodeb1 NE 999) pneg2=pncodeb5.
IF ((childage5 =5) AND pncodec1 NE 999) pneg2=pncodec5.
IF ((childage5 =6) AND pncodec1 NE 999) pneg2=pncodec5.
IF ((childage5 =5) AND pncoded1 NE 999) pneg2=pncoded5.
IF ((childage5 =6) AND pncoded1 NE 999) pneg2=pncoded5.

IF (childage5 > 6 AND pncodea5 NE 999) pneg3=pncodea5.
IF (childage5 > 6 AND pncodeb5 NE 999) pneg3=pncodeb5.
IF (childage5 > 6 AND pncodec5 NE 999) pneg3=pncodec5.
IF (childage5 > 6 AND pncoded5 NE 999) pneg3=pncoded5.

* 6th Referral

IF (childage6 LE 5 AND pncodea1 NE 999) pneg1=pncodea6.
IF (childage6 LE 5 AND pncodeb1 NE 999) pneg1=pncodeb6.
IF (childage6 LE 5 AND pncodec1 NE 999) pneg1=pncodec6.
IF (childage6 LE 5 AND pncoded1 NE 999) pneg1=pncoded6.

IF ((childage6 =5) AND pncodea1 NE 999) pneg2=pncodea6.
IF ((childage6 =6) AND pncodea1 NE 999) pneg2=pncodea6.
IF ((childage6 =5) AND pncodeb1 NE 999) pneg2=pncodeb6.
IF ((childage6 =6) AND pncodeb1 NE 999) pneg2=pncodeb6.
IF ((childage6 =5) AND pncodec1 NE 999) pneg2=pncodec6.
IF ((childage6 =6) AND pncodec1 NE 999) pneg2=pncodec6.
IF ((childage6 =5) AND pncoded1 NE 999) pneg2=pncoded6.
IF ((childage6 =6) AND pncoded1 NE 999) pneg2=pncoded6.

IF (childage6 > 6 AND pncodea6 NE 999) pneg3=pncodea6.
IF (childage6 > 6 AND pncodeb6 NE 999) pneg3=pncodeb6.
IF (childage6 > 6 AND pncodec6 NE 999) pneg3=pncodec6.
IF (childage6 > 6 AND pncoded6 NE 999) pneg3=pncoded6.
```

```
* 7th Referral

IF (childage7 LE 5 AND pncodea1 NE 999) pneg1=pncodea7.
IF (childage7 LE 5 AND pncodeb1 NE 999) pneg1=pncodeb7.
IF (childage7 LE 5 AND pncodec1 NE 999) pneg1=pncodec7.
IF (childage7 LE 5 AND pncoded1 NE 999) pneg1=pncoded7.

IF ((childage7 =5) AND pncodea1 NE 999) pneg2=pncodea7.
IF ((childage7 =6) AND pncodea1 NE 999) pneg2=pncodea7.
IF ((childage7 =5) AND pncodeb1 NE 999) pneg2=pncodeb7.
IF ((childage7 =6) AND pncodeb1 NE 999) pneg2=pncodeb7.
IF ((childage7 =5) AND pncodec1 NE 999) pneg2=pncodec7.
IF ((childage7 =6) AND pncodec1 NE 999) pneg2=pncodec7.
IF ((childage7 =5) AND pncoded1 NE 999) pneg2=pncoded7.
IF ((childage7 =6) AND pncoded1 NE 999) pneg2=pncoded7.

IF (childage7 > 6 AND pncodea7 NE 999) pneg3=pncodea7.
IF (childage7 > 6 AND pncodeb7 NE 999) pneg3=pncodeb7.
IF (childage7 > 6 AND pncodec7 NE 999) pneg3=pncodec7.
IF (childage7 > 6 AND pncoded7 NE 999) pneg3=pncoded7.

* 8th Referral

IF (childage8 LE 5 AND pncodea1 NE 999) pneg1=pncodea8.
IF (childage8 LE 5 AND pncodeb1 NE 999) pneg1=pncodeb8.
IF (childage8 LE 5 AND pncodec1 NE 999) pneg1=pncodec8.
IF (childage8 LE 5 AND pncoded1 NE 999) pneg1=pncoded8.
IF ((childage8 =5) AND pncodea1 NE 999) pneg2=pncodea8.
IF ((childage8 =6) AND pncodea1 NE 999) pneg2=pncodea8.
IF ((childage8 =5) AND pncodeb1 NE 999) pneg2=pncodeb8.
IF ((childage8 =6) AND pncodeb1 NE 999) pneg2=pncodeb8.
IF ((childage8 =5) AND pncodec1 NE 999) pneg2=pncodec8.
IF ((childage8 =6) AND pncodec1 NE 999) pneg2=pncodec8.
IF ((childage8 =5) AND pncoded1 NE 999) pneg2=pncoded8.
IF ((childage8 =6) AND pncoded1 NE 999) pneg2=pncoded8.

IF (childage8 > 6 AND pncodea8 NE 999) pneg3=pncodea8.
IF (childage8 > 6 AND pncodeb8 NE 999) pneg3=pncodeb8.
IF (childage8 > 6 AND pncodec8 NE 999) pneg3=pncodec8.
IF (childage8 > 6 AND pncoded8 NE 999) pneg3=pncoded8.

* 9th Referral

IF (childage9 LE 5 AND pncodea1 NE 999) pneg1=pncodea9.
IF (childage9 LE 5 AND pncodeb1 NE 999) pneg1=pncodeb9.
IF (childage9 LE 5 AND pncodec1 NE 999) pneg1=pncodec9.
IF (childage9 LE 5 AND pncoded1 NE 999) pneg1=pncoded9.
```

```
IF ((childage9 =5) AND pncodea1 NE 999) pneg2=pncodea9.
IF ((childage9 =6) AND pncodea1 NE 999) pneg2=pncodea9.
IF ((childage9 =5) AND pncodeb1 NE 999) pneg2=pncodeb9.
IF ((childage9 =6) AND pncodeb1 NE 999) pneg2=pncodeb9.
IF ((childage9 =5) AND pncodec1 NE 999) pneg2=pncodec9.
IF ((childage9 =6) AND pncodec1 NE 999) pneg2=pncodec9.
IF ((childage9 =5) AND pncoded1 NE 999) pneg2=pncoded9.
IF ((childage9 =6) AND pncoded1 NE 999) pneg2=pncoded9.

IF (childage9 > 6 AND pncodea9 NE 999) pneg3=pncodea9.
IF (childage9 > 6 AND pncodeb9 NE 999) pneg3=pncodeb9.
IF (childage9 > 6 AND pncodec9 NE 999) pneg3=pncodec9.
IF (childage9 > 6 AND pncoded9 NE 999) pneg3=pncoded9.
```