Toward an Etiology of Child Maltreatment: An Ecological Study of Primary Caregivers at Risk of Child Welfare System Involvement

by

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*"You are here in my trailer right now because what I did (before her children were placed into foster care) didn't work. So either tell me what I need to do to keep my kids, or get the f*** out of my trailer right now and take my children with you."*

"Amanda Y."
Former client, 2006

"We all have the clients whose memory wakes us up in the middle of the night wondering 'what if...?' There, Claudette, is where social work research begins…"

Mark Courtney
October 2009

The people we seek to help don't need our flowery prose; that's about you, not them. Rather, they need us to present the hard, cold realities in which they live in as pedantic a way possible so that the message is clear and drives others to action."

Andrew Grogan-Kaylor
December 2010

Dedicated with all love and affection
to the memory of my father,

Gary Clayton Grinnell
(March 18, 1945-July 24, 2003)

to the memory of my maternal grandfather,

Daniel Merle Bradd
(November 19, 1925-July 27, 2012)

and to the living memory of my nephew,
Daniel Clayton Grinnell (b. 1998)

in whom the fighting spirit
of his grandfather and great-grandfather
lives on.

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Abstract

Despite the primacy of primary caregivers in both children's development and child welfare investigative practice, little is known about how caregiver characteristics contribute to both child well-being and child welfare investigation. Are there characteristics that can predict positive child outcomes from a longitudinal perspective? Is being investigated and/or substantiated for neglect/abuse more likely for certain groups of caregivers? These questions were considered in this secondary analysis of the Longitudinal Studies of Child Abuse and Neglect. 720 caregiver-child pairs were studied, using 6 waves of data collected every two years starting when the child was 4 years old.

A latent profile analysis of caregivers by known risks for child welfare involvement revealed seven profiles. Three profiles were identified with a single risk: poor social supports, alcohol misuse, or harsh caregiving. Three profiles were identified with compounded risks: depression with alcohol misuse, stress, and poor social supports; aggressive caregiving in poor neighborhoods by caregivers with poor attitudes; depression with poor social supports and stress. One profile demonstrated no apparent risk.

These profiles were used to predict children's externalizing and internalizing behaviors over time. Compared to the no-risk profile, all other profiles predicted more internalizing and externalizing behaviors in children at age 4, with children from the three compounded profiles demonstrating the most behaviors. Caregiving profiles did not predict differences in behavior over time; group differences remained stable. However, experiencing abuse and neglect

predicted more internalizing behaviors over time while experiencing neglect predicted more externalizing behaviors in early and middle childhood only.

Risk factors, race, and poverty were analyzed in relationship to child welfare decision-making. White caregivers were more likely to be investigated for physical abuse, though no risk factors other than poverty predicted investigation. Neglect investigation was predicted by poor social supports, poor parenting attitudes, children's externalizing behaviors, neighborhood quality, and geographic location. Race and geographic location predicted neglect substantiation with Black caregivers more likely to be substantiated.

Results confirm the complex interaction of factors affecting both child behavior and child welfare investigation with no one risk factor emerging as a universal predictor. Implications for interpersonal and agency practice are discussed.

Chapter 1

The Place of Primary Caregivers in Research on Child Maltreatment

A Modest (Incomplete) Proposal

One of the most challenging areas of social work is child protective services investigation. A worker who is sent out to investigate a family due to allegations of child maltreatment has to be able to gather information about the risk and resilience characteristics of that family and the family's broader environment to make the determination that the primary caregiver[a], usually a parent, has interacted with the child in his or her care in a way that has resulted in actual harm or puts the child at imminent risk of harm (Popple & Vecchiolla, 2007).

This decision-making process involves substantial risk with possible life-long consequences to a child. A child allowed to remain with a maltreating caregiver could experience life-threatening abuse or neglect including death. On the other hand, placement in foster care is no guarantee of a positive outcome for a child and has its own consequences in terms of a child's well-being (Courtney & Barth, 1996). In other words, the decisions either to remove the child from the home or to allow the child to remain with his or her family of origin both involve risk of harm to the child. The task of the investigator, therefore, is to make the best decision, given the available information, which reduces the overall risk to the child, either at home or in foster care.

[a] For this dissertation, I am using the term "primary caregiver" as an inclusive term that includes all parents and any caregiver acting *in loco parentis* who is *not* a foster parent. While foster parents are indeed primary caregivers, this project is concerned with caregivers with whom children have a relationship that is not proscribed by a legal process (i.e. non-kinship adoption or foster care).

One way to help improve outcomes for children is to evaluate caregivers in a way that looks beyond mere risk. The child welfare system is charged by federal law as stated in the Adoption and Safe Families Act of 1997 (ASFA: 105-89) with assuring the safety, security, and well-being of children in its care. The interpretation of the law and its translation into practice focuses primarily on physical well-being without additional consideration of mental and emotional well-being. Removal of a child from an at-risk situation may result in reduction of some kinds of harm while increasing others. Some caregivers may in fact be capable of caring for children adequately in their own home with the right kinds of supports. Being able to assess both the needs of caregivers during the investigative process as well as the risk of harm to the child relative to the needs of caregivers could result in fewer admissions to the foster care system and promote higher levels of child and family well-being in struggling (but still intact) families.

This assessment of caregivers requires a knowledge base informed by research that considers the relationship between caregiver characteristics, the family's broader environment, and measures of a child's overall well-being. Enhancing the ability to assess caregivers in this way, however, has not been a priority in child welfare research. A recent summary of the state of child maltreatment research in the United States compiled a list of research priorities to guide the next generation of researchers (Institute of Medicine and National Research Council, 2013). These priorities have continued to emphasize many of the trends in research that have guided the field since the National Research Council produced a similar report in 1993, such as understanding the effects of child maltreatment on the children themselves, and establishing best practices to provide permanency for children in compliance with federal policy as expressed in ASFA. The IOM report also highlights the need to move child maltreatment research in the direction of causation and prevention – and to do so from an ecological framework. As Barth has

highlighted elsewhere (Barth et al, 2005; Barth, 2012), empirical information on the etiology and epidemiology of child maltreatment is still lacking. This gap in information directly affects the ability to develop interventions that improve overall family functioning as well as the well-being of its individual members.

While this emphasis on the use of ecological models to theorize causation is to be commended, the recommendations on these points as stated are incomplete. For one, an ecological model does not on its own establish a starting point for theorizing causality. The great strength of ecological models, particularly the developmental psychopathology model (Cicchetti & Toth, 2005), is that they describe the complexity of contexts in which children develop and in which families operate. As one set of researchers has put it, the complexity of the environment in which children develop ranges "from neurons to neighborhoods" (Shonkhoff & Phillips, 2000) and is a bidirectional transactional process (Lynch & Cicchetti, 1998; Belsky, 1993) in which both children and primary caregivers are active agents. Because there are multiple agents (including the child), multiple causes, and multiple effects, there are multiple starting points for research. This complexity highlights the availability of multiple starting points for study – something which Belsky (1993) has regarded as a strength for intervention development. This complexity also comes with a challenge: there is no one necessary or sufficient cause that signals the presence of maltreatment.

However, as Bronfenbrenner (1992) has indicated, not every environmental influence acting on a child has equal likelihood of positively or negatively affecting a child's development. As the most proximal agent in a child's development, primary caregivers are the most influential people in the life of a child. In addition, most information about the world is filtered through primary caregivers when children are very young (Crittenden, 2008). As such, while recognizing

the complexity of the environment in which child development takes place, and given that children most likely to be maltreated are the youngest in society, if someone wants to target one part of an ecological system for intervention that would result in the greatest amount of immediate change, the most sensible place to begin is with the primary caregiver. It logically follows that research on the etiology of child maltreatment should include the primary caregiver as a central – if not *the* central – focus.

Ironically, even though primary caregivers are the most proximal agents in a child's developmental trajectory, the words "parent" or "primary caregiver" are not to be found in either the IOM executive summary or the nine research recommendations that emerged from the larger report. One might argue that the phrase "children and families" assumes the presence of primary caregivers so explicit language about them is redundant. However, primary caregivers are explicitly mentioned in child welfare policy as the primary agents of maltreatment. Federal policy under the Child Abuse Protection and Treatment Act (CAPTA; P.L. 93-247), as amended by the Keeping Children and Families Safe Act of 2003 (P.L.108-36) defines child maltreatment as any act or omission by a parent/caregiver that results in harm or puts a child in imminent risk of harm. While policy should not necessarily dictate best practices in research, as the debate over defining child maltreatment from an etiological, nosological, or diagnostic perspective has indicated (Zuravin, 1999; Barnett, Manly, & Cicchetti, 1993; Manly, 2005), research should reflect in some way the centrality of the primary caregiver in policy; no caregiver, no "official" maltreatment.

In addition, the various existing etiological theories on child maltreatment center on primary caregivers, either as agents or as victims themselves. Theorists who propose fitness or disease models, including models based on attachment theory, argue that a maltreated child is a

symptom of something problematic happening with a caregiver that requires treatment (Richmond, 1917; Kempe, Silverman, Steele, Droegemuller, & Silver, 1962; Crittenden, 2008). Radical/critical theorists who contend that child maltreatment either is the result of social forces that allow child maltreatment to happen by perpetuating poverty or racism (Gelles, 1973; Pelton, 1974; Roberts, 2002) or is the result of a stigmatizing social institution labelling already disenfranchised people with another term of deviance (Gelles, 1975; Roberts, 1998, Collins, 2000), do so to avoid blaming primary caregivers who are already under stress. However, as other research has indicated, some caregivers under the pressures of poverty and racism (or both) are able to parent more or less effectively and avoid the attention of the child welfare system (e.g. Slack, Holl, McDaniel, Yoo, & Bolger, 2004; Scannapieco & Connell-Carrick 2003). Child maltreatment may be a result of social forces and oppressive social institutions, but resilience in the face of oppression still has a human face. Even in etiological theories where the caregiver is not the primary agent of maltreatment, the caregiver is the primary protector of the child from forces that may result in maltreatment. Roberts (2002) has rightly asserted that the ability of a caregiver to be resilient in the face of these forces does not discount or reduce the impact of racism because the caregiver is still needing to behave in ways that the dominant race or culture does not. A theory for the etiology of maltreatment, therefore, should be able to explain resilience as well as risk.

One way to enhance the explanatory power of the developmental psychopathology model is to add a systems perspective that not only recognizes the complexity of the surrounding environment but also describes a mechanism of agency applicable to both resilience and risk. The eco-systems model (Greif & Lynch, 1983) draws from ecological models and general systems theory and can be used to describe a family system as an information-generating and

energy-generating entity in a state of balance, or *homeostasis.* A family operating as an open system will do everything it can stay balanced as it interacts with input from its surroundings and within from its own members. If something happens to upset the family's balance, it may do one of two things: increase the openness of the system in order to take in energy and information necessary to keep the system running; or close itself off from input outside of the family. That determination is made through governance within the family itself. That determination process then produces an output, which then provides feedback back into the environment. From the output, the environment responds in kind, and the cycle repeats itself. As long as the system remains open, it will continue to function to varying degrees. However, if the feedback process sends out signals that result in an environmental cutoff, eventually the system will reach a point of maximum entropy, grind to a halt, and cease to function.

This model can be used to propose a mechanism by which child maltreatment takes place and by which a child's behavior demonstrates problems in a family system (Geoffrey Greif, personal communication, October 2013). Information and energy into the family system can include both positive information such as family cohesion and social support as well as negative information such as the experiences of poverty, racism, employment pressure, and relational cutoff. In a family system, most of that information comes to the caregiver first. The caregiver then has to decide how to respond to the information that s/he is given in a way that promotes the well-being of the entire system and not just the caregiver him- or herself. Personal characteristics with which the caregiver struggles, such as depression, substance abuse, limited coping skills or other challenges, may affect how that information is processed.

As a result of that processing, the caregiver may act in a way that compromises the parent-child relationship or may fail to act in a way that blocks the adverse effect of

environmental impact. In response, the child behaves in a way that sends signals outside of the family system that something is wrong. Those behaviors may be externalizing behaviors such as aggression or internalizing behaviors such as depression or anxiety. Those behavioral outputs send a warning signal into the child's environment that triggers a response from the environment back into the family system – and back to the primary caregiver. This new input could be processed in such a way that homeostasis in the system is re-established. Or, it could result in repeated experience of threat that restricts the family system even tighter, increases entropy, and intensifies behavior in the child. Depending on the parent's coping techniques, those outputs may not be confined to the child's behavior; they may also include the outward signs of physical abuse or neglect, which then may trigger a response by a child welfare official to investigate for maltreatment.

While this model provides a theoretical mechanism by which maltreatment could originate, it is not without its drawbacks. The most notable drawback is that this model is value-free as to both the environmental input and the functioning of the system. The only "right" or "wrong" in this model is the maintenance of the family system and it is possible that doing the right thing in terms of values and ethics may result in more imbalance and more system disruption; conversely, doing things that are deleterious to the child may bring about homeostasis. However, this model does provide a way of analytically approaching the relationship between a caregiver, the other members of the caregiver's family, and the broader environment that can be used to guide research, practice, and evaluation.

Research Challenges

In addition to the challenge of proposing a theory of etiology for a social problem that has no necessary or sufficient conditions to define itself, Belsky (1993) has highlighted numerous

challenges to research on the etiology of maltreatment in general and on primary caregivers specifically. First, maltreating behavior is protected by family privacy and exposure of that behavior is dependent on either a chance discovery by an outsider or the disclosure of a victim, which may result in maltreatment overall being underreported. Second, people want to present themselves well to researchers, will protect their image and their interests, and, as a result, will underreport their own problematic behavior. Third, caregivers are identified for participation in studies *a posteriori*: the acts of maltreatment occurred prior to subject identification and measurement of caregiver traits and risks. As a result, the standard requirement of cause preceding effect to determine causality is compromised. Fourth, many of the factors known to relate to maltreatment risk are themselves interrelated. Last, well-planned prospective designs for child welfare research are challenging, restricted by small sample size, limited by the quality of measurement and not generalizable.

While the first three challenges presented here are hard to correct in research and should always be remembered when discussing the limitations of the research, Belsky (1993) recommends latent variable research approaches as a means of generating possible pathways for the etiology of child maltreatment without being as concerned about variable interrelatedness or the question of starting points. Many of the risk factors for child maltreatment, whether environmental stressors or caregiver characteristics, are interrelated. Using a research technique that takes advantage of this interrelatedness may itself demonstrate how environmental factors and caregiver characteristics work in tandem to increase risk of child maltreatment – and subsequent child welfare system involvement.

The Longitudinal Studies of Child Abuse & Neglect (LONGSCAN)

The number of publicly available datasets with reliable data related to child maltreatment concerns and primary caregivers is small. Maltreated children represent a particularly vulnerable population so gaining access to enough subjects to carry out research with enough statistical power requires a coordinated effort. Of the large national datasets on child development available, only the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) and the National Survey on Child and Adolescent Well-being (NSCAW) have reliable information related both to actual child welfare system involvement and to family well-being.

For the purposes of this study, LONGSCAN is preferred over NSCAW on two counts. First, LONGSCAN contains the coded content analysis results of the child welfare records connected to every primary caregiver in the study utilizing a modified form of the Maltreatment Classification System (MMCS: Barnett et al, 1993). This system provides measures of type, severity, and developmental chronicity of maltreatment from the investigative record for each family in LONGSCAN (if a record exists). NSCAW has limited measures related to type and severity only. Second, caregiver information in NSCAW is limited to demographics, caregiver social supports (using the same scale found in LONGSCAN), caregiver mental health, and caregiver experience with domestic violence. Because this project is being used to test an ecological model of maltreatment that includes parenting attitudes, perceived family cohesion, and potential neighborhood effects, LONGSCAN is the better choice for attempting to study antecedents of maltreatment.

About LONGSCAN and its subjects.

LONGSCAN is a five-site consortium of studies scattered across the United States whose purpose is designed specifically to study the antecedents and consequences of child

maltreatment. Data collection as a part of the LONGSCAN consortium began in 1994 at age 4 and was collected on as many of the children as possible every 2 years. This dissertation uses data collected during 6 possible visits between the ages of 4 and 14. While each site had its own research questions of interest that influenced its subject recruitment strategies, all sites agreed to use the same measures in their research (Runyan et al, 2011; LONGSCAN Coordinating Center, 2001). Table 1-1 provides a description of the subject recruitment and sampling strategies at each research site. Involvement with CPS at the minimal level of investigation was not a condition for one site, was a partial condition for two sites, and was a universal criterion for sampling in two other sites. For the site in which CPS was not a requirement of recruitment, some families did have experience with the CPS system.

***** Insert Table 1-1 here *****

Table 1-2 gives a demographic breakdown of the children in all five cohorts (N = 1354). This is a predominantly African American sample. Because Latino/a identity is treated in LONGSCAN as race and not as ethnicity, and because there is no place to specify what races or ethnicities are in the "multiracial" category, the number of Latino/a children is likely to be underestimated (Ortega, Gutierrez-Najera, & Guillean, 1996).

***** Insert Table 1-2 here *****

Table 1-3 indicates the sample was drawn from a population with limited resources. Over a third did not graduate from high school and only one-fifth is working full-time. The demographic profile of the SW site is attributable to the high concentration of foster parents present in this subsample.

***** Insert Table 1-3 here. *****

As is common with longitudinal studies, subject attrition took place across the duration of the study. Table 1-4 provides an overview of attrition in the overall study. The diagonal represents the number of children for whom the maximum possible number of waves of data exists at each wave. The row total represents the total subjects available at each individual wave of data collection. The column total represents the number from whom we have at least that many number of visits. So there are 1354 children on whom at least one wave of data has been collected.

***** Insert Table 1-4 here.*****

The vast majority of the caregiver data in LONGSCAN was collected when the target child in the study was aged 4 or aged 6. Any caregiver with missing data at either time was excluded from analysis in this dissertation. In addition, any caregiver-child pair where the caregiver identified as being an official foster parent was excluded from analysis, as were any caregiver-child pairs where the caregivers at age 4 and age 6 were not the same people. These requirements for inclusion resulted in an overall sample of 720 caregiver-child pairs.

The Outline of This Dissertation

Building on Belsky's (1993) recommendations and utilizing the eco-systems model (Greif & Lynch, 1983), this dissertation used LONGSCAN to enhance our understanding of the role of the primary caregiver in three ways. The first research chapter of this dissertation explores the relationship between environmental input and caregiver characteristics through a latent profile analysis (LPA), to identify which environmental factors and caregiver risks were most likely to occur together and predict child maltreatment risk. The second research chapter looks at the development of an output – here, the child's internalizing and externalizing behaviors. Utilizing a linear growth analysis of children's behavior across time, this second

paper uses the caregiver profiles generated in the first paper to predict children's behavior over time. Finally, the third research chapter evaluates one piece of a feedback loop – it considers how the combination of environmental inputs, caregiver processing, and children's behaviors send signals to people outside the family system in ways that may trigger child welfare system assessment.

Understanding what happens to caregivers that makes child maltreatment happen to children is no small matter. As the IOM report (2013) has highlighted, the child maltreatment research community is well aware of the deleterious outcomes for children that result from being maltreated. However, the outcomes for caregivers are no less damaging. Involvement in the child welfare system can result in restriction of employment opportunities and relationships with others, not to mention the potential permanent severing of one's relationship with one's offspring. It is, therefore, both to the child's and the caregiver's benefit to understand what happens to caregivers in order to improve child outcomes and overall family well-being.

Table 1-1: A Summary of LONGSCAN Subject Recruitment

Site	Subject Identification	Type of Sample (CPS or non-CPS)	Total # of Subjects
East	1) Child exhibited non-organic failure-to-thrive before 2 years of age 2) Primary caregiver was HIV positive or had a history of intravenous drug use during pregnancy[b] 3) Comparison group demographically matched from local community	Non-CPS	282
Midwest	1) Group of CPS-involved families who received intensive home-based services following system investigation 2) Group of CPS-involved families who received services as usual. 3) Demographically matched comparison group	Both	245
South	Subjects recruited from a statewide public health initiative of mothers who had recently given birth; caregivers were then identified as being at high or low risk for maltreating the child. Purposive sampling within the recruited subjects for LONGSCAN resulted in a 2:1 non-reported/reported CPS ratio	Non-CPS for recruitment; both for sampling	243
Northwest	All families investigated by CPS and determined to be minimally at moderate risk of future maltreatment; 60% of subjects eventually substantiated for maltreatment.	CPS only	254
Southwest	All families experienced separation through foster care; recruitment sample divided among reunified, kinship placement, traditional foster care, and adoption permanency outcomes (only reunification sample used here)	CPS only	330 total (112 used in this study)

[b] No knowledge of HIV status is present in this study.

Table 1-2: Child Demographics by Field Center

	EA	MW	NW	SO	SW	Total
Child Gender [$\chi^2(4) = 4.9275, p = .295$]						
Male	122	100	120	93	141	576
Female	101	105	117	114	158	595
Child Race [$\chi^2(24) = 436.7312, p = .000$]						
White	10	29	117	75	83	314
Black	207	110	50	130	109	606
Latino/a	1	36	5	0	52	94
American Indian	0	2	7	0	1	10
Asian	0	0	2	0	3	5
Multiracial	3	26	52	2	49	132
Other	2	2	4	0	1	9

Table 1-3: Caregiver Demographics by Field Center

	EA	MW	NW	SO	SW	Total
Caregiver Education [$\chi^2(8) = 71.8481$, $p = .000$]						
<12 years	98	110	93	92	89	482
12 years	93	62	66	79	87	387
>12 years	46	49	91	50	143	379
Marital Status [$\chi^2(16) = 198.5030$, $p = .000$]						
Married	34	53	68	79	151	385
Single	155	131	88	93	59	526
Separated	15	8	22	17	26	88
Divorced	13	18	52	17	51	151
Widowed	4	1	2	1	11	19
Employment Status [$\chi^2(28) = 160.1424$, $p = .000$]						
Emp. FT	33	45	45	53	56	232
Emp. PT	21	31	29	26	50	157
Unemployed	64	58	15	48	18	203
Retired	1	0	4	3	6	14
Student	18	12	23	14	4	71
Homemaker	73	53	107	49	146	428
Disabled	4	10	7	7	17	45
Other	7	2	2	6	1	18
Family Income (Net) [$\chi^2(28) = 253.966$, $p = .000$]						
Under 5k	55	26	6	49	5	141
5k-10k	77	65	77	43	34	296
10k-15k	27	45	45	31	62	210
15k-20k	22	26	33	26	34	141
20k-25k	17	23	17	22	30	109
25k-30k	8	8	17	14	23	70
30k-35k	4	4	11	5	16	40
35k-40k	3	2	3	3	14	25
40k-45k	0	2	4	2	14	22
45k-50k	3	3	4	2	10	22
>50k	3	7	11	4	42	67
AFDC usage [$\chi^2(4) = 60.4661$, $p = .000$]						
No	51	71	85	107	152	466
Yes	171	140	147	100	141	699
Food stamp usage [$\chi^2(4) = 155.7893$, $p = .000$]						
No	39	54	92	98	196	479
Yes	183	157	140	109	97	686

Table 1-4: LONGSCAN Subject Attrition

	Age at which data was collected						
	Age 4	**Age 6**	**Age 8**	**Age 10**	**Age 12**	**Age 14**	**Total**
Visit 1	1251	103	0	0	0	0	1354
Visit 2		1128	135	23	9	5	1300
Visit 3			996	148	45	24	1213
Visit 4				849	198	72	1119
Visit 5					740	219	959
Visit 6						646	646
Total	1251	1231	1131	1020	992	966	

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Chapter 2

Profiles of Risk in Primary Caregivers

Developing descriptive profiles of child physical abuse and neglect suitable for research has historically been hampered by two concerns: varying definitions of abuse and neglect across legal jurisdictions (Manly, 2005) and whether to identify the maltreating parent or the maltreated child as the unit of analysis – especially in the operationalization of neglect (Rose and Meezan, 1993; Barnett, Manly, & Cicchetti, 1993). As a result, research paradigms for evaluating child maltreatment risk and severity utilizing protective services investigation narratives have provided a common language for researchers and policy-makers to utilize. The Maltreatment Classification System (MCS: Barnett et al, 1993) and the National Incidence Study classification (NIS: Sedlak and Broadhurst, 1996) focus on both signs of maltreatment in children and on caregivers' behavior. Such multifaceted descriptions are helpful to move research on etiology forward as there is no single social context, parental behavior, or child sequelae indicating indisputable presence of maltreatment (Belsky, 1993).

However, when theorizing about the origins of maltreatment, whether a researcher starts from a nosological description of maltreatment based in child sequelae or in caregiving behaviors, the primary caregiver is a, if not *the,* primary agent in promoting the healthy development of a child because of the child's dependence on the primary caregiver for both basic survival and overall socialization due to the primary caregiver's physical and relational proximity to the child (Bronfenbrenner, 1992; Crittenden, 2008). Research from an ecological

framework that focuses on the role of the primary caregiver in the etiology of maltreatment tends to fall into two broad categories: traits or characteristics intrinsic to the primary caregiver, or the social contexts in which the family unit (i.e. both caregiver[s] and child) reside.

Intra-individual characteristics

Researchers that focus predominantly on notions of *disease or fitness* imply that child maltreatment consists of treatable problems intrinsic to the *parent* that are made evident in the *child*. Originally these signs of maltreatment were focused on physical signs, either injury (abuse) or omission of care (neglect). Kempe, Silverman, Steele, Droegemuller, & Silver (1962) highlighted specific types of injury likely to be seen in children who had been physically abused, while Young (1964) rooted the etiology of physical neglect in emotionally needy mothers. Attachment theory shifted the paradigm on the role of parenting to be as much about nurturance as about physical care (Polansky, Chalmers, Buttenwieser, & Williams, 1981; Rose & Meezan, 1993) with the focus on pathological caregiver-child relationships resulting in maltreatment. While concerns of parental mental health and substance abuse have always been discussed in relationship to child maltreatment (Meier, 1964; Connell-Carrick, 2003; Stith et al, 2009), models of impaired attachment, notably Crittenden's (2008) dynamic maturational model (DMM), are used to explain impaired caregiver-child relationships and build a theoretical basis for treatment. The attachment-oriented medical model understands intervention for child maltreatment to be best done by treating parents' relational shortcomings in order to enhance overall parenting.

Social-contextual Models of Maltreatment

By contrast, social models emphasize failing social support systems as a cause for maltreatment as well as systemic conditions that allow poverty to affect family functioning.

These sociological perspectives also posit that societal values stigmatize already vulnerable people, most of whom also struggle with the deleterious effects of poverty (Gelles, 1973; Gelles, 1975; Wolock & Horowitz, 1984). Stigmatization is enforced either formally through social institutions or informally through neighborhood interactions, even among poor people themselves. Edin and Kefalas's (2005) qualitative research among poor women describes informal neighborhood-level stigmatization processes, highlighting that women perceived as putting themselves first and their children second and refusing to sacrifice on behalf of their children's needs were neglectful mothers. Similar patterns of informal stigmatization were also demonstrated empirically in both urban and rural poor neighborhoods (Polansky, Gaudin, Ammons, & Davis, 1985; Gaudin & Polansky, 1986); neglectful caregivers are viewed negatively by non-neglectful neighbors.

Garbarino (1977) first highlighted that neglect occurs in community pockets with marginalized families without social capital. Expanding on that initial work, Garbarino & Kostelny (1992) found that, even in poor communities, neighborhoods where residents report higher levels of pride and cohesion (i.e., can rely on social capital) see lower levels of child maltreatment of all kinds. Coulton, Korbin, Su, & Chow (1995) described the typical maltreatment-prone neighborhood as ones filled with transient families occupying high numbers of rental properties where fewer people in advanced middle age or old age live. More recent models of neighborhood effects have focused on geospatial characteristics (Freisthler, Merritt, & LaScala, 2006) including such specific spatial variables as the relationship of liquor stores to child maltreatment concentrations (Freisthler, Gruenewald, Remer, Lery. & Needell, 2007). While these characteristics could also be outcomes, along with maltreatment, of a social

deterioration process, the fact that these factors coexist and mutually interact points to processes that create neighborhoods where maltreatment becomes more permissible than in other areas .

In social domains more proximal to the caregiver, the social supports literature (DePanfilis, 1996; Connell-Carrick, 2003) indicates that maltreating families, particularly in neglect cases, have smaller social support networks. While this literature is less about poverty and more about perceived isolation, Coohey (1996) found that neglecting caregivers perceived and received less support than other caregivers, including caregivers reported to be involved in a "pure abuse" case type. Underlying poverty in the caregiver's social networks contributed to the lack of direct support beyond emotional and companionate support (DePanfilis, 1996).

None of these social models satisfactorily delineates the functional association between poverty and maltreatment. Some theorists have implied that if poverty is eliminated, child maltreatment, especially neglect, would likely disappear (Gelles, 1975; Pelton, 1974). However, while poverty itself is a form of deprivation, being in poverty does not cause maltreatment in a narrower sense of causality; not every poor caregiver abuses or neglects his or her children and some parents successfully protect children from the effects of poverty (Slack, Holl, McDaniel, Yoo, & Bolger, 2004; Scannapieco & Connell-Carrick, 2003). The case of Lisa Steinberg, who was abused, neglected, and eventually killed by her father, a wealthy defense attorney, reminds us that well-off caregivers do maltreat children, too.– a phenomenon that models of maltreatment based primarily in poverty and stigmatization have difficulty explaining. Simultaneously, descriptions of how caregivers in at-risk situations including poverty successfully raise their children are lacking. Research indicates that parenting standards increase as income increases (Berger, 2007); at the same time our knowledge base of how parents in poverty demonstrate resilience in parenting is an area only minimally explored.

An Integrated Ecological Approach

The ecological-transactional model (Bronfenbrenner,1979; Lynch & Cicchetti, 1998) brings together context and interaction, recognizing that people exist within bidirectionally-interacting contexts at varying degrees of proximity. However, the integration comes at the price of increased complexity because of the variety of interacting risk factors that need to be considered simultaneously. A meta-analysis of the child maltreatment literature through 2003 (Stith et al, 2009) found 22 neglect-related risk factors and 39 for abuse-related factors. These factors involve caregiver characteristics, child characteristics, caregiver-child relationships, and family characteristics; this list does not even include broader sociological contexts such as neighborhood characteristics although they are known be contributing factors.

If one desired outcome of child maltreatment research is to find mechanisms of both healthy and dysfunctional caregiving in high-risk situations with the end result of improving overall family functioning through intervention and reducing the number of children removed from the home, all theories, either of risk or resilience, converge in the recommendation to place focus *at least in part* on the caregiver. Regardless of whether the parent directly abuses or neglects a child or is unable to protect a child from abusive family members, violent neighbors, or the deprivations of poverty, the caregiver is still *the* primary agent in promoting the healthy development of a child (Bronfenbrenner,1992).

Empirical research supports this position. The largest effect sizes from the Stith meta-analysis (2009) are all caregiver-related risk factors including caregiver-child relationships, caregivers' perception of child as the problem, and caregivers' personal stress. It is, therefore, a matter of critical importance to model what happens in the life of a caregiver that either *allows* or *causes* maltreatment to take place toward a child. Some authors (Dubowitz, Pitts, & Black, 2004;

Dubowitz et al, 2005) have hesitated to focus on parental behaviors for fear of blaming already vulnerable caregivers. However, ignoring antecedents could further endanger vulnerable young children and disempower parents by not exploring the interaction of risk factors which in turn could be used to explore pathways to change and empowerment.

Methodological Paradigm

Because of the complexity of developmental risk, Belsky (1993) and Bronfenbrenner (1992) emphasized the need for new paradigms of child development and maltreatment that assume continuous interaction of risk factors. Furthermore, Bronfenbrenner emphasized the need for such analyses to be *generative*; the analyses should spawn new theories about how - and which - risk factors interact. Finding patterns of co-occurrence by focusing on the person instead of the variable as the unit of attention seems a reasonable step toward understanding etiology. .

Pattern analysis techniques such as latent profile analysis on continuous data (LPA) or latent class analysis on categorical data (LCA) work by extracting underlying patterns based on individual subjects' response vectors, thus allowing for individuals to be analyzed as "integrated totalities" (Magnusson, 1998, p. 38). LPA captures interrelations of risk factors measured by organizing subjects into qualitatively similar subpopulations (Bergman, 1998). The analysis then provides a probability of group membership to each subject based on these profiles (Gibson, 1959).

Person-centered analyses are slowly gaining traction in child welfare research (Roesch, Villodas, & Villodas, 2010). However, only two studies (Nooner, et al, 2010; Pears, Kim, & Fisher, 2008) have used LPAs/LCAs etiologically to predict child outcomes. Nooner et al (2010) compared self-reports of physical and sexual abuse with coded maltreatment records to develop profiles of risk for adolescents, while Pears et al (2008) identified profiles of multiple

maltreatment types based on type and severity in preschoolers. They then used those profiles to validate differences in cognitive functioning and behavior problems. Neither analysis used caregiver information.

This paper moves research on the etiology of maltreatment forward in three ways. First, this study utilizes a person-centered approach on caregivers at high risk for child maltreatment involvement. Second we theorize testable pathways into child welfare system involvement and consequent child well-being outcomes. Finally, by studying a body of high-risk families regardless of their child welfare status, we are able to include caregiving practices that did not result in substantiated maltreatment and may inform us about potentially resilient parent profiles. Therefore, our goal is to identify both strengths of families in poverty as well as profiles of parent factors that call for differential intervention at the level of individuals in the family and its surrounding support system. By identifying how risk factors work together, social workers could both develop more specific targeted interventions for such caregivers and allocate already-scarce resources more effectively (Keller, Cusick, & Courtney, 2007).

Method

Sample and Procedures

The current study is based on the response sets of the 720 caregiver-child pairs found to meet the criteria for inclusion mentioned in the introduction to this dissertation. In brief, any caregiver-child pair where the caregiver identified as being an official foster parent was excluded from analysis, as were any caregiver-child pairs where the caregivers at age 4 and age 6 were not the same people. Once missing data was taken into account, these requirements for inclusion resulted in an overall sample of 720 caregiver-child pairs.

Because of the differences in recruitment requirements across cohorts, a discriminant analysis was performed to assess for cohort differences. Significant differences ($p < .05$) were found between all cohorts. Cohort was therefore routinely included in all statistical analyses.

Maltreatment Data

Maltreatment data were gathered through content analysis of existing CPS files using the MCS (Barnett et al, 1993). Data exists for every family in LONGSCAN for which there was an *investigation* of maltreatment for the primary caregiver regardless of which child in the family was the recipient of maltreatment; maltreatment to one child implies risk to all children. Inter-rater reliability of the coders has been established at .90 or higher, indicating substantial agreement (LONGSCAN Coordinating Center, 2001; Landis & Koch, 1977; Munoz & Bandigwala, 1997).

Variables in Latent Profile Analysis

With the exception of the neighborhood quality scale, all variables in the LPA were demonstrated in the Stith et al (2009) meta-analysis to have a significant effect size (greater than .30) related to both abuse and neglect. Because this exploration is targeted toward demonstrating a need for differential intervention, variable choice was restricted primarily to those factors most likely to be affected directly or indirectly by clinical intervention, again with neighborhood quality being the exception. Static variables such as the caregiver's own history of experiencing maltreatment were used to validate the classes following the LPA.

Table 2-1 gives a list of the constructs used in the LPA with corresponding reliability estimates (Cronbach's alpha). All data from the baseline wave (age 4) or from Wave 2 (age 6) were used as some measures were only captured at one time or the other. All scales demonstrate high reliability, with alpha scores greater than .70.

***** Insert Table 2-1 here *****

Because the four subscales of the Adult-Adolescent Parenting Inventory (AAPI) all correlated at .70 or higher, the average of theses scales was used in order to avoid an artificial dominance of this aspect over other dimensions. Also, while the CTS-PC typically measures the frequency at which various parenting strategies are utilized, the CTS-PC scores are a binary variable indicating incidence without frequency. This was necessary due to Institutional Review Board concerns at one site (LONGSCAN Coordinating Center, 2001). The neighborhood quality variable is a LONGSCAN-derived scale building on previous work on neighborhood effects.

Analysis

All variables used in the LPA were standardized to facilitate interpretation and avoid artificial weighting through scale-related differences in variance. All variables were also centered so that low scores indicated risk and high scores indicate strength. All analyses were performed on the subjects for whom there were no missing data for the variables used in the LPA. If data were available for a construct at age 6 and not at age 4, this data was substituted. T-tests of scores available at both ages demonstrated no statistically significant differences by wave on any of the variables used for whom there was data at both time points. The primary source of attrition was due to missing subjects between Age 4 and Age 6 as well as missing data in the alcohol abuse scale and missing data on the neighborhood quality scale. There were no statistically significant differences demographically between subjects with missing data and subjects without missing data.

All LPA analyses were run using Mplus 6.11 utilizing 100 random starts with 10 optimizations to eliminate problems with local maxima, replication, and convergence (see

Muthén & Muthén, 2010, Roesch et al, 2010 and Lubke & Neale, 2006 for more information). All LPAs converged and replicated within the set parameters.

Results

Model Selection and Case Assignment

No known statistical test provides a direct answer to the question of what number of profiles best represents the response patterns present in the sample (for more information see Roesch, et al, 2010 and Lubke & Neale, 2006). The most common indicators are the Akaike Information Criteria (AIC: Akaike, 1974) and the Bayesian Information Criterion (BIC: Schwarz, 1978). These criteria are parsimony statistics that evaluate the additional explanatory power that adding a profile provides while simultaneously penalizing for losing degrees of freedom. Lower numbers on both values indicate increasing parsimony. A decision is usually made when the values of one or both of these information criteria begin to rise, signifying an introduction of extraneous information.

Another indicator is the entropy statistic (Ramaswamy, DeSarbo, Beidstein, & Robinson, 1993). Entropy indicates in this case how much uncertainty still exists in the assignment of individuals to latent groups. In an LPA, posterior probabilities of group membership are assigned for each individual in each group; entropy is the average of the highest posterior probability for each individual. The entropy statistic indicates overall model quality of within-group cohesion and between-group differentiation; entropy scores over .80 are a good indicator of the stability of the model (Ramaswamy et al, 1993). Finally, small groups are another indicator; groups numbering under 5% of the total pool of subjects are usually considered a byproduct of the estimation procedure unless theory supports their structure (Roesch et al, 2010).

Here, the BIC, entropy statistic, and group size were used to determine the number of groups. Table 2-2 is a summary of the statistics beginning at the four-profile analysis. While the AIC decreases throughout, the BIC increases between the seven- and eight-profile solutions. The entropy statistic for the seven-profile solution also indicates better fit than the eight-profile solution. While one profile constitutes only 4% of the sample, the characteristics and group size of this profile remained constant beginning with the four-profile solution. The additional small profile that emerged in the eight-profile solution differed only in magnitude from another group. Since this profile added little to the theoretical framework, the decision was made to use a seven-profile.

***** Insert Table 2-2 here. *****

Description of Profiles

Table 2-3 provides a summary of the retained seven-profile solution with respect to the variables of analysis. The analysis indicates two large profiles by size, one highlighted exclusively by strengths and another manifest in slightly elevated use of yelling and corporal punishment. The other five profiles, which represent 35% of the sample when combined, all indicate degrees of risk, some of which exist at severe levels (defined as having values at least 1.5 standard deviations above the mean). In general, the profiles can be divided into 1 resilience profile, 3 profiles of simple risk, and 3 profiles of complex risk.

***** Insert Table 2-3 here. *****

Profile 1: 35% of the sample demonstrates no outward risks with minimal concerns related to depression and alcohol. These participants generally feel good about how their family functions, have good social supports at both the immediate and community-based levels, and have good parenting attitudes. They tend neither to yell nor spank their children.

Profile 2: Representing 8% of the sample, this simple risk profile is marked by impaired social supports and family cohesion over 1 SD from the mean. They have below-average alcohol use.

Profile 3: The smallest profile (4%) is marked by a complex risk pattern focusing on caregiver characteristics. Caregivers in this profile report the most severe scores in depression and alcohol use at nearly 2 SD units from the mean. They also report poor family cohesion, little social support, and significant everyday stress. They also tend to yell at their children.

Profile 4: The second largest profile, with 30% of the sample, is a simple risk profile where caregivers report lower alcohol use and positive social supports but marginally elevated use of yelling and corporal punishment. While reasoning is frequently considered to be positive parenting, here it appears in combination with aggressive parenting practices. This has been observed in other studies on parental discipline (Lee, Kim, Taylor, & Perron, 2010).

Profile 5: Approximately 9% of the sample is marked only by severe alcohol use nearly 2 SD units from the mean. At the same time, these caregivers report fewer stressors, above average neighborhood quality, and less use of yelling for discipline purposes.

Profile 6: This profile is small in number (5.4%) and is marked by a complex risk pattern concentrated around aggressive caregiving practices. Caregivers report use of yelling and corporal punishment 2 SD units from the mean. These caregivers have the most negative feelings about both caregiving and about their children generally, report low family cohesion and supports, and have the lowest neighborhood quality score.

Profile 7: Approximately 8% of the caregivers reported a complex risk pattern centered on high levels of depression in the absence of alcohol use and poor social supports. These caregivers also report low family cohesion and poor community quality.

Validation of Profiles

In order to establish the distinctiveness of profiles, analyses were made using other variables with significant effect sizes from the Stith (2009) meta-analysis. These variables include a) the caregiver's own history of child abuse, b) unemployment, c) marital status, d) domestic violence experience, and e) family size. Other demographic variables such as caregiver ethnicity, household income, and research site (cohort) were also evaluated. Maltreatment incidence variables related to overall incidences of investigation, substantiation, sexual abuse, physical abuse, overall neglect, neglect–failure to provide, and neglect-lack of supervision were considered. Finally externalizing and internalizing scores from the Child Behavior Checklist (Achenbach, 1991) were used to establish differential validity. All validation analyses were run using one-way ANOVA with Sidak post-hoc test for continuous outcomes and χ^2 with standardized residuals for categorical outcomes.

***** Insert Table 2-4 here. *****

Table 2-4 shows the results of the analyses: Of the subjects from the seven profiles, those in Profiles 3 & 7 were likely to have experienced maltreatment as children and to have experienced being beaten in violent domestic relationships as adults. Profile 1 was least likely to be unemployed, with Profile 6 most likely to be unemployed. Overall, nearly two-thirds of this sample comprises single heads of households, but Profiles 1 & 4 were the least likely to be single while Profiles 3, 5, and 6 were over 80% single. While Profile 6 was most likely to be made up of Black caregivers, Profile 5 had a higher concentration of White caregivers than any other profile.

There were also some differences in profile distribution across research sites. Children and families from the SW site were recruited from families that had at some time been separated

by foster care. While many of the children were reunified with their families of origin, some of the children studied had been adopted, which may explain the high prominence of what would seem to be a very high risk cohort in a low-risk profile. The most significant cohort concentration is in Profile 6, where 20 of the 39 members of that profile are from the same geographic area.

In terms of the maltreatment data, the profiles were all statistically equivalent in terms of overall investigation and substantiation as well as in terms of sexual abuse reports, but profile differences did emerge for physical abuse, overall neglect, and physical neglect (failure to provide). Profile 3 was most likely to be investigated in all three aforementioned categories, and Profile 5 was likely to be investigated for physical abuse and overall neglect.

Children from Profile 3 had higher levels of aggression than all other children except those in Profile 6. Children in Profiles 1 and 2 were not statistically different from one another but children in every other profile but 2 were statistically different – and higher in aggression – than children in Profile 1. By contrast, children in Profiles 3, 4, 6, & 7 were all higher in withdrawing behavior than children from Profile 1, and Profiles 3 & 7 were also statistically distinct, with higher reported levels of problematic behavior, from Profiles 2 & 5.

Discussion

The purpose of this study was to develop a typology of parenting in at-risk settings to explore which known risk factors tend to occur together and whether those profiles may provide additional explanatory power for maltreatment investigations and child well-being. In the following, we describe the 7 profiles that emerged succinctly with respect to those outcomes.

Profile 1: Positive Parents. Given the low percentage of substantiation, these caregivers seemed able to raise children in seemingly difficult circumstances. While no one particular

strength stands out, they are able to provide for their children and their children show the lowest levels of behavior concerns.

Profile 2: Poor Supports – But Making Do. Profile 2 is marked by low social supports, which should be a risk factor based on social supports theories mentioned previously to theorize the presence of neglect. However, these parents do not emerge as a focus of concern when maltreatment variables are considered. Despite predominating in a cohort entirely of investigated cases (NW), statistical analysis does not indicate a predisposition to CPS investigation. They are also not statistically different from Profile 1 in child outcomes.

Profile 3: Multi-Risk Mental Health Concerns. Profile 3, the smallest group, is a group with substantial risk both related to present circumstance and to prior history. All proximal supports are low, and the depression and alcohol abuse scores are alarmingly low. People in this profile also were more likely to have experienced child physical abuse and domestic violence. This profile was most likely to be investigated for physical abuse and neglect and had the highest levels of children's problematic behaviors.

Profile 4: Authoritarian Parenting. This second largest group is made up of people who engage in yelling and corporal punishment slightly above average but with no other risks. These caregivers are less likely to be single and more likely to come from the EA cohort. The children from these profiles are more likely to be aggressive, though not as aggressive as the children in Profile 3, but are not significantly different from Profile 1 or 2 in terms of internalizing behavior.

Profile 5: Alcohol-Abusing Parents. The marker for this group is its extreme alcohol use. Demographically, they are most likely single and White. They are most common in the NW cohort, which is entirely investigated cases, and were most likely to be investigated for both physical abuse and physical neglect.

Profile 6: Multi-Risk Aggressive Parenting. Profile 6 consists of caregivers highly likely to use verbal and physical aggression against their children. Mental health concerns are minimal, but social supports and neighborhood quality is lacking. Validation indicates that this profile is overwhelmingly from the EA cohort, which was recruited from an economically depressed inner city. They have the highest propensity to be unemployed, have experienced forms of domestic violence at higher than average rates, and have the lowest average income. They do not differentiate in relationship to the maltreatment variables but they have child externalizing scores on par with Profile 3 and slightly elevated internalizing scores. This appears to be a diminished social capital profile driven by caregivers trying to raise their children as best as possible in a bad situation.

Profile 7: Depressed and No One To Care. These caregivers have high levels of depression but do not drink. However, they have limited supports. These caregivers also have histories of experiencing violence as both children and adults and are also among the poorest people in the study. However, they do not appear to trigger CPS investigative action. Their children have slightly elevated aggression when compared to Profiles 1 & 2, but are no worse than any other profile except Profiles 3 and 6. By contrast, these children have higher levels of internalizing behavior than anyone else except Profile 3. This profile gives every indication of being a profile dominated by domestic violence with situation-induced depression.

Despite the tendency to read Table 5 primarily in columns to describe the parenting profiles, the table can also be read horizontally in terms of universality of the theoretical factor for child welfare system involvement or prevention discussed earlier. While much has been made by Crittenden (2008) on the importance of attachment, relationships, and parenting attitudes, this factor was not relevant for the formation of any profile with the exception of the

low-level strength in Profile 1 and the moderate risk in Profile 6, a result further complicated by the finding that the parenting attitudes factor was only significant in what may be a potential "depressed social capital" profile. While the AAPI may a poor proxy at best for attachment, its lack of effect in this analysis raises questions on the universality of parenting attitudes to the existence of maltreatment.

By contrast, alcohol use frequently predicted child welfare system involvement, either as a strength toward prevention or as a risk factor needing intervention. Both profiles where alcohol use is a severe risk were the profiles most likely to be investigated for abuse and neglect. This indicates that if one is looking for a contributing factor for system involvement, alcohol misuse and abuse should be the first risk factor to consider. Depression may also garner attention from CPS personnel; though depression with a history of alcohol misuse drew attention while depression with a history of violence did not. Also, while social supports were universally involved in the models, the lack of self-reported social supports did not indicate increased likelihood of CPS involvement. Poverty was also not a clear indicator of system involvement. While this is generally a sample of subjects from conditions of poverty, neither of the "poorest" profiles had increased probability of system involvement. Finally, profiles with poorer scores on the minor assault scale were also no likelier to be investigated than other profiles.

This study has its limitations. There is no good operationalization for attachment in this data. Because of the geographical sampling, these results are not generalizable; combinations of risk factors in no way imply any kind of causal pathways. And in the profiles where depression is present, we cannot say whether the depression is the consequence of the other problems or the other way around. And the reduction of the sample of 1354 to 720 is also a concern. However, these findings indicate that both intra-individual and social/contextual factors in the lives of

parents interact to produce contexts in which child maltreatment may take place as well as affect child well-being. Future research should test these profiles utilizing techniques as path analysis to explore mechanisms of transmission. It also proposes the possibility for research into multidimensional differential intervention with caregivers as well as the possibility of differential assessment and treatment specificity of children as well as caregivers.

This research also highlights two concerns in relationship to child welfare practice. First, child welfare practitioners need not only to be trained to look for signs of alcoholism and depression when doing investigations and assessments, but also to consider whether the depression and alcoholism may be symptoms of something else, particularly social forces or larger-scale issues. Removing a child from an unsafe situation is important, but it is different to remove a child from a home where the *neighborhood* is dangerous as opposed to the *caregiver*. In terms of imminent risk of harm, it may be the neighborhood, and not the caregiver, that is forcing the risk. And the intervention for these two types of risk is, or should be, quite different.

Second, the relationship between child welfare investigation and child well-being may be more ambiguous than commonly believed. While one of the profiles with the poorest child well-being outcomes was highly likely to be investigated (Profile 3), the other profile likely to be investigated (Profile #5) had better child well-being scores than some of the other profiles. While the primary purpose of the child welfare system is to assure the safety and security of children, and while acknowledging that safety and security are operationalized differently than child well-being, these results indicate a potential lack of convergence between investigation and child well-being. Given that removal from the home is a traumatic experience all its own and the responsibility of the child welfare system to assure safety, this research highlights the need for

child welfare practice to balance the “risk of removal” against the “risk of remaining” – and which risk may be more detrimental in the long run.

Table 2-1: Variables used in the Latent Profile Analysis with Effect Sizes and Reliability Scores

Risk factor from Stith et al (2009) meta-analysis	**Effect Size from Stith et al (2009) (abuse/neglect)**	**Similar or equivalent measure used in LONGSCAN dataset**	**Cronbach's alpha of LONGSCAN measure**
Parental Risk Factors Potentially Changeable through Clinical Means			
Parent-child relationships	-.55/-1.09	Adult Adolescent Parenting Inventory (AAPI - average of all four sub-scales) (Bavolek, 1984)	.94
Parent use of corporal punishment	.55/NA	Conflict Tactics Scale: Parent to Child (CTS-PC) Minor Assault subscale (Straus, Hamby, Finkelhor, Moore, & Runyan, 1998)	Incidence scores only
General Parenting Behaviors	.34/.37	AAPI and the CTS-PC Reasoning, Verbal Assault subscales	Incidence scores only
Depression	.55/.42	Center for Epidemiological Studies Depression Scale (CES-D) (Ratloff, 1977)	.90
Social Supports	-.36/-.33	Duke-UNC Functional Social Supports Scale (Broadhead, Gehlbach, DeGruy, & Kaplan, 1988)	.86
Everyday Stressors	.39/.81	Everyday Stressors Index (Hall, 1983)	.85
Alcohol abuse	.34/NA	CAGE questionnaire (Ewing, 1984)	.76
Family cohesion	-.68/NA	Family APGAR (Smilkstein, 1978)	.84
Ecological Factors Beyond the Microsystem			
Neighborhood quality	NA	LONGSCAN neighborhood risk assessment	.91

Table 2-2: Model-fit Index Comparisons

# of profiles	Free Parameters	Akaike Information Criteria (AIC)	Bayesian Information Criterion (BIC)	Entropy	Smallest Group Size (percentage)
4 profiles	53	19254.374	19497.074	.850	5.6%
5 profiles	64	19134.502	19427.570	.835	5.3%
6 profiles	75	19044.191	19387.635	.785	5.3%
7 profiles	86	18975.599	19369.415	.800	4.0%
8 profiles	97	18950.001	19394.188	.791	4.2% (2)
9 profiles	108	18928.496	19423.055	.800	1.4%

Table 2-3: The Taxonomy of the Seven Profiles
(all numbers ordered so that negative values reflect risk and positive values reflect strength)

	Profile 1	Profile 2	Profile 3	Profile 4	Profile 5	Profile 6	Profile 7
Proportion and Intra-Group Fit Statistics							
Proportion (N = 720)	**.35 (250)**	**.08 (57)**	**.04 (29)**	**.30 (218)**	**.09 (68)**	**.05 (39)**	**.08 (59)**
PPA	**.86**	**.86**	**.93**	**.81**	**.90**	**.87**	**.81**
Means and Significance on Key Variables (only significant values given)							
Family cohesion	.52***	-1.17***	-1.13***	-----	-----	-.92***	-.80***
Depression	.44***	-----	-1.93***	-----	-----	-.50+	-1.56***
Alcohol abuse	.36***	.38***	-2.20***	.25***	-1.97***	-----	.24*
Social supports	.51***	-1.56***	-.83***	.24**	-----	-.80***	-.51***
Reasoning behavior	-----	-----	-.39+	-.48***	-----	-----	-.25+
Verbal assault behavior	.60***	-----	-.67**	-.52***	.24*	-1.53***	-----
Minor assault behavior	.55***	-----	-----	-.48*	-----	-2.31***	-----
Everyday stressors	.47***	-----	-1.38***	-----	.30*	-.81***	-1.15**
Neighborhood quality	.25**	-----	-----	-----	.26+	-.67***	-.54*
Parenting attitudes	.21**	-----	-----	-----	-----	-.77***	-----

PPA – average posterior probability for group members
+ p <.10; * p < .05; ** p < .01; *** p < .001

Table 2-4: Validations of the Latent Profiles (N = 677)

	Profile 1 (n=220)	Profile 2 (n=57)	Profile 3 (n=29)	Profile 4 (n=208)	Profile 5 (n=65)	Profile 6 (n=39)	Profile 7 (n=59)	Total Sample	Test Statistic (F or χ^2)	Significant Contrasts or Differences
Other Risk Factors from the Stith (2009) meta-analysis (significant at .05, ** significant at .01, *** significant at .001)*										
Caregiver's childhood physical abuse history[3]	N = 169 40 (24%)	N = 50 14 (28%)	N = 25 15 (60%)	N = 163 42 (26%)	N = 50 14 (28%)	N = 36 15 (42%)	N = 48 25 (52%)	N = 541 165 (30%)	χ^2 (6) = 28.67***	Profiles 3 and 7 most likely to experience physical abuse (2.7)
Unemployed	19 (9%)	10 (18%)	6 (21%)	33 (16%)	6 (9%)	10 (26%)	9 (15%)	93 (14%)	χ^2 (6) = 13.40*	1 least likely unemployed (-2.0); 6 most likely unemployed (2.0)
Single parent	133 (60%)	43 (75%)	25 (86%)	122 (59%)	54 (83%)	32 (82%)	46 (78%)	455 (65%)	χ^2 (6) = 32.05***	1 & 4 least likely to be single (-1.4); 5 most likely to be single (1.5)
Caregiver experience of domestic violence[4] **Beaten** **Other physical**	N = 169 50 (30%) 11 (6.5%)	N = 50 26 (52%) 7 (14%)	N = 25 19 (76%) 4 (16%)	N = 163 56 (34%) 14 (9%)	N = 50 23 (46%) 5 (10%)	N = 36 18 (50%) 8 (22%)	N = 49 29 (59%) 11 (22%)	N = 542 221 (41%) 60 (11%)	χ^2 (6) = 35.71*** χ^2 (6) = 16.70**	Profiles 3 (2.8) and 7 (2.0) most likely to experience being beaten Profiles 6 (2.0) &7 (2.4) more likely experience other physical abuse
Family size mean w/SD	4.62 (1.84)	4.05 (1.57)	4.72 (1.71)	4.32 (1.56)	3.94 (1.63)	3.82 (1.27)	4.29 (1.74)	4.35 (1.69)	*F* (6, 676): 2.349*	No post-hoc discernable
*Key demographic variables (+ significant at .10, * significant at .05, *** significant at .001)*										
Caregiver is Black (N = 676)	117 (53%)	30 (53 %)	19 (65%)	120 (58%)	27 (42%)	31 (79%)	33 (56%)	377 (56%)	χ^2 (6) = 16.38*	Profile 6 most likely to be Black (2.0)

[3] No data was collected from the SW cohort on this variable. Sub-sample numbers are for this variable only.
[4] No data was collected form the SW cohort on this variable.

Caregiver is White (N = 676)	75 (34%)	19 (33%)	8 (28%)	66 (32%)	29 (45%)	5 (13%)	21 (36%)	238 (33%)	χ^2 (6) = 12.02+	Profile 5 most likely to be White (1.6).
Household income (mean Hollingshead score w/SD) N=674	4.94 (2.95)	3.58 (2.27)	3.13 (2.12)	4.47 (3.04)	4.04 (2.65)	3.02 (1.94)	3.31 (2.33)	4.30 (2.84)	*F* (6, 673): 4.55***	1 > 6, 7
Research Site **EA** **MW** **NW** **SO** **SW**	 33 45 51 43 48	 9 9 19 15 5	 6 9 7 3 4	 57 40 28 42 41	 10 9 22 10 14	 20 3 6 9 1	 8 16 15 10 10	 143 131 148 132 123	χ^2 (24) = 66.19***	Profile 1: SW (2.0); Profile 2: NW(1.8); Profile 3: MW (1.6); Profile 4: EA (2.0); Profile 5: NW (2.3); Profile 6: EA (4.4); Profile 7: MW (1.6)
Maltreatment Incidence Variables (significant at .05)*										
CPS Record Exists (yes)	141 (64%)	36 (63%)	22 (76%)	112 (54%)	45 (69%)	23 (59%)	37 (63%)	416 (61%)	χ^2 (6) = 10.14 *ns*	-----
Overall Substantiation indicator	98 (45%)	26 (46%)	13 (45%)	72 (35%)	31 (48%)	13 (33%)	25 (42%)	278 (41%)	χ^2 (6) = 7.52 *ns*	-----
Sexual abuse **Investigation** **Substantiation**	 20 (9%) 9 (4%)	 8 (14%) 4 (7%)	 1 (3%) 0	 13 (6%) 3 (2%)	 11 (17%) 5 (8%)	 3 (8%) 2 (5%)	 5 (8.5%) 2 (3%)	 61 (9%) 25 (4%)	χ^2 (6) = 9.85 *ns* χ^2 (6) = 9.11 *ns*	----- -----
Physical abuse **Investigation** **Substantiation**	 50 (23%) 21 (10%)	 15 (26%) 6 (10.5%)	 11 (38%) 2 (7%)	 33 (16%) 11 (5%)	 21 (32%) 9 (14%)	 9 (23%) 3 (8%)	 16 (27%) 7 (12%)	 155 (23%) 59 (9%)	χ^2 (6) = 13.78* χ^2 (6) = 6.55 *ns*	Most likely investigated: Profiles 3 (1.5) and 5 (1.6)
Neglect **Investigation** **Substantiation**	 111 (50%) 76 (35%)	 27 (47%) 19 (33%)	 18 (62%) 11 (38%)	 84 (40%) 59 (28%)	 38 (58%) 22 (34%)	 17 (44%) 11 (28%)	 22 (37%) 15 (25%)	 317 (47%) 213 (31%)	χ^2 (6) = 13.20* χ^2 (6) = 3.91 *ns*	Most likely investigated: Profiles 3 & 5 (but under 1.5 SD)
Neglect – Failure to Provide **Investigation** **Substantiation**	 92 (42%) 63 (29%)	 22 (39%) 15 (26%)	 18 (62%) 9 (31%)	 69 (33%) 44 (21%)	 29 (45%) 17 (26%)	 15 (38%) 7 (18%)	 16 (27%) 9 (15%)	 261 (39%) 164 (24%)	χ^2 (6) = 14.57* χ^2 (6) = 7.83 *ns*	Most likely investigated: Profile 3 (2.0).
Neglect – Lack of Supervision **Investigation** **Substantiation**	 66 (30%) 34 (15%)	 21 (37%) 9 (16%)	 11 (38%) 5 (17%)	 59 (28%) 34 (16%)	 26 (40%) 14 (22%)	 10 (26%) 7 (18%)	 13 (22%) 9 (15%)	 206 (30%) 112 (17%)	χ^2 (6) = 7.52 *ns* χ^2 (6) = 1.53 *ns*	----- -----
Maltreatment Incidence Variables (significant at .05)*										
CBCL Externalizing M (SD) N = 715	51.03 (10.34)	53.09 (10.23)	64.24 (9.50)	57.70 (10.06)	55.13 (10.22)	59.87 (7.90)	57.41 (7.49)	55.13 (10.49)	*F* (6, 671): 18.68***	3 > 1,2,4,5,7 4 > 1 5 > 1 6 > 1, 2 7 > 1

CBCL Internalizing M (SD) N = 715	47.50 (8.86)	49.14 (9.75)	57.41 (9.98)	52.51 (9.41)	49.93 (8.56)	54.77 (9.18)	55.19 (9.10)	50.80 (9.61)	*F* (671): 13.36***	3 > 1, 2, 5 4 > 1 6 > 1, 7 > 1, 2, 5

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Chapter 3

Profiles of Risk, Child Maltreatment, and Child Problematic Behaviors

In the previous chapter, a latent profile analysis of caregiver environmental risks (e.g. family relationships, social supports, stress, neighborhood effects), child-caregiver interactions (e.g. discipline strategies), and intra-individual caregiver risks (e.g. depression, alcohol misuse, attitudes toward caregiving and children) derived seven different profiles of caregivers of young children in at-risk circumstances. It was found that two of these profiles, identified either by alcohol misuse alone or by a complex combination of depression, alcohol misuse, high levels of stress, and poor social supports, predicted investigation for physical abuse and neglect by child welfare services personnel. The study presented in this chapter uses these caregiver profiles as predictors to test how they contribute to the trajectories of children's problematic behavior across time in addition to the experience of early physical abuse and neglect.

Early Maltreatment and Children's Problematic Behaviors

A substantial amount of research has been done on the relationship between children's behaviors and the experience of maltreatment. In general, these behaviors are summarized in the literature as being either "externalizing" with a child negatively acting on his or her environment with physical aggression or antisocial behavior of various kinds, or as "internalizing" with a child exhibiting behaviors more focused on one's internal states and resulting in withdrawal, isolation, and depression (Liu, 2004). Much of this research has been completed through the theoretical framework of developmental psychopathology (Cicchetti & Toth, 2005). The foundational principle of this theoretical model is that early deprivation and maltreatment has a

significant long-term effect on children's development because it interferes with critical biopsychosocial milestones (Cicchetti & Toth, 2005). Because development is organized in hierarchical structures (Manly, Kim, Rogosch, & Cicchetti, 2001), maltreatment experienced early in life is likely to affect future development and result in challenging behaviors, especially if there are fewer resilience factors in the child's life to counteract the effects of maltreatment. As a result, research on the relationship between experienced maltreatment and children's behavior has generally focused on the type and severity of maltreatment experienced, the age of the child when maltreatment first took place, how many different types of maltreatment a child has experienced, and how chronic the maltreatment has been across developmental periods (Cicchetti & Lynch, 1995).

Most research on children's behavior has focused on externalizing behavior because of its predictive power for future violence, delinquency, conduct problems, and adult offending (Broidy et al, 2003) and as such is important from a public health standpoint. Some cross-sectional research has helped to enhance our knowledge of the effects of child maltreatment on children's behavior. For example, Jonson-Reid et al (2010) used administrative data from children's protective services records in the state of Missouri, cross-referenced with information from both the Missouri Twins Registry and the Collaborative Study on the Genetics of Alcoholism, to demonstrate that experiencing child maltreatment resulted in increased levels of antisocial behavior across a variety of ages over any possible inherited propensity for problematic behaviors. While this study is significant for looking at differences between genetics and a maltreating environment in children's behaviors, the study did not differentiate between abuse and neglect. Also, there was no way of discerning whether maltreatment was experienced earlier or later in a child's development. However this research has important implications for

understanding the effects of maltreatment at its most general considerations in addition to whatever genetic propensity the children may have inherited from maltreating caregivers.

Another cross-sectional study in a sample of 8-year-olds from LONGSCAN (English et al, 2005) tested Cicchetti & Lynch's (1995) framework for understanding the relationship between maltreatment and children's behaviors. Using a sample of 203 children from the Northwest site, all of whom came from families investigated for maltreatment, researchers found that internalizing behaviors were more prominent in children who had experienced neglect that "failed to provide" (FTP) for basic material needs as well as children who had experienced multiple types of maltreatment in addition to FTP neglect. Externalizing behavior at age 8 was predicted by the experience of FTP neglect as well as the interaction of FTP with the age of first report; the younger children were when they experienced FTP neglect, the more externalizing behaviors they exhibited at age 8. The experience of physical or sexual abuse had no effect on either internalizing or externalizing behavior.

This effect of early abuse and neglect on children's behavior has been observed across time, though to differing and varying degrees. For example, Kotch and colleagues (Kotch et al., 2008) found that general neglect (of which FTP is a subset) experienced before the age of 2 was the strongest predictor of elevated levels of aggression. Later neglect had no effect on children's externalizing behaviors. Another study on the effect of neglect (Manly, Oshri, Lynch, Herzog, & Wortel, 2013) found that the experience of neglect contributes to increased problematic behaviors in children. However, in 3-year-olds, specific psychological neglect, measured by lack of warmth and responsiveness, was the only predicting factor for aggressive behavior (Dubowitz, Papas, Black, & Starr, 2002) and neglect as a whole had no predictive power for behavior problems between the ages of 3 and 5. If severity of abuse is taken into account, severe physical

neglect as a baby or a toddler, and then again in later school aged children, resulted in an increase in aggression (Manly et al, 2001), So generally, neglect occurring at early ages has been demonstrated to affect a child's externalizing behaviors, though more clarification is needed on its effects over time.

The relationship between physical abuse and externalizing behavior is less clear. Kotch et al (2008) also found, in addition to the effect of neglect, that the presence of a physical abuse investigation did not indicate an increase in externalizing behaviors before the age of 8. However, if severity of physical abuse is taken into account, physical abuse in preschool becomes a significant predictor of children's aggression. Manly et al (2001) also found that severe levels of physical abuse as a preschooler predict problems with externalizing behavior. In their work drawn from community-based samples, Dodge, Pettit, Bates, & Valente (1995), Keiley, Howe, Dodge, Bates, & Pettit (2001) and Lansford et al (2002) found some evidence that physical abuse could lead to an increase in externalizing behavior into late childhood. Maltreatment in these studies, however, was not identified through use of CPS records but through retrospective self-reports of harsh parenting practices.

While internalizing behaviors are more likely to result in mental health concerns and should also thus be considered a public health problem, in general they are not as well studied. Bolger & Patterson (2001) identified children whose families had been substantiated for child maltreatment from within their community-recruited sample and evaluated the effect of type of maltreatment (physical abuse, neglect, sexual abuse) in their sample. They found that neglect but not abuse predicted higher levels of internalizing behavior. While they were not able to pinpoint age of maltreatment experience as effectively as in other studies, their results also indicated that the younger the child was when s/he experienced maltreatment, the more internalizing behaviors

were reported. Most studies on internalizing behaviors indicate, however, that severe physical neglect before reaching school age is strongly related to an increase in depression, withdrawal, and other internalizing problems (Manly et al, 2001; Keiley et al, 2001; Dubowitz et al, 2002; Lansford et al, 2002).

Children's Problematic Behaviors and Caregiver Risk Factors

While these studies on the relationship of child maltreatment to children's behaviors have occasionally used caregiver and environmental risk factors, few studies have considered more than one or two risk factors at the same time. This is an important dimension of research as developmental psychopathology models assume an interaction between children, their families (including caregivers),and their environments (Cicchetti & Toth, 2005). Further complicating matters is that many of the risk factors that predict maltreatment also contribute to children's problematic behaviors outside of a maltreatment context.

The risk factors most frequently considered in relationship to children's behaviors are depression and substance misuse (Zielinski & Bradshaw, 2006), which tend to be proximal caregiver characteristics (Bronfenbrenner, 1992). Researchers have also found that these risk factors predict child maltreatment. Chaffin and colleagues' (Chaffin, Kelleher, & Hollenberg, 1996) analysis of child caregivers in the first two waves of the NIMH Epidemiologic Catchment Survey found that caregivers who self-reported physically abusing their children at Wave II but not at Wave I were more likely to self-report a substance abuse problem and depression than a non-maltreating comparison group. Caregivers self-reporting neglect were also more likely to report substance abuse but no more likely than the comparison group to report depression. This analysis, however, did not take into account Belsky's (1993) observation that physical abuse and neglect are frequently comorbid (Chaffin et al, 1996).

Some of the studies on maltreatment and children's behavior also found relationships between depression and substance abuse. Kotch and colleagues (2008) also controlled for depression in their study on aggression and found that children of depressed caregivers had higher aggression scores. Dubowitz and colleagues (2002) also found that maternal depression predicted higher levels of both externalizing and internalizing behavior in preschoolers. Substance abuse also negatively affects externalizing behavior (Manly et al, 2013)

Harsh caregiving, usually defined by the use of verbal aggression and corporal punishment (Keiley et al, 2001; Dodge et al, 1995) is frequently preceded by negative attitudes toward both caregiving and children. One study evaluating the effects of emotional negativity and harsh parenting on internalizing behavior in a sample of young children (Mills et al, 2012) found that caregivers' negative attitudes resulted in increased internalizing behavior in young children. This relationship was partly mediated by harsh caregiving itself. Low levels of maternal warmth and critical attitudes toward children have also been found to result in behavior problems of both kinds (Dubowitz et al, 2002; Thompson, Hollis, & Richards, 2003); children who experience rejection and caregiver criticism develop negative self-perceptions which result in problematic behavior. The effect of maternal negative attitudes and emotionality on children's externalizing behaviors also was not affected by the father's happiness, if a father was present (Denham et al, 2000).

The effect of caregivers' perceptions of emotional support from others has also been shown to influence children's behaviors; children whose caregivers report lower levels of support exhibit higher levels of both externalizing (Manongdo & Garcia, 2007; McCabe, Lucchini, Hough, Yeh, & Hazen, 2005) and internalizing behavior (Dodge et al, 1995). Grogan-Kaylor (2005a) also found that emotional support toward caregivers themselves influenced the

effect of corporal punishment on children's aggression. If caregivers perceived themselves as having more emotional support in their lives, their children exhibited lower levels of aggression even in the presence of corporal punishment use.

Stress is also an important risk factor. Children in homes where caregivers reported higher levels of stress were also more likely to exhibit higher levels of externalizing behavior (Dodge et al, 1995; Keiley, Lofthouse, Bates, Dodge, & Pettit, 2003). Keiley and colleagues (2003) also found that family stress influenced the development of internalizing behavior in addition.

Despite its distal relationship to children's development, in some studies, neighborhoods have also been shown to have an effect on children's behavior (Manly et 2013; Zielinski & Bradshaw, 2006; White & Renk, 2012). Most of the focus on neighborhood effects in relationship to children's behaviors has been on externalizing behavior. For example, Kotch and colleagues' (2008) study also controlled for neighborhood safety and found that unsafe neighborhoods contributed to increased aggression in young children. Neighborhood crime has also been found to be a mediator in the relationship between experiencing neglect and children's externalizing behavior (Manly et al, 2013). However, Grogan-Kaylor (2005b), testing the hypothesis that caregivers in unsafe neighborhoods may use corporal punishment as a way of protecting children from their surroundings, found little to no effect of neighborhoods on children's antisocial behavior. Likewise, Dubowitz et al (2002) found no effect of unsafe neighborhoods on the behavior problems of preschoolers. The mechanism of neighborhood effect on children's behavior remains unclear.

Purpose of Study

The current study extends the literature on children's behaviors and maltreatment two ways. First, this study takes into account a number of caregiver risk factors at once. While nearly 40 risk factors for abuse and a subset of 25 for neglect have been identified and analyzed through meta-analysis (Stith et al, 2009), this study considers the nine risk factors previously mentioned that contribute significantly to abuse and neglect. These risk factors were chosen based on high effect size in the previously-mentioned meta-analysis (over .30) and the possibility of response to caregiver-focused clinical intervention. To further ground the analysis in ecological theory, information on neighborhood environment is also included.

Second, this study assumes that not all combinations of risk are equally probable and as a result analyzes risk in relationship to patterns present in the data. As Bergman, Magnusson, & El-Khouri (2003) have noted, past events and current circumstances constrain the organization of risk into a much smaller number of patterns than the exceptionally large number of combinations available when studying many risk factors at once. As a result of this assumption, this study analyzes the relationship between patterns of co-occurring risk and children's behavior outcomes. Latent profile analysis provides a means to identify these patterns of risk by differentiating a group of people into sub-groups based upon their response-sets and then classify them based upon their identified similarities (Gibson, 1959).

Caregiving is itself the result of a developmental process that results from people's interactions with their environments. Further, the many dimensions of risk in the lives of caregivers also affect their own developmental process of learning how to give care. Unfortunately, short of intergenerational longitudinal studies that document transitions from care-receiver to caregiver across time, being able to determine causality in relationship to caregiver development, child caregiving and maltreatment is exceptionally challenging (Institute

of Medicine and National Research Council, 2013). This does not mean, however, that researchers cannot use a technique such as latent profile analysis to capture snapshots of caregiving that represent the various results of this developmental process and their subsequent effects on children.

Congruent with the intention to study both the effects of caregiver risk and maltreatment on children's problematic behaviors, the following hypotheses will be tested:

Hypothesis 1: Children cared for by caregivers with more risk factors will have higher levels of externalizing and internalizing behavior at the time of study entry.

Hypothesis 2: Children cared for by caregivers with more risk factors will have accelerated growth in externalizing and internalizing behavior over time.

Hypothesis 3: Children in families investigated for abuse and/or neglect will have higher levels of externalizing and internalizing behavior separate from caregiving context at the time of study entry

Hypothesis 4: Children in families investigated for abuse and/or neglect will have accelerated growth in externalizing and internalizing behavior attributable to the maltreatment separate from caregiving context over time.

Method

Sample

This sample continues to use the same 720 caregiver-child pairs from the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN: Runyan et al, 2011) identified in the first study. Because of the interest in primary caregiver risks on child development, children were included if they were reported as living with the same non-foster parent primary caregivers at

ages 4 and 6. While this study utilizes a longitudinal design that accounts for unbalanced data, children were excluded if there was only one wave of data collected on the dependent variables of interest over the six waves of data collection, following the premise that if one wants to estimate a trajectory it takes at least two time points to identify a possible trend. This reduced the sample of 720 to 703. On average, there were 5 waves of data for each subject. The most recent data collection in this analysis took place when the children were 14 years old.

Measures

Dependent Variable: Child Behavior Checklist Externalizing and Internalizing Problems. The measure used for child behaviors in this study is the Child Behavior Checklist (CBCL: Achenbach, 1991). The CBCL consists of a list of 113 behaviors that informants are asked to identify as present using the three categories of Not True, Sometimes True, and Often True. These raw data are then converted into T-scores which account for typical variation dependent on age and gender; the minimum score is 30, the maximum score is 100, and the score for the threshold of clinical concern is 64, with scores of 60-63 being considered "borderline" (Achenbach, 1991).

The CBCL is widely used for evaluating children's behavior problems because of its substantial predictive validity and its normalization with clinically involved and non-clinically involved children and children of varying ages and races/ethnicities. The behaviors in the CBCL are organized into Externalizing and Internalizing super-scales. The Externalizing score is derived from smaller scales that measure rule-breaking behavior, hyperactivity, impulse control, and aggression. The components in the Internalizing score include anxiety, depression, and excessive behavioral restraint. Information on the child's behaviors in the present study was collected during interviews with the primary caregivers.

Independent Variable: Primary Caregiver Profile. The seven primary caregiver profiles used in this study were derived in the previous analysis from the caregivers' self-reports on various risk actors. The first profile, which serves as a comparison group in the current study, consisted of caregivers who reported the presence of no risk factors. Three profiles included caregivers who reported only one risk present: poor social supports, alcohol misuse, or authoritarian parenting. The final three profiles represented reports of complex risk. One set of caregivers reported extremely high levels of depression and alcohol misuse in the presence of high stress and poor family cohesion. Another set of caregivers reported high levels of harsh parenting, problematic parenting attitudes, stress, and poor neighborhoods. The final set of caregivers reported high levels of depression without alcohol misuse in the presence of high stress.

These seven profiles were also evaluated in relationship to poverty level, likelihood of child welfare investigation, caregiver's own history of being maltreated, and experience with domestic violence as an adult. While the average income for every profile was at or below the poverty line, caregivers from the three complex risk groups reported the lowest family incomes. Primary caregivers in these same groups were also the most likely to experience violence in their relationships, and those in the depression/alcohol and depression/stress profiles were the most likely to report experiencing physical abuse as a child. Primary caregivers in the depression/alcohol profile were the most likely to be investigated by protective service workers for physical neglect (FTP), and caregivers in both the depression/alcohol profile and the alcohol misuse only profile were most likely to be investigated for general neglect and physical abuse.

Independent Variable: Maltreatment Status. A significant challenge in studying the effects of maltreatment is inherent in identifying maltreatment itself. In the literature on

maltreatment and child behaviors, maltreatment has been identified two ways: caregiving behavior or the presence of protective service records. Identifying maltreatment based on behavior focuses on harsh or indifferent caregiving. Physical abuse is considered an extreme form of harsh caregiving which results in poor developmental outcomes (Kim, Pears, Fisher, Connelly, & Landsverk, 2010; Berlin, Appleyard, & Dodge, 2011; Mills et al, 2012) while neglect is a form of caregiver unresponsiveness and lack of nurture (Dubowitz et al, 2002; Mills et al, 2012; Thompson, Hollis, & Richards, 2003).

This approach to studying maltreatment is advantageous in two ways. First, it is not dependent on protective service system involvement to identify maltreatment. Some researchers consider the investigation process itself a form of intervention that may affect outcomes (Dodge, et al, 1995) so recruiting subjects from the community eliminates selection bias and an unintentional intervention effect. Second, it provides a community-based sample that can include a wide variety of caregivers and children, not just those judged by a system to be at risk. However, this analytical approach makes it difficult to evaluate neglect of the failure-to-provide variety, which is not only one of the most common forms of maltreatment but also one of the most difficult to assess through caregiver behavior (DePanfilis, 2006). Finally, using parenting behaviors as a measure of maltreatment may underrepresent both the presence and the severity of maltreatment in the community. People want to present well when being researched, and maltreating caregivers and their children are not generally amenable to research in general (Belsky, 1993). As a result, community-based studies focus on milder forms of maltreatment.

Other researchers identify maltreatment through the existence of protective service records on caregivers. The advantage to this approach is that researchers are more likely to have families with higher levels of maltreatment in their samples as investigation involves more overt

signs of harm or endangerment. However, even though child welfare policy is written at national or state levels, it is exercised most frequently at the county or regional level. Thus, relying only on CPS records to identify maltreatment does not take into account the difference in decision-making between jurisdictions. What results in a substantiation for maltreatment in one county may not qualify in another.

Researchers have attempted to circumvent decision-making differences between jurisdictions by developing coding protocols that summarize records either in relationship to type and severity of maltreatment (Barnett, Manly, & Cicchetti, 1993) or in relationship to harm and endangerment standards (Sedlak & Broadhurst, 1996). The content of the coding usually converts what has happened to a child into a caregiver's behavior or omission. For example, as Barnett et al (1993) present, the experience of a child walking to school on several consecutive days wearing a thin jacket and no hat or gloves with outside temperatures being below 32 degrees is described as "the caregiver does not dress the child in clothing appropriate for the weather" and is coded as a severity level of 2 (out of 5) for Physical Neglect – Failure to Provide.

Part of the challenge related to using CPS records for maltreatment research is alleviated by findings that there are no differences in child well-being outcomes for children whose caregivers were investigated for maltreatment than for those children whose caregivers were substantiated for maltreatment (Drake, 1996; Hussey et al, 2005). The existence of an investigation record for a particular type of maltreatment without further consideration of content is enough to provide valid data that can be used in many analyses. However, coding strategies are still needed to confirm the types of maltreatment being investigated.

LONGSCAN contains both caregiver behavior data and coded CPS record data. Caregiver behavior is coded using the Parent-to-Child Conflict Tactics Scale (CTS-PC; Straus,

Hamby, Finkelhor, Moore, & Runyan, 1998); however, because of an IRB requirement at one of the collection sites (LONGSCAN Coordinating Center, 2001) the CTS-PC only measures incidence, not frequency or severity. Thus, this data is used in the current study as a risk factor and not as an indicator of maltreatment.

This study identifies maltreatment, therefore, by the presence of CPS records for the primary caregiver that indicate an investigation for physical abuse and general neglect before subjects were recruited, when the target child was 4 years of age. While the maltreatment in the record may not have been directed toward the identified child participating in the study, the presence of an investigation related to any child is indicative of risk for all children in the household. The records are coded for type of maltreatment utilizing a LONGSCAN-specific version of the Maltreatment Classification System (Barnett et al, 1993). Coder reliability analyses were conducted on 5% of the overall sample relative to type of referral. Inter-rater reliability of the coders has been established at .90 or higher, indicating substantial agreement, (LONGSCAN Coordinating Center, 2001; Landis & Koch, 1977; Munoz & Bandigwala, 1997).

Demographic Covariates: Gender, Race, Site. The child's gender and race were collected through a demographics form as a part of the interview process. Because of different recruitment strategies for each site, the geographic location would normally be taken into account as a part of the analysis. However, investigation for maltreatment is a variable of interest and was also a requirement for recruitment at two of the sites. Because of the resultant high level of shared variance between site and maltreatment investigation indicators, site is not included in this analysis.

Analytic Procedure

Repeated measures from the same subjects are correlated across time in longitudinal data. It is necessary, therefore, to use a statistical model that takes this non-independence into account as a part of the model. Furthermore, because longitudinal data frequently has missing responses due to attrition of subjects, an analysis should also accommodate both missing individual variables and entire waves of data. Finally, using a modeling technique that makes the best use of both time-variant and time-invariant data is important. Hierarchical linear modeling (HLM) works with all of the above parameters to produce results that minimize Type I error (Singer & Willett 2003).

Because this study is interested not only in main effects but also in trajectories across time, the analysis must also include interactions with time. Here, time is based on the child's age at time of data collection. In the current study, effects of caregiver profiles and maltreatment investigations on children's behaviors are measured across time to assess the growth rates attributable to each situation. In addition, the passage of time was treated as a categorical variable rather than a continuous variable to assess the incremental changes in growth rate that result from a particular independent variable at specific ages and to evaluate whether the effects of caregiving and maltreatment are present at temporal proximity to the event or may exhibit themselves more at later ages.

Data were analyzed utilizing a two-level mixed effects model in STATA 12SE, a technique that parallels hierarchical linear modeling (StataCorp, 2011). Subjects were nested by ID number and the intercept at the level of id was allowed to vary randomly. A factor interaction by child's age with both caregiver group and maltreatment indicators assessed the growth rates of the children's behaviors attributable to caregiver group and maltreatment across time.

Results

Descriptive Statistics

Table 3-1 contains an overall description of the sample. As the demographic table indicates, this sample is over-represented by children of color; however, apart from Black children, the representation of non-White races and ethnicities is too small to analyze due to power considerations. Also, LONGSCAN does not allow for specifically identifying more than one race or ethnicity, which is likely to result in an underrepresentation in the number of Latino/a children in the sample (Ortega, Gutierrez-Najera, & Guillean, 1996). As a result of the above concerns, the decision was made to analyze by White/non-White categories. The sample is evenly split between males and females and between sites. Approximately 45% of the children in the sample came from families who had been investigated for neglect prior to Age 4 while 20% were from families investigated for physical abuse. 15% were investigated for both types of maltreatment.

***** Insert Table 3-1 here. *****

The table also shows the number of families in each caregiver profile. The largest profiles are the no-risk and authoritarian caregiving profiles, together accounting for approximately 65% of the sample. The three complex risk profiles account for approximately 18% of the sample.

Primary Caregiver Contexts and Children's Behavior (Hypotheses 1 & 2)

Table 3-2 contains the results from the mixed-effects model for both child behavior outcomes. With the exception of a marginal effect of being raised in a "poor supports" caregiving context for externalizing behavior, all profiles were significant for both increased externalizing and externalizing concerns in children at age of study entry over the caregiving context with no risk factors. Consistent with Hypothesis 1, the highest scores on the behavior

indices were seen in the caregiver profiles with the greatest number of risk factors. For externalizing behavior, in order, the Depression/Alcohol, Harsh Parenting, and Depression /Stress profiles appear to contribute most to elevated levels of problematic behavior. By contrast, for internalizing behavior, the Depression/Alcohol and Harsh Parenting profiles are reversed in order.

***** Insert Table 3-2 here. *****

Also significant for elevated levels of internalizing and externalizing behavior at a rate higher than the other simple risk profiles is the authoritarian caregiving group, identified only by slightly elevated use of verbal and physical aggression on the Conflict Tactics Scale. Surprisingly, children whose caregivers are in this group have higher levels of both externalizing and internalizing behavior than children whose caregivers are in the alcohol misuse only profile, which was one of the two profiles most likely to be investigated for maltreatment. Similarly, in the internalizing behavior analysis only, children from the "poor supports" context also had more internalizing behavior than children raised in the alcohol misuse contexts. So while alcohol misuse alone may trigger CPS response, it may not necessarily result in worse outcomes for children.

Somewhat surprisingly, the interactions of the caregiver groups with the child's age produced no significant results in any group at any age and are thus not present in the table. This is contrary to Hypothesis 2, which theorized differing growth rates for children's externalizing and internalizing behavior based on caregiving. It appears, then, that caregiver profiles have a strong effect on children at younger ages but become less relevant as the child ages.

Maltreatment Status and Children's Behavior (Hypotheses 3 & 4)

As can also be seen in Table 2, the immediate effects of maltreatment are most prominent for externalizing behavior in the presence of an investigation for physical abuse. A marginal effect of neglect on externalizing behavior is also present, while no relationship between abuse or neglect investigation is present at Age 4 for internalizing behavior. To check for the possibility that the parenting contexts could be confounding the effect of maltreatment since two of the groups correlate with maltreatment reporting, the analysis was re-run without the parenting contexts and the results showed no difference in the maltreatment coefficients. So the analysis supports Hypothesis 3 but only for the case of physical abuse and externalizing behavior; for internalizing behavior, the hypothesis positing a main effect of maltreatment investigation status at Age 4 is not supported.

A review of the interactions of the maltreatment indicator with age demonstrates that the effect of early maltreatment continues well beyond Age 4. While there is a main effect of physical abuse on externalizing behavior for children at Age 4, there is no effect of physical abuse on the growth trajectory of externalizing behavior. Rather, it appears to be neglect that has the more significant long-term effect. Children from families investigated for neglect show increases in externalizing behavior through middle childhood; effects into early adolescence are not differentiable from children whose families have no neglect investigations, though a marginal effect may be present at age 14.

Despite no main effect of abuse or neglect on internalizing behavior at age 4, both types of maltreatment have a significant effect on the growth trajectory of internalizing behavior. Figure 3-1 charts the growth rate in internalizing behavior over time. In general, both abuse and neglect result in an increase of internalizing behavior across time. The effect of abuse, however, is most apparent beginning at age 8, while the effects of neglect are present at the earliest ages.

As the coefficients indicate, the effects of neglect result in a steeper rate of growth than the effects of abuse. So Hypothesis 4 is also partially supported. Investigation for both abuse and neglect predict a steady rate of increase in internalizing behavior, while investigation for neglect only predicts elevated externalizing behavior through middle childhood.

***** Insert Figure 3-1 here. *****

Discussion

This study considered simultaneously the effects of caregiving risk patterns and the experience of early maltreatment on children's behaviors across the lifespan into early adolescence. As the results indicate, the pattern of primary caregiver risk has a significant effect on both children's internalizing and externalizing behaviors. In addition, at younger ages, this effect may be as strong, if not stronger, than the effect of maltreatment. Because the variables in the model are all binary outcomes, the intercept can be interpreted as the average CBCL score for a child in the comparison group – a 4-year-old non-White female child raised by a primary caregiver reporting no risks and having no CPS reports for abuse or neglect. The effects of caregiver risk on scores for children's externalizing behaviors quickly reach clinical levels of concern for children from the complex risk patterns, even before maltreatment is considered. For example, the T-score of the average 4-year-old male child from the sample who has been raised within the depression/alcohol/stress profile or the harsh caregiving profile is already nearing 62, which is within Achenbach's (1991) borderline threshold of clinical concern. For the subset that has also experienced abuse and neglect in addition to those caregiving profiles, the T-scores approach 67, which is well within the guidelines for clinical concern. Given the nature of externalizing behaviors, young children with these combinations of experiences and environmental risk factors may be more likely to come to the attention of daycare or school

workers and be targeted in those settings for extra monitoring, special services, or alternative placements.

Similar results are seen for the effect of caregiver risk on children's internalizing behaviors. Every caregiver risk pattern other than the no risk pattern results in increased internalizing behavior, though not to the level of clinical significance seen in the externalizing behavior profile. This may be misleading, however, as internalizing behavior is frequently harder to observe. However, even given the tendency for internalizing behavior to be underreported, results indicate caregiver risk patterns do have a differential effect on children's internalizing behaviors in the preschool years.

Of the simple risk caregiving contexts, the one that indicates the highest levels of internalizing and externalizing behaviors is the authoritarian caregiving context. The difference between the authoritarian caregiving and the harsh caregiving profiles is a combination of more extreme use of verbal assault and corporal punishment and the presence of poor neighborhoods in the harsh parenting profile. However, as these results indicate, even slightly elevated levels of verbal assault and corporal punishment are enough to elevate behavior scores beyond those seen in the alcohol misuse context – despite the alcohol misuse context being one of the two contexts (along with the depression/alcohol/stress) most likely to be investigated for child maltreatment. These results are similar to the results presented by Dodge et al (1995), Keiley et al (2001), and Lansford et al (2002) and indicate that their definition of maltreatment may be an adequate proxy for maltreatment in the absence of a CPS record.

Maltreatment and Children's Behavior

As the results also indicate, there was no immediate effect of either abuse or neglect on internalizing behaviors for young children but as they aged, children experiencing abuse and/or

neglect demonstrated more internalizing behaviors. For externalizing behaviors, only the experience of neglect produced a difference in externalizing behaviors over time – an effect that spiked earlier in childhood and then faded into adolescence.

While the actual behavior levels are concerning, the general shape of the profiles (i.e. a diminishing rate of externalizing across childhood and a general increase of internalizing) are similar to what Visonyi & Keiley (2007) identified as a normal trajectory shape. This finding in encouraging as it may indicate that children can compensate for early maltreatment and see improvements throughout childhood. It is equally likely, however, that this may be an artifact of only measuring maltreatment at one time period. Some researchers, promoting a life course approach to child maltreatment research (Thompson & Tabone, 2010; Thornberry, Ireland, & Smith, 2001) contend that it is the ongoing experience of maltreatment, and its psychological sequelae such as emotional dysregulation and problems with peer relationships, in proximity to current age that has the more significant effect on outcomes (Egeland, Yates, Appleyard, & VanDulmen, 2002). In the life course framework maltreatment and its sequelae are treated as time-variant variables or are otherwise used in models in such a way as to indicate the passage of time. Some research indicates that more recent episodes of maltreatment produce more negative outcomes (Thompson & Tabone, 2010) in adolescence.

Much of the life course perspective on child maltreatment and children's behaviors has focused on adolescents and on trajectories of either criminal or antisocial behavior (Mersky, Topitzes, & Reynolds, 2001; Egeland et al, 2002) or mental health outcomes (Thompson & Tabone, 2010). However, time-variant approaches to maltreatment in younger children have had more mixed outcomes. For example, Kotch and colleagues (Kotch et al, 2008) in their study on 8-year-olds treated abuse and neglect as both time-variant and time-invariant variables; the time-

invariant variable indicated abuse or neglect prior to the age of 2, and the time-variant component was dependent on whether there had been reports filed in the two years prior to each data collection point. Only the time-invariant indicator for neglect was significant. However, Li and Godinet (2014), analyzing data that also included some of the subjects from Kotch's study, found that when repeated maltreatment was considered in tracking the trajectories of children out to the age of 12, repeated maltreatment was a significant predictor of both externalizing and internalizing behaviors. It may well be that measurement of repeated maltreatment would result in a different finding.

Limitations & Future Research

This study has several limitations. First, both the experience of maltreatment and caregiving risk patterns are treated as time-invariant contributors to children's problem behaviors. There is no assessment in this analysis of ongoing maltreatment in the family unit and, as such, there is no way to evaluate whether certain caregiver contexts are more prone to chronic maltreatment or to investigate the impact of chronic maltreatment on children's behaviors. This study looks exclusively at the effect of experiencing maltreatment before the age of 4 and at co-occurring caregiver risk factors at the same point in time. In addition, it also does not evaluate for change in caregiver risk over time. Future work should include analyses that take into account chronicity of both maltreatment and caregiver risk. At present the only secondary dataset that includes any ongoing caregiver risk data, albeit limited, is NSCAW. LONGSCAN does resume some caregiver data collection at the Age 14 time point but little exists (other than the depression inventory) between ages 4-14.

In addition to the complication of time and maltreatment, there is also no evaluation of the severity of maltreatment experienced on children's behaviors. As mentioned earlier, the two

profiles most likely to be investigated for abuse and neglect are the two where alcohol misuse is present, despite the implication in this analysis that being raised in the alcohol misuse simple risk pattern results in only slightly-elevated (though still statistically significant) problem behaviors. However this analysis uses only an indicator of a report being present and says nothing about either identified risk or the number of total reports, which may be a proxy for both chronicity and severity. It may be that caregivers who misuse alcohol have more reports made against them, regardless of severity, and as a result are regularly under the watchful eye of protective service workers. Given that some families have only one or two reports while some may have as many as two dozen reports, future studies should look the relationship between caregiving profile and maltreatment from an event history perspective that would allow for using the richness of the severity data and the number of reports in an analysis.

This study also makes little use of trauma data from caregivers. Caregivers in this study were only asked whether they have experienced certain traumatic life events such as physical abuse and interpersonal violence with responses coded as yes-no. There is no data here that can be used to assess the effects of trauma and points of resilience in caregivers. Future study of caregivers in relationship to child maltreatment should be more deliberate in the kind of information gathered relative to experiences of trauma; a measure such as the Trauma Symptom Checklist (Briere, 1996) may be beneficial for assessing current distress and symptomology related to past trauma. In addition more data could be collected on the caregivers' own histories of maltreatment. Some retrospective measures with good reliability, such as the Multidimensional Neglectful Behavior Scale (Straus, Kinard, & Williams, 1995) have been found to have good reliability for gathering information from adults on their experiences of neglect as children.

Another challenge to the validity of these findings is that the current study may be dependent upon maltreating caregivers providing honest and objective information about their own children's behaviors. It is very well possible that reports of higher levels of problematic behaviors are due to the caregivers themselves being more negative and not to actual behavior. Conversely, caregivers with risk patterns related to a higher incidence of neglect may have lower scores with parental indifference to child behavior. Unfortunately, however, there are no valid measures directly comparable to the CBCL other than caregiver report until the children reach school age and behaviors can be assessed by their teachers utilizing the Teacher Report Form (CBCL-TRF) or, after the age of 10, the children themselves using the Youth Self Report (CBCL-YSR). Future research on children's behaviors should consider using an observation protocol for children so young that the CBCL-TRF is not reliable.

Finally, this study does not take poverty into account. While poverty is a key correlate both of problematic behaviors in children and of the experience of maltreatment, in this study there is not enough variation in the sample to evaluate the effect of poverty. The vast majority of this sample reports income levels approximating the federal cutoff for Medicaid eligibility and, the measurement instrument for family income may produce a ceiling effect in the data for any family reporting income over $50000, the federal median for income. It may be reasonable to assert that this is a sample in which risks related to poverty and financial hardship are present for everyone, given the recruitment strategies for subjects not involved with the child welfare system; however, to do so is conjecture. One way to evaluate not only the effects of poverty but also whether sources of income affect maltreatment and children's behavior is to assess from where the household's income is derived by asking about monthly estimates from particular sources (i.e. TANF, SNAP, caregiver's SSI/SSDI, child's SSI, child support, employment

income, etc.) It may be that a standard income question in this population does not suffice for understanding the role that poverty plays in child and family well-being.

Implications for Practice

These patterns of caregiving and corresponding child behaviors indicate two points of screening and intervention with caregivers to reduce both internalizing and externalizing behavior. First, discipline practices should also be evaluated as, even in the absence of other risks, authoritarian caregiving can result in an increase of both kinds of problem behaviors. Parent training programs may be of benefit to help parents learn how better to recognize and respond appropriately to their children and their behaviors. Parent management training (Patterson, Chamberlain, & Reid, 1982; Forgatch & Martinez, 1999; Patterson, Reid, & Eddy, 2002) is primarily used with caregivers whose elementary school-age children are exhibiting high levels of externalizing behavior; while its efficacy has not been tested with younger children, these kinds of behaviors are exactly those which PMT was developed to reduce. Other parenting programs such as Parent-Child Interaction Therapy (PCIT: Eyberg & Robinson, 1982; Chaffin et al, 2003) may also be beneficial.

Second, if a child is demonstrating problem behaviors of either kind, the caregiver should be encouraged to be screened for depression. In addition, the co-existence of high levels of stress with depression in caregivers indicates the possibility of a life course problem related to inadequate coping, what Germain & Gitterman (1996) have referred to as a "secondary appraisal" challenge focused upon being able to evaluate whether the individual has the means to cope with the stressors he or she is experiencing. The intervention for depression with caregivers should be coping-focused and centered on managing stress and stress appraisal; this approach includes both evaluating both the reality of the stress and assessing the means to cope with it in a

constructive fashion. Cognitive-behavioral therapies are likely to be the most beneficial for managing depression that results from the stress of life-circumstances.

From the perspective of the child's well-being, this result emphasizes the need to monitor children who have experienced abuse for internalizing behaviors that may emerge years after the fact (Kim et al, 2010; Li & Godinet, 2014). In addition, if externalizing behaviors continue to maintain or even accelerate into adolescence, this may be an indicator of caregiver-child concerns. Children with steadily increasing externalizing behaviors, especially in families who may have been known to CPS in the past, should be monitored for signs of ongoing maltreatment.

This study indicates that children's problematic behaviors are a result of both maltreatment and caregiver risk, and that these two influences may work independently of each other. A child is a product of a family system in which the caregiver provides a supportive environment in which a child can grow and develop. When children are exhibiting behavior problems or other social developmental challenges, the first response should be to extend support to the caregivers. It is too easy for professionals to be judgmental when children exhibit problematic behaviors, especially if they are of the rule-breaking, aggressive variety. However, as these results indicate, these behaviors may be the outward sign of a caregiver struggling – either with effective parenting or with balancing the day-to-day stresses of everyday living.

Table 3-1: Description of the Child Behavior sample (N = 703)

Dependent Variables	**M *(SD)***
CBCL Externalizing Problems (T-score), age 4	55.27 (10.52)
CBCL Internalizing Problems (T-score), age 4	48.89 (9.35)
Demographic Variables	**% of sample**
Child Identified as White	32.7% (n = 230)
Child Identified as Male	52% (n = 366)
Site Location	
East Site	19.89% (n = 140)
Midwest Site	18.47% (n = 130)
Northwest Site	20.88% (n = 147)
South Site	19.03% (n = 134)
Southwest Site	21.73% (n = 153)
Caregiver Group	
No Risk	35.09% (n = 247)
Poor Supports	7.39% (n = 52)
Depression/Alcohol Misuse	4.12% (n = 29)
Authoritarian Parenting	30.11% (n = 212)
Alcohol Misuse	9.52% (n = 67)
Harsh Parenting	5.40% (n = 38)
Depression/Stress	8.38% (n = 59)
Maltreatment Investigation Indicator	
Physical abuse by age 4	19.74% (n = 139)
General neglect by age 4	44.89% (n = 316)
Investigated for both by age 4	15.22% (n = 107)

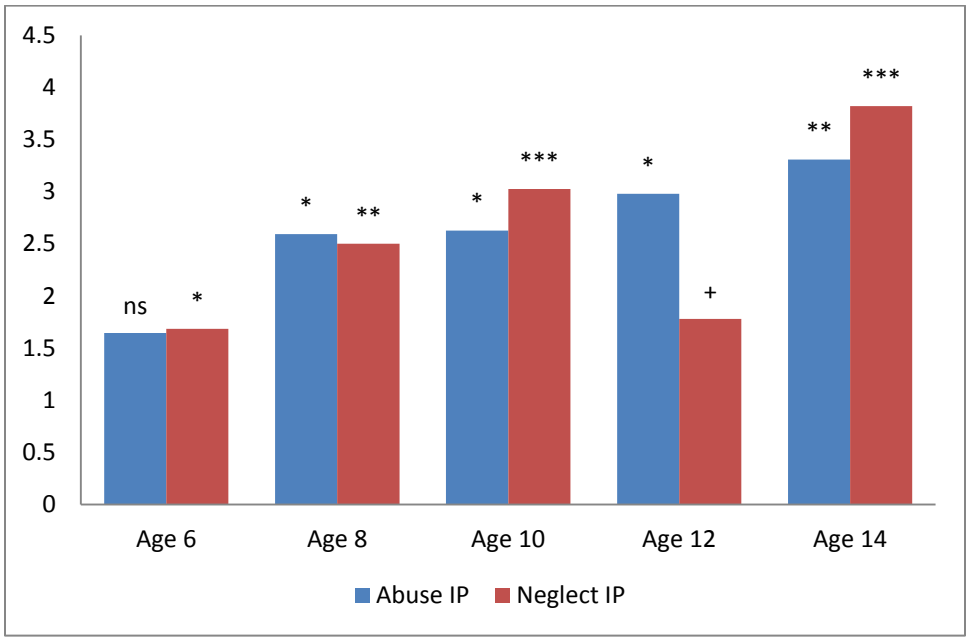
Table 3-2: Hierarchical Linear Model Predictions of Children's Externalizing and Internalizing Behavior

Independent Variables (comparisons: no abuse, no neglect, no risks in caregiving, non-White female child)	**Child Externalizing Behavior** **Wald(65) = 335.70, p < .001**				**Child Internalizing Behavior** **Wald(65) = 331.27, p < .001**			
Variable	*Coefficient*	*SE*	*z Ratio*	*p Value*	*Coefficient*	*SE*	*z Ratio*	*p Value*
Intercept	48.115	.922	52.21	***	45.252	.884	51.21	***
Child & Family Effects (Age 4)								
Abuse	2.753	1.031	2.67	**	.664	.988	.67	ns
Neglect	1.412	.817	1.73	†	-.419	.784	-.54	ns
Poor Supports	2.750	1.561	1.76	†	3.742	1.497	2.50	*
Depression/Alcohol/Stress	11.778	2.006	5.87	***	9.268	1.923	4.82	***
Authoritarian Caregiving	6.654	.964	6.90	***	4.908	.924	5.31	***
Alcohol Misuse	3.902	1.410	2.77	**	3.009	1.352	2.23	*
Harsh Caregiving	11.328	1.798	6.30	***	10.339	1.724	6.00	***
Depression/ Stress	9.033	1.490	6.06	***	8.845	1.429	6.19	***
White	.318	.845	.38	ns	.454	.811	.56	ns
Male	2.785	.774	3.60	***	-.305	.742	-.41	ns
Time Interactions								
Abuse X time								
Abuse*age 6	.216	1.010	-.28	ns	1.646	1.071	1.54	ns
Abuse*age 8	-.877	1.049	.39	ns	2.593	1.112	2.33	*
Abuse*age 10	-1.889	1.079	.67	ns	2.627	1.143	2.30	*
Abuse*age 12	.039	1.116	.94	ns	2.980	1.182	2.52	*
Abuse*age 14	-.370	1.159	1.05	ns	3.309	1.228	2.70	**
Neglect X time								
Neglect *6	2.004	.803	2.50	*	1.685	.851	1.98	*
Neglect *8	2.547	.831	3.06	**	2.500	.881	2.84	**
Neglect *10	2.477	.860	2.88	**	3.026	.911	3.32	***
Neglect *12	1.361	*.879*	1.55	ns	1.779	.931	1.91	†
Neglect *14	1.710	.887	1.92	†	3.820	.940	4.07	***
Random Effects								
	SD		*Variance*		χ^2		*p*	
Family ID	7.35		54.02		1347.76		<.001	

(+ p < .10, * p < .05, ** p < .01, *** p < .001)

Figure 3-1: Unit Change in Growth Rates Attributable to Abuse and Neglect Investigation for Children's Internalizing Behaviors Over Time

(+ p < .10, * p < .05, ** p < .01, *** p < .001)



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Chapter 4:

Racial Disproportionality and Caregiver Risk in Child Protection Practice: An Ecological Analysis

Much focus in child welfare research in recent years has been on the issue of racial disproportionality, particularly toward Black American families. Racial disproportionality in child welfare is the concern that races and ethnicities are not present in the child welfare system at the same ratio in which they are present in the population of the United States (CSSP, 2011). For example, according to the Adoption and Foster Care Analysis and Reporting Systems (AFCARS) report of 2005, while 15.1% of the children in the United States are Black, 34% of the children in foster care nationwide are Black (Ortega, Grogan-Kaylor, Ruffolo, Clarke, & Karb, 2010). Such numbers have led family advocates and race critics to refer to the child welfare system as an agent of systemic racism (Billingsley & Giovannoni, 1972; Roberts, 2002).

Researchers (Barth, 2005; Drake, Jolley, Lanier, Fluke, Barth, &Jonson-Reid, 2011) have proposed two models (see Figure 4-1 for a representation of the model) to explain the disproportionate number of children of color in the child welfare system, both of which assume children of color are exposed to more risk factors for child welfare involvement than White children. The *risk model* attributes this phenomenon to the higher prevalence of poverty and other high-risk factors for child welfare system involvement; there are more children of color in the system because they are exposed to more risks and consequently end up in the system more frequently. Conversely, the *bias model* results when, in the presence of comparable risk between

racial/ethnic groups, gatekeepers in the child welfare system engage in decision-making processes that result in more children of color ending up in the system. This bias, if present, can take place at any possible decision point and as a family encounters more decision points, this bias may compound. Roberts's (2002) case study of Jornell at the beginning of her book *Shattered Bonds* provides an example of what compounded bias may look like in the life of a Black American family caregiver.

Much of the research on racial disproportionality in the child welfare system has either utilized administrative data to draw conclusions about system service provision and assessment (Hines, Lemon, Wyatt, & Merdinger, 2004) or drawn from the National Incidence Studies (NIS) despite concerns of sample selection bias (Ards, Chung, & Meyers. 1998; Ards, Chung, & Myers, 2001) or miscalculation of economic outcomes (Drake & Jonson-Reid, 2011). But as Hines et al (2004) has noted, the use of incidence data or administrative data (even risk assessment data) tells us little about the experiences of children and their caregivers at any decision point with the system. Further, use of administrative data for research analysis reveals only what decision was made; it reveals very little, if anything, about what may have been encountered in the field in terms of child and caregiver characteristics and environment.

This chapter engages with the discussion on racial disproportionality at the decision points of investigation and substantiation/indication[5] to consider which risk factors in the primary caregiver's environment in addition to race or ethnicity may influence the decision to investigate or substantiate cases of physical abuse or neglect.

Poverty or Bias on the Front-End: What Administrative Data Tell Us

[5] In general indication and substantiation mean the same thing; usage is a matter of jurisdictional preference. See Rolock & Testa (2005) for more information.

While the difference between risk and bias in child welfare decision-making may seem straightforward, the interrelationship of race, ethnicity, and economic factors is extraordinarily complex even before attempting to account for bias. A study of CPS referrals and placements in San Diego County in the early 1990s (Lu, Landsverk, Ellis-MacLeod, Newton, Ganger, & Johnson, 2004) showed that, in comparison to census tract information in San Diego County, African American children are over-represented in the foster care system relative to their percentages in the overall population in San Diego County. In addition, they were likely to remain in the system longer.

A population-based disparity study of all children born in the state of California in the year 2002 (Putnam-Hornstein, Needell, King, & Johnson-Motoyama, 2013) found similar initial results to the disproportionality study initially but as the analysis took more risk factors into account, the effect of race was greatly diminished. A crude analysis without risk factors found that Black children were more likely to be referred, investigated, substantiated, and placed (so-called "front end practices: Osterling, D'Andrade, & Austin, 2008) than other children. However, as known risk factors for child welfare system involvement (e.g. lack of prenatal care, young maternal age, low levels of maternal education, utilization of public insurance) were included into the prediction model the disproportionality attributable to race or ethnicity reduced as each stage of system assessment took place. The reason for higher overall numbers, concluded the researchers, was not agency bias, but that Black children were born in environments with more risk factors for system involvement than children from other ethnic groups. Once all the risk factors were taken into account, Black children were actually less likely to be referred, investigated, substantiated and removed than White children with similar characteristics. The overall strongest predictor of future child welfare system involvement was utilization of public

insurance (Medi-Cal). While the overall aggregate numbers are alarming, and may be an indicator of a systemic racism that overall impoverishes children of color as Roberts (2002) has contended, they do not necessarily indicate a race-based decision-making bias separate apart from risk factors known to predict child welfare system involvement.

Drake and colleagues (Drake et al, 2011; Drake, Lee, & Jonson-Reid, 2009) have addressed the relationship between disproportionality, risk, and bias. Drake and colleagues (2011) argue that if there were inherent bias in the investigations, the disproportionality ratios between Black and White children for subjective measures of childhood risk would be higher than for objective risks. Using the aggregate data from the 2007 Child Maltreatment report, Drake et al (2011) found similar disproportionality ratios for objective measures of risk (e.g. low birthweight, actual infant mortality), child welfare investigation, and subjective measures of child risk (e.g.. infant accidental mortality) in Black/White comparisons; however, all disproportionality ratios were higher than 1 for Black children. The authors conclude this is due to risk rather than agency worker observational bias.

Drake, Lee, & Jonson-Reid (2009) also tested various theories of observational bias in reports accepted for investigation using population child welfare data combined with Census information in the state of Missouri. The researchers highlighted six types of observational bias that could influence decision-making: poverty risk aggregation (i.e. children of color are born in more risky environments); aggregation bias (i.e. more people of color are poor); visibility bias (i.e. some groups are more visible to reporters than others because they are in other systems such as public entitlements); racism by reporters; being "out of place" (McDaniel & Slack, 2005: the notion that living in a place where few others like yourself live makes you an easier target); and differential sensitivity to poverty (unexpected combinations of race and poverty draw attention).

The results were not easily divided by race and poverty. While Black children were overrepresented overall at a rate of 2:1, White children were more likely to be reported if they were in extreme poverty, especially if they were living in neighborhoods where the majority of their neighbors were non-White. However, increased visibility to mandated reporters did not result in increased reporting.

Rolock and Testa (2005) investigated bias in investigation and substantiation using data from the state of Illinois. Looking at combinations of race and bias between White and Black families as well as White and Black workers, they tested for individual racial bias (White workers substantiate Black families at a higher rate while Black workers do not), individual cross-racial bias (workers over-substantiate in every cross-racial situation, not just White workers over-substantiating Black families), and institutional bias (workers of any race over-report Black families). Again the results are complicated. On average White workers substantiate at a greater rate regardless of the race of the family and Black families are more likely to be substantiated regardless of the race of the worker. While this analysis did not have a significant interaction effect, a higher propensity to substantiate combined with a higher rate of being substantiated may result in higher overall numbers without a significant statistical relationship.

None of these studies, however, has addressed what CPS workers actually see in children and caregivers when they are out in the field investigating cases. While the information that is drawn from administrative data is useful, these data may be understood as a symptom of caregiver characteristics, family dynamics, or neighborhood concerns. This is particularly problematic as child welfare decisions are made based on what is seen during a visit and not what is known about a family through administrative data.

Intrafamilial Characteristics

Stith et al's (2009) meta-analysis of the child maltreatment literature in psychology identified 39 risk factors for abuse and 22 risk factors for neglect. Very few of these risk factors are readily captured in administrative data; in fact, the only factors that overlap between the meta-analysis and Putnam-Hornstein et al's study (2013) are parent age and family size. However, risk assessments, frequently a part of an investigation, may offer more information on the relationship between race and child welfare disproportionality.

Baird's (2005) work on actuarial systems of risk assessment indicated that actuarial systems may do a great deal to reduce the likelihood of disproportionality in the decision-making process. Further, because risk assessments used personal information gained through interviewing family members, the actuarial system may provide a balance between more objective measures in administrative data and subjective information given by caregivers and filtered through case workers (though see English, 1999, for a caution on actuarial risk assessments due to their atheoretical modeling). Variables on the Michigan risk assessment instrument that overlap with the Stith et al (2009) meta-analysis include family size, caregiver age, substance abuse concerns, financial difficulty, motivation to improve parenting, being a domineering parent, and using excessive discipline. The analysis indicates no difference between objective and subjective outcomes in determination of risk across races.

In terms of individual caregiver factors that have been analyzed in relationship to protective service investigation, the most common are mental illness, substance abuse, and domestic violence (Hines et al, 2004). Chaffin and colleagues' (1996) study of the NIMH Epidemiologic Catchment Survey, for instance, found that caregiver reports of depression and substance abuse resulted in a substantially higher probability of self-reported abuse and neglect.

However, all of these factors are also strongly related to poverty, which has already been shown to be related to race in complicated ways (Hines et al, 2004).

Few, if any, studies have utilized an ecological framework of caregiver characteristics to understand the relationship between caregiver risk and subsequent protective service practice. While substantial work has been done on the relationship between neighborhood factors and child maltreatment (Coulton, Korbin, Su, & Chow, 1995; Coulton, Korbin, & Su, 1999; Freisthler, Merritt, & LaScala, 2006; Freisthler, Gruenewald, Remer, Lery, & Needell, 2007; Freisthler, Bruce, & Needell, 2007), few studies have looked across the entire spectrum of the caregiver's ecology to consider relationships between race, poverty, and protective service. One study (Ortega et al, 2010), utilizing the National Survey on Child and Adolescent Well-being, considered a number of variables across ecological domains while focusing on the child as the identified subject of analysis and found that community risk, caregiver depression, and caregiver alcohol dependence. The study, however, did not use modeling that deliberately took ecology into consideration.

This study moves the literature forward by using an ecological model to consider the relationship between race, primary caregiver characteristics and decision-making for investigation and substantiation. By using a logistic regression design introducing variables in blocks related to ecological domain and watching patterns of significance, interrelations of variables may be observed as the introduction of blocks change significance of previously-added variables. In regards to the relationship between race and poverty, because race is entered into the model first, the interrelation of race and income should be indicated by the effect of race becoming less significant. In addition, if there are particular characteristics in the ecological model that are also related to race, the introduction of those factors into the model should also

reduce the effect of care. It is believed that the effect of race, if present, will decrease when poverty is introduced in the model and may differentially disappear with certain caregiver characteristics. Based on information from the actuarial risk assessment study (Baird, 2005), it is believed that the caregiver risk factor most likely to interact with race is substance/alcohol abuse.

Method

Sample and Data

The subjects in these analyses are a subset of the 720 families from LONGSCAN (Runyan et al, 2011) that have been used in the previous analyses. Because of the interest in protective service practice, subjects from the Northwest and Southwest sites where CPS investigation was a requirement of recruitment were not used in the investigations analysis. Similarly, subjects from the Southwest site, where a history of foster care placement was a requirement of recruitment, were not used in the substantiations analysis. In addition, for the substantiation analysis, subjects were included only if they had a history of CPS investigation for any of the types of maltreatment used in this analysis, so subjects whose only reports were for sexual abuse, legal/moral maltreatment, emotional maltreatment, and medical neglect were also excluded. These criteria for inclusion, before taking missing data into account, reduced the number of available subjects to 408 for the analysis on investigations and 233 for the analysis on substantiations. While the Midwest site did purposely recruit subjects with known CPS investigation records, not every subject at that site was recruited by that means and therefore the Midwest site was left in the investigations sample. Site location was included in the analysis as a covariate.

Variables

Dependent Variables: Investigation and Substantiation Indicators CPS investigation and substantiation variables used in this analysis are a binary indicator of at least one existing CPS record attached to the primary caregiver when the target child of LONGSCAN was aged 4 or younger. The target child in LONGSCAN may or may not have experienced the maltreatment; the identified victim may have been a sibling. This decision was based on the premise that risk to one child implies risk to all children in a household. Determination of the actual type of investigation or substantiation (i.e. physical abuse, general neglect, failure-to-provide) was derived from coding CPS records using the LONGSCAN-modified version of the Maltreatment Classification System (MMCS; Barnett, Manly, & Cicchetti, 1993). Coder reliability analyses were conducted on 5% of the overall sample relative to type of referral. In general, reliability coefficients were around .90, which indicates substantial agreement (LONGSCAN Coordinating Center, 2001; Landis & Koch, 1977; Munoz & Bandigwala, 1997).

Independent Variables: Caregiver and Child Risk Factors. Because of the small number of subjects in the various caregiver profiles, the decision was made to use the individual variables used in the latent profile analysis from the first paper in this dissertation as well as the externalizing and internalizing scores from the Child Behavior Checklist. To facilitate comparison, all of these variables were Z-scored and recoded so that higher scores indicate a negative outcome (e.g. depression, alcohol misuse, poor parenting attitudes, aggressive disciplinary strategies, lack of family cohesion, poor social supports, high ambient stress, and poor neighborhood quality).

Independent Variables: Race and Income. Primary caregivers were asked to identify their own racial and ethnic background using only one response (people who would identify more than one racial/ethnic identity were “multiracial”). Because there were not enough subjects in

any one racial or ethnic category beyond White and Black to analyze due to power considerations, all other races and ethnicities were incorporated in the Other category. This includes Latino/a, American Indian, Asian, multiracial, and Other Unspecified respondents.

Household economic stability was measured taking into account both income and the value of any government entitlements utilized, including TANF, EBT/SNAP, and SSI/SSDI. The analysis also took into account whether they received food stamps, as involvement in the public assistance system is both an indicator of income and of increased surveillance of the family unit, thus testing a potential visibility bias (Drake, Lee, & Jonson-Reid, 2009). Income was measured utilizing the Hollingshead income index (Hollingshead, 1975) and was analyzed as a continuous variable. The stepwise increase of income values in the Hollingshead index is $5000, beginning with a reported household income of 0-$5000 a year. The highest value in the index is for family incomes over $50,000 (index number 11).

Analysis

All variables were analyzed in STATA 12SE utilizing t-tests and chi-square analyses as appropriate, to evaluate overall differences between the investigated/non-investigated and substantiated/non-substantiated groups. A rudimentary description of racial disproportionality by CPS decision point in the sample was performed using chi-square cross-tabulations in conjunction with patterns of investigation and substantiation taking race alone into account.

A correlation matrix was used to look at the relationships between all variables, with the lower diagonal for the investigation sample and the upper diagonal for the substantiation sample. Following those analyses, four hierarchical logistic regressions were performed within both the investigation and substantiation samples to evaluate differences between the different subtypes

of maltreatment – here, physical abuse, general neglect, and failure-to-provide – in addition to overall investigation and substantiation indicators.

Variables in the logistic regression analysis were introduced in 8 blocks according to ecological systems theory (Bronfenbrenner, 1979; Lynch & Cicchetti, 1998) in the following order: caregiver race, income, caregiver concerns (i.e. depression, alcohol use, and attitudes toward parenting), child characteristics (i.e. externalizing and internalizing behavior), discipline strategies (i.e. verbal and minor physical assault), proximal social risks (i.e. family cohesion, social supports, ambient stress), and neighborhood quality. Site was added to the model last to gauge jurisdictional differences in addition to taking recruitment strategies into account.

Results

Descriptives and Group Difference Statistics

Table 4-1 provides all means and standard deviations for continuous variables as well as response percentages for categorical and binary variables in the investigation sample. As the descriptive statistics indicate, 72.5% of the sample is Black, but there are no differences in race or ethnicity between the investigated and non-investigated groups in relationship to race or ethnicity for either the child or the caregiver. While this sample overall is in poverty with an average Hollingshead index of 3.32, or a household income of approximately $15,000 a year, the investigated subsample is on average poorer than the not investigated subsample, with family incomes around $10000 a year. In relationship to food stamp participation, there were more respondents who were both investigated and receiving food stamps than expected; 61.8% of all investigated respondents received food stamps as opposed to 52.1% in the non-investigated sample. Children in investigated families have higher externalizing behavior scores than children in the other group. Caregivers in the investigated group also report having poorer attitudes about

caregiving, poorer social supports, and a higher tendency to yell at their children. All other caregiver factors were not significantly different between groups. Finally, subjects from the Midwest sample comprise half of the investigated sample. Given the recruitment strategy for the Midwest site, this imbalance is expected.

Table 4-2 presents the same information for the substantiation subsample. In general there are minimal differences between the substantiated and unsubstantiated group. While there are no differences in demographics, children in the substantiated group show marginally higher levels of externalizing behavior and caregivers report lower levels of family cohesion. Surprisingly, caregivers in the substantiated subsample reports lower levels of use of minor assault ($t[172] = 2.41$, $p < .05$).

Racial Disproportionality Overview

All subjects from the original set of 720 except those from the SW site were also analyzed using cross-tabulation to evaluate the relationship between race, investigation, and substantiation for each maltreatment type. In relationship to this sample, Black families are generally *underrepresented*. While Black families may be nearly 75% of the entire sample, they constitute less than 60% of the subsample who has been investigated by CPS for the reasons included here. In every cross-tabulation, fewer Black families are investigated or substantiated than expected, though differences are only significant for investigations as opposed to substantiations. This is particularly germane to the investigation for physical abuse; only 25% of the sample investigated for physical abuse is Black, while over half of the physical abuse investigation subsample is White. This trend continues into substantiation, where 63% of the substantiated subsample is White. Tables 4-3a to 4-3d contain the cross-tabulations for both general investigation and substantiation as well as the three subtypes.

Correlation Analysis

The correlations of every variable in the analysis for both samples can be found in Table 4-4. Some blocks in the matrix are empty because they are nonexistent correlations between mutually exclusive categories (child race, caregiver race, and site). In general, the variables that correlate on the investigation side of the diagonal also correlate on the substantiation side of the diagonal with similar strength of correlation. All correlations over .5 are expected because of either similarity of measurement (i.e. income and food stamp utilization) or derivation from the same measures (externalizing and internalizing scores on the CBCL, verbal and minor assault from the Conflict Tactics Scale).

Hierarchical Regression Analysis – Investigations

Table 4-5 presents the results of the hierarchical logistic regressions for investigations. The only apparent effect of race in the investigation analysis is for physical abuse. For that analysis, being a White caregiver substantially increased the likelihood of investigation. In addition, this effect was only seen if the caregiver reported receiving food stamps. An interaction term introduced into the model was not significant nor did it affect the main effect odds ratios. All other variable block additions were not significant in the analysis of physical abuse. Despite the strong relationship defended in the literature between income and investigation for neglect (Gelles, 1973; Gelles, 1975; Pelton, 1974; Wolock & Horowitz, 1984), this analysis failed to demonstrate the expected strong relationship of income on investigation for physical neglect and was only marginally significant. The effect of income on the general neglect indicator became non-significant with the introduction of caregiver characteristics and stayed non-significant through the rest of the analyses. In addition, receipt of food stamps, an additional indicator of poverty, was a predictor of investigation for physical abuse only.

Children's externalizing behavior appears to be related to likelihood of investigation. In the overall investigations analysis, externalizing behavior becomes marginally significant at the point in which neighborhood effects are entered in the model and is significant at a 95% level when geographic site is entered. For the general neglect variable, externalizing behavior is marginally significant from the point at which it is placed in the model and becomes significant at a 95% level when neighborhood information is entered into the model.

The only caregiver risk factor predicting investigation generally or investigations for general neglect is poor social supports, with a higher probability of investigation if the primary caregiver reports poorer levels of social support. Poor neighborhood quality also has a significant main effect, though in an unexpected direction; report of poor neighborhood quality is related to a *decrease* in likelihood of either general neglect investigation or in overall investigations. Finally, when geographic site is introduced, poor parenting attitudes become significant and the effect of social supports becomes marginal. Being from the Midwest site increases the likelihood of being investigated. This result is not surprising given that part of the Midwest sample was recruited from known CPS cases. However, this component alone does not explain the shift in significance of the different variables in the model.

For neglect of the failure-to-provide variety, only the full model is significant. The results are similar to the full model for general neglect, though externalizing behavior is not significant in this analysis and poor neighborhood quality is not significant.

Hierarchical Regression Analysis – Substantiations

Table 4-6 presents the results of the hierarchical logistic regressions for substantiations. In contrast to the investigation analysis, an initial main effect of race, with Black caregivers being more likely to be investigated, is present in the first model for both types of neglect. The

introduction of income does not affect the effect of race, and the overall model for both race and income is only marginally significant. However, for general neglect, Black caregivers appear more likely to be substantiated, while at the same time there appears to be a reduced likelihood of utilization of corporal punishment. When geographic site is introduced into the model, race becomes marginally significant while the effect of corporal punishment disappears. Similar to the investigation analyses, being in the Midwest site strongly predicted increased likelihood of substantiation.

Similar results are seen in the analysis of substantiation for failure-to-provide neglect. However, in this analysis both ambient stress and poor neighborhood quality emerge as marginally significant with the neighborhood effect again being seen in the unexpected direction. However, in the full model, with the introduction of geographic site, all effects disappear except the effect of geographic site and the effect of race. Again, the Midwest site strongly predicted an increased likelihood of substantiation.

The entire analysis for overall substantiations and physical abuse substantiation was not significant, with the exception of the Midwest site for overall substantiations.

Discussion

Investigation results

This study was undertaken to see, in addition to race and ethnicity, whether there are caregiver risk factors that predict investigation and/or substantiation for caregivers who have come to the attention of the child welfare system. This study produced findings that appear to be contrary to the literature on racial disproportionality. While researchers have found a reduction in disproportionality as caregivers progress through decision points in protective service investigation (Putnam-Hornstein et al, 2013), in this sample a lack of disproportionality appears

to be present at the earliest stages. As Tables 4-3a to 4-3d indicate, Black caregivers are underrepresented at the investigation stage and the percentages stay lower than the percentage of Black families present in the overall sample. One possible explanation for this result is that one of the common risk criteria in this sample, pre-existing poverty, has lower levels of variance than would be present in a population study. Given that the majority of the research demonstrates a partial relationship between race and poverty, lack of variance may obscure that relationship in this sample.

At the same time, the analysis on physical abuse investigation may indicate the differential sensitivity to poverty that both Drake et al (2009) and McDaniel & Slack (2005) found in their analyses. While an interaction run on the race and food stamps variable was not significant, and because the results are anchored to food stamp receipt and not to income, it may be that White families utilizing public welfare services are more likely to draw attention. So this result may be an example of observational bias toward struggling White families. Most theoretical work on observational bias assumes that Black caregivers to be poor and utilizing public welfare services – an assumption that reinforces negative stereotypes. These results may indicate that observational bias may affect families in the system other than families of color.

Somewhat surprisingly, the only caregiver characteristic or proximal social risk variable that predicted investigation before the addition of neighborhood quality was poor social supports; the poorer the reported social supports, the higher the likelihood of investigation. Given that poor social supports were ubiquitous across all of the profiles in the first paper of this dissertation, it is not a surprise that this result is present; it is, however, a surprise that it is the *only* risk present for most of the model. This result reflects Coohey's (1996) finding that neglecting parents perceived and received less support. However, it is impossible to untangle whether the poor social supports

led to the investigation or whether the report of poor social supports resulted from being investigated.

Interestingly, addition of geographic site into the model resulted in a higher likelihood for investigation if poor parenting attitudes were present. Again, given the results from the first paper, this is not a surprise. Over half of the caregivers in the profile where negative parenting attitudes contributed to group membership were from the same geographic area. What remains unclear is whether this result is due to systemic issues in communities that contribute to such attitudes, or whether reporters in that area are more sensitive to poor parenting attitudes and overreport caregivers to CPS as a result. Given that the caregiver profile where parenting attitudes were present is also one of the two profiles where poor neighborhood quality was also reported, it could possibly be the former rather than the latter. However, given that Black families were overrepresented in LONGSCAN and that the percentage of Black families in the analysis steadily decreases as families pass through decisions points, this result may indicate that the decision-making process of the child welfare system actually counteracts an overreporting bias from community members who call to report families to CPS. Limited research has been done on the decision-making process to screen community referrals into the investigation pipeline; these results appear to indicate that further research on the screening process may be beneficial for understanding the complexity between race and child welfare decision-making.

These results also reinforce one of the marginal findings from the paper on child behaviors. Families with children who engage in externalizing behaviors are more likely to be investigated for neglect generally. In the previous paper it was found that experiencing neglect had a marginal effect on level of externalizing behavior at early ages. However, such behavior being observed increases the likelihood of being reported. So, when such behavior is seen, it

draws attention. This relationship becomes stronger when neighborhood quality is added, which may indicate that aggressive behaviors in certain types of neighborhoods are more likely to draw attention. Given the contribution of the neighborhood variable to the model, it may be that children with externalizing behavior in better neighborhoods are drawing attention and leading to investigations.

The counterintuitive effect of neighborhood is puzzling. Because these data are based on caregivers' impressions of their neighborhoods, they are not as objectively reliable as geospatial data and census tract information. One hypothesis is that reporters and residents have different perspectives on what constitutes a poor neighborhood. Another hypothesis is that this is a form of differential sensitivity (McDaniel & Slack, 2005; Drake et al, 2009), but on a neighborhood level. Reporters may expect poor conditions for children in poor neighborhoods so when reporters see maltreatment, they may not report if this is considered normal to the setting. But if maltreatment, or something akin to it, is seen where it is not expected to be seen – that is, in better neighborhoods – witnessing maltreatment may be more likely to result in a report to CPS.

Substantiation results

The race results related to neglect reflect some of the results seen in the studies previously mentioned. However, the expected relationship between race and income fails to be seen. Again this may be due to the relative uniformity of the income variable in this sample. However, the introduction of geographic site into the model results in a significant reduction on the effect of race when study site is introduced into the model. It is unclear whether this may be due to a form of local institutional bias that results in disproportionality for Black families, or whether there are environmental factors in the geographic site that differentially affect Black families and which may lead to neglect investigations.

Paradoxically, the likelihood of substantiation was higher where there were lower levels of minor assault. This is likely due to the fact that the CPS investigations took place *before* the data was collected from the caregivers. It is entirely possible that these families already received services and report less use of corporal punishment at the study baseline because they already learned other effective parenting techniques. This result highlights how the addition of service data could further inform this work.

Limitations and Directions for Future Research

This study has some limitations. First, utilization of an omnibus income variable and food stamps as indicators of economic stability may not be enough when everyone in a sample has a low income threshold. As mentioned in the previous study, it may be helpful to look at the source of income (TANF, SNAP, child SSI, caregiver SSI/SSDI, child support, etc.) as important factors to consider. In addition, it may be helpful to collect data on whether the non-custodial caregiver is in arrears on child support. Arrearages not only cause economic stress but also emotional stress, and could strain an already stretched family system. Future research should be more detailed on sources of income within the family unit to better understand the differential effects of different types of income or government entitlement.

Second, the effect of neighborhood and geographic location is significant to these findings and the data available here on neighborhoods is limited in scope. While self-perceptions of social capital in a neighborhood are important, as other researchers have indicated elsewhere (e.g. Garbarino & Kostelny, 1992), objective measures of neighborhood quality also add to our knowledge about child maltreatment. One of the important research directions for the future that this study indicates is a neighborhood research protocol that utilizes Census and other geospatial data as well as field information about neighborhoods gathered from the people who live there.

Few, if any, studies have linked these two types of information, in part due to the poorly operationalized items related to social capital and perceived neighborhood quality from residents (Richard Smith, personal communication, June 10, 2014). Future research should utilize both objective neighborhood data and resident perceptions of the neighborhood to gain a greater understanding of the environments in which caregivers strive to bring up children.

Third, it is impossible to look with much detail at race. The only two racial groups with enough numbers for significant statistical power are Black and White Americans. So there is no way to consider the relationship between race and protective service practice with any other ethnic groups. This unfortunately helps to reinforce the notion that racial disproportionality is primarily a concern for Black families. Attempts should be made to recruit subjects from backgrounds other than White or Black. In addition, the study apparatus does not allow identification of multiple racial identities. Anyone identifying as multiracial was delegated to the Other category, which could potentially affect results.

Implications for Practice

Osterling, D'Andrade, & Austin (2008) have suggested numerous interventions for addressing racial disproportionality. Given the results from this paper, the interventions they suggest that seem most germane to these results are improvements in culturally sensitive practice, utilization of actuarial risk assessments, differential response, out-stationing child welfare workers into neighborhood offices, and utilization of neighborhood-based ethnic-specific services. One of the most significant changes in culturally sensitive practice is the concept of cultural humility (Ortega & Faller, 2012), which encourages workers to allow themselves to learn from their clients, recognize that client and worker alike have a perspective of "epistemic privilege" based on their own living experiences, and engage with a client in a way that leads the

worker to interrogate his or her own biases and thus break down barriers to understanding and communication. As yet there has been no evaluation of cultural humility practice (as opposed to cultural competence practice) but an evaluation of the practice with a reduction of racial disproportionality as a measured outcome would be a welcome contribution to the field.

Given the macro-level risks that have emerged from this study and the need for a greater knowledge base at the intersection of social capital and objective neighborhood data, another avenue toward reducing racial disproportionality may involve bring a community-based participatory research and practice into child welfare research. It is easy in the face of what appears to be significant risk to believe that the residents of neighborhoods in which maltreatment is prevalent have nothing to contribute to the reduction of child maltreatment in their communities. Given that there is a strong tie between race and neighborhood, not only using a neighborhood-based agency service but also building programs *that originate within the community from its members* may also result in a reduction of localized disproportionality.

Figure 4-1: Pathways of Child Welfare Involvement Explaining Disproportionality (after Barth, 2005):

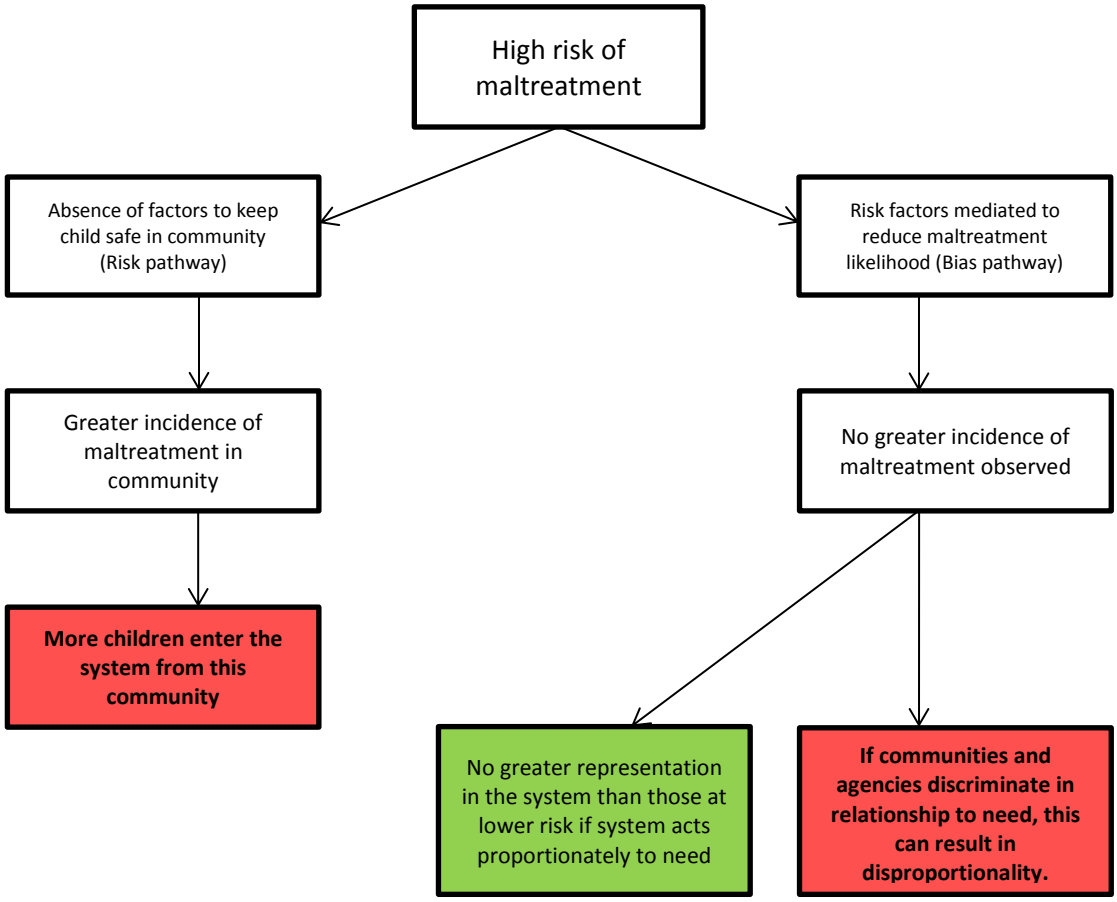

Table 4-1: Means and Standard Deviations, Investigation Subsample

(EA, MW, SO sites only)

Descriptors	**Overall Sample (N = 408) M(SD) or n (%)**	**Caregivers investigated for any reason (n=102)**	**Caregivers not investigated (n=305)**	**T test (unless χ^2 indicated) t(df) = 339 unless indicated**
Child Race (n = 407)				**$\chi^2(2) = .92$, *ns***
White	68 (16.7%)	14 (13.7%)	54 (17.7%)	
Black	295 (72.5%)	76 (74.5%)	219 (71.8%)	
Other	44 (10.8%)	12 (11.8%)	32 (10.5%)	
Caregiver Race				**$\chi^2(2) = 1.54$, *ns***
White	83 (20.3%)	17 (13.7%)	66 (21.6%)	
Black	296 (72.6%)	76 (74.5%)	220 (71.9%)	
Other	29 (7.1%)	9 (8.8%)	20 (6.5%)	
Avg. Income (Hollingshead score)	3.32 (2.36)	2.81 (1.82)	3.49 (2.49)	**2.53****
Household Receives Food Stamps (n=322)	222 (68.9%)	63 (61.8%)	159 (52.1%)	**$\chi^2(1) = 5.70$***
Child Behavior Checklist Scores (n=337)				
Externalizing	-.07 (.97)	.09 (1.03)	-.12 (.94)	**t(335) = -1.74$^+$**
Internalizing	.04 (.97)	.05 (1.14)	.03 (.91)	**t(335) = -.16, *ns***
Caregiver Factors				
Caregiver depression	.08 (1.07)	.21 (1.16)	.04 (1.04)	**-1.26, *ns***
Caregiver alcohol misuse	-.13 (.92)	.00 (1.08)	-.17 (.86)	**-1.47, *ns***
Poor caregiving attitudes	.22 (.86)	.39 (.96)	.17 (.81)	**-2.05***
Use of verbal aggression on children	.24 (.96)	.39 (1.10)	.19 (.90)	**-1.73+**
Use of minor assault on children	.25 (1.02)	.28 (1.18)	.24 (.97)	**-.34, *ns***
Poor family cohesion	.08 (1.03)	.21 (1.12)	.03 (1.00)	**-1.35, *ns***
Poor social supports	-.04 (.91)	.24 (.92)	-.12 (.88)	**-3.26****
Higher ambient stress	.09 (1.01)	.21 (1.05)	.05 (1.00)	**-1.23, *ns***
Poor neighborhood quality	.20 (1.02)	.16 (1.10)	.21 (.99)	**.42, *ns***
Research Site				**$\chi^2(2) = 8.68$***
East	144 (35.2%)	36 (35.3%)	108 (35.2%)	
Midwest	131 (32.0%)	43 (42.2%)	88 (28.7%)	
South	134 (32.8%)	23 (22.6%)	111 (36.2%)	

+ p<.10, *p<.05, **p<.01, ***p<.001

Table 4-2: Means and Standard Deviations, Substantiation Subsample

Descriptors	**Overall Sample (N = 233) M(SD) or n (%)**	**Caregivers substantiated for any reason (n=152)**	**Caregivers investigated but not substantiated (n=81)**	**T test (unless χ^2 indicated) t(df) = 172 unless indicated**
Child Race				**$\chi^2(2) = 2.83$, *ns***
White	77 (33.0%)	45 (29.6%)	32 (39.5%)	
Black	108 (46.4%)	76 (50%)	32 (39.5%)	
Other	48 (20.6%)	31 (20.4%)	17 (21%)	
Caregiver Race				**$\chi^2(2) = 2.73$, *ns***
White	91 (39.1%)	56 (36.8%)	35 (43.2%)	
Black	106 (45.5%)	75 (49.3%)	31 (38.2%)	
Other	36 (15.5%)	21 (13.8%)	15 (18.5%)	
Avg. Income (Hollingshead score) (n=226)	3.63 (2.45)	3.64 (2.46)	3.63 (2.46)	**t(230) = -.02, *ns***
Household Receives Food Stamps (n=162)	114 (70.4%)	71 (46.7%)	43 (53.1%)	**$\chi^2(1) = .00$, *ns***
Child Behavior Checklist Scores (n=165)				
Externalizing	.07 (1.00)	-.04 (.94)	.26 (1.09)	**t(163) =1.86+**
Internalizing	-.05 (1.07)	-.17 (1.02)	.12 (1.13)	**t(163) = 1.64, *ns***
Caregiver factors				
Depression	.24 (1.02)	.14 (1.00)	.39 (.13)	**1.56, *ns***
Alcohol misuse	.24 (1.11)	.24 (1.13)	.26 (1.09)	**.10, *ns***
Poor caregiving attitudes	-.04 (.96)	-.08 (.93)	.03 (1.02)	**.75, *ns***
Use of verbal aggression on children	.02 (1.10)	-.04 (1.04)	.11 (1.20)	**.87, *ns***
Use of minor assault on children	.01 (1.06)	-.14 (1.02)	.25 (1.07)	**2.41***
Poor family cohesion	.13 (1.06)	.09 (1.05)	.20 (1.09)	**.65, *ns***
Poor Social supports	.23 (1.00)	.16 (.96)	.34 (1.05)	**1.13, *ns***
High Ambient stress	.13 (.98)	.12 (.97)	.15 (1.00)	**.19, *ns***
Poor Neighborhood quality	.09 (1.03)	.07 (1.07)	.11 (.97)	**.28, *ns***
Research Site				**$\chi^2(3) = 25.81$*** **
East	36 (15.5%)	18 (11.8%)	18 (22.2%)	
Midwest	43 (18.4%)	42 (27.6%)	1 (1.2%)	
Northwest	131 (56.2%)	79 (52%)	52 (64.2%)	
South	23 (9.9%)	13 (8.6%)	10 (12.4%)	

+ p<.10, *p<.05, **p<.01, ***p<.001

Tables 4-3a to 4-3d: Investigation and Substantiation Cross-tabulations by Race and Maltreatment Type

Table 4-3a: Overall Investigations and Substantiations

	Overall (n = 566)	Investigated (n = 233) X^2 = 32.13***		Substantiated (n = 152) X^2 = 2.73, ns	
		Observed	Expected	Observed	Expected
White	175 (30.9%)	91 (39%)	72	56 (36.8%)	59
Black	334 (59%)	106 (45.5%)	137	75 (49.3%)	69
Other	57 (10.1%)	36 (15.5%)	24	21 (13.8%)	24

Table 4-3b: Physical Abuse

	Overall (n = 566)	Investigated (n = 100) X^2 = 59.14***		Substantiated (n = 38) X^2 = 2.79, ns	
		Observed	Expected	Observed	Expected
White	175 (30.9%)	54 (54%)	31	24 (63%)	21
Black	334 (59%)	25 (25%)	59	9 (24%)	9
Other	57 (10.1%)	21 (21%)	10	5 (13%)	8

Table 4-3c: General Neglect

	Overall (n = 566)	Investigated (n = 205) X^2 = 15.68***		Substantiated (n = 135) X^2= 4.45, ns	
		Observed	Expected	Observed	Expected
White	175 (30.9%)	75 (36.6%)	63	44 (32.6%)	49
Black	334 (59%)	100 (48.8%)	121	73 (54.1%)	66
Other	57 (10.1%)	30 (14.6%)	21	18 (13.3%)	20

Table 4-3d: Failure-to-Provide

	Overall (n = 566)	Investigated (n = 157) X^2 = 10.12**		Substantiated (n = 97) X^2 = 4.45, ns	
		Observed	Expected	Observed	Expected
White	175 (30.9%)	52 (33.1%)	48	27 (27.8%)	32
Black	334 (59%)	80 (51%)	93	54 (55.7%)	50
Other	57 (10.1%)	25 (16%)	16	16 (16.5%)	15

Table 4-4: Zero-Order Correlations of all Variables
(investigations on lower diagonal, substantiations on upper, *p < .05)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	Child White		-	-	.81*	-.65*	-.22*	-.22*	-.28*	.37*	.05	.14*	-.23*	-.01	-.04	-.01	.12	-.23	-.07	-.10	-.02	.02	-.08	-.21*
2	Child Black	-		-	-.77*	.95*	-.31*	.37*	.21*	-.51*	.10	-.23*	.29*	.00	.02	-.01	-.09	.36*	.19*	.20*	.02	.02	.09	.20*
3	Child Other	-	-		.02	-.44*	.65*	-.20*	.06	.21*	-.18*	.13	-.09	.03	.02	.03	-.02	-.19*	-.16*	-.13*	-.01	-.05	-.02	-.01
4	Caregiver White	.90*	-.81*	.08		-	-	-.28*	-.27*	.44*	-.01	.18*	-.29*	.01	-.08	-.01	.12	-.33*	-.16*	-.19*	.01	-.01	-.10	-.23*
5	Caregiver Black	-.74*	.99*	-.54*	-		-	.37*	.23*	-.53*	.10	-.20*	.30*	-.01	.02	-.02	-.09	.35*	.19*	.20*	.02	-.02	.09	.24*
6	Caregiver Other	-.12*	-.45*	-.80*	-	-		-.15*	.06	.14*	-.14*	.04	-.02	.00	.08	.06	-.03	-.05	-.05	-.01	-.04	.04	.01	-.03
7	East site	-.26*	.38*	-.22	-.31*	.38*	-.18*		-	-	-	-.16*	.18*	-.01	-.09	.03	-.01	.30*	.28*	.26*	.01	.04	.01	.18*
8	Midwest site	-.15*	-.20*	.47	-.03	-.19*	.38*	-		-	-	-.10	.14*	-.17*	-.03	.00	-.11	-.05	.01	-.16	-.05	-.04	.12	.02
9	Northwest site[6]	-	-	-	-	-	-	-	-		-	.27*	-.22*	.03	-.09	.00	.20*	-.34*	-.29*	-.21*	-.01	.03	-.09	-.06
10	South site	.42*	-.18*	-.22	.35*	-.20*	-.19*	-	-	-		-.11	-.05	.20*	.27*	-.03	-.15*	.27*	.14*	.26*	.07	-.03	-.03	-.14*
11	Income	.25*	-.24	.04	.04	-.23*	.03	-.15*	.07	-	.08		-.54*	.00	-.04	-.04	-.01	-.29*	-.18*	-.24*	-.08	-.28*	-.13	-.17*
12	Food stamps	-.40*	.34*	.00	-.34	.34*	-.04	.25*	.08	-	-.35*	-.50*		.05	.04	.05	.11	.15*	.06	.12	.06	.14*	.14*	.23*
13	Externalizing	-.02	.01	.02	.04	.00	-.05	.07	-.10	-	.03	-.12*	-13*		.63*	.28*	.18*	.07	.32*	.33*	.20*	.19*	.36*	.07
14	Internalizing	-.01	-.01	.03	.00	-.01	.02	-.04	-.10	-	.14*	-.10	.04	.61*		.31*	.05	.15*	.30*	.34*	.24*	.28*	.32*	.06
15	CG depression	-.02	.04	-.03	-.02	.04	-.04	.06	.00	-	-.07	-.16*	.13*	.30*	.33*		.18*	.04	.27*	.20*	.27*	.26*	.38*	.06
16	CG alcohol misuse	-.01	.03	-.03	-.04	.04	.00	.04	.04	-	-.08	-.08	.13*	.17*	.15*	.22*		.01	.09	.07	.12	.12	.15*	-.03
17	CG attitudes	-.12*	.29*	-.27*	-.18*	.27*	-.20*	.21*	-.33	-	.12*	-.22*	.12*	.18*	.24*	.15*	.11		.26*	.32*	.10	.11	.05	.01
18	CG verbal CTS	-.05	.12*	-.10	-.09	.11*	-.06	.19*	-.16	-	-.04	-.08	.06	.35*	.30*	.35*	.18*	.23*		.60*	.27*	.27*	.32*	.11
19	CG minor assault CTS	-.14*	.19*	-.11*	-.17*	.19*	-.06	.27*	-.29	-	.02	-.08	.08	.36*	.30*	.22*	.10	.29*	.50*		.15*	.16*	.28*	.11
20	Family cohesion	-.01	.06	-.08	.00	.05	-.09	.05	-.11	-	.06	-.17*	.09	.23*	.19*	.33*	.22*	.16*	.30*	.22*		.50*	.30*	.15*
21	Social supports	.03	-.06	.03	.08	-.06	-.01	.02	.01	-	-.03	-.16*	.10	.18*	.16*	.24*	.14*	.07	.25*	.15*	.44*		.28*	.17*
22	Stress	-.07	.10	-.04	-.08	.09	-.03	-.02	.09	-	-.07	-.26*	.27*	.29*	.26*	.42*	.23*	.05	.29*	.13*	.26*	.26*		.32*
23	Neighborhood	-.39*	.37*	-.06	-.41*	.37	.00	.29*	.02	-	-.33*	-.23*	.35*	.15*	.06	.07	.05	.11*	.16*	.12*	.17*	.08	.29*	

[6] Northwest site only used in analysis of substantiations

Table 4-5: Hierarchical Regression Analysis – Investigations (N = 319)

All models significant at .05 or lower are presented. Variables are presented in models where .05 < p <.10 if one of the variables is significant at .05 or lower.

	All Investigations			Physical Abuse			General Neglect			Failure-to-provide		
	OR	**SE**	**p**	**OR**	**SE**	**p**	**OR**	**SE**	**p**	**OR**	**SE**	**p**
Block 1	**LR X^2 (2) = 1.61, *ns* R^2 = .004**			**LR X^2 (2) = 2.59, *ns* R^2 = .016**			**LR X^2 (2) = 3.14, *ns* R^2 = .01**			**LR X^2 (2) = 2.40, *ns* R^2 = .01**		
Black Caregiver												
Other Caregiver												
Block 2	**LR X^2 (4) = 9.50* R^2 = .027 No significant variables**			**LR X^2 (4) = 11.24* R^2 = .068**			**LR X^2 (4) = 11.11* R^2 = .034**			**LR X^2 (4) = 7.67, *ns* R^2 = .027**		
Black Caregiver				.26	.14	**	1.02	.39	ns			
Other Caregiver				.24	.27	ns	.40	.33	ns			
Income				1.07	.11	ns	.86	.07	†			
Receives food stamps				6.63	5.01	**	1.37	.53	ns			
Block 3	**LR X^2 (7) = 12.6* R^2 = .036 No variables significant**			**LR X^2 (7) = 11.73, ns R^2 = .071**			**LR X^2 (7) = 14.88* R^2 = .045 No variables significant**			**LR X^2 (7) = 12.19† R^2 = .043**		
Black Caregiver												
Other Caregiver												
Income												
Receives food stamps												
Caregiver depression												
Caregiver alcohol use												
Poor caregiving attitudes												
Block 4	**LR X^2 (9) = 15.79† R^2 = .045**			**LR X^2 (9) = 13.34, ns R^2 = .081**			**LR X^2 (9) = 18.15* R^2 = .055**			**LR X^2 (9) = 13.35, ns R^2 = .047**		
Black Caregiver							.97	.38	ns			
Other Caregiver							.49	.41	ns			
Income							.88	.07	ns			
Receives food stamps							1.26	.50	ns			
Caregiver depression							1.07	.14	ns			
Caregiver alcohol use							1.12	.16	ns			
Poor caregiving attitudes							1.24	.22	ns			
Child externalizing							1.40	.26	†			
Child internalizing							.83	.15	ns			
Block 5	**LR X2 (11) = 18.14† R2 = .051**			**LR X^2 (11) = 14.92, ns R^2 = .09**			**LR X^2 (11) = 20.16* R^2 = .061**			**LR X^2 (11) = 17.99† R^2 = .061**		
Black Caregiver							1.00	.40	ns			
Other Caregiver							.50	.42	ns			
Income							.87	.07	ns			
Receives food stamps							1.26	.50	ns			
Caregiver depression							1.03	.15	ns			
Caregiver alcohol use							1.10	.16	ns			
Parenting attitudes							1.26	.23	ns			

Child externalizing							1.41	.27	†			
Child internalizing							.83	.15	ns			
CTS Verbal							1.23	.22	ns			
CTS Minor Assault							.83	.13	ns			
Block 6	**LR X^2 (14) = 22.57† R^2 = .064**			**LR X^2 (14) = 18.00, ns R^2 = .109**			**LR X^2 (14) = 26.72* R^2 = .081**			**LR X^2 (14) = 21.86† R^2 = .077**		
Black Caregiver	.90	.35	ns				1.16	.47	ns			
Other Caregiver	.68	.49	ns				.59	.50	ns			
Income	.91	.07	ns				.88	.07	ns			
Receives food stamps	1.46	.56	ns				1.20	.49	ns			
Caregiver depression	1.08	.15	ns				1.03	.15	ns			
Caregiver alcohol use	1.05	.15	ns				1.10	.17	ns			
Poor parenting attitudes	1.29	.23	ns				1.28	.24	ns			
Child externalizing	1.38	.26	†				1.45	.29	†			
Child internalizing	.76	.13	ns				.83	.15	ns			
Use of verbal aggression on children	1.19	.21	ns				1.16	.21	ns			
Use of minor assault on children	.81	.13	ns				.81	.13	ns			
Poor family cohesion	.91	.14	ns				.93	.15	ns			
Poor social supports	1.42	.24	*				1.56	.28	**			
Higher ambient stress	.94	.14	ns				.91	.15	ns			
Block 7	**LR X^2 (15) = 26.87* R^2 = .076**			**LR X^2 (15) = 30.48, ns R^2 = .11**			**LR X^2 (15) = 31.43** R^2 = .095**			**LR X^2 (15) = 23.06† R^2 = .081**		
Black Caregiver	1.20	.49	ns				1.56	.68	ns			
Other Caregiver	.82	.60	ns				.73	.62	ns			
Income	.92	.07	ns				.88	.08	ns			
Receives food stamps	1.68	.66	ns				1.42	.59	ns			
Caregiver depression	1.05	.15	ns				.99	.15	ns			
Caregiver alcohol use	1.03	.15	ns				1.08	.17	ns			
Poor parenting attitudes	1.32	.24	ns				1.31	.25	ns			
Child externalizing	1.43	.27	†				1.51	.30	*			
Child internalizing	.75	.13	ns				.80	.15	ns			
Use of verbal aggression on children	1.23	.22	ns				1.21	.22	ns			
Use of minor assault on children	.80	.13	ns				.79	.13	ns			
Poor family cohesion	.94	.15	ns				.96	.16	ns			
Poor social supports	1.42	.24	*				1.55	.28	*			
Higher ambient stress	1.00	.16	ns				.99	.16	ns			
Poor Neighborhood quality	.72	.12	*				.69	.12	*			
Block 8	**LR X^2 (17) = 38.30** R^2 = .109**			**LR X^2 (17) = 18.43, ns R^2 = .111**			**LR X^2 (17) = 43.13*** R^2 = .113**			**LR X2 (17) = 29.37* R2 = .104**		
Black Caregiver	1.08	.46	ns				1.48	.67	ns	1.47	.75	ns
Other Caregiver	.42	.32	ns				.38	.33	ns	.64	.58	ns
Income	.90	.07	ns				.87	.08	ns	.87	.08	ns
Receives food stamps	1.39	.56	ns				1.21	.52	ns	.86	.39	ns
Caregiver depression	1.00	.15	ns				.95	.14	ns	1.05	.17	ns
Caregiver alcohol use	1.00	.15	ns				1.05	.17	ns	.95	.16	ns
Poor parenting attitudes	1.55	.30	*				1.57	.32	*	1.59	.34	*

Child externalizing	1.47	.29	*				1.57	.33	*	1.25	.28	ns
Child internalizing	.77	.14	ns				.81	.16	ns	.81	.17	ns
Use of verbal aggression on children	1.24	.22	ns				1.23	.23	ns	1.37	.28	ns
Use of minor assault on children	.88	.14	ns				.88	.15	ns	.79	.15	ns
Poor family cohesion	.96	.15	ns				.98	.16	ns	1.06	.19	ns
Poor social supports	1.39	.24	†				1.53	.28	*	1.41	.27	†
Higher ambient stress	.99	.16	ns				.96	.16	ns	1.02	.19	ns
Poor Neighborhood quality	.68	.11	*				.66	.12	*	.79	.15	ns
Midwest Site	2.40	.90	*				2.88	1.14	**	2.15	.90	†
South Site	.63	.27	ns				.76	.34	ns	.70	.35	ns

Table 4-6: Hierarchical Regression Analysis - Substantiations (N = 154)

All models significant at .05 or lower are presented. Variables are presented in models where .05 < p <.10 if one of the variables is significant at .05 or lower.

	All types			Physical Abuse			General Neglect			Failure-to-provide		
	OR	**SE**	**p**	**OR**	**SE**	**p**	**OR**	**SE**	**p**	**OR**	**SE**	**p**
Block 1	**LR X^2 (2) = 2.5, ns R^2 = .013**			**LR X^2 (2) = 3.83, ns R^2 = .028**			**LR X^2 (2) = 7.30* R^2 = .035**			**LR X^2 (2) = 7.01* R^2 = .033**		
Black Caregiver							2.15	.76	*	2.28	.81	*
Other Caregiver							.66	.36	ns	.81	.47	ns
Block 2	**LR X^2 (4) = 2.94 p = .568, R^2 = .015**			**LR X^2 (4) = 4.00 p = .41, R^2 = .029**			**LR X^2 (4) = 8.19 p = .09, R^2 = .038**			**LR X^2 (4) = 8.19 p = .08, R^2 = .039**		
Black Caregiver							2.85	1.22	*	2.48	.94	**
Other Caregiver							.75	.43	ns	.79	.47	ns
Income							1.05	.10	ns	1.10	.10	ns
Receives food stamps							1.11	.55	ns	1.12	.55	ns
Block 3	**LR X^2 (7) = 8.92, nsd R^2 = .045**			**LR X^2 (7) = 12.06† R^2 = .088**			**LR X^2 (7) = 11.52, ns R^2 = .055**			**LR X^2 (7) = 9.28, ns R^2 = .044**		
Black Caregiver												
Other Caregiver												
Income												
Receives food stamps												
Caregiver depression												
Caregiver alcohol use												
Poor caregiving attitudes												
Block 4	**LR X^2 (9) = 10.60, ns R^2 = .053**			**LR X^2 (9) = 14.94† R^2 = .109**			**LR X^2 (9) = 11.06, ns R^2 = .053**			**LR X^2 (9) = 11.06, ns R^2 = .053**		
Black Caregiver												
Other Caregiver												
Income												
Receives food stamps												
Caregiver depression												
Caregiver alcohol use												
Poor caregiving attitudes												
Child externalizing												
Child internalizing												
Block 5	**LR X^2 (11) = 15.68, ns R^2 = .079**			**LR X^2 (11) = 14.97, ns R^2 = .11**			**LR X^2 (11) = 20.91* R^2 = .100**			**LR X^2 (11) = 17.28, ns R^2 = .082**		
Black Caregiver							3.22	1.44	**			
Other Caregiver							.84	.49	ns			
Income							1.02	.10	ns			
Receives food stamps							1.16	.60	ns			
Caregiver depression							.84	.15	ns			
Caregiver alcohol use							1.14	.18	ns			
Parenting attitudes							.93	.20	ns			
Child externalizing							.73	.17	ns			
Child internalizing							1.12	.25	ns			
CTS Verbal							1.20	.25	ns			

CTS Minor Assault							.57	.14	*			
Block 6	**LR X^2 (14) = 17.58, ns R^2 = .088**			**LR X^2 (14) = 16.40, ns R^2 = .120**			**LR X^2 (14) = 22.71† R^2 = .107**			**LR X^2 (14) = 19.56, ns R^2 = .093**		
Black Caregiver							3.30	1.50	**			
Other Caregiver							.78	.47	ns			
Income							1.04	.11	ns			
Receives food stamps							1.15	.60	ns			
Caregiver depression							.78	.15	ns			
Caregiver alcohol use							1.10	.18	ns			
Poor parenting attitudes							.95	.21	ns			
Child externalizing							.72	.17	ns			
Child internalizing							1.08	.25	ns			
Use of verbal aggression on children							1.12	.24	ns			
Use of minor assault on children							.57	.14	*			
Poor family cohesion							1.02	.20	ns			
Poor social supports							1.07	.25	ns			
Higher ambient stress							1.30	.28	ns			
Block 7	**LR X^2 (15) = 17.60, ns R^2 = .089**			**LR X^2 (15) = 16.41, ns R^2 = .12**			**LR X^2 (15) = 23.13† R^2 = .110**			**LR X^2 (15) = 23.00† R^2 = .11**		
Black Caregiver							3.54	1.66	**	4.04	1.9	**
Other Caregiver							.81	.49	ns	.97	.64	ns
Income							1.03	.11	ns	1.04	.11	ns
Receives food stamps							1.18	.62	ns	1.17	.62	ns
Caregiver depression							1.18	.62	ns	.88	.17	ns
Caregiver alcohol use							1.10	.18	ns	1.07	.18	ns
Poor parenting attitudes							.94	.21	ns	.99	.23	ns
Child externalizing							.72	.17	ns	.83	.20	ns
Child internalizing							1.06	.25	ns	1.01	.24	ns
Use of verbal aggression on children							1.13	.24	ns	1.00	.21	ns
Use of minor assault on children							.57	.14	*	.58	.14	*
Poor family cohesion							1.02	.20	ns	1.13	.23	ns
Poor social supports							1.07	.25	ns	.94	.22	ns
Higher ambient stress							1.35	.30	ns	1.47	.33	†
Poor Neighborhood quality							.88	.17	ns	.69	.14	†
Block 8	**LR X^2 (18) = 35.41** R^2 = .179 Only site is significant**			**LR X^2 (18) = 16.86, ns R^2 = .123**			**LR X^2 (18) = 39.34** R^2 = .187**			**LR X2 (18) = 29.21* R2 = .140**		
Black Caregiver							2.90	1.69	†	3.69	2.03	*
Other Caregiver							.67	.43	ns	.85	.56	ns
Income							1.12	.13	ns	1.09	.12	ns
Receives food stamps							1.41	.80	ns	1.27	.71	ns
Black Caregiver							.82	.16	ns	.94	.19	ns
Other Caregiver							1.19	.22	ns	1.09	.20	ns
Income							.97	.25	ns	1.07	.26	ns
Receives food stamps							.79	.20	ns	.89	.23	ns
Caregiver depression							.92	.22	ns	.92	.22	ns
Caregiver alcohol use							1.08	.25	ns	.99	.22	ns
Poor parenting attitudes							.69	.18	ns	.67	.18	ns
Child externalizing							.92	.20	ns	1.07	.22	ns

Child internalizing							1.19	.30	ns	.97	.24	ns
Use of verbal aggression on children							1.14	.28	ns	1.34	.32	ns
Poor neighborhood quality							.98	.21	ns	.73	.15	ns
Midwest Site							14.2	11.4	***	4.54	2.93	*
Northwest Site							1.74	1.20	ns	1.99	1.38	ns
South Site							2.93	2.41	ns	2.13	1.79	ns

Work Cited

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Chapter 5:

So What… and Now What?

This dissertation was undertaken to increase the knowledge base about the circumstances by which primary caregivers become involved with the child welfare system. This dissertation asked three primary questions:

1. Of the body of risk factors known to contribute most to child maltreatment, what are the most common combinations of factors seen in caregivers, and how do those combinations predict child welfare investigations?
2. Do the profiles of risk generated from the research in Question 1 contribute to the frequency of children's problematic behaviors as they change over time?
3. Do the risk factors studied in Question 1 differentially predict CPS decision-making and do any of the risk factors in particular contribute to ongoing racial disproportionality in the child welfare system?

Seven profiles of caregiving in an at-risk situation (i.e. poverty) were identified. One profile identified no risk, three profiles identified only one or two risk factors, and the final three identified a complex array of at least three significant risk factors. All of the complex risk profiles were related to other known risk factors such as the experience of interpersonal violence, a previous history of physical abuse as a child, and more extreme poverty. However, the profiles that were predictive of child welfare system involvement were the two profiles in which the scores for alcohol misuse were exceptionally high. Interestingly, the relationship between child

welfare system involvement and child well-being was not strong. While the complex risk profile that included problematic alcohol abuse by caregivers was predictive of system involvement as well as the most child problematic behavior in the sample, children whose caregivers were in the simple risk profile with significant alcohol misuse had fewer externalizing behaviors and exhibited fewer internalizing tendencies.

The effect of caregiving types, however, seemed to be limited to early childhood. While the caregiving profiles did predict differences in number of behaviors at age 4, the caregiving profiles did not affect the growth trajectory of children's behaviors over time. By contrast, the experience of early neglect predicted the increase of both externalizing and internalizing behavior across time while the experience of abuse predicted increased internalizing behavior only.

Finally, in an attempt to explain possible racial disproportionality through caregiver characteristics, the study indicated that the percentage of Black families involved at the different stages of child protective service practice steadily decreased, indicating the potential that the child welfare system may correct for overreporting of Black families through the investigation process. In addition, while race, particularly identification as a Black American, may affect neglect investigations, in general the effect of race on child welfare practice in this sample was marginal if it existed at all. However, child welfare system involvement was predicted by such factors as poor social supports, children's externalizing behavior, parenting attitudes, and the geographic location in which a family lived.

These findings are significant for protective services workers who have to screen through the information that they accumulate in the field during an investigation. Some of the findings most relevant for child protective service practice are the following:

1. Some caregivers parent well in the midst of adversity and risk, and caution should be exercised not to substantiate or remove for sheer poverty alone.

The most encouraging finding in this entire dissertation was that out of an identified group of 720 at-risk caregivers, over a third were able to care for their children in a way that not only avoided child welfare system involvement but also resulted in healthier children. While this does not diminish the impact of poverty, it indicates that there may be measurable differences between poverty alone and poverty with added maltreatment. It is worth considering that, in the presence of class differences between a reporter and the person being reported, a report may be less about imminent risk of harm and more about class differences.

2. Predictors of child welfare involvement and child well-being do not necessarily match. Once risk and harm are assessed, consideration of child well-being should shape decision-making.

In the first paper, the strongest predictors of child welfare system involvement were the two profiles in which alcohol misuse was a significant problem. By contrast, profiles marked by use of verbal and physical aggression toward children did not relate to child welfare system involvement. Depression by itself also did not predict system involvement. But in the analyses looking at children's behaviors, both depression and aggressive parenting (no matter how slight) predicted poorer behavior outcomes for children than the alcohol abuse-alone profile. While the primary goals of the child welfare system are to promote child safety and permanency, well-being is also an important part of that equation and, given these disparities between CPS involvement and actual child well-being, more consideration should be given to a child's emotional and mental well-being in addition to physical safety.

3. Perceived lack of social supports is a significant concern – and one that should probably be evaluated during an investigation.

Whether the caregivers' responses reflect an actual lack of support or a skewed perception that leads them to believe they lack support, over half of the 720 subjects reported problems with social supports to varying degrees. Further, though social supports do not necessarily show up on risk assessment instruments, their presence is significant enough that social supports should become an assessment as a part of an investigation. The racial disproportionality study demonstrated the predictive power of poor social supports on protective service practice; a social network analysis would be a useful tool in the assessment of risk and overall family health.

4. The radical/critical theorists who want to argue for systemic risk over personal risk may be right – but that view can leave someone already experiencing powerlessness feeling like a victim. An ecological investigative approach may help identifying areas the caregiver can change and those areas that cannot be changed but with which the caregiver can learn to cope.

While only two of the profiles of caregiver context involved reports of neighborhood quality, one of the profiles in which neighborhood quality was significant was also the only one in which poor parenting attitudes was an important contributor. In addition, poor parenting attitudes became a significant predictor of investigation for general neglect when the geographic recruitment sites were introduced into the model in the third paper. One of the possible explanations for this effect is that there are systemic problems going on within those communities that interfere with caregivers' abilities to parent their children effectively. We need more – and better – study of neighborhoods combining both objective (i.e. Census, Arc-GIS, etc) and subjective (i.e. social capital) data to assess the effect of geography on child maltreatment.

More importantly, from a practice perspective, the ecological model provides a way to empower struggling caregiver. By looking at the resources a caregiver has (or not) in relationship

to the complex web of environmental stressors in which he or she must raise a child in a way that keeps a child safe, a protective service worker can consider the available strengths and resources a family has to keep a child safe. Further, this approach shows the caregiver that there are places where he or she can initiate change, reclaim control or agency in a child welfare setting, and be an agent of change to improve both child and family well-being; caregivers are not merely victims of large-scale social forces that are out of their control.

In addition to the significance of outcomes here for protective service workers, there is also a significant consideration for researchers. The most notable realization from this dissertation from a research perspective is that *social workers and psychologists interested in maltreated children study very different things – both of which easily bypass caregivers.* As a general rule, psychologists are interested in *child maltreatment* and social workers are interested in *child welfare system involvement*. But we in fact know very little about the linkage between psychological outcomes and child welfare administrative outcomes. Administrative data are powerful for building epidemiological theories, as some of the referenced articles in the racial disproportionality study indicate, but the variables captured in administrative data are limited and they do not tell us anything about the psychological and environmental realities that workers see in the field. Further, we know even less about how those psychological characteristics map onto administrative data. Administrative data can tell us *that* a mother did not receive prenatal care; they cannot theorize *why* she did not receive prenatal care nor can they provide information to posit a mechanism to consider *how* to get this mother the care she needs. If theoretical models cannot bridge the gap between known risks in the files and what a worker sees in the field, we cannot improve protective services practices – because that practice is based on observation and

accumulated experience. Even with an actuarial risk system, the worker has to know how to identify risks – and which risks are the most salient – to inform the system.

Implications of Findings for Practice

Assessment. Current risk assessment instruments should be expanded to include three areas: caregiver depression, family social supports, and child emotional/mental well-being. Further, developing a risk assessment instrument that can be used within a CPS context can save time if a case is opened because an evaluation for services has effectively already been done. Such an instrument could also be utilized in a differential response setting to help a caregiver take stock of his/her current situation to make a more informed decision about needing help – and exactly what kind of help is needed. If this kind of instrument were to be coupled with a motivational interviewing engagement strategy we could perhaps obtain better information about families and simultaneously improve buy-in to either mandated or voluntary services.

Further, collecting information about the child's mental and emotional well-being as a part of an assessment may also help with determining the disposition of the child in the case – particularly whether to remain in place with services to the family or to seek an out-of-home placement. A child whose mental health may be compromised may be helped by a therapeutic out-of-home placement while removing a child who is doing well and stable may create more mental health problems.

Intervention. Mandated services for child welfare-involved parents will always involve caregiving classes, whether needed or not. Depending on what is found in an assessment, these classes may be a time to best utilize the "captive audience" and work not only on caregiving but also on emotional self-care. For example, in some of the research I have been doing with a version of the Oregon Model of parent management training (PMTO), the primary investigator

has introduced a motivation-to-change component for parents in the hope of reducing substance abuse and promoting desistance from crime. We have also talked about a trauma-informed model of PMTO with the intention of tailoring it to child welfare-involved parents, many of whom have trauma histories. Combining self-care and caregiver education has the potential of reinforcing both sets of skills.

Limitations to LONGSCAN:

Despite the wealth of information from LONGSCAN, this dataset has limitations. The first is that the information gathered on caregivers implies that their worlds are static. Apart from the depression scale, very few of the caregiver measures are given across waves of data. Caregiving is also a dynamic developmental process, and data collection should reflect that caregivers, like their children, can change across time. That change may be more incremental than the dramatic changes seen in children, but it is still change. Whether there would be enough statistical power to identify that change would be the primary question.

Second, the investigation data is challenging to use. It contains a considerable wealth of information. However, it is not conducive to studying predictive models. Because the data frame is a point-count table, a researcher has to consider how to use the information when one family may only have one coded record and another family has 26 (which is reality in LONGSCAN). While I am not sure what alternatives are available, it is safe to say that the investigative data is the most underutilized part of LONGSCAN.

Third, the information on substance misuse, trauma, and psychopathology is lacking, despite the prevalence of literature on trauma, mental illness and substance abuse in the care of children. Information on actual drug use is not gathered until the Age 8 wave and very little information is gathered on caregivers' anxiety levels and impulsive behaviors. The measurement

of caregiver history of trauma is subjective and the reliability of what is gathered is questionable. Questions on the caregiver's experience of maltreatment as a child are not behaviorally specific and it is entirely up to the caregiver to determine whether something that he or she experienced was indeed abuse. This is further complicated by the fact that we tend to learn how to give care by the care we received. The caregiver may not recognize their own upbringing as abusive; they may consider it normative and then translate that into their own suspect caregiving.

A Research Agenda: LONGSCAN Redux

As I completed my dissertation, I realized that, in addition to not knowing the relationships between administrative outcomes and psychological data for child welfare-involved families during front-end decision-making, we really know very little of the "system career" of families. We have no idea how families move through the system (together or apart) from investigation until case dismissal (for whichever type of established permanency).

So, if money were no object, I would strive to bring together the best of LONGSCAN with the best of administrative data and geospatial data in one location to understand child welfare system involvement thoroughly for a specific location. An instrument could be developed for use by workers in the field that could assess psychological well-being for both caregivers and children in the field (and repeated quarterly with every service plan review). That information could be used in combination with linked administrative data sets across jurisdictions (i.e. vital records, child welfare, public welfare), service utilization data and geospatial data (here, I am thinking Census data, occupancy records, and crime blotters). This combination of information could be used not only to develop theories for system involvement but also to predict permanency outcomes. While such a study would not be generalizable (after all, Omaha is not Detroit, for instance), it would provide what is needed in child welfare study:

an ecological model of child maltreatment and child welfare system involvement that would allow for theory generation that could move both social work and psychology forward to improve outcomes for caregivers and children alike.