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Effects of Childhood Adversities on Positive Adult Functioning across Racial Groups,
and Examination of School Bonding as a Moderator

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A dissertation
submitted in partial fulfillment of the
requirements for the degree of

Doctor of Philosophy

University of Washington

2013

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Program Authorized to Offer Degree:

School of Social Work

University of Washington

Abstract

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Adverse childhood experiences increase the risk of long term detrimental effects in adulthood, including poor physical and mental health, as well as functions in multiple social domains. There is a growing need to broaden the definition of childhood adversity, and to consider resilience in the investigation of the long term consequences of childhood adversity. This study examined three questions with focus on the long term impacts of childhood adversity: (1) Does childhood adversity as measured by abuse and neglect, poor bonding with parents, poor attachment to neighborhood, family conflict, and poverty impact resilient adult functioning at age 27?; (2) Does the effect identified in question 1 vary across races? In other words, does childhood adversity predict positive adult outcomes differently across three racial groups?; and, (3) Do the experience of high/low school bonding in high school moderate the relationship of childhood adversity on resilient adult functioning? The data in use come from the Seattle Social Development Project (SSDP), a longitudinal study in which 808 children from 18 schools in an urban area in the Pacific Northwest were followed into their adulthood, and regularly interviewed over the last 25 years. This study focuses on the experiences of African Americans (n=192), Asian Americans (n=171), and European Americans (n=374).

The structural equation modeling (SEM), techniques were used to examine questions in this dissertation. Results of the full sample indicate that adverse childhood experiences have a negative impact on resilient adult functioning at age 27. In particular, child maltreatment, poor bonding with parents, and low socioeconomic status showed significantly negative impacts. Identifying as Asian American was also found to positively predict positive adult functioning. Tests of invariance in the regression paths of childhood adversity on positive adult functioning suggests a minor difference in how childhood adversity predicts adult functioning across racial groups. The constructs of child maltreatment and poor bonding to parents appear to function differently across racial groups. This model did not predict any significant relationships between childhood adversity and positive adult functioning for the African American group.

Examining the moderating effect of high versus low levels of school bonding indicates non-invariant measurement across high and low school bonded groups. There was no evidence of moderation.

TABLE OF CONTENTS

	Page
List of Tables	ii
List of Figures.....	iii
Chapter 1: Introduction	1
Chapter 2: Background and Literature Review	6
Chapter 3: Methods: Design, Sample Description, Measures, Analytic Strategy	24
Chapter 4: Results	36
Chapter 5: Discussion	60
Appendix: Positive Adult Functioning and Childhood Adversity Items List.....	108

LIST OF TABLES

Table	Page
4.1a. Means, SD, & Correlation for Childhood Adversity and Positive Adult Functioning	42
4.1b. Standardized and Unstandardized CFA Loading of Child Maltreatment Latent Factor	43
4.1c. Estimates for Structural Paths, Childhood Adversity to Positive Adult Functioning for Full Sample	44
4.2a. The M, SD, & F differences among Racial Groups.....	45
4.2b. Correlations among Childhood Adversity and the Outcome Index.....	46
4.2c. Standardized & Unstandardized CFA of Child Maltreatment Latent Factors	47
4.2d. Summary of the Fixed & Free CFA Fit Indices Comparison across Racial Groups.	48
4.2e. Unstandardized Structural Fit for Unconstrained Model of PAF on Predictors	49
4.2f. Summary of Fit for Multiple Group Structural Models of Childhood Adversity	50
4.2g. Summary of Post Hoc Test of Structural Fit Indices, Model Differences, and Standardized Coefficients across Racial Groups	51
4.3a. The M, SD, & F-test Differences among Low versus High School Bonding.....	52
4.3b. Correlation Matrices for Predictor and Positive Adult Functioning Index.....	53
4.3c. Standardized & Unstandardized Loadings of Free CFA by two groups.....	54
4.3d. Model Fit Statistics of Free & Fixed MGCFA for Childhood Adversity	55
4.3e. Unstandardized & Standardized Structural Paths & Model fit for the Free CFA	56

LIST OF FIGURES

Figure	Page
2.1. Childhood Adversity on Positive Adult Functioning (PAF)	21
2.2. Childhood Adversity on PAF Across Racial/Ethnic Groups	22
2.3. Childhood Adversity on PAF, High or Low Bonding to School as a Moderator	23
4.1. Estimates for Structural Path from Childhood Adversities to PAF: Full Sample.....	59
4.2. Estimates for Structural Path from Childhood Adversity on PAF Across Racial Groups....	60
4.3. Estimates for Structural Path from Childhood Adversity to PAF, High or Low Bonding to School as a Moderator	61

ACKNOWLEDGEMENTS

First and foremost, I acknowledge the critical role of my chair, Dr. Tracy Harachi. I have been able to complete this dissertation because of her consistent encouragement and support. Her mentorship has been absolutely invaluable. I am also thankful for Dr. Karl Hill's unwavering support, mentorship, and encouragement since I entered the doctoral program. I thank Professor Anthony (Tony) Ishisaka, whose wisdom, friendship, and support continues to inspire me to be a better person and a better scholar. I have also appreciated the ongoing encouragement I received from Leon Preston, Stan De Mello, Nancy Farwell, and Kath Wilham.

Many individuals played crucial roles in helping me complete this dissertation. I thank the Social Development Research Group for allowing me to use the Seattle Social Development Program (SSDP) data. I also thank the staff and researchers at SDRG, particularly Drs. Sabrina Osterle, Rick Kosterman, and Olivia Lee. I especially thank Charlie Fleming, whose patience and generosity with his talent and time contributed enormously to this project.

I am grateful for my family, who invested a great deal in my success, especially my wife, Xanne, and my children, Kenna and Kenassa. I honor my parents, Belina Sarka, and Bachu Ataya with this project, and the person I have become. I thank my sisters, Hawine, Mergitu, and Tsadike; my brothers Eskinder and Samson, your love and support sustains me. I am grateful to my friend, Eyob Mazengia, who kept me accountable with the ongoing challenge of maintaining a healthier and stronger body, mind, and spirit.

DEDICATION

I dedicate this dissertation to my parents Bachu Ataya and Belina Sarka, who sacrificed so much to ensure that their children have a better life.

To my children, Kenna Sarka and Kenassa Sarka, whose strength and perseverance inspires me to do my part to make this world a better place for the future generation.

CHAPTER 1: INTRODUCTION

“It is easier to build strong children than to repair broken men.”
Frederick Douglass

Childhood adversity is a significant yet under conceptualized problem in the United States. Our efforts to understand rates of exposure and its etiology are hampered by the lack of a unified definition in part a result of research being conducted within different disciplines and area of foci, including child abuse and neglect, community violence, poverty, and health. Findings in regard to the prevalence as well as consequences of childhood adversity vary greatly on the basis of how these disciplines frame adversity. Regardless, the phenomena appears to be more frequent than generally reported, and impart serious long-term consequences both at the individual and societal levels.

The National Child Abuse and Neglect Data System (NCANDS) identifies more than 3.3 million allegations of child abuse and neglect involving 5.9 million children are reported to child protection agencies annually with more than 650, 000 of those children found to be victims of familial abuse and neglect (U.S. DHHS, 2011). An estimated 1,685 fatalities occurred due to abuse and neglect in 2009 (U.S. DHHS, 2012). The majority of victims of maltreatment are exposed to two or more types of maltreatment (Turner, Finkelhor, & Ormrod, 2010). In 2011, of all children that were reported to have suffered maltreatment, more than 75% were neglected, 15% experienced physical abuse, and 10% experienced sexual abuse (U.S. DHHS, 2011). While the maltreatment trends over the last decade indicate that physical and sexual abuse have been on the decline, neglect remains consistent (Finklehor, Jones, & Shattuck, 2008). There is growing

recognition and evidence that NCAND which relies on administrative data grossly underestimates the prevalence of child maltreatment. For instance, it is suggested that fatalities due to maltreatment have been underestimated by up to 60% due to underreporting (Crumean, DiGuseppi, Byers, Sirotiak, & Garrette, 2002). The Adverse Childhood Experience study (ACEs), a nationally representative retrospective study, found a higher prevalence with more than two-thirds of participants in the study reporting they experienced at least one type of child maltreatment (Anda, Brown, Dube, Bremner et al., 2008). ACEs criteria of childhood adversity include child maltreatment (physical abuse, sexual abuse, emotional abuse and neglect), drug or alcohol abuse in the household, domestic violence, an incarceration of a household member, chronic mental illness within a family, and growing up with no parent, one parent, or divorced parents (Anda, Croft, Felitti, Nordenberg et al., 1999).

Scholars in the field of child welfare have been broadening their focus of adversity beyond maltreatment at individual and family levels, hence empirical evidence that examine the structural contributions such as poverty and neighborhood factors have been growing. The National Survey of Children's Exposure to Violence (Finkelhor, Turner, Ormord, Hamby et al., 2009) found that more than 60% of U. S. children have been exposed to violence, i.e. they were personally victimized or witnessed serious violence at home, in their neighborhood, or in their schools. Most children exposed to violence also reside in impoverished neighborhoods. Growing up in impoverished and violent neighborhoods has negative consequences (Almedon, 2005; Leventhal & Brooks-Gunn, 2000; Wodtke, Harding, & Elwert, 2011). Growing up in poverty also has been found to impact child development as well as predict negative consequences later in life (for example, see, Harper, Lynch, & Hsu, 2002; Najman, Hayatbakhsh, Clavarino, Bor, et al., 2010; Poulton, Caspi, Milne, Thompson, et al., 2002). It is a major concern when in 2011,

children represented only 24% of the U.S. population, yet comprised 34% of all people in poverty, placing 21% of all children in the U.S. in poverty (Addy & Wight, 2012). Most parents of children in poverty work, but remain unable to meet their families' needs due to low wages and unstable employment (Addy & Wright, 2012). Making matters worse, over the last two decades families living in extreme poverty (\$11, 025 per year for a family of four) has dramatically increased, with an estimated 6.9 million children living under such condition (Children's Defense Fund, 2012; Shaefer, & Edin, 2012). Children of color are disproportionately represented among those exposed to violence, poverty, and victims of maltreatment (Addy, & Wright, 2012; U.S. DHHS, 2011).

Current studies utilize the term "toxic stress" when describing childhood adversity. Toxic stress is a physiological and psychological reaction to a strong, frequent, constant, and/or prolonged internal stress due to chronic maltreatment, poverty, caregiver substance abuse and/or mental illness, and exposure to harmful conditions in the community, including violence (Shonkoff & Garner, 2011, page e235). Utilization of this term may lend itself to creating a definition of child adversity that both broadens the focus beyond maltreatment and encompassing a person in environment element.

Experiencing childhood adversity not only creates immediate impacts but it can seriously interrupt the healthy development of children at a neurological level, potentially disrupting a child's capacity to regulate, cope with, and adjust to stress (Carrion, 2007). Self-regulation and coping abilities directly impact children's learning, memory, and social behaviors (National Scientific Council on the Developing Child, 2005; Shonkoff & Garner, 2011); this in turn has a negative impact on their lifelong physical and mental health, and adult productivity over their life course (Felitti, 2002; Garner, Shonkoff, Siegel, Dobbins, et al., 2012). There is a direct and

indirect societal cost to poor adaptive capacities and poor mental and physical health among adults. Gelles and Perlman (2012) report that the nation spends about \$80 billion per year addressing abuse and neglect, and an estimated economic cost of more than \$100 billion for expenses associated with child abuse and neglect. However, the true cost of the emotional and social detriments, including loss in societal and productivity are difficult to compute (Felitti, 2002).

While studies consistently identify that experiencing childhood adversities increases the risk of detrimental adult outcomes (Biggs, Aziz, Tomenson, & Creed, 2003; Felitti, 2002; Kessler, Davis, & Kendler, 1997; Margolin & Gordis, 2000; Springer, Sheridan, Kuo, & Carnes, 2011), the vast majority of such studies are cross-sectional and primarily focus on negative outcomes, including poor physical health (Thompson, Arias, Basile, & Desai, 2001), poor mental health (Schilling, Aseltine, & Gore, 2008; Molnar, Buka, & Kessler, 2001), and antisocial behaviors (Lansford et al., 2007). Few studies examine impacts on other essential, positive aspects of adult functioning, including educational attainment, employment, and interpersonal relationships (Courtney, Dworsky, Lee, Rapp et al., 2010; Currie & Widom, 2010; Flaherty, Thompson, Litrownik, Theodore et al., 2006; Pecora, Kessler, Williams, O'Brien et al., 2005). Even fewer studies focus on how the effects of childhood adversity vary across racial groups (Anda et al., 1999; Zielinski & Bradshaw, 2006; Zielinski, 2009) and what factors promote resiliency.

This dissertation study takes a life-course approach as it investigates how adverse childhood experiences, including maltreatment, family conflict and poor bonding, poor neighborhood attachment, and poverty impact positive adult functioning at 27. It adds to our empirical knowledge base by: (1) using longitudinal data to examine impacts of adversity on

positive adult functioning; (2) considering an index of a more comprehensive conceptualization of positive adult functioning that encompasses multiple domains; (3) investigating the impact of adversity across three racial groups; and, (4) examining whether school bonding in high school provides a buffering effect on the long term impact of childhood adversity.

CHAPTER 2: BACKGROUND AND LITERATURE REVIEW

Problem Statement

Childhood adversity is a growing epidemic that continues to impact the health of millions of individuals, as well as cost society monetarily, and likely impact productivity in the long run. Childhood adversity is more prevalent than officially reported, and we are learning more about its profound long term impact. Our attention to this topic is in part hampered by the lack of unified definition and integrated focus to understand and prevent it by researchers, policy makers, and practitioners across various disciplines. Our understanding about childhood adversity continues to evolve from a narrow focus on maltreatment within the home to a wide range of interrelated adverse ecological conditions that contribute to impeding the healthy development of children. These conditions and factors that contribute to adversity are often preventable circumstances, such as poverty, maltreatment, and children's exposure to violence in their families or neighborhoods. Progress has been slow in moving beyond considering these conditions undesirable – or simply “not good” for children, to adequately recognizing the magnitude of their potential impacts on individuals and on society, and addressing them accordingly. An integrated understanding of elements that comprise childhood adversity is crucial step towards better defining this epidemic and preventing its occurrence.

In 1962, the “Battered Child Syndrome” (BCS), revealed that hundreds of thousands of children unnecessarily suffered different forms of physical abuse in the hands of their parents and care providers (Kempe, Silverman, Steele, Droegemueller et al., 1962). Findings of the BCS compelled ordinary citizens to pay attention to children suffering from maltreatment. A sense of collective moral responsibility to protect children from abuse including injuries and fatalities primarily motivated a national consciousness to act. Subsequently, BCS influenced passage of

the first federal law for child protection and the establishment of major institutions such as the Children's Bureau and the National Child Abuse and Neglect Data System (NCANDS), which inform and manage contemporary child welfare policies and interventions.

Child maltreatment unfortunately remains widespread. Conservative estimates from NCANDS suggest an average of 3 million maltreatment allegations were reported over the last decade, involving nearly 5.9 million children per year. In 2011, 676,569 children were confirmed to have been victimized (U.S. DHHS, 2012). In 2012, 650,000 children spent some time in out of home care, including foster care because of maltreatment. Over the last decade and on any given day, an average of half a million children reside in the foster care system (U. S. DHHS, 2012). Many of the children that experience maltreatment are also exposed to other forms of family conflicts such as domestic violence and hostilities within family members (Tajima, 2004).

Consequences of maltreatment range with the most immediate, and serious concern being child fatality. Annually an estimated 1, 560 children are killed due to maltreatment (Child Welfare Information Gateway, 2013). Survivors of maltreatment may initially experience some physical and/or emotional pain or injuries that can cause them to be fearful, mistrusting and angry in the short term. Left unaddressed, they may be at risk of poor physical health (Flaherty et al., 2006), varying types and severity levels of emotional and mental health issues (DeBellis & Thomas, 2003; Felitti, 2002; Springer, Sheridan, Kuo, & Carnes, 2007); and antisocial behaviors (Dube, Anda, Felitti, Chapman et al., 2001; English, Widom, & Bradford, 2004). Children exposed to maltreatment and additional family conflicts including domestic violence have been found to have worse outcomes in a long run when compared with those who experienced either maltreatment or domestic violence alone (Moylan, Herrenkohl, Sousa, Tajima, et al., 2010).

Still, evidence from other studies suggests that maltreatment has been grossly underestimated (Finkelhor & Zellman, 1991). For example, fatalities due to maltreatment have been underestimated by up to 60% due to underreporting (Crume et al., 2002). Accounting for the direct violence children experience, and the violence they closely witness at home and in their neighborhoods, the National Survey of Children's Exposure to Violence (NatSCEV) reports that more than 60% of children 17 years old and younger, are subjected to violence and violent crimes (Finkelhor, Turner, Ormrod, & Kracke, 2009), increasing their risk to sustaining serious trauma or fatality. Homicide and injuries resulting from violence have been among the top four leading causes of death among children of ages between 5 and 19 (Behrman, 2007; CDC, 2011). The non-lethal adversities are just as concerning. The Adverse Childhood Experience study (ACEs), relying on a retrospective data found that two-thirds of the nationally representative adult sample experienced at least one form of maltreatment, and more than one in five adults reported to have experienced at least three types of abuse and neglect (Anda et al., 2008). In ACEs, childhood adversity encompassed maltreatment and household dysfunction, which included family conflict; illicit drug use by parents; and parents' physical and mental health. This study found that adults who experienced adverse childhood experiences suffered more physical and mental ailments compared individuals who reported no such adversity. Additionally, this study found that experiencing more than one form of adverse childhood experience dramatically increased the risk of poorer health. This finding is consistent with findings from other studies (see for example, Dallam, 2001; Flaherty et al., 2003; Scott, Korff, Angermeyer, Benjet et al., 2011). Yet, these studies, including the ACEs consider only circumstances of adversity that occur primarily within family units, limiting the scope and definition of childhood adversities. In fact, some structural factors, beyond parental control play

a considerable adverse role in children's lives. For instance, poverty and related neighborhood factors have been identified as underlying contributing factors to most forms of maltreatment, as well as strong predictor of concurrent and long term poor health (Aber, Bennett, Conley, & Li, 1997).

Poverty is an insidious factor of adversity that affects the lives of children. About 16% of Americans live at or below the poverty line (US Census, 2012), with less than the minimum required to meet basic needs. In 2011, while children represented 24% of the U.S. population, 34% of those in poverty were children; this places 21% of all children in the U.S. in poverty (Addy & Wight, 2012). Regrettably, the number of families and children living in poverty has been on the rise over the last decade (Congressional Research Services, 2013; Haskins, 2011). Between 2007 and 2010, the number of children in poverty rose from 14.7 million to 15.7 million (Wright, 2011), and to 16.4 million in 2011 (Children's Defense Fund, 2012). Substantial number of these families are working poor (Wright, Chau, & Aratani, 2010; Sutt, 2010). Over the last two decades, families living in extreme poverty (\$11, 025 or less per year for a family of four) has dramatically increased, with an estimated 6.9 million children living under such condition at the beginning of 2011 (Children's Defense Fund, 2011; Shaefer, & Edin, 2012). Children in poverty, especially those in extreme poverty are frequently exposed to food insecurity and poor nutrition (Coleman-Jensen, Nord, Andrews, & Carlson, 2011), homelessness and substandard housing (Bratt, 2002), with toxic levels of exposures to indoor conditions, including smoke, mold, water damage, dust trappings, insect infestation, and toxic chemicals (Krieger, Song, Tkaro, & Stout, 2000). The cumulative effects of these exposures contribute to ongoing health problems, including frequent emergency hospital visits (Wood, Hayward, Corey, Freeman et al., 1990). The role of poverty in aggravating multiple social problems and

increasing the risks of negative outcomes, including poor health has been well documented (Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993; Fredrick, & Goddard, 2007). It is also well established that lasting effects of social and economic deprivation can make it difficult for children that grow up in poverty to change their socio-economic status as adults (Ashenfelter & Card, 1999; Corcoran, 1995), thereby perpetuating the cycle of intergenerational poverty.

Poverty tends to concentrate geographically, and while its prevalence is not limited to certain demographic groups or locations, its impact on residents in urban neighborhoods has been well established (Kawachi, Kennedy, Lochner, & Prothrow-Sthith, 1997; Wilkerson, 1996). Children that live in and around impoverished neighborhoods are more likely to be poor and struggle to have their basic needs met; they are less likely to have access to adequate community services, social supports, employment opportunities, quality education and healthcare (DeNavas-Welt, Proctor, & Smith, 2011; Sanders-Phillips, Settles-Reaves, Walker, & Brownlow, 2010; US Bureau of Statistics, 2013). Furthermore, they are more likely to be exposed to antisocial environments, such as drug and alcohol abuse and violent crimes. Between 1999 and 2006, on average the rate of teen fatality was 49.5 per 100, 000, and the majority of these deaths occurred in poor neighborhoods (Minino, 2010). The longer children reside in such neighborhoods, the worse their chances to graduate from high school, and the lower their likelihood to improve their socio economic potentials (Wodtke, Harding, & Elwert, 2011). The cycle of poverty and its impact, including the neighborhood factors such as community violence are especially pervasive in lower-income urban neighborhoods where a large number of families of color reside (Boney-McCoy & Finkelhor, 1995), placing children of color at higher risk for its consequences. Children of color are more likely to be victims of violence outside their homes, in part because a disproportionate percentage live in neighborhoods where violent crimes occur more frequently.

For instance, homicide is a leading cause of death among 10 – 24 years old African American youths, the second leading cause among Hispanics, and the third leading cause among Native Americans (CDC, 2012).

Neighborhood factors such as safety and access/lack of access to essential resources have shown to impact children and adolescents' development in terms of their behaviors and health (Almedon, 2005; Leventhal & Brooks-Gunn, 2000). The potential contributions of neighborhood attachment and its link to health and behavior in this process have been among interests of inquiry (Theodori, 2001). Neighborhood attachment refers to children's subjective perception and emotional bond to where they live (Giuliani, 2003), based on how safe they feel, their perception of support within the community, and whether they feel they belong. Some studies have identified that positive neighborhood attachment is a protective factor from antisocial behaviors (Rubinstein & Parmlee, 1992). Others find a link between neighborhood risk factors and internalizing symptoms such as anxiety, depression, and psychosomatic complaints, and externalizing symptoms of aggression and delinquency (Katz, Esparza, Carter, Grant & Meyerson, 2013). The same study found that the relationship between neighborhood risk factors and externalizing and internalizing symptoms was mediated by stressful life experiences and exposure to violence.

Childhood Adversity and Race

Children of color are overrepresented among the poorest Americans as well as those experiencing other forms of adversities strongly correlated with poverty. The poverty rate among communities of color, including Native Americans, Latina/o Americans, and African Americans exceeds the average national poverty rate of 15%. For example, 27% of all African American households live in poverty; one in three African American and Latina/o children live

in households that earn below the federal poverty threshold (Children's Defense Fund, 2011).

The disproportionate overrepresentation of children and families of color in poverty leaves them vulnerable to further overrepresentations in other institutions, including in the criminal justice system, and the child welfare system.

According to the U.S. Department of Health and Social Services (2011), at every stage in the child welfare system, children of color, particularly Native Americans, African Americans, and Latino/a children are disproportionately represented (Randall, 2010; Sedlak, Mettenburg, Basena, & Petta, 2010). While they represent only 13% of the nation's children's population, African American children represent 34% of children in the child welfare system (U.S. GAO, 2007). Some studies purport that this rate is a reflection of the disproportionate violence within families and communities of color (Bartholet, 2009), while others criticize such findings and suggest that the disproportionality reflects inherent racial bias in the system (Roberts, 2002). Findings highlight a disproportionate removal of children of color primarily due to 'neglect' of infants involving maternal substance abuse not physical abuse (Wulczyn, Barth, Yuan, Harden et al., 2006). The long term impact of these removals have also been remarkable. Adults with foster care experience did poorly in educational attainment, employment, and quality of health, when compared with individuals who were never placed in foster care (Pecora, Kessler, Williams, O'Brien et al., 2005), and because of their overrepresentation in the child welfare system, youth of color are especially at a higher disadvantage (Courtney, Dworsky, Cusick, Havlicek et al., 2002).

Children and youth of color experience disadvantages in most institutions, posing a serious concern of a structural nature. Brooks (2006) identifies race as a predictor of poor adult outcomes, based on well documented evidence that children of color live and grow up in

environments where they frequently experience discrimination, residential segregation and socio-economic inequality. These conditions pose direct threats to children's safety, and the distress of living in such environments can take its toll on children in terms of their emotional and physical health. These experiences have negative impacts on their perception about their identities, their place in the society, and power to impact their futures. For people of color who are more frequently exposed to race-related stressors, studies indicate higher health risks contributing to health disparities (Sanders-Phillips, Settles-Reeves, Walker, & Brownlow, 2011), undermining efforts to maximize the capacity of all citizens to participate in all socio-economic and political opportunities our nation offers. Concerns of disparities call for better understanding in how childhood adversity and its long term consequences especially impact children of color.

Defining Childhood Adversity

In many ways, the Battered Child Syndrome and its emphasis on physical abuse continues to play a considerable role in shaping contemporary child welfare policies, intervention, and research. For instance, the BCS significantly informed the development and passage of Public Law (P.L. 93-247), also known as the Child Abuse Prevention and Treatment Act of 1974 (CAPTA). CAPTA was the first federal law that mandated states to protect children from maltreatment. CAPTA defined child abuse and neglect broadly as, "physical or mental injury, sexual abuse, negligent treatment, or maltreatment of a child under the age of eighteen by a person who is responsible for the child's welfare under circumstances which indicate that the child's health or welfare is harmed or threatened thereby." Yet, in practice, the physical and emotional evidence of injury committed by parents became the central focus of interventions (Stoltzfus, 2009). In other words, the policy primarily enacted a short term intervention that protected children from visible, imminent physical or emotional harm and risk of bodily injury,

including fatality (De Francis, 1966). Into the 1980s, much of the research, policies and interventions continued to focus on how to recognize and address physical and sexual abuse, with emphasis on individual behavioral characteristics and family factors leading to abusive behaviors (Myers, 2008).

Prominent studies in this area, including NCANDS and ACEs continued to define childhood adversity primarily with a lens consistent to that of CAPTA, in other words, adversity was defined mostly by interactions or behaviors between the parents and child and focused mostly on maltreatment. The crack cocaine epidemic in the 1980s introduced a different dimension of maltreatment in child welfare, in which babies were born impacted by illicit drugs in utero, and parents' impairments leading children to be grossly unattended, uncared for and isolated. While slightly over 30% of child fatalities occur because of neglect (American Humane Association, 2013), the vast majority of neglect cases often do not present with visible symptoms. Unlike physical, sexual, or emotional abuse, all of which are actively committed, neglect occurs due to the omission of needed care, in other words, when parents fail to provide adequate physical and emotional care for their children. Unlike other forms of maltreatment, impact of neglect is not immediately visible. Since 1990 when the NCANDS began collecting data on maltreatment, neglect has risen as the most prevalent type of maltreatment. At the same time, official reports of founded physical and sexual abuse have been on the decline (DHHS, 2006; Finkelhor et al., 2008). In 2010, more than 70% of maltreated children experienced neglect (U.S. DHHS, 2011). Children referred to child protection for neglect tend to be referred multiple times for slightly different issues before action occurs on the part of the system; these victims endure profound levels of developmental impairments without relevant intervention (Kaplan, Schene, DePanfilis & Gilmore, 2009).

Our growing understanding of the effects of neglect suggest greater attention and action is warranted. Not only are issues of safety of concern but clearly evidence suggests negative developmental impacts derived from neglect. Lack of sufficient nurturance and potentially ensuing attachment problems have been found to contribute to life-long concerns, including poor social skills and reduced capacities to attend to tasks essential in their daily living (Perry, 1996). The brain of children who grow up without adequate nurturance or minimal care does not grow properly, and can be severely impaired (Sheridan, Fox, Zeanah, McLaughlin et al., 2012). In part due to delayed intervention and lack of resources, victims of neglect often suffer from neurological impairment, delayed physical growth, delayed language development, interrupted emotional maturity, exhibit behavioral problems, poor social skills, poor academic and cognitive performance, experience extended poverty, underemployment, or unemployment, and face chronic illnesses, including increased chance of early death (DePanfilis, 2006; Perry, 1996; Perry & Pollard, 1998). Victims of neglect comprise the largest percentage of children removed from their parents' custody; they are more likely to remain in out of home placements longer than other groups of children, and are less likely to reunite with their parents. When reunited, they were most likely to return to placement (Shaw, 2010).

Amendments in CAPTA over the years have attempted to address some factors associated with neglect, including domestic violence and homelessness but it did not address conditions that contribute to adversity including poverty and exposure to community violence. Thus, contemporary findings suggest that policy efforts to address neglect have been inadequate, and interventions have been ineffective as compared to other forms of maltreatment (see for example Duvá & Metzger, 2011). Similarly, while evidence clearly document the serious consequences of structural factors that contribute to adversity, policies have yet to develop a

systematic definition of childhood adversity that moves beyond child maltreatment and adequately integrates and addresses other factors into efforts to promote the healthy development of children.

Neglect is strongly correlated with poverty, a structural concern beyond families' capacity to solve alone. Children whose families' annual incomes are below \$15,000 were 22 times more likely to experience an incident of maltreatment compared with families whose incomes are above \$30,000 (Sedlak & Broadhurst, 1996). Most parents that neglect their children live in impoverished neighborhoods under extreme poverty; they not only lack access to basic needs, often they are afflicted with serious health problems, including substance abuse and mental health issues (DePanfilis, 2006). These parents may not be able to provide the nurturing support, consistent parenting and stability their children need to cope (Dyson, 2008; Frame, 2010; McLoyd, 1998; Wight, Thampi, & Chau, 2011).

A well informed and effective policy and intervention integrates individual, family, community, and societal factors that contribute to childhood adversity. While findings by such studies as the ACEs and the NCANDS have proved useful, these data are limited to maltreatment committed by children's primary care providers within their homes. Other studies, such as the NatSCEV consider neighborhood factors, but are limited to the impacts of violence at home, and violent crimes at community levels. None of these studies examine the contribution of poverty as an underlying factor.

An emerging multidisciplinary science in human development supports an eco-bio-developmental framework in efforts to understand impacts of the environment in which children live and grow over their life span. Children's development is driven by the ongoing interaction between children's biology at the genetic levels, and their ecology of the social and physical

environment (Shonkoff & Garner, 2012). Children's pre and/or post natal experience with adversity not only impacts victims at a neurological level in the form of genetic expression, it can alter a body's future reactivity to environmental stress (Roth, Lubin, Funk & Stewart, 2009; McGowan & Szyf, 20109). Stress plays a crucial role in the ongoing interaction between the body and the environment. The body's response under duress with potential alteration impacts health (Center on the Developing Child, 2010). The frequent and persistent stress children experience through maltreatment, poverty, and exposure to violence is the most common, unifying element in defining childhood adversity.

Adverse conditions, including poverty, neighborhood violence, and maltreatment place children in a constant state of reaction to a high level of stress with harmful consequences. Some level of stress is normal, even essential in child development. But exposure to sustained level of high stress, where the body responds to the adverse stimulus as it should in a "fight or flight" situation tasks the body at a cellular and neurological level. When sustained overtime, this condition, known as "toxic stress," potentially seriously impairs cognitive functioning and the physical health of the stessee. Supportive and nurturing parenting can buffer toxic stress so for children who face challenging familial conditions toxic stress takes its toll. Childhood adversity via "toxic stress" increases risks of impaired development in children, including destructive effects on their long term learning, behavior, and health across the lifespan. Childhood adversity characterized by chronic maltreatment, poverty, family conflict, and exposure to violent conditions at home or in the community are well documented causes of "a physiological and psychological reaction to a strong, frequent, and prolonged stress" (Shonkoff & Garner, 2011, page 235).

Resilience in the Face of Adversity

Much of the literature understandably seeks to expand our understanding of the negative and long term consequences of adversity. Most of these investigations have been cross-sectional and primarily focused on psychopathology and negative outcomes. Few studies have taken a strengths perspective and examine positive outcomes or adaptive adult functioning despite adversity. Studies of resilience show children who experience adversities do not necessarily end up with poor health and socio-economic outcomes as adults. In fact, a considerable number of individuals who lived through harsh childhood conditions have gone on to lead healthy and successful lives (Fergusson & Horwood, 2003; Masten & Gewirtz, 2006; Widom, 2009). While some resilience can be attributed to individual traits (Werner, 1984), studies suggest that it can also be facilitated and nurtured in the context of the environment in which children live (Brooks, 2006). The early recognition, and reduction or elimination of risk factors, particularly childhood adversities that predict poor adult outcomes have long been perceived to encourage resilience (Alvord & Grados, 2005; Masten Bert, & Garmezy, 1990). Advances in the field point to the importance of understanding each child's unique eco-bio-developmental context in order to nurture protective factors that promote positive child development (Shonkoff & Garner, 2011). Protective factors act to buffer or alter the potentially negative trajectory (Zolkoski & Bullock, 2012) that may occur from childhood adversity or other negative predictors with detrimental outcomes. Protective factors may also stem from individuals' personal characteristics (Rutter, 2002), family conditions (Baumrind, 1991), or community factors (Masten, 2007). A greater understanding of factors that contribute to resilience can inspire and inform interventions intended to mitigate the deleterious impacts of childhood adversity and to promote positive adult outcomes.

Attachment theory provides the basis in much of the contemporary investigation of various protective factors that buffer negative outcomes. Clearly, nurturance and support to children by their parents and primary care providers is among the most fundamental protective factor that may buffer against potential effects of toxic stress due to childhood adversity (Shonkoff et al., 2011). Lack of such secure attachment with parents is a risk factor which considerably increases children's odds of engaging in antisocial behaviors and poor outcomes in a long run (Shonkoff, 2011). Evidence indicates that various types of support outside the home, including support by friends and teachers in school settings have shown to act as buffers of antisocial behaviors (Schmidt & Bagwell, 2007). Schools and schooling are major source of influence into the lives of children, thus can also be a source of resilience and protection for vulnerable children (Catalano, Haggerty, Oesterle, Fleming, et al., 2004; Hawkins & Herrenkohl, 2003; Monahan, Oesterle, & Hawkins, 2010). In fact, connectedness and bonding to school, where children receive support and have a sense of belonging, and achieve small academic success, was found to serve as a protective factor for children who experienced family adversity (Center for Disease Control, 2009;). Loukas, Suzuki, and Horton (2006) also found that bonding to school is associated with reduced reports of conduct problems. Hence positive social attachments in the family or in the school environment may help to buffer the risk of childhood adversity.

Proposed Study

This dissertation seeks to examine an expanded definition of childhood adversity and its resulting impact on positive adult outcomes. The study takes a life-course approach as it investigates how adverse childhood experiences, including maltreatment, family conflict and poor bonding, poor neighborhood attachment, and poverty impact outcomes at 27 years old.

Second, this study investigates whether and how consequences of childhood adversity vary across racial groups. This investigation attempts to shed light on whether children of color who experienced adversity and disparate long term outcomes as suggested in contemporary literature is reflected in this longitudinal data (among this cohort). Third, this study seeks to explore whether a school attachment and commitment can buffer the negative trajectory of childhood adversity and support resilient outcomes. Together this study provides information that can be used to raise public awareness and contribute to the design of preventive approaches to reduce childhood adversity.

Research Questions:

Question 1: Does childhood adversity have a direct effect on resilient adult functioning (See Figure 2.1)?

Question 2: Does the effect vary across racial groups (See Figure 2.2)?

Question 3: Does school bonding (High School) moderate these relationships (See figure 2.3)?

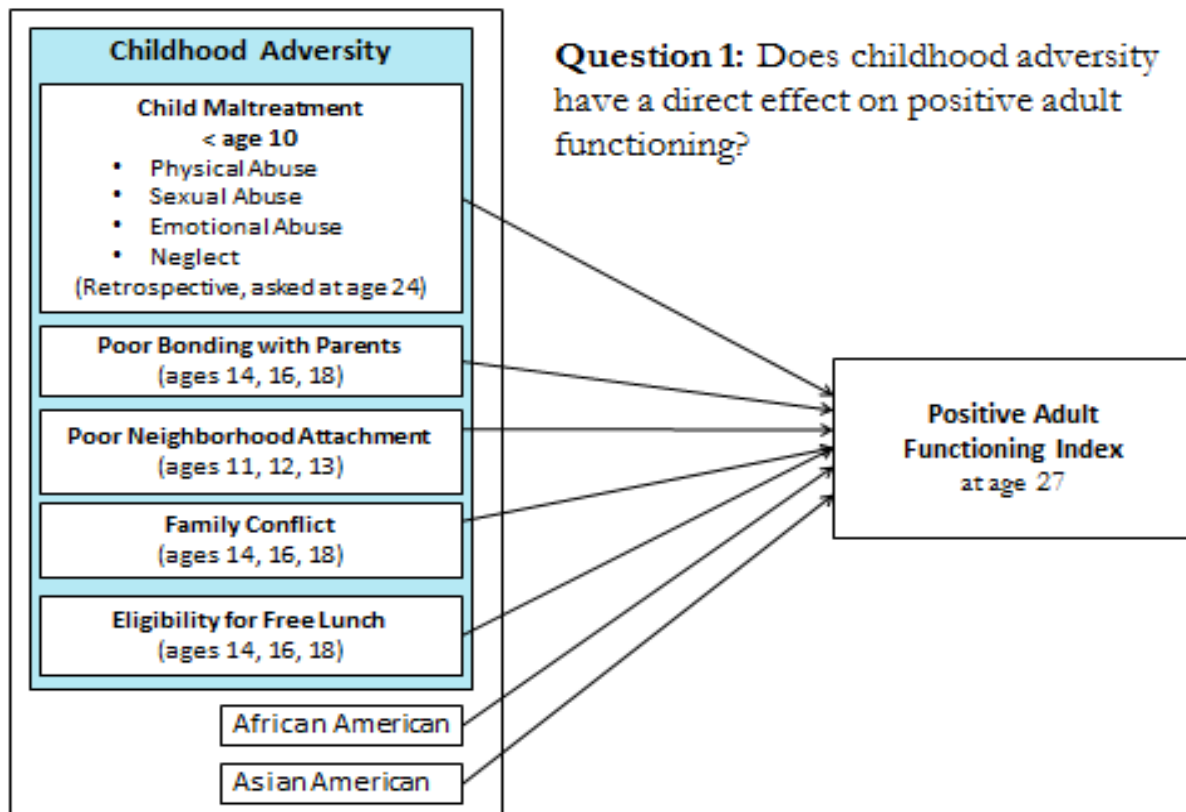


Figure 2.1: Childhood Adversity on Positive Adult Functioning.

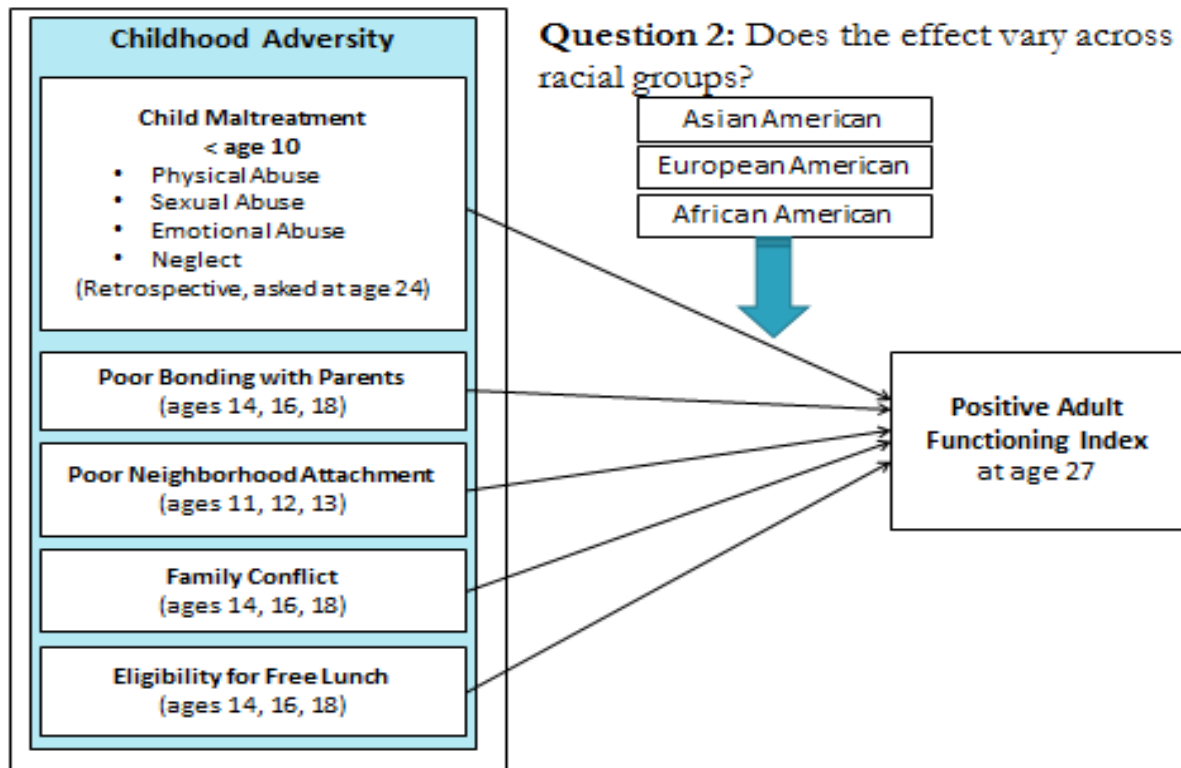


Figure 2.2: Childhood Adversity on Positive Adult Functioning Across Racial Groups.

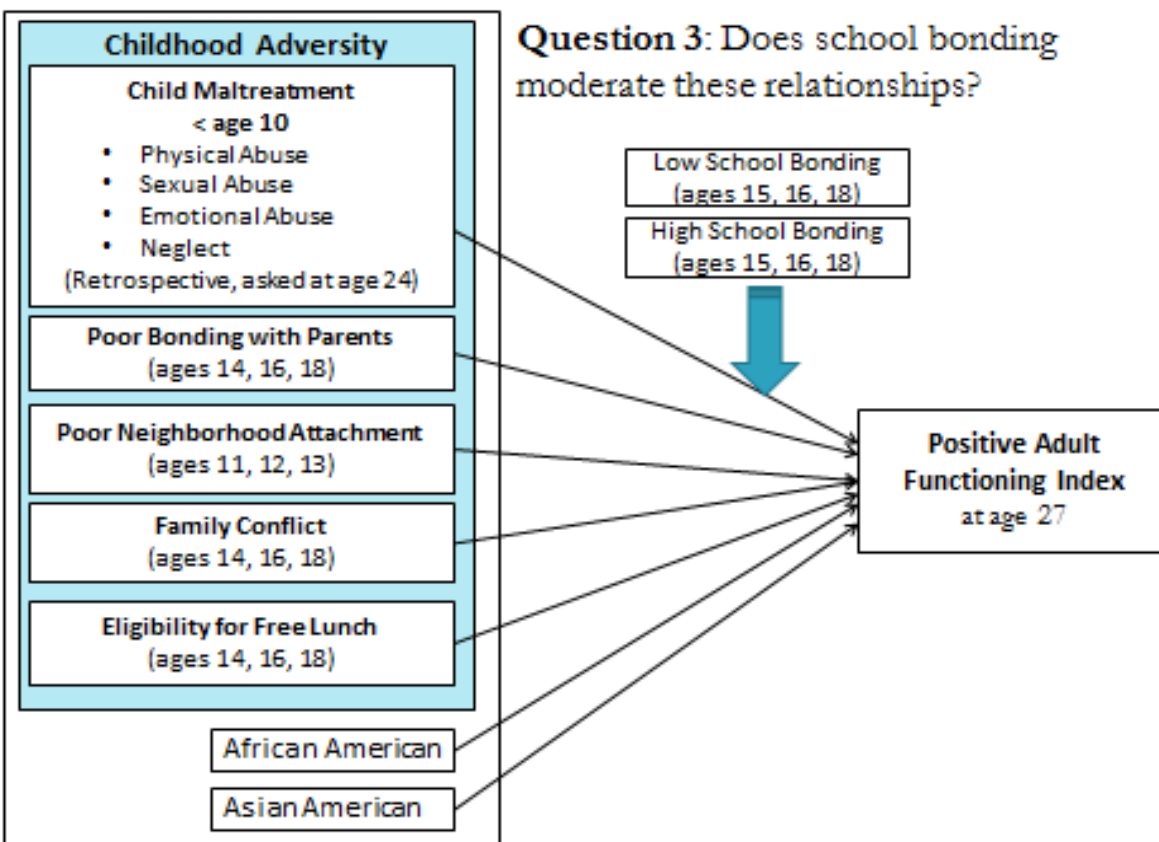


Figure 2.3: Childhood Adversity on Positive Adult Functioning, High or Low Bonding to School as a Moderator.

CHAPTER 3: METHODOLOGY

This chapter is organized into three sections. The first section consists of a description of the research design of the parent study from which these data originate, and a description of the sample. Next a description of the measures is presented. Lastly a description of the analyses is offered.

Design

The Seattle Social Development Project (SSDP) is a longitudinal cohort study designed to investigate the development of pro-social and anti-social behaviors among youth and young adults. The principle investigators of the initial study were Drs. J. David Hawkins and Richard F. Catalano, and the project was funded by the National Institute on Drug Abuse (Prevention Research Branch), the Office of Juvenile Justice and Delinquency Prevention, the Robert Wood Johnson Foundation, and the Burlington Northern Foundation. The study began in 1985 with the identification of 18 elementary schools that served families in high-crime neighborhoods in an urban area in the Pacific Northwest. The study population included all fifth graders in these schools ($N = 1,053$). A total of 808 students (77% of the identified population) and their families agreed to participate in the study (Hawkins, Catalano, Morrison, O'Donnell, et al., 1992). The panel was interviewed in 12 waves, annually in Grades 5 – 10, in Grade 12, and every 3rd year thereafter from 1985 through 2002 when most participants were 27 years old. Completion rates for interviews across these time points range from 93% to 95%.

Sample Description

The sample for these analyses consists of a subset of the main project to accommodate the examination of racial sub-groups. The subset consists of seven hundred thirty seven participants who identified themselves as either European American, 51% of this subset (n=374), African American 26% (n=192), and Asian-Americans 23% (n=171). Males and females were equally represented. There are several demographic differences among these groups. Thirty four percent of the study sample reported eligibility for free lunch in 5th, 6th and 7th grades. Of those eligible, African Americans represented 75%, while European Americans represented 31%, and 16% were Asia Americans. With regards to family structure in 12th grade, 11% of the European American lived in a single parent household while 25% of African Americans, and slightly less than 2% of the Asian Americans. During the same period, 1% of European Americans, 2% of African Americans, and less than 1% of Asian American participants reporting being in foster care.

Measures

Positive Adult Functioning

The outcome measure is based on self-reported data in 1992 when the average age of participants was 27. Positive adult functioning reflects a number of different constructs such as participants' educational achievement, employment status, qualities in varying levels of social and interpersonal relationships, and degree of engagement at a group, community and societal level. Nine distinct scales were created in prior SSDP analyses (see Kosterman, Hawkins, Abbott, Hill, et al., 2005; Oesterle, Hill, Hawkins, and Abbott, 2008) and utilized in the study as a cumulative index. These scales assess bonding to work, civic engagement, educational attainment, financial responsibility, group involvement, neighborliness, bonding with friends,

bonding to partners, and constructive engagement. These scales were standardized, and combined to create a positive adult functioning index.

Bonding to work emphasizes how participants relate to their jobs or work experience, with particular focus on their levels of motivation and commitment to their employment (Oesterle et al., 2008). This scale consisted of six items with a strong reliability ($\alpha = 0.83$). Some example items include, “Most days, I look forward to going to work,” “I like my job,” “Doing well at my job is important to me.”

Civic engagement focuses on the extent to which respondents actively participate in their community (Oesterle et al., 2008). Six dichotomous items assessed assessing participants’ levels of engagement in civic activities were aggregated into an index score. Examples of these items include, “[I have] written to an elected official in the last year,” “I voted in the most recent election,” and “[I have gone] to a political meeting in the past year.”

Educational attainment was measured by a single item reflecting the highest level of education or degree attained by participants at age 27 (Oesterle et al., 2008). Participants were asked to select the level of education they have attained ranging from “8th grade or less,” “Some high school,” “GED certificate,” “High school graduate,” “Some technical/vocational school,” “Technical/vocational graduate,” “Some college,” “two-year college graduate,” “four-year college grad,” “some post-graduate,” and “post-college or professional degree.”

Financial responsibility was assessed with a three item index that examined participants’ perception of the importance of managing money and the sense of responsibility about spending (Kosterman et al., 2005). The items were, “In the past three years, I wasted money the family needed,” “In the past year how often have you wasted money the family needed?” and “How important is it to be careful about spending?” Response to the first question was dichotomous

(Yes/No). The last two questions used a five item Likert scale ranging from “1 = almost always/very important,” to “5 = almost never/not important.” All items were recoded to indicate that the lower response reflected greater financial responsibility, then the scale was standardized and aggregated as a mean score.

Another aspect of positive adult functioning was defined by participants’ *group involvement*. Group involvement was assessed by the degree to which participants engaged in organized group activities, using two questions regarding their involvement in social and special interest clubs and groups in the school setting, outside school, and in the work place. The total count of groups with which respondents participated during the past year reflects the group involvement scale (Oesterle et al., 2008).

Quality of participants’ relationship with neighbors is noted as an important component of positive adult functioning (Kosterman et al., 2005). The neighborliness scale utilized three items, “How often do you and your neighbor interact, talk with each other”, “How often do you watch each other’s properties when someone is away,” and “How often do visit in each other's homes?” Response options used a Likert scale ranging from “almost never,” “less than once a month,” “almost once a month,” “almost once a week,” and “every or almost every day.” The scale score reflects a mean of the three items ($\alpha=0.75$).

Two scales considered levels and quality of participants’ interpersonal connections, including friendship and intimate relationships (Oesterle et al., 2008). The *bonding-to-partner/spouse* scale was comprised of three items, “How close is your relationship with your partner?” “Would you like to be like partner?” and “I share thoughts and feelings with my partner.” Its alpha reliability was 0.76. Seven hundred forty seven, (68%) of the participants reported having a partner or spouse at age 27. Items in the bonding to friends scale asked about

the frequency of positive interactions participants reported to have had with 5 out of their 10 closest friends. Examples of items in this scale include, “How close is your relationship with friend A?” and “How often do you interact with person 1?” The response options ranged between 1 = Extremely Close, 2 = Quite Close, 3 = Somewhat close, 4 = Not very close, 5=not at all close. An average scale score was created with an alpha reliability of 0.68.

Constructive engagement utilized information from life-history calendar data (Caspi, Moffitt, Thornton, Freedman, et al., 1996) to identify participants’ average levels of involvement in home making, internship, and/or volunteer work during each month for the past year (Oesterle et al., 2008). Participants were categorized as working full-time if they worked 35 hours or more per week, and part time if they worked less than 35 hours per week. Similar numbers of hours are used to determine participants’ full or part time school attendance status.

Childhood Adversity

This study measured five constructs as indicators of childhood adversity: child abuse and neglect, poor bonding with parents, poor neighborhood attachment, family conflict, and low income status.

Child Abuse and Neglect

A latent factor was created utilizing items from the Childhood Trauma questionnaire (Bernstein, Ahluvala, Pogge, and Handelsman, 1997) and modified by Hill, Tabares, Herrenkohl, Abbot, et al. (2008). The items used in these analyses were asked retrospectively in 1999 when participants were 24 years old. Participants were asked to think back before they turned 18, and recall if and how frequently a particular incident occurred (1=Never, 2 = Rarely, 3 = sometimes, 4 = Often, 5 = Always), or whether or how true a particular incident stated in the items reflected their situation (1=Never true, 2 = Rarely true, 3 = sometimes true, 4 = Often true, 5 = Always

true). The items ask participants to consider incidents that occurred during their childhood, without specifying sources of the perpetration

Five items assess physical abuse. Examples of items included, “People in my family hit me so hard that it left me with bruises or marks”, “I got hit or beaten so badly that it was noticed by someone like a teacher or a doctor”, and “I believe that I was physically abused.” The alpha reliability for the total sample was 0.80. The reliability for each ethnic group was as 0.72 for Asian Americans, 0.76 for African Americans and 0.84.

Five items measured participants’ experiences of direct sexual victimization, attempted and/or actual sexual violations, and sexual exploitation. Examples include, “Someone molested me,” “Someone tried to make me do/watch sexual things,” and “I believe I was sexually abused.” The alpha reliability for the total sample was 0.94, 0.94 for European Americans, 0.92 for African Americans, and 0.95 for Asian Americans.

The emotional abuse was appraised by 5 items including, “I thought my parents wished I had never been born,” “People in my family said hurtful or insulting things to me,” and “I felt that someone in my family hated me.” The alpha reliability for the total sample was 0.85, 0.87 for European Americans, 0.86 for African Americans, and 0.80 for Asian Americans.

Lastly, 5 items assessed neglect with examples being, “I didn't have enough to eat,” “I knew that there was someone to take care of me and protect me,” and “My parents were too drunk/high to take care of the family”. The alpha reliability for the total sample was 0.70, 0.74 for European Americans, 0.74 for African Americans, and 0.44 for Asian Americans. There was little variance among items in this scale for the Asian American group, particularly with the item, “My parents were too drunk/high to take care of the family,” thereby contributing to the low alpha reliability.

Poor Bonding to Parents

Four items assessed youths' desire to be like either parent. The items used a 4 point Likert-type scale "YES!", "yes,", "no", and "NO!" Example items used to create this scale are: "Do you like to be the kind of mother your mother is?" and "In the past year, did you share your thoughts and feelings with your father?" Participants' responses during the 6th, 8th, 10th, and 12th grade calendars were averaged to create this scale. The alpha reliability of the scale for the total sample was 0.83. The reliability was 0.86 for African Americans, 0.82 for European Americans, and 0.82 for Asian Americans.

Family Conflict

The family conflict scale consisted of three items, "How often is your family critical with each other?", "How often does your family argue?", and "How often does your family yell at each other?" The scale utilized data from 8th, 9th, 10th, and 12th grades. Again an average scale score was computed across the time points. The alpha reliability of the total sample was 0.89, 0.87 for Asian Americans, 0.89 for European Americans, and 0.90 for African Americans.

Poor Neighborhood Attachment

Four items measured the level of safety and connection participants have regarding their neighborhood. Assessments were taken in the 9th, 10th, and 12th grade interview calendar. Example items include, "I feel safe in my neighborhood," "If I had to move, I would miss the neighborhood I now live in," and "I like to get out of neighborhood." The scale score is the computed mean across the three time points. The alpha reliability for the total sample was 0.87, the same (0.87) for both the African American and Asian American samples, and 0.88 for European Americans.

Low Income Status

A proxy measure of low income status was derived using school records on students eligibility for a reduced price or free school lunch in 5th, 6th and 7th grades (0=not eligible, 1=eligible). A scale was developed by computing an average score across the three time points.

Bonding to School

In order to examine possible moderation effects, school bonding was assessed by 7 items collected when participants were in 9th, 10th, and 12th grades. A mean score was calculated for each grade; then the average across time points was computed to create the scale (Catalano, Haggerty, Oesterle, Fleming, and Hawkins 2004). Examples of items include, “When I have an assignment to do, I keep working on it until it is finished;” “I do extra work on my own in class;” and “I look forward to going to school,” I do extra work on my own.” In order to create two groups for moderation analyses, the initial Likert response options (YES!, yes, no, and NO!), were dichotomized in which with responses 1 through 3 were collapsed. These items were then averaged and the top quartile was recoded to reflect the high school bonded group (N=176) and the remaining reflects the low school bonded group (N=525).

A complete list of items, organized by corresponding constructs is available in the Appendix.

Analytic Strategy

Initial steps in data preparation, including recoding, developing scales and indexes, and examination of the distribution of items, was done using Statistical Package for Social Sciences 17.0 (SPSS) software (Nie, Hull, Jenkins, Steinbrenner, and Bent, 1975). Subsequent multiple group analyses were conducted with Mplus, version 6 (Muthen and Muthen, 2010). Maximum

likelihood estimation was used with all of the models to address missing data (Enders and Bandalos, 2001).

The dissertation analyses seek to investigate the following questions:

- Does childhood adversity have a direct effect on resilient adult functioning?
- Does the effect vary across racial groups? More specifically, (a) Do childhood adversities predict adult functioning for different racial/ethnic groups? (b) Do the relationships between childhood adversities and adult function differ by race/ethnicity?
- Does school bonding moderate these relationships?

To begin the frequency distributions of all individual items used in the analyses were examined in order to provide descriptive information on the composition of these constructs as well as correlations to examine the key constructs.

A portion of the sample was exposed to a multicomponent preventive intervention in the elementary grades, consisting of teacher training, parenting classes, and social competence training for children (see Hawkins, Guo, Hill, Battin-Pearson, and Abbott, 2001, for a description and analysis of the intervention and effects). Analyses were conducted to examine comparisons across SDRG intervention of treatment groups. Similar steps taken to answer the above three questions were followed, where a multiple group CFA and multiple group SEM were conducted to compare models of participants that received the treatment versus those who did not receive the treatment. Results suggest that models were consistent across the treatment and the control groups suggesting no substantial group differences in the relationships of interest in this report, supporting a single group analysis.

To address the first question, a single group analysis using Mplus was conducted to examine the relationship between various childhood adversities on positive adult functioning in the full sample. A confirmatory factor analysis (CFA) model was used to test the adequacy of measurement of the child abuse latent construct and to examine the overall associations among constructs in the model. In this analysis, the factor loading of the first variable, physical abuse was fixed at one, and the rest were estimated freely. Following the CFA, a structural model was created to examine the relationships between the five childhood adversity measures and the positive adult functioning index. Model fit for both the CFA and structural models was assessed using the Comparative Fit Index (CFI) (Bentler, 1990), Tucker Lew Index (TLI) (Tucker and Lewis, 1973), and the root mean square error of approximation (RMSEA) statistics (Hu and Bentler, 1999). Bentler (1990) suggests a CFI value of greater than 0.90 indicates a good fit while Hu and Bentler (1999) suggest a RMSEA of $\leq .06$ as a cutoff for a good model fit.

To address the second question, the first step taken was to examine whether there were differences in means and standard deviations of childhood adversity by the three ethnic/racial groups using Analysis of Variance (ANOVA). Then a multiple group CFA and SEM were examined the three groups, African Americans (n= 192), Asian Americans (n= 171), and European Americans (n= 374), for which dummy variables were created (1=African Americans; -1=Asian Americans; and 0=European Americans) in these analyses. Model fit was examined similar to the first analysis. Next for both the measurement (CFA) and structural models, a comparison of two nested models (i.e., unconstrained and constrained models; Byrne, 1994) was examined. The unconstrained models allow all model parameters to be estimated freely for each racial group. It assesses whether there is a consistent pattern of factor loadings for the child abuse construct across groups or configural invariance (Vandenberg and Lance, 2000). In the

constrained measurement model, cross-group equality constraints were placed on all factor loadings while covariances among factors were freely estimated for each group. In the constrained structural model, cross-group equality constraints were placed on all hypothesized paths between factors. For both the measurement and structural models, the equality constraints were made between the European Americans (the reference group), and the other two racial groups (Asian Americans and African Americans). In the measurement models, all factor loadings and factor correlations were freely estimated, but factor variances were constrained to 1.00. In the structural model, one of the indicators (physical abuse) was fixed to 1.00. Factor variances and the hypothesized paths were freely estimated.

The fit across models was investigated by examining the change in chi-square (χ^2) and degrees of freedom (df) between the unconstrained model and constrained model. The difference indicates whether the constrained model provides a significantly worse fit than the unconstrained model (Gregorich, 2006; Meredith, 1993), suggesting differences between groups. However, this test has been identified to be sensitive to large sample sizes potentially leading to an excessively restrictive test of invariance (Cheung and Rensvold, 2002). To address this concern, the ratio of the difference in the chi-square and degree of freedom between the unconstrained and constrained models was calculated, a ratio less than the cutoff value of 5 suggests no difference between groups (Rosay, Gottfredson, Armstrong, and Harmon, 2000; Wheaton, 1988). In addition to comparing changes in the fit between the unconstrained and constrained models, differences on specific factor loadings were evaluated by releasing particular factors which may improve the model fit (Bentler, 1990).

If the goodness-of-fit examination for the multiple group analysis indicates significant difference between groups, a One-Way ANOVA Post Hoc test is conducted to determine which

pairs of racial groups differ on the paths on which differences have been identified. In this process, the Fisher Least Significant Difference (LSD) post-hoc test was further used to identify which groups significantly differ (Mertler and Vannatta, 2005).

To answer the third question, the full sample was categorized as either having low bonding to school or having high bonding to school as described in the Measures section. Based on this classification, the low school bonded group consisted of 525 participants, and the high school bonded group consisted of 176 participants. Considering its larger size, the low bonding to school group was chosen as the reference group in both the multiple group confirmatory factor analysis (MGCFA) and multiple group structural equation modeling (MGSEM) analyses. Similar procedure as the ANOVA, MGCFA, GCFA and MGSEM for question #2 were followed for these analyses.

CHAPTER 4: RESULTS

Question 1: Do childhood adversities, as measured in child maltreatment (physical abuse, sexual abuse, emotional abuse and neglect), poor bonding with parents, poor neighborhood attachment, family conflict, and eligibility for free lunch have a direct effect on positive adult functioning?

In order to begin exploring this question, descriptive statistics and zero order correlations were examined (see Table 4.1a). All zero order correlations between childhood adversities and positive adult functioning are all negative and statistically significant. All of the unadjusted associations between the adversity predictors and positive adult functioning were in the expected direction and statistically significant. In these analyses, two variables were constructed to examine the effects of racial group with European American as the reference. Being African American was not associated with positive adult functioning, while being Asian American was positively associated with positive adult functioning.

The full sample CFA analysis to examine the measurement of the latent child abuse and neglect construct suggests a good fit with a CFI of 0.979, TLI of 0.95, and RMSEA of 0.042. The standardized and unstandardized factor loadings indicate strong associations. Results are provided in Table 4.1b.

Next a structural model was examined to estimate the paths between the hypothesized childhood adversity predictors and positive adult functioning. The full sample SEM also had a good fit with a CFI of 0.969, TLI of 0.946, and RMSEA of 0.042 (see Table 4.1c). There were significant paths between child abuse and neglect, poor bonding with parents, and low income status. Being Asian American was positively, significantly related to positive adult functioning

(see Figure 4.1). In contrast to the pair wise correlations, structural paths between being African American, family conflict, and poor neighborhood attachment were not significantly related to positive adult functioning.

Question 2: Do the relationships between childhood adversities and positive adult functioning differ by race?

The frequencies of predictor variables along with the test for significant difference across groups are presented in (Table 4.2a). The results show significant differences between ethnic/racial groups for four of five predictors with poor bonding to parents being the exception. There was no difference on the outcome. Table 4.2b presents zero order correlation matrices among the predictors and positive adult functioning for each of the racial groups. For Asian Americans, only poor bonding with parents and poor neighborhood attachment had significant associations with adult functioning. Among African Americans, child abuse and neglect and poor bonding with parents were significantly related to adult functioning. Lastly among European Americans, each of the childhood adversities were negatively and significantly related to positive adult functioning.

The standardized and unstandardized CFA factor loadings for the child abuse and neglect (or child maltreatment) latent variable are provided in Table 4.2c. All factor loadings were positive and statistically significant across the three racial group samples. The magnitudes were mostly similar across groups, except for the neglect loading among the Asian American group was noticeably lower when compared with other two groups. The fit statistics for the CFA for the unconstrained model suggest a good fit with CFI of 0.957, TLI of 0.918, and RMSEA of

0.059. The constrained model also had a good fit with CFI of 0.946, TLI 0.908, and RMSEA 0.063. The difference in degrees of freedom between models was 6 and 17.883 chi square which was significant suggesting a minor measurement difference between groups. However if one examines the ratio of difference (Rosay et al., 2000) and the cutoff value of 5 recommended by Wheaton (1988) then it appears that the results suggest configural invariance as the ratio is 2.98. Given this finding, analyses proceeded to examine the structural model.

The fit of the structural model indicate a similarly good fit for both the unconstrained (CFI = 0.947, TLI = 0.916, RMSEA = 0.059) and the constrained model (CFI = 0.935, TLI = 0.912, RMSEA = 0.061), with the difference (see Table 4.2d). The difference in chi-square and degrees of freedom between the unconstrained and constrained models was non-significant and ratio below 5 (2.98). Further examination was conducted to explore differences between specific paths, see Table 4.2e. Here a summary of fits are presented for the MGSEM with the change in chi-square and degrees of freedom based on a comparison with a model in which all structural paths are constrained to equality across three racial groups. The results of the full model suggest that there were significant differences between the constrained and unconstrained models so further investigation was conducted to free each predictor path one at a time. The paths between child abuse and neglect, poor family bonding, family conflict and adult functioning were different across constrained and unconstrained models suggesting group differences in relationships (see Figure 4.2a).

In examining the paths for each group, beginning with the African Americans, none of the childhood adversity predictors had a significant unique effect on positive adult functioning (see Table 4.2f). Among Asian Americans, poor neighborhood attachment and poor bonding with parents had significant negative effects on adult functioning. For European Americans,

child abuse and neglect, poor bonding with parents, and low income status were negatively related to adult functioning.

Lastly further post hoc analyses were conducted by running pair wise models with different groups' loadings fixed or allowed to be free and examining child abuse and neglect, poor parental bonding and a model combining these two predictors. Comparative models were run in which: (a) African Americans and European Americans were fixed to be equal and Asian Americans free; (b) European Americans and Asian Americans were fixed to be equal with African Americans free; and (c) Asian Americans and African Americans fixed to be equal with European Americans free (see Table 4.2g). The significant pair-wise differences are between the European and African American groups. Results of the standardized and unstandardized estimates of the unconstrained paths when paths were not fixed to be equal across groups, show that the estimates are most strongly negative for the European American group and weakest for the African American group, with Asian Americans in between. In other words, these results indicate that impacts of child abuse and neglect, poor bonding with parents, and the combination of these two predictors on positive adult functioning are strongest for European Americans and weakest for African Americans. These results are based on analyses with the measurement model of child abuse and neglect constrained to be equal across groups (i.e., with factor loadings of indicators constrained to be the same for the three groups). However, analyses with factor loadings unconstrained across groups (not tabled) also show similar results, with paths from child abuse and neglect to adult functioning and bonding with parents to adult functioning showing evidence that the relationships differ across groups (see Table 4.2f).

In summary, these findings suggest that the measurement model is appropriate across groups and the fit of the structural model is good. There is evidence that the effects of predictors

are manifested differently among the three ethnic groups with the association between childhood adversity factors and positive adult functioning strongest among European Americans and providing little explanation as predictors among African Americans.

Question 3: Does school bonding moderate the relationship between childhood adversity and positive adult functioning?

Following a similar set of similar analytic strategies to answer Question 2, these analyses began with an examination of descriptive statistics and zero order correlations for the child adversity predictors and positive adult functioning by participants who were categorized as having either low school bonding or high school bonding (see Table 4.3a). There were group differences on all of the predictors with the exception of low income status. Additionally low and high bonded groups differed on their average outcome level. The correlations between predictors and adult functioning for the low school bonded group (LSB) were all negative and significant, except identifying as Asian American which remained significant but positively contributed to positive adult functioning (see Table 4.3b). For high school bonded group (HSB), the correlations between childhood adversities and adult functioning were all negative and significant with the exception of family conflict which was not significantly related.

The standardized and unstandardized factor loadings for the unconstrained model for the latent child abuse and neglect variable are presented in Tables 4.3c and d. The fit indices suggest a good fit for the unconstrained CFA ($\chi^2 (46) = 75.640$, CFI = 0.973, TLI = 0.946, RMSEA = 0.043) and for the constrained model ($\chi^2 (49) = 85.227$, CFI = 0.972, TLI = 0.938, RMSEA = 0.046) (see Table 4.3d). The examination of the constrained and unconstrained CFA indicates a

significant difference ($\Delta\chi^2=9.587$, $\Delta df=3$, $p<0.05$), however if one examines the ratio of the difference in chi-square statistics and degrees of freedom between the constrained and unconstrained models it is less than the cut-off value of 5 (3.19). The factor loadings are all in the same direction with similar magnitude, indicating evidence of configural invariance, which allows us to proceed to the structural model.

In examining the structural model, there appears to be a good fit with the unconstrained model ($\chi^2(52) = 112.188$, CFI = 0.933, TLI = 0.896, RMSEA = 0.057) (see Table 4.3e). For the constrained model, the fit appears to improve ever slightly ($\chi^2(59) = 118.306$, CFI = 0.934, TLI = 0.910, RMSEA = 0.054). The difference in chi-square between models ($\Delta\chi^2=6.118$, $\Delta df=7$, $p<0.05$) was a significant change if 6.118 with 7 degrees of freedom, which is a significant change, yet the ratio is 0.87.

In exploring the paths between the predictors and positive adult functioning, among the low school bonded group, child abuse, poor bonding with parents, family conflict, low income status, and being Asian American are significant (see Table 4.3e). The relations between child abuse and positive adult functioning is negative, as well as with poor bonding and low income status. However the relation between being Asian and family conflict are positive with positive adult functioning among this group. Among the high school bonded group, only poor bonding with parents and low income status were significant, and both negatively with positive adult functioning (see Figure 4.3).

Table 4.1a: Means, Standard Deviations and Zero Order Correlation Matrices for Childhood Adversity Variables and the Resilient Adult Functioning Index (the Outcome) (N=737).

	1	2	3	4	5	6	7	8
1. Black	1							
2. Asian	-0.326***	1						
3. Child Abuse & Neglect	0.124***	-0.064	1					
4. Poor Bond with Parents	0.012	0.042	0.329***	1				
5. Poor Neighborhood Attachment	0.179***	-0.024	0.265***	0.348***	1			
6. Family Conflict	0.091*	-0.188***	0.430***	0.345**	0.111***	1		
7. Free Lunch	0.292***	0.170***	0.148***	0.073	0.061***	0.066	1	
8. R. Adult Functioning	-0.076*	0.056*	-0.232***	-0.279***	-0.187***	-0.131***	-0.171***	1
Mean	0.260	0.232	1.786	1.251	0.915	1.659	0.511	0.004
SD	0.422	0.439	1.972	0.484	0.563	0.768	0.500	0.380
N	737	737	654	671	711	726	737	679

*** $p < .001$; ** $p < .01$; * $p < .05$

Table 4.1b: Standardized and Unstandardized CFA Loadings of Child Abuse and Neglect Latent Factor for Full Sample (N=737).

	Unstandardized	S.E	Standardized
Child Abuse and Neglect			
Physical Abuse	1.000	0.000	0.727
Sexual Abuse	0.688	0.072	0.427
Emotional Abuse	1.511	0.086	0.859
Neglect	0.800	0.051	0.687

$\chi^2=52.537$; $df=23$; $p=0.0004$; $RMSEA=0.042$; $CFI=0.979$; $TLI=0.950$

Table 4.1c: Estimates for Structural Paths from Childhood Adversities to Resilient Adult Functioning for Full Sample (N=737)

	Unstandardized Estimate	S.E	Standardized Estimate	P-Value
African American	0.022	0.036	0.025	0.547
Asian American	0.087	0.037	0.097	0.019
Child Abuse & Neglect	-0.118	0.041	-0.138	0.004
Poor Bonding With Parents	-0.175	0.034	-0.223	0.000
Poor Neighborhood Attachment	-0.037	0.038	-0.055	0.181
Family Conflict	0.022	0.021	0.045	0.287
Free Lunch	-0.114	0.031	-0.150	0.000

$\chi^2(23)=52.537, p=0.0004$; RMSEA=.042; CFI=.969; TLI=.946

Note. CFI=Comparative Fit Index; TLI=Tucker Lewis Index; RMSEA=Residual Mean Square Error Approximation.

Question 2: A. Do childhood adversities predict adult functioning for different racial/ethnic groups? **B.** Do the relationships between childhood adversities and adult function differ by race/ethnicity?

Table 4.2a: The Mean (M), Standard Deviation (SD), and F-test (F) Differences among Racial Groups

	Asian Americans (n=171)	European Americans (n=374)	African Americans (n=192)	Group Difference
	M(SD)	M(SD)	M(SD)	F from ANOVA
Child Abuse & Neglect	1.51(1.40) ^a	1.68(1.93) ^b	2.26(2.39) ^{a b}	6.73*
Poor Bonding to Parents	1.29(0.47)	1.29(0.46)	1.26(0.52)	1.39
Poor Neighborhood Attach	0.89(0.53) ^a	0.89(0.53) ^b	1.08(0.58) ^{a b}	12.11*
Family Conflict	1.40(0.67) ^{a b}	1.71(0.72) ^{a b}	1.78(0.87) ^a	13.49*
Free Lunch	0.66(0.47) ^a	0.31(0.46) ^{a b}	0.75(0.43) ^b	71.10*
Resilient Adult Functioning	19.39(4.95)	19.93(4.60)	18.40(4.49)	2.01

** $P < .01$; * $p < .05$, NOTE: Frequencies and means frequencies with the same superscript are significantly different from one another ($p < .05$).

Table 4.2b: (CFA all covariances and factor loadings free), Zero Order Correlation Matrices among Child Abuse and Neglect Factors and the Outcome Index for European Americans (n=374), Asian Americans (n=171), and African Americans (n=192).

Group Asian American (n=171)	1	2	3	4	5	6
1. Child Abuse & Neglect	1.000					
2. Poor Bonding with Parents	0.206*	1.000				
3. Poor Neighborhood Attachment	0.176	0.209**	1.000			
4. Family Conflict	0.381****	0.384****	0.208**	1.000		
5. Free Lunch	-0.032	0.208	0.044	0.013	1.000	
6. Resilient Adult Functioning	0.055	-0.235**	-0.234**	-0.003	-0.116	1.000
Mean	0.000	1.288	0.888	1.382	0.668	0.032
SD	1.407	0.476	0.534	0.670	0.472	0.356
European American (n=374)	1	2	3	4	5	6
1. Child Abuse & Neglect	1.000					
2. Poor Bonding with Parents	0.306****	1.000				
3. Poor Neighborhood Attachment	0.224****	0.410****	1.000			
4. Family Conflict	0.370****	0.347****	0.273****	1.000		
5. Free Lunch	0.200****	0.151***	0.219****	0.149***	1.000	
6. Resilient Adult Functioning	-0.317****	-0.352***	-0.205***	-0.216***	-0.242***	1.000
Mean	1.683	1.237	0.844	1.721	0.316	0.008
SD	1.931	0.467	0.547	0.728	0.465	0.395
Group African American (n=192)	1	2	3	4	5	6
1. Child Abuse & Neglect	1.000					
2. Poor Bonding with Parents	0.227***	1.000				
3. Poor Neighborhood Attachment	0.184***	0.354****	1.000			
4. Family Conflict	0.449***	0.366****	0.255****	1.000		
5. Free Lunch	0.060	0.000	0.182*	0.066	1.000	
6. Resilient Adult Functioning	-0.166*	-0.160*	-0.076	-0.015	-0.079	1.000
Mean	2.262	1.263	1.088	1.778	0.759	-0.045
SD	2.391	0.522	0.588	0.873	0.431	0.366

**** $p < .001$; ** $p < .01$; * $p < .05$

Table 4.2c: Standardized and Unstandardized CFA Loadings of Child Abuse and Neglect Latent Factor among Asian Americans (n=171), European Americans (n=374), and African Americans (n=192).

	<u>Asian Americans (n=171)</u>				<u>European Americans (n=374)</u>				<u>African Americans (n=192)</u>			
	<i>Un. Coef.</i>	<i>S.E.</i>	<i>St. Coef.</i>	<i>P-Value</i>	<i>Un. Coef.</i>	<i>S.E.</i>	<i>St. Coef.</i>	<i>P-Value</i>	<i>Un. Coef.</i>	<i>S.E.</i>	<i>St. Coef.</i>	<i>P-Value</i>
Factor loadings												
Child abuse and neglect by												
Physical abuse	1.000	0.000	0.441	9.999	1.000	0.000	0.734	9.999	1.000	0.000	0.781	9.999
Sexual abuse	0.915	0.275	0.354	0.001	0.629	0.099	0.393	0.000	0.741	0.122	0.487	0.000
Emotional abuse	2.836	0.942	0.900	0.003	1.481	0.111	0.870	0.000	1.476	0.131	0.910	0.000
Neglect	0.432	0.616	0.272	0.007	0.835	0.070	0.718	0.000	0.849	0.085	0.742	0.000

Note: Un. Coef=Unstandardized Coefficient; St. Coef.=Standardized Coefficient; S.E.=Standard Error

Table 4.2d. Summary of the Unconstrained and Constrained CFA Fit Indices Comparison across three Racial Groups.

	χ^2	df	RMSEA	CFI	TLI	$\Delta\chi^2$	Δ df	<i>p</i> -value
MG Confirmatory Factor Analysis								
Free factor loadings	106.411	57	0.059	.957	.918			
Fixed factor loadings	124.294	63	0.063	.946	.908			
Free & Fixed Comparison						17.883	6	<0.01

p*<.05. *p* < .01. ****p* < .001.

Note: CFI=Comparative Fit Index; TLI=Tucker Lewis Index; RMSEA=Residual Mean Square Error Approximation.

Table 4.2e: Unstandardized Structural Paths and Model fit for the Unconstrained (free measurement & free structural) Models of Resilient Adult Functioning on Childhood Adversity among Asian Americans (n=171), European Americans (n=374), and African Americans (n=192).

	<u>Asian Americans (n=171)</u>				<u>European Americans (n=374)</u>				<u>African Americans (n=192)</u>			
	<i>Un. Coef.</i>	<i>S.E.</i>	<i>St. Coef.</i>	<i>P-Value</i>	<i>Un. Coef.</i>	<i>S.E.</i>	<i>St. Coef.</i>	<i>P-Value</i>	<i>Un. Coef.</i>	<i>S.E.</i>	<i>St. Coef.</i>	<i>P-Value</i>
Regression paths												
Child Abuse & Neglect	0.167	0.173	0.102	0.334	-0.171	0.054	-0.194	0.002	-0.107	0.071	-0.161	0.132
Poor Bonding With Parent	-0.194	0.066	-0.259	0.003	-0.214	0.049	-0.256	0.000	-0.096	0.069	-0.135	0.168
Poor Neighborhood Att.	-0.143	0.052	-0.214	0.006	-0.011	0.040	-0.015	0.786	0.002	0.052	0.003	0.969
Family Conflict	0.055	0.048	0.104	0.249	-0.015	0.029	-0.027	0.615	0.051	0.038	0.121	0.177
Free Lunch	-0.092	0.057	-0.122	0.109	-0.133	0.043	-0.156	0.002	-0.055	0.064	-0.165	0.385

$\chi^2 (57) = 106.411$, CFI = 0.947, TLI = 0.916, RMSEA = 0.059

Note: Un. Coef=Unstandardized Coefficient; St. Coef.=Standardized Coefficient; S.E.=Standard Error

Table 4.2f: Summary of Fit for multiple group structural models of childhood adversity predicting adult functioning; $\Delta\chi^2$ and Δdf based on comparison with model where all structural paths are constrained to equality across three racial groups.

<i>Model and Model Difference Test</i>	χ^2	df	RMSEA	CFI	TLI	$\Delta\chi^2$	Δdf	<i>p</i> -value
Full Model: All structural paths constrained (a) compared with all structural paths unconstrained (b)								
a. All structural paths constrained.	143.265	73	0.063	.925	.907			
b. All structural paths unconstrained	124.294	63	0.063	.934	.906	18.971	10	<0.05
c.The Child Abuse and Neglect (CAN) Model: All paths constrained, except CAN→PAF unconstrained								
	136.056	71	0.061	.930	.912	7.209	2	<0.05
d.Poor Bonding with Parents Model: All paths constrained, except poor bonding with parents → PAF								
	135.852	71	0.061	.930	.912	7.413	2	<0.05
e.Poor Neighborhood Attachment: All paths constrained, except poor neighborhood bonding → PAF								
	137.696	71	0.060	.932	.914	5.569	2	>0.05 (.06)
f.Family Conflict Model: All paths constrained, except family conflict → PAF								
	134.179	71	0.060	.932	.914	9.086	2	<0.05
g.The Free Lunch Model: All paths constrained, except free lunch → PAF								
	140.990	71	0.063	.925	.905	2.275	2	>0.05 (.32)

χ^2 (57) = 106.411, CFI = 0.947, TLI = 0.916, RMSEA = 0.059

* p <.05. ** p < .01. *** p < .001.

Note: CFI=Comparative Fit Index; TLI=Tucker Lewis Index; RMSEA=Residual Mean Square Error Approximation.

CAN=child abuse and neglect; PAF=Positive Adult Functioning

Table 4.2g: Summary of Post Hoc tests of Structural Fit Indices, Model Differences, and Standardized Coefficients across three Racial Groups.

<i>Model and Model Difference Test</i>	χ^2	df	RMSEA	CFI	TLI	$\Delta\chi^2$	Δ df	p-value	Unstandardized/Standardized Coefficient			
									Asian Americans	Blacks	Whites	
I. Items below kept fixed & compared with the χ^2 & df of a model where everything else fixed, except <u>Child Abuse and Neglect</u> which is left free												
Free CAN	136.056	71	0.061	.930	.912				-.072/-.050	.021/-.031	-.212***/-.241***	
a. Blacks = Whites (Asian Americans free)	143.164	72	0.063	.924	.905	7.108	1	<0.05				
b. Whites = Asian Americans (Blacks free)	136.774	72	0.061	.930	.913	0.718	1	>0.05				
c. Asian Americans = Blacks (Whites free)	136.152	72	0.060	.931	.914	0.096	1	>0.05				
II. Items below kept fixed & compared with the χ^2 & df of a model where everything else fixed, except Poor <u>Bonding with Parents</u> which is left free												
Free BONWP	135.852	71	0.061	.930	.912				-.167**/-.226**	-.041/-.057	-.239***/-.289***	
a. Blacks = Whites (Asian Americans free)	143.256	72	0.063	.924	.904	7.404	1	<0.05				
b. Whites = Asian Americans (Blacks free)	135.960	72	0.060	.931	.914	0.108	1	>0.05				
c. Asian Americans = Blacks (Whites free)	138.095	72	0.061	.929	.911	2.243	1	>0.05				
III. Items below kept fixed & compared with the χ^2 & df of a model where everything else fixed, except <u>CAN & BONDWP</u> which are left free												
CAN & BONDWP	133.039	69	0.061	.931	.910	10.22	CAN: BONDWP:		-.077/-.054 -.174**/-.234**	-.067/-.100 -.080/-.112	-.197***/-.222*** -.221***/-.263***	
a. Blacks = Whites (Asian Americans free)	143.163	71	0.064	.923	.902	0.102	2	<0.05				
b. Whites = Asian Americans (Blacks free)	134.282	71	0.060	.932	.914	8.938	2	>0.05				
c. Asian Americans = Blacks (Whites free)	134.273	71	0.060	.932	.914	8.992	2	>0.05				

Note: Blacks = African Americans; Whites = European Americans. * $p < .05$. ** $p < .01$. *** $p < .001$.

Question 3: A. Do childhood adversities predict adult functioning for children who are highly bonded to school and children who are weakly bonded to school? **B.** Does school bonding in high school moderate the relationship between childhood adversity and resilient adult functioning?

Table 4.3a: The Mean (M), Standard Deviation (SD), and F-test (F) Differences among low versus high School Bonding

	Low – Bonding to School	High – Bonding to School	Group Difference
	M(SD)	M(SD)	F from NOVA
African Americans	18(.38)	.32(47)	19.22**
Asian Americans	30(.46)	.16(.37)	19.88**
Child Abuse & Neglect	1.58(1.68)	1.92(2.07)	4.96*
Poor Bonding to Parents	1.18(0.46)	1.30(0.48)	10.75**
Poor Neighborhood Attachment	0.82(0.52)	0.99(0.58)	15.77**
Family Conflict	1.52(0.72)	1.78(0.78)	20.35**
Free Lunch	0.50(0.50)	0.48(0.50)	0.18
Resilient Adult Functioning	0.06(0.38)	-0.04(.36)	12.33**

** $P < .01$; * $p < .05$, note: Frequencies and means frequencies with the same superscript are significantly different from one another ($p < .05$).

Table 4.3b: Means, Standard Deviations and Correlation Matrices for Childhood Adversity Variables and the Resilient Adult Functioning Index with two groups: High Bonding to School and Low Bonding to School.

Low Bonding to School (n=335)	1	2	3	4	5	6	7	8
1. African Americans	1.000							
2. Asian Americans	-0.296***	1.000						
3. Child Abuse & Neglect	0.130**	-0.028	1.000					
4. Poor Bonding with Parent	0.008	0.125**	0.383***	1.000				
5. Poor Neighborhood Attachment	0.188***	0.025	0.258***	0.298***	1.000			
6. Family Conflict	0.112**	-0.155***	0.457***	0.331***	0.233***	1.000		
7. Free Lunch	0.302***	0.164***	0.122**	0.090*	0.231***	0.091*	1.000	
8. Resilient Adult Functioning	-0.092	0.036*	-0.087***	-0.298***	-0.172	-0.238**	-0.106**	1.000
Mean	0.252	0.206	1.689	1.321	0.962	1.724	0.459	-0.028
SD	0.435	0.461	1.689	0.468	0.524	0.725	0.500	0.361
High Bonding to School (n=366)	1	2	3	4	5	6	7	8
1. African Americans	1.000							
2. Asian Americans	-0.416***	1.000						
3. Child Abuse & Neglect	0.105	-0.089	1.000					
4. Poor Bonding with Parents	0.030	0.000	0.195*	1.000				
5. Poor Neighborhood Attachment	0.114	-0.024	0.243**	0.359***	1.000			
6. Family Conflict	0.237**	-0.171*	0.404***	0.236***	0.236**	1.000		
7. Free Lunch	0.237**	0.184*	0.271***	0.125	0.244**	0.101	1.000	
8. Resilient Adult Functioning	-0.052	-0.014**	-0.234**	-0.260**	-0.183	0.097	-0.247**	1.000
Mean	0.256	0.335	0.456	1.031	0.746	1.421	0.602	0.116
SD:	0.470	0.370	2.076	0.483	0.581	0.789	0.500	0.387

*** $p < .001$; ** $p < .01$; * $p < .05$

Table 4.3c: The Standardized and Unstandardized Loadings of an Unconstrained Latent Factors (CFA) by High vs. Low level of Bonding to School.

	Low level of Bonding to School (n=381)			High level of Bonding to School (n=344)		
	<i>Un. Coef.</i>	<i>S.E</i>	<i>St. Coef.</i>	<i>Un. Coef.</i>	<i>S.E.</i>	<i>St. Coef.</i>
Physical Abuse	0.354	0.024	0.663	0.628	0.053	0.845
Sexual Abuse	0.337	0.035	0.482	0.198	0.065	0.278
Emotional Abuse	0.632	0.033	0.830	0.679	0.054	0.870
Neglect	0.298	0.022	0.635	0.425	0.042	0.75

$\chi^2(49)=85.227$; RMSEA=0.046; CFI=0.972; TLI=0.938

Note. Un. Coef=Unstandardized Coefficient; St. Coef.=Standardized Coefficient; S.E.=Standard Error

Table 4.3d: Model Fit Statistics of Unconstrained and Constrained Multiple-Group Confirmatory Factor Analysis for Childhood Adversity on Resilient Adult Functioning by Low (n=366) vs. High (n=335) bonding to School: 9th – 12th grade).

	χ^2	df	RMSEA	CFI	TLI	$\Delta\chi^2$	Δ df	<i>p</i> -value
MG Confirmatory Factor Analysis								
Free Measurement	75.640	46	0.043	.973	.946			
Fixed Measurement	85.227	49	0.046	.972	.938	9.587	3	<0.05

Note: CFI=Comparative Fit Index; RMSEA=Residual Mean Square Error Approximation.

Table 4.3e: Unstandardized & Standardized Structural Paths, and Model fit for the Unconstrained (free measurement & free structure) Models of Resilient Adult Functioning on Childhood Adversity by High vs. Low level of Bonding to School.

	Low Level of Bonding to School (n=381)				High Level of Bonding to School (n=344)			
	<i>Un. Coef.</i>	<i>S.E.</i>	<i>St. Coef.</i>	<i>P-Value</i>	<i>Un. Coef.</i>	<i>S.E.</i>	<i>St. Coef.</i>	<i>P-Value</i>
African Americans	0.005	0.042	0.006	0.890	0.043	0.074	0.051	0.489
Asian Americans	0.092	0.044	0.100	0.039	0.061	0.070	0.078	0.610
Child Abuse & Neglect	-0.087	0.022	-0.232	0.000	-0.017	0.035	-0.045	0.634
Poor Bonding With Parent	-0.152	0.042	-0.188	0.000	-0.177	0.070	-0.220	0.011
Poor Neighborhood Attachment	-0.034	0.033	-0.050	0.249	-0.034	0.053	-0.052	0.525
Family Conflict	0.054	0.025	0.110	0.029	0.023	0.043	-0.045	0.599
Free Lunch	-0.108	0.035	-0.144	0.002	-0.173	0.065	-0.228	0.008

$\chi^2(49)=82.943$; RMSEA=0.044; CFI=0.962; TLI=0.938)

Note: Un. Coef=Unstandardized Coefficient; St. Coef.=Standardized Coefficient; S.E.=Standard Error

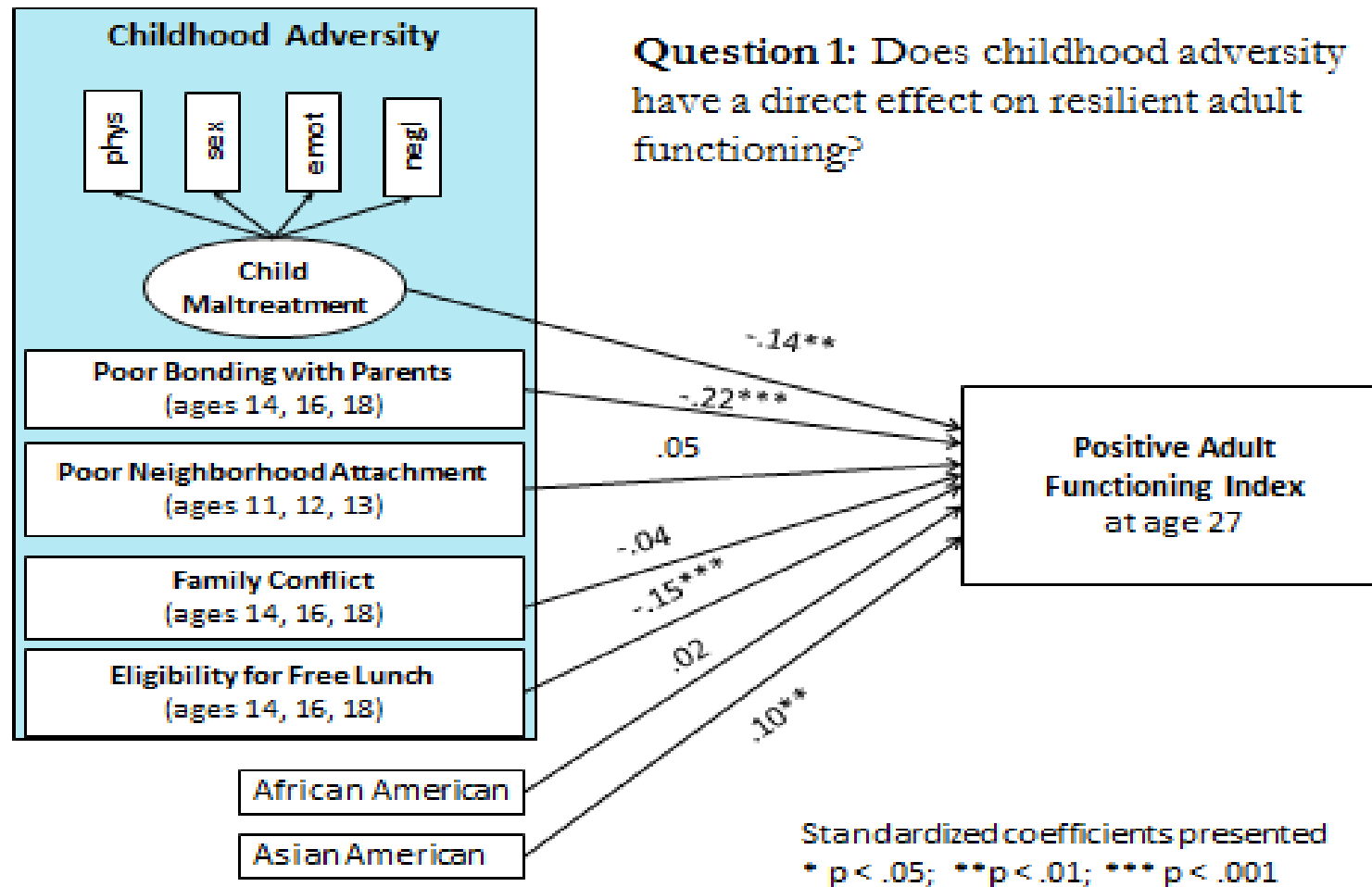


Figure 4.1: Estimates for Structural Path from Childhood Adversities to Positive Adult Functioning: Full Sample (N=737).

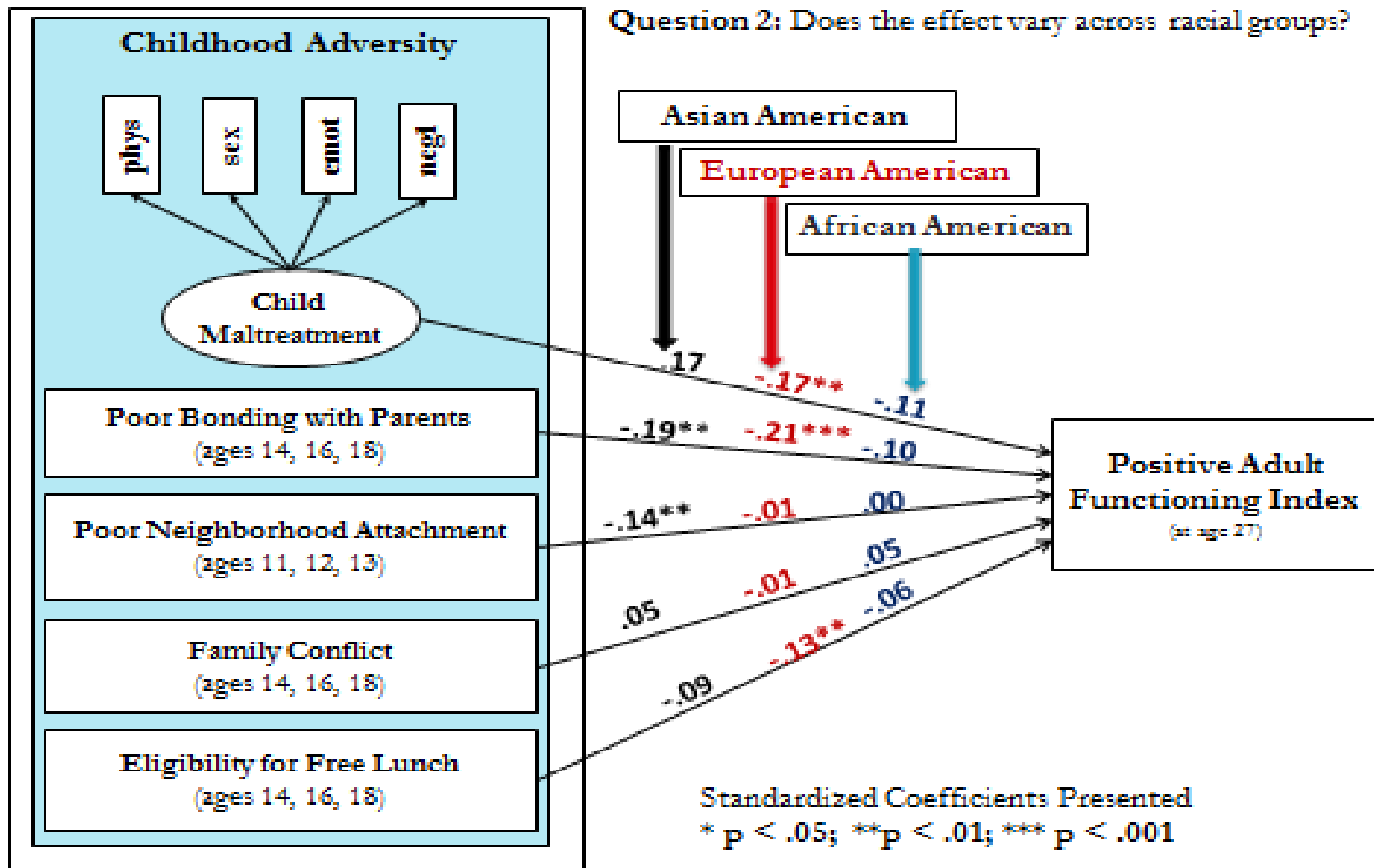


Figure 4.2: Estimates for Structural Path from Childhood Adversity on Positive Adult Functioning Across Racial/Ethnic Groups.

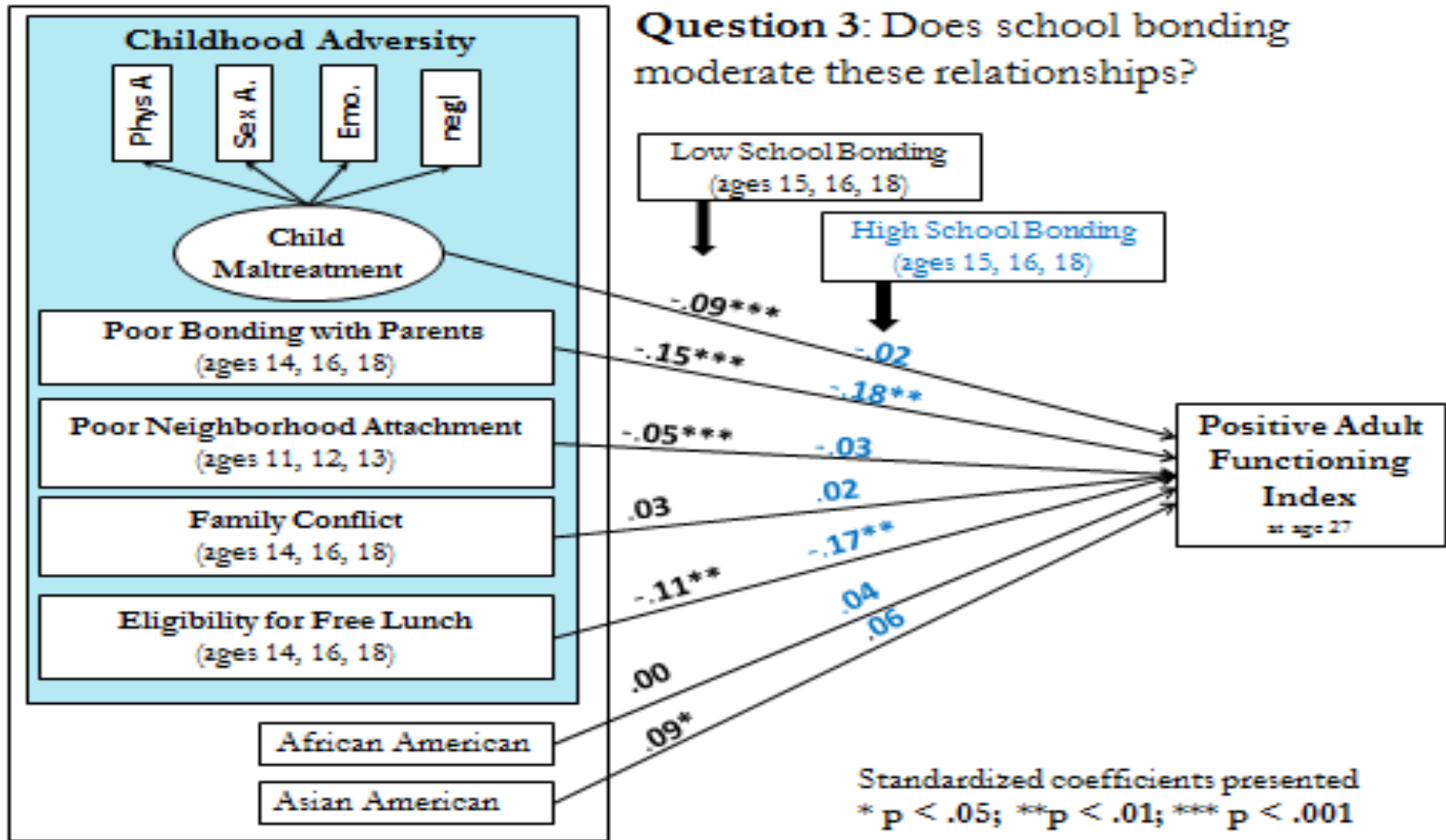


Figure 4.3: Estimates for Structural Path from Childhood Adversity to Positive Adult Functioning, High or Low Bonding to School as a Moderator.

CHAPTER 5: DISCUSSION

This study aimed to investigate whether childhood adversity broadly defined impacts positive adult functioning. Consistent with a stress and psychosocial framework along with attachment theory, analysis of the full sample shows that child abuse and neglect, poor bonding with parents, and low income status negatively impact positive adult functioning. These findings are also consistent with other contemporary research that show the significant and lasting contributions of maltreatment and family dysfunction on the development, health and socialization of the child (for example, see Currie et al., 2010; Felitti, 2002; Flaherty et al., 2006; Springer et al., 2007). These findings provide support to assertions that poverty has a pervasive and long lasting impact. The implication of this is particularly alarming as the number of American children living in poverty has risen 37% in the last decade; one in every five children lived in poverty in 2011 (Gabe, 2012). It is interesting that family conflict did not predict adult functioning in the overall structural model when the other predictors are in the model. Family conflict was strongly correlated with child abuse and neglect as well as poor parental bonding, hence it may not have a unique contribution and family influence was captured more by the other measures. Family conflict was also limited in terms of measurement to a three item scale which broadly assessed behaviors such as being critical, yelling and arguing and these behaviors may not have the same impact as the other familial factors.

This study utilized an assessment of poor attachment to neighborhood to capture in part environmental influences on positive adult functioning. The measure captures a youth's sense of safety and positive affiliation with their neighborhood over the course of his or her high school years. The correlations are as one might expect with African Americans reporting a stronger negative relationship with their neighborhood, and poor neighborhood attachment being related

to low income status, child abuse and neglect, and family conflict. However, when entered into the full sample model, there was no unique contribution of poor attachment to neighborhood to later adult functioning, suggesting that the neighborhood factor as measured in these analyses made very little or no contribution to positive adult functioning particularly for the European American group which makes up the majority of this cohort. This finding is consistent with the mixed results found in the literature on the long term effects of neighborhood factors. For example, several studies found that neighborhood quality does not predict later outcomes, particularly in relation to socio-economic mobility, including employment and earnings (Ludwig, Duncan, Genetian, Katz et al., 2012; Oreopoulos, 2003), and adulthood health (Vartanian & Houser, 2010). Challenges associated with the complexity of accounting for contexts, particularly the difficulty in defining and measuring the interaction of place, people, and time in an empirically effective manner contributes to the mixed results in most studies (Lupton and Power, 2002; Twigger-Ross and Uzzell, 1996). Other studies identify that the challenge of determining the timing of cause and effects over lifespan present a different set of challenges in investigating the long term impact of neighborhood factors (Wheaton and Clarke, 2003).

In the full sample analyses, when race was included among the predictors, findings suggests that membership in the Asian American group predicts positive adult functioning while the relation between membership in the African American group and the outcome is non-significant. While this sample aggregated a wide number of Asian sub-groups including recent immigrants, overall this finding suggests support of the Asian stereotype of Asians as a ‘model minority’ with group membership being related to positive adult functioning. The examination of mean levels of the outcome across racial groups did not however demonstrate that Asians have a higher level of positive adult functioning. When examining individual dimensions of the

functioning index, Asians reported an overall lower high school dropout rate and lower incarceration rate. The significant relation with the Asian American group membership may be confounded by high family stability which in turn may affect adult outcomes. Between 2005 and 2009, at 4.9%, Asian Americans had the lowest report of divorce when compared with other ethnic groups in the United States (U.S. Census Bureau, 2010). Findings of this full sample model support investigation into the second research question which examines whether racial group membership alters the relations between childhood adversity predictors and adult functioning.

Descriptive statistics examining differences across groups suggest that all three groups report similar levels of positive adult functioning with no mean differences across groups on the outcome. However there were many mean differences by group among the predictor variables with five out of the six being significantly different. African Americans reported higher mean levels of child abuse and neglect and poor neighborhood attachment. African and Euro-Americans reported higher mean levels of family conflict than Asian respondents. The two communities of color reported higher rates of low income status than the Euro-Americans. There were no significant group reported differences of poor parental bonding.

To examine whether these relationships and positive adult functioning differed by racial group, we investigated a series of multi-group measurement and structural models. The fit indices suggest good fits and based on results of the ratio of the difference suggest configural invariance of the measurement models (Rosay et al., 2000). However when one examines the structural paths between predictors and the outcome across groups, findings suggest that relationships are operating differently across groups. An ad-hoc analysis examined the relations predictor by predictor and suggest that three familial predictors appear to operate differently

across groups. Further investigation into the differences suggest that the differences lie between the African American and European American groups on child abuse and neglect and poor parental bonding. The relationships are significantly stronger for the European American group than the African Americans. In fact, there were no significant relationships between childhood adversity predictors and outcome among African American respondents. Among European Americans, child maltreatment, poor bonds with parents, and low income status negatively impacted positive adult functioning. For Asian Americans, poor bonding to parents and poor neighborhood attachment indicated a significant negative relationship with positive adult outcomes. The negative impact of poor bonding to parents is among the more salient predictors of positive outcomes in the current analysis, also consistent with findings in contemporary research. However, there is no clear explanation in the literature for the negative impact of poor neighborhood attachment on positive outcomes for the Asian American group in particular and not other racial groups. Low income status did not affect positive adult outcomes among the Asian American group, perhaps, because strong family stability among this group may buffer its impact (Yee, Debarsyshe, Yeong, and McCubbin, 2006).

As previously stated, the current study did not find significant relationships between childhood adversity and positive adult functioning for the African American group. This suggests that there are other risk and protective factors not utilized in current investigation which may better predict adult functioning for the African American group. The literature suggests that beyond familial risk factors, youth of color experience pervasive interpersonal and structural racial discriminations in many social institutions (Gee, Ro, Shariff-Marco and Chae, 2009). For instance, African American youths are at risk of high level of high school dropout rate that may be linked to low academic expectations and disproportionately harsh punishments in schools (see

for example, Arroyo and Zigler, 1995; Spencer, 2006; Weinstein, 2002), racial profiling, discriminatory arrests and sentencing contributing to the disproportionate level of incarceration among African American youths and men. African American youth represent 17% of their age group in the general population, but they represent 46% of the arrests, 31% of referrals to the juvenile court, and 41% of waivers to adult court (The Sentencing Project, 2008). These factors contribute to further institutional barriers and negative adult outcomes, especially when these experiences become more prevalent during the transition years from young adulthood to adulthood as youth typically establish full independence. Such institutional racial discrimination can put children of color at considerable risk (Sanders-Phillips, et al., 2009). Unfortunately analyses to examine these issues were not part of this study.

This study finds that while the three racial groups report different levels of risk or adversity, it's notable that there appear to be no group differences in terms of the level of positive adult functioning. This suggests some level of resilience particularly among children of color needs to be explored further. Earlier, family structure and family stability were identified among few factors potentially contributing to the resiliency of the Asian American group. For the African American group, recent literature explores racial socialization as a protective factor (Burt, Simons, and Gibbons, 2012). Racial socialization explicitly considers the frequent racial discrimination faced by the African American youths, and its potential consequences (Brody, Chen, Murry, Ge et al., 2006; Seith and Kalof, 2011), and explores the developmental stage where abstract thinking can increase children's ability to identify positively with members of their own group and see themselves from their own community's standpoint instead of internalizing perspectives (Simons, Simons, Burt, Drummund et al., 2006). Relying on the adoptive features of the African American communities (Bolger and Patterson, 2003), Burt et al.

(2011) found that racial socialization of African American youth, with cultural socialization and preparation for bias provided resilience against interpersonal racial discrimination. Studies have found that racially conscious parenting plays a pivotal role in racial socialization, and improving African American youths' pro-social behaviors (Simons, Simons, Burt, Stewart et al., 2007; Wang and Huguley, 2012). But when parents can't play that role, peers, and community members, including educators and mentors can play that role (Sampson, Morenoff, and Earls, 1999). Socialization in this context entails social-emotional support explicitly intended to increase preparedness and self-regulation in situations involving racial socialization (Beaver, Wright, and Delisi, 2008; Brody, Yu, Chen, Kogan et al., 2012).

The second question of this study focused on the possibility of racial group membership moderating the relations between predictors and outcome, however, evidence of moderation was not found. To expand our investigation, we moved to examine the hypothesis that positive school experiences may buffer the risk of childhood adversity on positive adult functioning. Using high school data, students were categorized as having strong bonds to school or less. While the measurement model suggests equivalence between these groups, there appear to be different significant predictors for each group. For example, child abuse and neglect, and family conflict are significant predictors for the low bonded group and not for the high bonded group. Poor parental bonding and low income status were significant for both groups, indicating negative impact on adult functioning regardless of whether participants' school bonding level is high or low. No evidence of moderation effect was found. These results differ from other findings which may in part be due to the timing of our assessments and how bonding was operationalized. For example, Resnick, Bearman, Blum, Bauman et al, (1997) found that attachment with family and perceived school connectedness protected youths against multiple

antisocial behaviors, including drug and alcohol use, truancy, sexual behaviors and violence. In Resnick et al., (1997), school connectedness was measured by having positive peer relationships in school setting, and level of school attendance among middle and high school students. Similarly, Maddox and Prinz (2003) report that school connectedness, measured as attachment to one or more school staff, commitment to school, bonding to school (liking school), and getting involved in school activities buffered impacts of stressful home conditions among middle and high school students.

Overall, findings in this study support broadly defining childhood adversity beyond child maltreatment to include at a minimum low income status. Child maltreatment, poor bonding to parents and low income status negatively impacted adult functioning. No effects were found for family conflict or poor neighborhood attachment. Adult functioning was also broadly defined incorporating educational attainment, employment, interpersonal relationships, civic engagement, financial management, neighborliness, and constructive engagement. In general these predictors appear to be more salient for the European American group with none significant for the African American group. While levels of risk differed across racial groups, the group averages on the positive adult functioning index were similar suggesting factors may be operating to buffer the risk. High school bonding was not found to moderate risk in this particular study. Using a larger sample size and considering additional instruments that can improve the school bonding measurement may yield a moderating result.

Limitations

Most of the predictors assessing adversity were gathered in middle and high school and hence earlier experiences and development of the participants are not represented.

Consequently, adversities that have occurred prior to middle school age were not represented in these analyses.

The aggregation of racial groups in this study does not account for the unique heterogeneity represented within each groups. For instance, there is a wide variation within each group based on citizenship, the country of origin, the year and reason for emigration, and educational status at arrival which may have considerable impact on participants' functioning particularly among the Asian Americans (Gee et al., 2009). Due to low sample sizes in the dataset, the experiences of Latinos and American Indians/Native Americans were not included in this investigation.

Implications

From these findings, we can infer that investing in the prevention of childhood adversities can improve the health and well-being of children, particularly for European Americans. Such an investment can enhance the trajectories of affected children, and contribute to a healthier and more productive society in the future. Findings suggest that adversity is more than maltreatment and that it encompasses a broader definition, which includes structural concerns. The predictive significance of the childhood adversity variables in this study appear to be most relevant to the European American group, somewhat relevant to the Asian American group, and not pertinent to African Americans. This calls for further research to identify factors relevant to predicting positive adult functioning for the African American group. A comparison of the mean outcome indicates some evidence of resilience among all three groups, but particularly among the African American and Asian American groups. Greater investigation of possible factors contributing to resiliency is needed as well as more research that explores the risk factors among African Americans.

Childhood poverty is among the most salient negative predictors of positive adult outcome. This is a concern that needs more attention given the fact that founded cases of physical and sexual abuse have declined over the last decade, childhood poverty has risen drastically. The U.S. has one of the largest proportion of children in poverty among developed nations. The number of children living in poverty has risen by 37% over the last decade; one in five children lived in poverty in 2011 (Gabe, 2012). The lack of physical and emotional nurturance of most of these children has a direct long term impact on the welfare of the individual child as well as on the health and productivity of our society.

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**APPENDIX:
POSITIVE ADULT FUNCTIONING AND CHILDHOOD ADVERSITY ITEMS LIST**

Outcome Variable:

Positive Adult Functioning (at age 27).

- Index developed from 9 scales
- All items standardized and averaged for convenient evaluation of overall adult functioning across all contexts comprehensively. Higher values indicate better adult functioning.
- Scales included in index are as follows:
 1. Bonding-to-work
 - Same as Oesterle et al.'s (2008) Positive Adult Functioning analysis
 - A 6-item scale with standardized alpha = .828.
Item Examples:
 - Most days, I look forward to going to work
 - I like my job
 - doing well at my job is important to me
 2. Civic engagement
 - Same as Kosterman et al.'s (2005) analysis; also used in Oesterle et al.'s (2005) analysis
 - A 4-item scale with alpha=.52
Example items included:
 - I am registered to vote
 - I go to political meeting
 - I volunteered in the last year,
 - I write elected officials
 3. Educational attainment
 - Same as Oesterle et al.'s (2005) Positive Adult Functioning analysis
 - 11 educational levels from 8th grade or less – post-graduate education
Examples of items included:
 - 8th grade or less,
 - Some high school,
 - GED certificate,
 - High school graduate,
 - Some technical/vocational school,
 - Technical/vocational graduate,
 - Some college,
 - two-year college graduate,
 - Four -year college grad,
 - Some post-graduate,
 - Post-college or professional degree.

4. Financial responsibility

- Kosterman et al. (2005)
- A 3 item scale with $\alpha=.50$

Examples of items included:

- In the past 3 years, have you squandered or wasted money that you or your family needed to make ends meet?
- In the past year, how often did you squander money?
- How important is being careful about what you spend?

5. Group involvement

- Same as Kosterman et al.'s (2005) analysis
- Summed 2 items, assessing the number of organizations and groups in and outside school, and work participants were involved in.
 - Involvement in social and special interest clubs and in school setting, work place, and other organizations outside school, including church groups, sport teams, dance classes and music groups.

6. Neighborliness

- From Kosterman et al. (2005) Positive Adult Behavior analysis.
- A 3 item scale with $\alpha=.75$.

Examples of items included:

- How often do you and your neighbor interact, talk with each other?
- How often do you watch each others' properties when someone is away,
- Scale ranging from "almost never," "less than once a month," to "every or almost every day."

7. Bonding with Friends (Peer bonding)

- Same as Oesterle et al.'s (2005) Positive Adult Functioning analysis
- Respondents asked how close their relationship was to 3 of their closest friends
- Reliability for the scale, $\alpha=.77$.

8. Partner bonding

- New scale based on Osterle et al., (2008), and Kosterman et al., (2005).
- A 3 item scale, with $\alpha=.76$.

Examples of items included:

- How close is relationship with partner?
- Do you share thoughts and feelings with partner?
- Would you like to be like your partner?

9. Constructive engagement (Oesterle et al., 2008)

- Same as Oesterle et al.'s (2008) Positive Adult Functioning analysis
 - summed the average number of hours per week participants spent in school, internship, employment, volunteer work, and/or homemaking

Predictor Variables:

Physical Abuse (Retrospective at <10; Interview conducted at age 24):

- Same as Karl's Life History 2002 analysis
- 5-item measure, standardized alpha=.81

Examples of items used include:

- I got hit so hard by someone in my family that I had to see a doctor or go to the hospital.
- People in my family hit me so hard that it left me with bruises or marks.
- I was punished with a belt, a board, a cord, or some other hard object.
- I believe that I was physically abused.
- I got hit or beaten so badly that it was noticed by someone like a teacher, neighbor or doctor.

Sexual Abuse (Retrospective: childhood)

- Hill (2000)
- A 5-item measure, standardized alpha=.94.

Examples of items used include:

- Someone tried to touch me in a sexual way/made me touch them.
- Someone threatened me for sex.
- Someone tried to make me do/watch sexual things.
- Someone molested me.
- I believe that I was sexually abused.

Emotional Abuse (Retrospective: childhood)

- Hill (2000)
- A 5-item measure, standardized alpha=.86.

Examples of items used include:

- People in my family called me names.
- I thought my parents wished I had never been born.
- I felt that someone in my family hated me.
- My family said hurtful/insulting things.
- I believe that I was emotionally abused.

Neglect (Retrospective: childhood)

- Hill (2000)
- A 5-item measure, standardized alpha=.71

Examples of items include:

- I knew there was someone to take care of me and to protect me.
- I didn't have enough to eat.
- My parents were too drunk/high to take care of the family.
- I had to wear dirty clothes.
- Someone could take me to the doctor if needed.

Poor Bonding with Parents (at ages 8, 10, 12)

- New syntax
- A 4-item measure, standardized alpha=.83.

Examples of items used include:

- Do you like to be the kind of person your mother is?.

- In the past yr. did you share thoughts and feelings with your mother?.
- Do you like to be the kind of person your father is?
- Do you share your thoughts and feelings with your father?.

Poor Neighborhood Bonding (ages 9, 10, 12).

- New syntax
- A 4-item measure, standardized alpha=.83.
Examples of items used include:
 - I feel safe in my neighborhood
 - If had to move would miss neighborhood I now live in
 - Like to get out of neighborhood
 - Satisfied with neighborhood

Family Conflict (ages 8, 10, 12).

- New syntax
- A 5-item measure, standardized alpha=.
Examples of items used include:
 - How often is your family critical with each other
 - How often does family argue
 - How often does family yell at each other?

SES (ages 11, 12, 13):

- Hill (2006)
- Eligibility for free/reduced lunch

Moderator - Bonding to School (ages 15, 16, 18)

- Modified from Oesterle et al. (2005), Hill et al., (2007)
- A 7 items scale with alpha = .83
- Dichotomized values, using the top 25% as high bonding to school and the rest as low bonding to school.
Examples of items used include:
 - I like school
 - Most days, I look forward to going to class
 - I like my classes this year.
 - I work until I finish my assignments

Vita

Ebasa Sarka earned his MSW from the University of Washington in 1996. His study focused on multiethnic practice with children, youth, and families. Thereafter, he worked in the public child welfare field for six years in capacities ranging from child abuse and neglect investigator to child welfare workforce trainer. He served as a Practicum Instructor with the Child Welfare Training and Advancement Program, a collaborative project between the UW School of Social Work and the State of Washington's Division of Children and Family Services. The program provides advanced practicum experience and training to graduate students preparing to work in the State's child welfare agency. He has also taught courses ranging from biology and its practical and epistemological application in social workers, to child welfare practice, and policy analysis to students at the bachelor's and master's levels. Ebasa received a Presidential Minority Fellowship for 2004-05, and was a CSWE/MFP Fellow from 2006-09.

Ebasa's research interests include the long term consequences of childhood adversity, evidence-based and culturally responsive intervention models, including the analysis of racial, ethnic, and cultural factors in child welfare policies and their practice implications. He has worked as a researcher at different capacities with institutions, including Casey Family Programs, and Catalyst for Kids (a research and policy initiative by Children's Home Society) in efforts to understand and address the disproportionate representation of children of color in the child welfare system. Ebasa completed his completed his dissertation in Spring 2013, and is currently a faculty at the University of Washington School of Social Work, the Office of Field Education.