UKCPR
University of Kentucky Center for Poverty Research

Discussion Paper Series
DP 2014-13

ISSN: 1936-9379

Childhood Stress: A Qualitative Analysis of the Intergenerational Circumstances of Child Hunger

Mariana Chilton
School of Public Health
Drexel University

Molly Knowles
School of Public Health
Drexel University

August 2014

Preferred citation
Chilton, M. Childhood Stress: A Qualitative Analysis of the Intergenerational Circumstances of Child Hunger. *University of Kentucky Center for Poverty Research Discussion Paper Series, DP2014-13*.
Paper is forthcoming in Public Health Nutrition.

Author correspondence
Mariana Chilton, Drexel University, School of Public Health, 1505 Race St., 11th Floor, MS 1035, Philadelphia, PA 19102; Email: mmc33@drexel.edu; Phone: (215) 762-6512

University of Kentucky Center for Poverty Research, 302D Mathews Building, Lexington, KY, 40506-0047
Phone: 859-257-7641; Fax: 859-257-6959; E-mail: ukcpr@uky.edu

www.ukcpr.org

EO/AA

Childhood Stress:

A qualitative analysis of the intergenerational circumstances of child hunger

UKCPR Final Report
August 27, 2014

PI: Mariana Chilton, PhD, MPH
RA: Molly Knowles, MPH

This project was supported with a grant from the University of Kentucky Center for Poverty Research through funding by the U.S. Department of Agriculture, Food and Nutrition Service, contract number AG-3198-B-10-0028. The opinions and conclusions expressed herein are solely those of the author(s) and should not be construed as representing the opinions or policies of the UKCPR or any agency of the Federal Government.

Acknowledgements

We would like to thank all of the extraordinary women who participated in the research interviews. We have learned a great deal from their wisdom and the time they spent with us. We would also like to thank Research Coordinator, Jenny Rabinowich, MPH; Hunger Fellow, Bea Sanchez; and Research Assistant, Kimberly Arnold for their help with interviews and preliminary analysis.

Table of Contents

Abstract 3
Executive Summary 4
Introduction 5
Background 6
Methods 10
Results 15
Discussion 28
Conclusion 32
Tables 34
References 42

Abstract

Background: Adverse Childhood Experiences (ACEs), including abuse, neglect, and household instability, affect lifelong health and economic potential. While relationships between household food insecurity and caregiver's childhood exposure to abuse and neglect are underexplored, preliminary evidence indicates that caregivers reporting very low food security report traumatic events in their childhoods that lead to poor physical and mental health. Building on this evidence, this study investigates how adverse childhood experiences are associated with the intergenerational transmission of household food insecurity.

Methods: Semi-structured interviews were performed with 31 mothers of children under age 4 who initially reported low or very low food security at the household level. Quantitative measures include maternal and child health indicators, the ACE Scale (0-9), and the US Household Food Security Survey. Grounded theory theme analysis was performed on transcripts of audio-recorded interviews in which participants described their experiences with abuse, neglect, violence, and hunger over their lifetimes.

Results: Twenty-one of the 31 caregivers interviewed reported 4 or more ACEs. There is significant correlation between number of ACEs reported and the severity of household food insecurity (Spearman's rho = .462, p = 0.009). Qualitatively, the mothers described the impact that these early experiences had on their ability to protect their children from food insecurity, including their ability to advance their educations, maintain employment, and plan for the future.

Discussion/Conclusion: Understanding the associations between mothers' adverse experiences in childhood and reports of current household food security allows researchers, advocates, and policymakers to comprehensively address the intergenerational transmission of hunger.

Executive Summary

Adverse Childhood Experiences (ACEs), including abuse, neglect, and household instability, affect lifelong health and economic potential. While relationships between household food insecurity and caregiver's childhood exposure to abuse and neglect are underexplored, preliminary evidence indicates that caregivers reporting very low food security report traumatic events in their childhoods that lead to poor physical and mental health. Building on this evidence, this study investigates how adverse childhood experiences are associated with the intergenerational transmission of household food insecurity.

Semi-structured interviews were performed with 33 mothers of children under age 4 who initially reported low or very low food security at the household level. Quantitative measures included maternal and child health indicators, the ACE Scale (0-9), and the US Household Food Security Survey. Grounded theory theme analysis was performed on transcripts of audio-recorded interviews in which participants described their experiences with abuse, neglect, violence, and hunger over their lifetimes.

Preliminary results suggest a strong relationship between childhood adverse experiences and reports of household food security. Twenty-two of the 33 caregivers interviewed reported 4 or more Adverse Childhood Experiences. There is significant correlation between number of ACEs reported and the severity of household food insecurity (Spearman's rho = 0.462, p = 0.009). Specifically, emotional and physical neglect during childhood were associated with mothers' reports of household low and very low food security. Qualitatively, the mothers described the impact that these early experiences had on their ability to protect their children from food insecurity, including their ability to advance their educations, maintain employment, and plan for the future. The results also suggested that the mothers experienced significant social isolation during childhood and through adulthood. Overall, the deprivation described included reports of having experienced severe hardship from an early age, bringing together at least three generations that are affected by hardship in a single report of household food insecurity. Participants also described public assistance programs as inadequate to meet the depth of their needs, and described widespread frustration with perceived mistreatment by caseworkers.

Results suggest that, currently, the public assistance and nutrition assistance programs in the United States are inadequate to serve households reporting very low food security. Administrators ought to look for ways to ensure integration of public assistance programs with an eye to behavioral health access, childcare subsidies, more comprehensive and effective housing subsidies, and violence prevention programs. Understanding the associations between mothers' adverse experiences in childhood and reports of household food security allows researchers, advocates, and policymakers to comprehensively address the intergenerational transmission of hunger.

Childhood Stress:
A qualitative analysis of the intergenerational circumstances of child hunger

Introduction

The prevalence of all forms of food insecurity, defined as a lack of access to enough food for an active and healthy life due to economic circumstances, increased between 2006 and 2012. This is true also for very low food security at the household and the child level. In 2012, very low food security was experienced by children in 1.2% of households with children, or 463,000 households. Such households reported multiple indications of reduced intake and disrupted eating patterns among children.[1] The increase was most startling among families with children under age six, among whom the prevalence of very low food security at the child level increased over 300% between 2006 (0.3%) and 2010 (1.0%), and has not yet returned to pre-recession levels, remaining at 0.8% in 2012.[1-3] Between 2006-2010, the number of households with children under age 6 reporting very low household food security increased from 725,000 (4.2%) to 947,000 (5.4%).[1] The 2008 recession and its aftermath hit families with very young children extremely hard, exacerbating their vulnerability, as these first years of life are the most significant for cognitive, social and emotional development. Investigations that help improve understanding of very low food security for families with the *youngest* children are therefore an urgent, national priority.

While these increases in child food insecurity are deeply troubling, families that report this type of food insecurity are hard to reach, even in the most grounded, targeted studies. Additionally, not much is known about the common characteristics of families that report child food insecurity among their youngest children, and recent research has begun to call into question parent's abilities to adequately reflect the food insecurity among children.[4] Our research was intended to find patterns and commonalities among families that reported child food insecurity in comparison to those that reported child food security. Yet, when respondents reported on the US household food security scale for a

second time, multiple families changed their reports of child food security. In this report of preliminary results, we discuss potential reasons for these changes, some of the characteristics of caregivers who changed their reports, and then focus our overall results on the experiences of families with young children that report very low food security at the household level. Participants also describe significant, life-changing experiences related to emotional and physical neglect, substance abuse, and perceived inadequacies in the safety net.

Background

While the physical health and socioeconomic circumstances of families that experience household food security are well documented. Less understood are the circumstances that might explain an association between mental health and food insecurity. Quantitative research demonstrates that maternal depressive symptoms are associated with food insecurity and with poor child development and behavior.[5-7] Other work among food insecure families with children points to related psychosocial stress such as maternal anxiety,[5] clinical depression,[8,9] social isolation,[10] and potentially harmful parenting practices.[11] However, these studies leave many questions unanswered about the origins and nature of poor mental health reported by food insecure caregivers.

Mixed-methods research offers some insight into the relationship between depression and severe levels of hunger. For instance, Tarasuk found that the odds of reports of social isolation among women experiencing household food insecurity *with hunger* (now called very low food security) were 5.81 (95% CI 2.71, 12.47) times the odds of social isolation reported by women who were in food secure households.[10] Though Tarasuk does not describe the characteristics of nor the reasons for the social isolation, it is well established that social isolation is intertwined with depression, stress and anxiety, and it is related to exposure to violence, abuse and neglect.[12-14] Qualitative research on food insecurity and depression bears out similar results. Hamelin, Beaudry & Habicht reported the presence of stress and

anxiety among food insecure families,[15] and Chilton et al's previous qualitative studies found high levels of anxiety, depression and exposure to violence among food insecure women in Philadelphia.[16,17] Recent quantitative research indicates that maternal depression may mediate an association between exposure to intimate partner violence and food insecurity.[18]

Exposure to potential violence, stress and depression in relation to food security does not only happen in adulthood, but can also be found among adolescents and children. Household food insecurity is associated with suicidal ideation among adolescents,[19] and poor physical, mental, and psychosocial health among children.[20-27] This suggests that chronic exposure to food insecurity and/or chronic reports of poor mental health during childhood, and on through adulthood may be an important backdrop to consider when developing interventions for families that report very low food security.

Some studies have retrospectively investigated the *causes and characteristics* of caregivers' mental health status as they relate to food security. Wehler et al. found that homeless and low-income mothers who experienced sexual assault in childhood were over four times more likely to have household level food insecurity than women who had not been abused.[28] In this same population, Weinreb et al. reported that child hunger (as measured by the Childhood Hunger Identification Project measure) was more prevalent in households in which mothers' experienced higher odds of posttraumatic stress disorder and substance abuse.[24] Melchior et al.'s longitudinal study of 1116 families with twins found that mothers in persistently food insecure homes had significantly higher rates of depression and/or a psychotic spectrum disorder, or had experienced domestic violence.[29] Without regard to food security status, Melchior and colleagues found that childhood experiences with abuse and neglect are strongly associated with low adult educational attainment and earnings, and with poor adult health status.[30] Our previous findings from a participatory action research and photovoice study with mothers of young indicate that exposure to violence across the lifespan is associated with very low food security.[17] These studies indicate that food insecurity research regarding the most vulnerable

families must investigate how caregivers' childhood exposure to violence and stress are associated with very low food security.

Lifetime exposures to violence at the household and community level have largely been ignored as potential risk factors relating to food insecurity. This is despite peer-reviewed evidence that stress and deprivation during childhood have negative lifetime health and income consequences,[31] and that recipients of Temporary Assistance for Needy Families (TANF) and the Supplemental Nutrition Assistance Program (SNAP) report high rates of exposure to individual and community violence.[32-34] In addition, adverse childhood experiences are associated not only with depression, but also with drug addiction, and poor school and job performance.[35-38] Growing evidence that exposure to violence during childhood and adolescence affects risk-taking behavior and financial success in adulthood suggests that such exposure may be a distinguishing factor between households that report child food insecurity versus households that do not report child food insecurity. Additionally, these early exposures are what may set the conditions for food insecurity to pass on through the generations.

Neuroscientific research on children's earliest years has shown the importance of early life experiences on adult health and well-being, including economic circumstances.[39] Moreover, results from the studies that utilized the Adverse Childhood Experiences (ACE) measure demonstrate that controlling for other factors, adverse experiences such as neglect and abuse are associated with the major adult diseases such as diabetes, cardiovascular disease, depression, anxiety and early mortality.[40] Thus, a child's exposure to severe or toxic stress—the kind of stress associated with neglect, abuse and deprivation—has been shown to harm a child's current and future physical and mental health status.[40,41] In addition, recent research has begun to identify how adversity and traumatic events that occur in childhood and adolescence have a decisive impact on behaviors, choices, and social relationships that extend into adulthood.[42,43] Adults exposed to deprivation and violence at critical time periods develop neurological, physical and behavioral coping strategies that may not be suited to their environments

later in life. These strategies may contribute to experiencing a state of constant heightened aggressive arousal, withdrawing and/or experiencing social isolation, and struggling to keep boundaries associated with normal social and professional behavior regarding intimacy, safety and security, and job stability.[44,45] Exposure to adverse experiences in childhood has also been linked to higher rates of worker absenteeism and stress surrounding work and finances in adulthood, indicating strong associations between adverse childhood experiences and financial skills.[46]

For parents and caregivers of young children experiencing food insecurity, these adult health and behavioral outcomes may hinder their ability to complete their education, find and maintain employment that pays a living wage, and devote the enormous time and energy needed to effectively manage very little income in a way that buffers their children from hunger. While studies have quantitatively demonstrated associations between Adverse Childhood Experiences and adult health and economic outcomes, few have used qualitative methods to identify the pathways from the perspectives of those who have lived through these experiences.

Theoretical and Conceptual Foundations

Our qualitative research questions are grounded in a life course perspective that takes into account intergenerational aspects of poverty and hunger. The life course perspective asserts that childhood experiences influence and shape adult health.[47-50] This approach helps place adult behavior and health status in the context of social, emotional, and psychological coping mechanisms and neurobiological pathways. This life course perspective exists within an ecological framework for understanding the influences on child development and a child's biological and psychological state as they interrelate with family, community, institutional and socio-political contexts.[51] Recent advances in neuroscience and human development research demand that we understand how human health is nested within a continuum of influence from neurons to neighborhoods to political and economic forces.[31,52]

Recent advances in communications research informs how policy makers and the public are able to understand the complex nature of this approach to human development and health.[31] To help inform the public, we do not frame our inquiry as simply exposure to violence, neglect and abuse, hardship and stress, but rather we acknowledge a larger set of interrelated experiences that shape human experience and biology, known as the ecobiodevelopmental framework.[53,54] This framework encompasses the concept of "toxic stress" and shapes our understanding of how experiences of severe poverty, severe maternal depression, exposure to violence, neglect, and abuse, living in poor and neglected neighborhoods, *and* ineffective or inconsistent social programs can influence cognitive, social and emotional growth during childhood.[31,54] As children that experience such adversity become adult caregivers, they may struggle to earn enough income to buffer their own young children from hunger.

Methods

The Childhood Stress study investigated the circumstances in which caregivers who have experienced severe stress in their early lives come to experience very low food security as adults while caring for their own children. Our specific aims were to 1) assess the relationships between caregivers' adverse childhood experiences and current severity of their household's food security status, 2) identify caregivers' perspectives on critical moments in their life trajectories that have had a stated impact on their ability to care for their children and protect them from hunger, 3) describe the ways in which nutrition assistance and participation in other public assistance programs may alter how child hunger is transmitted from one generation to the next.

Overview

Participants for the Childhood Stress study were recruited from the ongoing Children's HealthWatch-Philadelphia study, which is part of a multi-site surveillance study, conducted in the

Emergency Department of a large Philadelphia children's hospital. This study investigates the impact of public assistance participation on the health and wellbeing of children under age 4. In this ongoing study, participants respond to a survey regarding demographic information, maternal and child health indicators, public assistance participation, and food security status.

Participants in the Childhood Stress Study were recruited through Children's HealthWatch outreach database going back two years prior to initiation of the Childhood Stress study, and then on a rolling basis, thereafter, as new participants were eligible. Eligibility was limited to English- or Spanish-speaking primary caregivers of a child under age 6 from households that reported *low* or very *low food security at the household level* with the U.S. Household Food Security Survey Module (HFSSM). These participants were invited with a flyer sent through the mail to participate in semi-structured in-home interviews for the Childhood Stress study. Thirty-three participants were enrolled in the Childhood Stress study. With the assistance of the Research Coordinator of the Children's HealthWatch study, food security status was tracked but not revealed to the Childhood Stress interviewers to reduce bias in interview questions regarding adversity. The recruitment methods ensured that one group (*n*=16) was recruited from households that at the time of the Children's HealthWatch interview identified their *children as food secure*; and that the second group (*n*=15) was recruited from households that identified their *children as low or very low food secure*.

Interviews were primarily conducted in participants' homes, with a minority conducted in the offices of the interviewers or at a third location, such as a local library, as requested by the participants who lacked stable housing or who requested to meet away from their home environments.

The Childhood Stress interview consisted of demographic, quantitative, and open-ended questions. The demographic and quantitative survey repeated many of the questions in the Children's HealthWatch survey and introduced some new measures. Repeated questions provided information about demographics, health, food security status according to the HFSSM, economic circumstances,

public assistance participation, and employment characteristics. Newly introduced is the measure of Adverse Childhood Experiences. The *quantitative* portion of the interview was carried out first. The *qualitative* interview portion that followed was informed by the responses in the quantitative interview, with multiple follow-up questions for clarification and rich description. The qualitative, semi-structured portion of the interview investigated the quality and characteristics of childhood experiences with hunger, deprivation, abuse, and neglect; experiences with education and employment; history of participation in public assistance programs; and experiences of hunger during childhood, as an adult, and among participants' children.

Quantitative Measures

Our study utilized the 18-point U.S. Household Food Security Survey Module (HFSSM) to measure household and child food security. We followed methods of categorizing each participant by level of food security based on the ERS guide.[55] In addition to the HFSSM, we included demographic data and federal assistance program participation status. Caregiver's report of the child's overall health status was asked in standard form from the Third National Health and Nutrition Examination Survey and treated a binary variable (excellent/good vs. fair/poor).[56] To measure caregiver depressive symptoms, we utilized the Kemper three-item screen of maternal depressive symptoms.[57] We also measured hardships associated with food insecurity such as energy insecurity,[58] housing instability,[59] and trading off medical care for food.[60]

The Adverse Childhood Experiences (ACE) Scale is a retrospective 10-point scale that assesses adverse childhood experiences ranging from child emotional, physical, and sexual abuse to having a household member who was addicted to drugs or alcohol, to having a household member in prison. A cumulative score is based on exposure to different types of adverse childhood events, rather than individual instances of these experiences, and is used to determine the extent of a person's adverse experiences during childhood.[40] The ACE measure has been shown to have good test-retest reliability.[61]

Quantitative Analysis

Data from the Childhood Stress survey was analyzed independently and in comparison with data from the Children's HealthWatch interview. For clarity, the Children's HealthWatch interview will be referred to as *Time 1* and the Childhood Stress interview as *Time 2*. Covariates included age, maternal depressive symptoms, child health status, and SNAP, TANF and WIC participation status. Data from surveys at *Time 1* and *Time 2* were entered into SPSS for analysis. We performed Spearman's rho correlation analyses to examine the association between current ACE score and current household and child food security status. Two-tailed Fishers exact test was used to investigate relationships between specific ACE categories and reports of household food security.

Qualitative Data Collection

In the semi-structured *qualitative* interview, interviewers asked participants to describe major experiences through their lifetimes. Each interview was audio-recorded and lasted between 1.5 and 3 hours. Questions focused on participants' exposure to adverse experiences, participation in public assistance programs, and food security. Sample questions included: Between the ages of 5 and 10, how do you remember your feelings of safety and security? How did your personal experiences with violence [or rape /or abuse, and/or neglect] affect your ability to succeed in school [or continue your education/ or your ability to find and keep a good job]? How do these experiences affect the food security of your children? What have been your experiences with public assistance? Why and how has your participation in SNAP and/or TANF changed?

Qualitative Analysis

All 31 qualitative interviews were transcribed and entered into ATLAS.ti. ATLAS.ti is a qualitative research software system designed to assist in the management and analysis of qualitative data, ranging from storing and retrieving interview data and quantitative data, to theme coding and theoretical

modeling. Once all interviews are coded, the program allows for searches for specific use of language relevant to the study aims, and helps to organize transcripts or their codes into "families" in order to compare the presence or absence of themes across and within groups and to create visual displays of the relationships between codes. Using a grounded theory approach the PI and two graduate assistants coded an overlapping set of six interviews to develop a preliminary code set consisting of 17 major codes and approximately 180 sub codes. See Table 1. Two of the authors then coded the rest of the transcripts. Themes included experiences with neglect, abuse, violence, hunger, and household instability, as well as the effects of these experiences on educational attainment, employment, and physical and mental health. Each description of hunger, violence, abuse, and neglect, as well as other major life events such as parental separation or incarceration of a household member, was categorized according to described *impact, life stage,* and *locus*, a method described in an earlier publication that investigated similar themes in a different sample.[17] Additional themes included descriptions of buffering factors such as social support, public assistance participation, or personal resilience.

For our preliminary analyses, we developed a series of conceptual frameworks based on the entire set of themes and relationships to best understand the relationship between ACEs as described by the participant and their current food security status at both the household and child level, as well as any buffering or exacerbation of food insecurity and financial hardship that occurred as a result of experiences with public assistance.

All participants are identified by a pseudonym. Any words omitted for clarity and length, such as repeated phrases or words such as "like" and "um," are indicated by an ellipsis enclosed in brackets. Rephrases and pronoun clarifications that do not change the meaning of the quotation are enclosed in brackets.

Results

Demographic results displayed in Table 2 show that at *Time 2*, 6 participants reported household food security, 6 reported low household food security, and 19 reported very low household food security. At the child level, 12 participants reported that their children were food secure, 13 reported low child food security, and 6 reported very low child food security. Most participated in some type of public assistance, with 28 (91%) of participants receiving SNAP, 25 (82%) receiving WIC, and 17 (52%) receiving TANF. Eighteen participants identified as Black or African-American non-Hispanic, 11 identified as Hispanic or Latina, 1 identified as both African-American and Hispanic, and 1 identified as biracial. Twenty-four were born in the United States, and 5 were born in Puerto Rico; two participants were foreign born (1 Dominican Republic; 1 Haiti). Twenty-five (81%) reported that their children were in excellent or good health as opposed to fair or poor health, while 17 (54%) identified their own physical health as excellent/good. Over three quarters of participants reported maternal depressive symptoms. Two-thirds of participants reported four or more ACEs, and nearly a third reported an ACE score of 8 or 9.

Changes in food security status

Between *Time 1* and *Time 2*, 12 participants reported a change in child food security status, with 4 reporting a decrease in severity and 8 reporting an increase in severity (Table 3). Fourteen participants reported a change in household food security status, with 9 reporting a decrease in severity and 5 reporting an increase in severity. Participants reporting a change in food security status at the household level did not always report a similar change at the child level, and vice versa. Between the two interviews, three participants reported a decrease and four reported an increase in severity of both household and child food insecurity, while the remainder of participants reported an increase or decrease at only one level.

ACEs and severity of food insecurity

The vast majority (26/31) reported having parents who were separated or divorced. The lowest number of reports were those who reported physical neglect (12/31) (Table 4). Two thirds of the sample reported 4 or more ACES. Among those reporting only 1-3 ACEs, there was no recognizable pattern, with the exception that most reported that their parents had separated or divorced, and 3 reported that they had an incarcerated family member (see Table 5).

At *Time 2*, ACE score and severity of household food security had a significant, positive relationship (Spearman's rho = 0.462, p = 0.009). At the child level, however, the relationship between ACE score and food security status was weak and non-significant (Spearman's rho = 0.279; p = 0.129). Two of the ACEs categories emerged as significant in connection with food security status (Table 6). A chi-square test using Fisher's Exact Test revealed significant differences among food secure, low food secure, and very low food secure households in the proportion of participants reporting emotional neglect and physical neglect.

Qualitative Results

The preliminary qualitative results presented here focus on the two ACEs that showed significant differences between food secure, low food secure, and very low food secure households: emotional and physical neglect (See Table 4). Household substance abuse, which approached statistical significance (p = 0.088) for differences in household food security status and was often qualitatively described as a cause of physical neglect, is also included. The following results highlight adverse childhood experiences described by participants reporting very low food security at the household level and the effects these participants describe on their past and current educational, employment, and financial circumstances.

First, a timeline of events in the life of one participant demonstrates the consequences of accumulative adversity on current deprivation. Second, participants' descriptions of and perspectives on the effects of emotional neglect, physical neglect, and household substance abuse on their lives illustrate the relationship between ACEs and the social and economic circumstances leading to very low food security. Since the ACE survey question regarding physical neglect also references household substance abuse as the proximal cause, an assessment supported by many of the participants, these adverse experiences are addressed jointly.

Finally, the perspectives of participants with higher exposure to ACEs on their interactions with public assistance programs show the ways in which public assistance may not adequately be serving some of the most vulnerable families.

Adverse Childhood Experiences in relation to food security

Qualitatively, a larger proportion of participants who had experienced an Adverse Childhood Experience that they described to be "life-changing" reported very low household food security (16/19) or low food security (5/6) compared with food secure households (2/6). Examples of life-changing experiences included sexual abuse by a family member, particularly accompanied by denial or invalidation by other caregivers, parental drug abuse that resulted in physical and emotional neglect, and chronic physical and emotional abuse by caregivers. These experiences, reflecting the dose-response relationship between number of ACEs and health and behavioral outcomes in the literature,[40,62,63] were most devastating when clustered together. For instance, sexual abuse occurring in the context of physical and emotional abuse and neglect was reported to have some of the longest-lasting consequences.

As an example, we highlight pivotal experiences described by Jocelyn, a 20-year-old mother of one reporting very low household food security and an ACE score of 9 (See Chart 1). In her early childhood, she describes experiences of hunger growing up with parents addicted to drugs:

> *We barely had food. Like, I don't even know if food stamps existed. They probably did, but my mom worked at KFC –not to mention the fact that she was still getting high[…] We was always hungry. We was always hungry. Like the only time I've learned really eating is when my dad used to drop us off at this lady [name omitted] down the street from him. She used to like babysit us. That's the only time we really ate. […] In the morning we had to have oatmeal. Before she sent us back with our dad, we used to have cut up hot dogs and baked beans. So that's the only time we would eat. There was no going to the store. I didn't know going to the store until I was, like, eight.*

Jocelyn described herself as hungry constantly in the early years of her life. She ate paint chips off the wall and was diagnosed with lead poisoning. She described getting into fights at school, culminating in an incident in which the police were involved. At this point, her mother sent her to live with her father and stepmother.

> *Then [when I was] around ten she got tired of me. She kept saying I was, like, bad; something was wrong with me. So she just finally sent me to my dad and while I was there I got a stepbrother. And, basically, it started with him touching me and then he had sex with me. I was still ten but it was like two months into me being there. A month later I just, like, said that I didn't want to […] do nothing. I just started acting out. But like besides [my stepbrother], that was like the best part of my life, like besides everything else[…] I got taken care of. I always had something to eat. I went to a good school and had friends.*

Afraid to tell her father and stepmother about being raped by her stepbrother, Jocelyn chose to go back to her mother's house, where she was abused and neglected. She eventually told her mother and a counselor that she had been raped, and was hospitalized for depression at the age of 13. Her father never acknowledged or apologized for the abuse she had suffered under his care. She continued to struggle in school, finding herself in many fights because of difficulty managing anger. She described further incidents where her mother physically abused her during her pregnancy with her son, who was born when Jocelyn was 17. Jocelyn was fired from the only job she'd ever held, as a cashier, when she tried to rearrange her hours to attend college. Unable to pay rent without a job, Jocelyn was again living

with her mother at the time of the interview. She described continuous emotional abuse from her mother and a responsibility to feed her younger siblings, who were often left in her care without food because of her mother's drug use. These circumstances left her skipping meals and struggling to stretch her own food stamps to ensure that her son and sisters ate.

This accumulation of adverse experiences in Jocelyn's life, including household drug abuse, physical and emotional neglect, as well as sexual, physical, and emotional abuse, were common to a majority of the participants reporting very low food security at the household level at *Time 2*.

In contrast, among those reporting very low ACEs, and low food security at the household level at time 2 had different reports of their households and upbringings. Whitney, age 23, reporting depressive symptoms, Low Household Food Security/Child Food Security, and an ACE score of 1, describes her childhood situation with very loving qualities.

> *I grew up in a loving family [...] My mother was a loving mother to me, and you know how some people say, "Well, my mother was a bad mother." And they say, "Well, don't make your mom's mistakes." My mom was a loving mother to me, so I wanna be double that loving mother to mine…You know, my mom gave me what I wanted, gave me what I needed and everything. She was just so… a wonderful mother. […] So now I wanna be two times better. Even though in my eyes, at the time, it couldn't get no better than my mom. But I wanna be two times better than a mother she was.*

While this is one example, the pattern of milder and fonder memories of childhood congregated among the mothers that reported only a few to no adverse childhood experiences, regardless of food security status.

Emotional neglect

The ACE survey captures emotional neglect as a chronic condition in which the respondent feels that no one in their family loved her or made her feel important, or that her family was not supportive of one another. Among participants reporting very low household food security, a higher proportion endorsed emotional neglect (15/19) compared with low food secure (3/6) and food secure (1/6)

participants. Participants described emotional neglect in connection with poor performance in school and poor mental health. Naitana, (*ACE 9, Household Very Low Food Secure, Child Low Food Secure*) a mother of two, immigrated with her mother from Haiti at age four and went into foster care at age 12 when her mother passed away from AIDS. After experiencing racism and discrimination when placed with an Amish foster family, she cycled through three other families before running away from home to stay with friends after being raped by her foster mother's husband at age 14. She described trouble focusing in school, saying that deep depression and suicidal thoughts kept her from wanting to learn. She explains,

> *I could not focus on nothing and I feel like, okay, why should I learn this and like, why, why, I'm not going to live for long. I'm going to kill myself, because I just don't want to live, because what's the point? Ain't nobody love me, ain't nobody going to ever love me the way my mother did, so I don't want to learn, I don't want to do this.*

Naitana's struggles in school were compounded by a learning disability that went undetected as she passed through multiple schools moving from foster home to foster home. Friends and teachers helped her to graduate from high school, but she felt unprepared for the workplace and has difficulty finding a job that pays enough to support her family.

Participants also described low self-esteem and a foreshortened sense of possibility as a consequence of emotional neglect. Tamira (*ACE 9, Household Very Low Food Secure, Child Food Secure*), a 22-year-old mother of one, was abandoned by her mother at the age of 5, abused and raped at the age of 6 by the members of the family with whom she was left, and was emotionally and physically abused by her grandmother who took her in at the age of 7. Tamira described depression, difficulty managing anger and outbursts, and a suicide attempt in her childhood. Her grandmother kicked her out of the house at age 15, and she describes being effectively homeless, living "house to house" ever since. Despite these experiences, she was able to graduate from high school at the age of 21, but struggles to find work. She describes the effects that her childhood experiences had on her self-esteem and her job prospects, and therefore on her ability to provide for her daughter:

> *If a person always says you're nothing; you're nothing. Then for a while I used to think I'm not anything. So maybe that's how I don't have a job, because I'm thinking I'm nothing. I'm not ever going to have a job. I'm not going to be shit, like my grandma said. So it's like maybe that's a part of how I don't have a job or I couldn't finish school[…] Because I can't find a job I cannot feed my daughter how I'm supposed to or I cannot buy her what she needs. Like in the beginning of the month, I can give her anything she wants. But when the end of the month comes, times get tight and I have to ask people, do you have $50? Let me get $50, so I can go get my daughter some food–just until I get my food stamps. I do it every month.*

The emotional neglect experienced in childhood carried forward into adulthood, since participants who described feeling unloved and unsupported by family in childhood were often unable to rely on family for social support as adults. Coping mechanisms available to families with social support, such as borrowing food or money from family or sending children to family's houses to eat, were unavailable or came with a toll on safety and mental health.

Physical neglect and household substance abuse

The ACE survey describes physical neglect as 1) not having enough to eat, having to wear dirty clothes, and having no one to protect you, and/or 2) neglect and inadequate care related to substance abuse of a parent or caregiver. These experiences may be related, as in the case of several participants who attributed the neglect that they experienced their own caregivers' alcoholism or drug abuse. Among the 11 very low food secure participants who described physical neglect, all but one also reported drug abuse or alcoholism of a caregiver. Taleya (*ACE 9, Household Very Low Food Secure, Child Very Low Food Secure*), a 39-year-old mother of two, describes the effects of her mother's drug use on her ability to care for Taleya and her siblings.

> *That's when crack started, you know, freebasing or whatever they wanted to call it back then […] So she would go to work all the time and she'd just leave the food stamps, because all of the responsibility was on me. And I was about maybe eleven. You know, and I had my two younger brothers, so we pretty much took care of ourselves. […] We always had the food stamps, until, like I guess, her addiction got worse, and then it became… You know, there was nothing in refrigerator, nothing in the cabinets. And then what was there, I would call my grandmom. Grandmom, how do you fix this, how do you*

> *fix that? [...] It just progressively got worse until my grandmother had to take us, 'cause [she] started to know something was wrong.*

Taleya's experience is echoed by several other participants, who describe taking on added responsibility for feeding themselves as the result of household drug abuse. Karina (*ACE 7, Household Very Low Food Secure, Child Low Food Secure*), a 35-year-old mother of three, describes the effects of her stepfather's drug problem on her mother's ability to provide for her:

> *Hunger, it was always a hungry issue in the household because of the fact that my mom would get paid and he would take her money. So it was always me going over to my auntie's house to eat. So it's like it was always a hunger issue because my stepfather and his ways […] He was a drug addict. He sold drugs. He stole from mother. He was a real violent man, a real violent person.*

Karina believes that her stepfather's influence has carried with her over the course of her life. She explains that if her stepfather's influence had not prevented her mother from providing her with needed support in her childhood and adolescence, she would be in a better situation currently: *"It's like the tree. The tree, it will grow from the roots, so if the roots is damaged, the tree is going to be damaged. You know, so that's my tree. Like my home was rotted by a bad person. And now, it escalated in my life."*

Among very low food secure participants, 15/19 (vs. 3/6 low food secure and 2/6 food secure participants) reported growing up with a household member who was an alcoholic or used drugs. While some participants described good relationships with parents in various stages of recovery, others described dynamics of abuse or neglect associated with addiction that continued into adulthood. In addition to the physical and emotional neglect that often accompanied substance abuse of a parent, participants described lasting effects on their current financial status. Some were still supporting parents who could not manage their own finances due to addiction, and others provided financial and in-kind support for siblings or elderly relatives for whom they could not care. Kiana (*ACE 8, Household Very Low Food Secure, Child Low Food Secure*), a 19-year-old mother of one, had to go into the shelter system after she and her mother lost their housing, which had been provided through a drug-rehabilitation

program for people in recovery, due to a relapse in her mother's drug use. Kiana often takes care of her younger sisters, who sometimes go hungry when their mother is using drugs.

Household substance abuse was also often a marker for multiple generations of abuse, neglect, and limited opportunity. Taleya described the pain suffered by her mother and grandmother, who both struggled with substance abuse. Her grandmother, who stopped school at fifth grade and was unable to read until Taleya was in elementary school, had her first of several children at 14 and *"felt like her life was stole."* She began drinking, and often left Taleya's mother in the care of boyfriends who sexually abused her and her siblings. Taleya explains that her grandmother needed to *"acknowledge their hurt and their pain […] as things that you didn't do right, too? And it's just… it trickles down generations and that's what happens and if you aren't aware, it's going to continue."* Several other participants described parents or grandparents who used drugs to escape from childhood traumas, most often related to sexual and physical abuse. Kiana described her mother escaping childhood sexual abuse, neglect, and her own mother's drug abuse by self-medicating with marijuana. As Kiana explains, *"She turned to drugs to numb her mind, made her not think about stuff like that and like… I'd be trying to tell her she does the same thing [that her mother did to her] with us, but it's not as bad […] She still knows, like, okay, I got to take care of my kids and I got to provide, but […] the drugs are still in her life."*

Experiences with physical neglect, even once resolved, can have lifelong impacts. Claudia, a 22-year-old mother of one (*ACE 9, Household Very Low Food Secure, Child Low Food Secure*), describes how her childhood experiences with physical neglect and hunger carry forward into how she cares for her son. After her parents divorced and her mother left the family, her father began drinking heavily, neglecting her and her sisters, and got into an altercation with Claudia's sister that culminated with Claudia's father punching her in the face. Her mother, who suffered from severe depression, was nowhere to be found. Claudia ran away from home, living with friends, a group of neighborhood teens in an abandoned house, and with her older sister, experiencing chronic hunger throughout. Now, as a

mother of a young child, she must continue to skip her own meals and live on a very low budget to ensure that her son does not experience the hunger that she felt as a teenager.

> *It's like I have to… no matter how good I am, I have to still fight in order to have more. Just 'cause it all falls on [my son], because I don't want him to live through it. I know how hard it was on me. I know how much my stomach hurt from the hunger, how much my body ached, having pains and not having the medication for it, you know? […] It's like the hunger, the pain, the depression. It always comes back. It's like a bird nesting in your head […] It makes me feel sad, and it makes me feel depressed, and it makes me feel angry. But it also helps me keep fighting.*

Even if she were not struggling financially as she is now, Claudia explains, she would still feel "*haunted*" by her experiences with hunger. As she explains, *"it affects the ability to be really happy, you know, because it's like… put it like this, it haunts me. […] I could be rich right now or I could win the lottery, win a million dollars. I would put it in the bank and go on about my life the same way I have been living."* She lost her job after taking off multiple days to care for her son, who is asthmatic. She also skips meals regularly so that he can eat. Her drive to protect him from the type of neglect she experienced prevents her from being able to care for herself, which places her in a situation where she describes that she is only barely able to provide enough for her son.

Experiences with public assistance for participants exposed to childhood adversity

Receiving public assistance had mixed results for many participants. While most participants described public assistance programs, including SNAP, WIC, and TANF, as essential lifelines that prevented their children from going hungry, nearly all described instances where they were insufficient. Michaela (*ACE 3, Household Very Low Food Secure, Child Low Food Secure*), a 20-year-old mother of one, made this analogy for the welfare system:

> *I saw this picture of a person stuck in a hole and this other person was like, 'Oh, let me help you,' [as he was] trying to reach him down the hole and grab him. But he had a whole six-foot ladder next to him […] It was like pretending to help, 'cause if you really wanted to help, you would just use the ladder, right? […] But instead you're just like, oh, I'll help you with my hand [when] you know [it] can't reach.*

Michaela's assessment of public assistance was echoed by a majority of participants, who described benefits cut due to clerical errors, "cliff effects" in which benefits were cut disproportionately due to a marginal increase in income, and caseworkers that were disrespectful.

For participants reporting 4 or more ACEs, common challenges emerged relating to public assistance. Several younger mothers described being unable to access their own SNAP or TANF benefits if they lived with a parent. Keisha (*ACE 9, Household Very Low Food Secure, Child Very Low Food Secure*) describes an inability to finish high school because her mother, who was struggling with drug addiction, did not apply for the TANF childcare subsidy on her behalf. For participants who had experienced abuse and neglect as children, an inability to control the benefits for themselves and their children had the potential to continue experiences of hunger into the next generation. When she moved back in with her mother after being unable to afford her rent, Jocelyn feared that the single address would mean that her food stamps would be combined with her mother's. Jocelyn explains,

> *[My mother] don't feed her kids […] She gets food stamps but she don't put our food in the house. […] It's not just me feeding myself and my son. It's me feeding myself, my little sisters, and her […] They just said something about my address so now she gonna get the whole card, […] and I'm gonna have to deal with her taking my money, and it's going to come on her day, and […] just her losing her card and stuff like that.*

Additionally, interactions with caseworkers seemed to trigger participants who experienced abuse and neglect. Participants who had experienced neglect described being especially sensitive to ensuring the well-being of their own children, and reacting with extreme anxiety when they were unable to make ends meet. Claudia describes this experience with a caseworker:

> *If somebody tries to come and take my son, I'm going to hurt them. And I don't want to, because I know that that's just going to make matters worse. […] Well, the one time that… when we first moved here we didn't have a refrigerator […] And the lady at the welfare… oh man, she's lucky she was behind the counter. That's why I hate myself sometimes because of anger. She told me, she said for any little thing you need help with, come and ask. So I figure, I don't have a refrigerator, maybe they'll help me […] So I went to her and I said, "I need help." And she said, "What do you need? Food stamps? Medical?" I said, "I don't have a fridge. I just moved into my apartment. I need a refrigerator to keep my son's belongings, the waters, the milks […] Can you please help me to get a fridge, if I have to pay it back, something, a budget*?" [The caseworker said,]

> *“Oh my God, ma’am, if you don’t have a fridge, I’m going to have to contact DHS.* [Child Protective Services*]”*

Claudia describes “hating herself” because of difficulty managing anger and knowing that her outbursts will make the situation worse, but is unable to remain calm at the thought of her son being removed from her care.

Many described struggling to keep their composure when faced with benefit cuts and lost paperwork and the stress that it provoked when faced with caseworkers they perceived as uncaring. Kiana explains,

> *They give you what they want to give you and they do it on their own time. Like not when you need it the most. On their own time. Welfare is a good idea, but they got the wrong people working there […] I’m having a bad day. I’m waiting because you all didn’t give me my food stamps or something […] You don’t need the person behind the desk saying, ‘Oh, well,’ going back and forth. You need someone saying, ‘okay, let me see if I can [help].’ You don’t get that in the welfare offices.*

Tyra (*ACE 9, Household Very Low Food Secure, Child Low Food Secure*), who receives SNAP and WIC and has been on the waitlist for Section 8 for five years, describes feeling dehumanized by her interactions with caseworkers: *“[Welfare caseworkers] think they’re so much higher than thou when you walk in there and you ask them for something that you need. And they badmouth us like we’re not even human. Like we’re a third world country out here.”*

Participants who described experiences with instability as children were highly attuned to the instability of public assistance as adults. Tyra was legally emancipated at the age of 16 after years of financial instability and emotional abuse from her mother, who Tyra also witnessed being physically abused and threatened by partners. Independent from a young age, Tyra described panhandling at the age of 9 to feed herself and her younger siblings. Tyra wanted to attend college, but was unable to do so when her daughter was born. To support herself and her daughter, Tyra enrolled in SNAP and WIC, but described SNAP benefits cut off because the caseworker claimed that she didn’t file paperwork on time.

After struggling to afford rent and being turned away from multiple shelters, Tyra describes feeling abandoned by her city and notes the unfairness she sees in the way resources are distributed:

> *I've been trying to go to a shelter four times in the last five years. And all of them denied me entry. Yes, denied […] Me and my daughter sat at Cherry Street for a day and a half and they still didn't have any beds open for me or my child. Let them tell us they're doing something for us. They're not doing anything. They're just making it harder for us. And then they talk about oh, there's no funding in the city. But you all have money to put new trashcans on every corner, new everything everywhere else. But you all are not helping the people at all, at all. […] Let them tell you the waiting list is only five years old. If you're supposed to get it within five years, I've been waiting five years […] I've been calling them, going on the internet and looking it up to make sure that I didn't miss a follow up or anything. And I still haven't received anything, not a letter, not a phone call.*

Gia (*ACE 4, Household Very Low Food Secure, Child Food Secure*), a 19-year-old mother of one, explains how getting off of welfare can feel like a major risk without the ability to get a job that pays a living wage:

> *[People think], if I go and I [get a job] I won't have this little check waiting for me. But when you think about it it's stupid, because that check compared to the money that they could be making if they did take that risk would be way more. […] I just feel like we're still enslaved within our minds, like we think that we can't go anywhere. […] I mean [welfare] helps, but I feel like […] if you step out and you got to take a risk, that like, oh, we're going to shut your [benefits] off. If you don't have no schooling […] then you have that little $7.25 an hour check, and the $7.25 that you get an hour, there's no way that that's going to pay bills, food, gas in the car, take care of clothes.*

Gia dropped out of high school when her son was born, after years of skipping school because her mother, who suffered from depression, allowed her to miss school whenever she did not feel able to go. After experiencing physical abuse from her son's father, Gia was in the midst of a custody battle and was working a minimum wage job at a fast food restaurant. While determined to finish her education and pursue a better job, Gia worried about her ability to successfully transition off of public assistance given her current job prospects.

Other participants connected their childhood experiences to the economic circumstances that necessitated receiving public assistance in the first place. Jocelyn contrasted her own experience of being abused and neglected with that of her younger sister, who went into foster care when she was

eight years old. She described how her sister doesn't "*think she'll ever be on welfare, and I think it's because she actually has somebody to take care of her and show her how she's supposed to be treated, and fed, and combed*."

Adverse childhood experiences limited many participants' educational attainment and employment opportunities, and often meant that few had social support from family and friends. In the face of limited opportunity and support network, many participants utilized public assistance to provide for their families. However, experiences with childhood abuse and neglect described seemed to prime participants for interactions with the welfare system that triggered a sense of unfairness, anxiety, and humiliation. These interactions led to missed appointments, sanctions, and sometimes giving up on programs altogether, placing families in even more precarious economic circumstances.

Discussion

Preliminary analysis of both qualitative and quantitative results suggest a strong relationship between exposure to adverse childhood experiences and food insecurity. This is especially true for emotional and physical neglect, and exposure to substance abuse in the household.

While the quantitative results should be considered with limited confidence because of our small sample size, the distribution of adverse childhood experiences among those originally reporting household very low food security at *Time 1* in the sample should demand considerable pause. Prevalence in the sample of reports of emotional neglect (58%) and physical abuse (52%), are strikingly higher than the general population of Philadelphia, where in a recent survey those reporting emotional neglect and physical abuse were significantly less (7.7% and 35% respectively).[1] Sexual abuse among our all-female sample was 45%, whereas in Philadelphia's female population, the prevalence was 20.3%.

[1] See report released by Institute for Safe Families: Findings from the Philadelphia Urban ACE Survey. Prepared for the Institute for Safe Families, Prepared by the Research and Evaluation Group at Public Health Management Corporation, Philadelphia, PA Sept. 18, 2013. Accessed May 8, 2014.
http://www.instituteforsafefamilies.org/sites/default/files/isfFiles/Philadelphia%20Urban%20ACE%20Report%202013.pdf

Report of childhood exposure to household substance abuse among our sample (65%) is significantly higher than the Philadelphia rate, 34.8%. Our sample showing that 68% had an ACE score of 4 or more is also greater than the prevalence rate for the Philadelphia respondents who were at 150% of poverty, where the prevalence rate was 50%. Overall our sample of food insecure families indicates extremely high rates of exposure to adversity during childhood.

The level and breadth of vulnerability in our sample stretches far beyond economic deprivation. This suggests that while programs help mitigate the effects of economic deprivation, they must also integrate services that address the trauma and trauma-related challenges such as sleeplessness, depression, anxiety, and hypervigilence. Additionally the qualitative reports of exposure to violence, trauma and neglect reflect how such experiences continue to affect people into their adulthood, and as they attempt to care for their children. These experiences are reflected in their reports of getting into excessive fights in school, or quitting jobs over seemingly small infractions on behalf of others, selecting partners that are abusive, and not being able to focus on future. Each of these issues presently affecting adults have a direct impact on young children.

Among the mothers reporting very low household food security, there were significant experiences that reflected major social isolation of the caregiver—in the past and currently. This isolation is characterized as feeling alone and unloved by family members, and having few people on whom to rely for help, or to trust. This corroborates many previous studies that have indicated that social isolation is a very significant factor associated with food security. It also suggests that the programs that can help alleviate some of the economic hardship, again, by themselves in their current configuration are not enough. Parents may need more opportunities to build social connections and trusted networks of helpers beyond family and neighbors.

Additionally, many participants described their own childhoods as very dire—suggesting that the economic stress they currently experience predated their adulthood. Such hardship has its roots in the

hardship they experienced as children, and thus reflects the hardships that their own parents experienced. Hence, the current reports of food security encompass at least three generations (grandparent, mother, and young child). In several cases, the adversity stretched to four or five generations.

This intergenerational transfer of deprivation, adverse experiences, and hunger suggests that the public assistance programs meant to help families are not sufficient to break the cycle, or the ongoing nature of deprivation from one generation to the next. The inadequacy of the safety net is also reflected in the narratives about public assistance. The traumatic experiences and the social isolation described by the mothers suggest that the punitive nature of some programs, and the lack of awareness of trauma, hardship and isolation on the part of caseworkers, program managers and policy makers, is a recipe for an array of programs that provide minimal, inadequate assistance. Additionally, the parents' limited educational attainment and limited experience in consistent work environments make the lack of public assistance effectiveness even more stark and problematic. This suggests that, for the young children being cared for by the mothers in our sample, prospects for reaching their full potential and avoiding hardship as an adult are bleak.

Limitations

The quantitative analyses conducted in this study are limited in their generalizability and representativeness due to the small and non-randomized sample.

The limited representation of participants reporting food insecurity at the child level at the second interview complicated and lengthened are analysis times to take into account differences in the reports, and the qualitative differences at the household and the child levels. Further research accounting for the transience and hard-to-reach nature of this population through extended, in-depth

recruitment may address some of the challenges in recruiting participants reporting low and very low food security at the child level.

Recruitment of participants through a study taking place in a hospital emergency department may introduce a selection bias toward participants who have a higher exposure to violence. Self-selection into this study, in which caregivers were encouraged through the recruitment flyer to share their experiences with "stress in childhood," may have biased participation toward those who were interested in drawing connections between their childhood experiences and their current circumstances. The home-based setting of the interviews may have increased participant comfort in disclosing experiences related to prior neglect and abuse. Conversely, the home-based setting and fears related to possible perceptions that interviewers may report current abuse and neglect may have caused participants to under-report very low food security at the child level.

Conclusion

The depth of deprivation among households with young children reporting primarily very low household food security, and on occasion, child food insecurity, is related to reports of exposure to adverse childhood experiences of the mother. Additionally, such a strong relationship suggests that current reports about household food insecurity are capturing deprivation for three generations simultaneously. Because food insecurity has roots in deprivation passed from earlier generations, assistance programs may need to adopt approaches that provide more consistent and stable support over a longer period of time to prevent sporadic and inconsistent (thus ineffective) alleviation of hardship. Additionally, current public assistance programs may be ill-prepared and inadequate to address such a breadth and depth of challenges. These results suggest the need for a significant re-consideration of how nutrition assistance programs are integrated with other assistance programs such as housing subsidies, childcare subsidies, and access to consistent and nurturing behavioral health

programs. These results indicate an urgent need to ensure that families reporting very low food security gain access to stable, consistent public assistance, in a way that embraces families, and truly helps them to meet basic needs beyond cash and food allotments to ensure that families have safe places to stay and to care for their children. Finally, agencies tasked with protecting the health and wellbeing of low-income families with young children, should look to find ways to ensure that the safety net encourages, supports, and incentivizes positive social relationships among families with young children.

Table 1. Selected Codes from Preliminary Master Code List

Supercode and selected subcodes *(This list does not include all subcodes)*	**Number of sub codes & sub-sub codes**
1. Education/school	10
2. Jobs/work/income	9
3. Public assistance	12
A. Affects (Buffering/More hardship)	
4. Child welfare authorities	3
5. Hunger/food	10
A. Physical/mental/social sensation	
B. Coping mechanisms	
C. Nutrition	
6. Resilience	1
7. Mental Health	12
8. Substance use	16
9. Relationships	16
10. Motherhood, parenting	8
11. Pregnancy	4
12. Intergenerational transmission	12
13. Criminal justice system	5
14. Home, homelessness and housing	11
15. “The Streets”	1
16. Survival	1
17. Violence	51
A. ACEs	
B. Homicide	
C. Suicide	
D. Assault	
E. Captivity	
F. Physical abuse, threats of violence	
G. Community violence	
H. Rape/molestation	
I. Typology (Impact; Locus; Life stage)	

Table 2. Select Participant Characteristics by Household Food Security Status reported at Time 2								
					Food Insecure			
	Total		Food Secure		Low Food Security		Very Low Food Security	
	N = 31		N = 6		N = 6		N = 19	
	Mean	*SD*	Mean	*SD*	Mean	SD	Mean	SD
Child's Age (months)	26.6	*15.1*	23.4	*16.8*	22.4	*12.2*	29.0	*15.7*
Caregiver's Age (years)	27	*9*	26	*4*	27	*8*	28	*11*
	N	*%*	N	*%*	N	*%*	N	*%*
Race/Ethnicity								
Black/African-American (non-Hispanic)	18	*58*	5	*83*	3	*50*	9	*53*
Hispanic/Latina	11	*36*	1	*17*	3	*50*	8	*37*
Black/African-American and Hispanic	1	*3*	0	*0*	0	*0*	1	*5*
Biracial	1	*3*	0	*0*	0	*0*	1	*5*
Caregiver's Marital Status								
Unmarried	29	*94*	6	*100*	5	*83*	18	*95*
Married	2	*6*	0	*0*	1	*17*	1	*5*
Caregiver's Education								
Some High School	8	*26*	2	*33*	3	*50*	3	*16*
High School/GED	11	*35*	1	*17*	3	*50*	7	*37*
Technical School/Any College	12	*39*	3	*50*	0	*0*	9	*47*
Caregiver Employment								
Unemployed	19	*61*	4	*67*	5	*83*	10	*53*
Employed	12	*39*	2	*33*	1	*17*	9	*47*
Mother location of birth								
US or Puerto Rico Born	29	*94*	6	*100*	6	*100*	17	*89*
Foreign Born	2	*6*	0	*0*	0	*0*	2	*11*
Child's Physical Health								
Excellent/Good	25	*81*	6	*100*	5	*83*	14	*74*
Fair/Poor	6	*19*	0	*0*	1	*17*	5	*26*
Caregiver Physical Health								
Excellent/Good	17	*55*	6	*100*	2	*33*	9	*47*
Fair/Poor	14	*45*	0	*0*	4	*67*	10	*53*
Caregiver Depressive Symptoms								
No	5	*16*	1	*17*	1	*17*	3	*16*
Yes	26	*84*	5	*83*	5	*83*	16	*84*
Public Assistance Participation								
TANF	17	*55*	3	*50*	5	*83*	9	*47*
SNAP	28	*90*	6	*100*	6	*100*	16	*84*
WIC	25	*81*	5	*83*	5	*83*	15	*79*
Child Food Security Status								
Child Food Secure	12	*39*	6	*100*	4	*67*	2	*11*
Child Low Food Secure	13	*42*	0	*0*	2	*33*	11	*58*
Child Very Low Food Secure	6	*19*	0	*0*	0	*0*	6	*32*
ACE Score								
0-3	10	*32*	4	*67*	2	*33*	4	*21*
≥4	21	*68*	2	*33*	4	*67*	15	*79*

Table 3. Change in Food Security Status Between *Time 1* and *Time 2* by ACE Score

		Household Food Security			Child Food Security		
ACE Score	Total N = 31	No change N = 17	Less severe N = 9	More severe N = 5	No change N = 19	Less severe N = 4	More severe N = 8
0-3	10	4	4	2	6	1	3
≥4	22	13	5	3	13	3	5

Table 4. Distribution of Adverse Childhood Experiences

Category of Childhood Exposure	N=31	%
ABUSE		
Emotional		
(Did a parent or other adult in the household…)	16	*52%*
Often or very often swear at you, insult you, put you down, or humiliate you? OR act in a way that made you afraid you might be physically hurt?		
Physical		
(Did a parent or other adult in the household…)	16	*52%*
Often or very often push, grab, slap or throw something at you? OR ever hit you so hard you had marks or were injured?		
Sexual		
(Did an adult or person at least 5 years older than you…)	14	*45%*
Ever touch or fondle you or have you touch their body in a sexual way? OR attempt or actually have oral, anal, or vaginal intercourse with you?		
NEGLECT		
Emotional		
(Did you often or very often feel that…)	18	*58%*
No one in your family loved you or thought you were important or special? OR your family didn't look out for each other, feel close to each other, or support each other?		
Physical		
(Did you often or very often feel that…)		
You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you? OR your parents were too drunk or high to take care of you or take you to the doctor if you needed it?	12	*39%*
HOUSEHOLD DYSFUNCTION		
Parental separation		
Were your parents separated or divorced?	26	*84%*
Mother abused		
(Was your mother or stepmother…)	13	*42%*
Often or very often pushed, grabbed, slapped, or had something thrown at her? OR sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard? OR ever repeatedly hit for at least a few minutes or threatened with a gun or a knife?		
Substance use		
Did you live with anyone who was a problem drinker or alcoholic of who used street drugs?	20	*65%*
Mental illness		
Was a household member depressed or mentally ill, or did a household member attempt suicide?	19	*61%*
Incarceration		
Did a household member go to prison?	15	*48%*

Table 5. Distribution of ACES by participant

		Parents Separated /Divorced	Household Incarceration	Household Substance Abuse	Sexual Abuse	Mother Abused	Emotional Neglect	Physical Neglect	Household Mental Illness	Emotional Abuse	Physical Abuse
Total # in Category		**26**	**15**	**20**	**14**	**13**	**18**	**12**	**19**	**16**	**16**
Participant Pseudonym	**Total ACEs**										
Ana	0										
Shanice	1	X									
Cheyenne	1	X									
Whitney	1	X									
Amelia	2	X	X								
Charlotte	2	X	X								
Isabel	3			X	X	X					
Nadiyah	3	X	X			X					
Kendis	3	X					X	X			
Michaela	3	X		X			X				
Gia	4	X					X		X	X	
Natasha	4	X	X	X					X		
Fabiana	5			X			X		X	X	X
Moesha	5	X	X	X			X				X
Kayla	6		X		X	X	X		X		X
Emilia	6	X			X		X		X	X	X
Amanda	6	X	X	X	X				X		X
Shaunte	6	X		X		X	X		X	X	
Natalia	6	X		X	X		X		X	X	
Karina	7	X	X	X				X	X	X	X
Clara	7	X		X	X	X			X	X	X
Mildred	8			X	X	X	X	X	X	X	X
Kiana	8	X	X	X	X	X	X	X	X		
Keisha	8	X	X	X			X	X	X	X	X
Naitana	9	X	X	X	X	X	X	X		X	X
Taleya	9	X	X	X	X	X		X	X	X	X
Tyra	9	X	X	X		X	X	X	X	X	X
Claudia	9	X	X	X		X	X	X	X	X	X
Tamira	9	X	X	X	X		X	X	X	X	X
Jocelyn	9	X		X	X	X	X	X	X	X	X
Danica	9	X		X	X	X	X	X	X	X	X

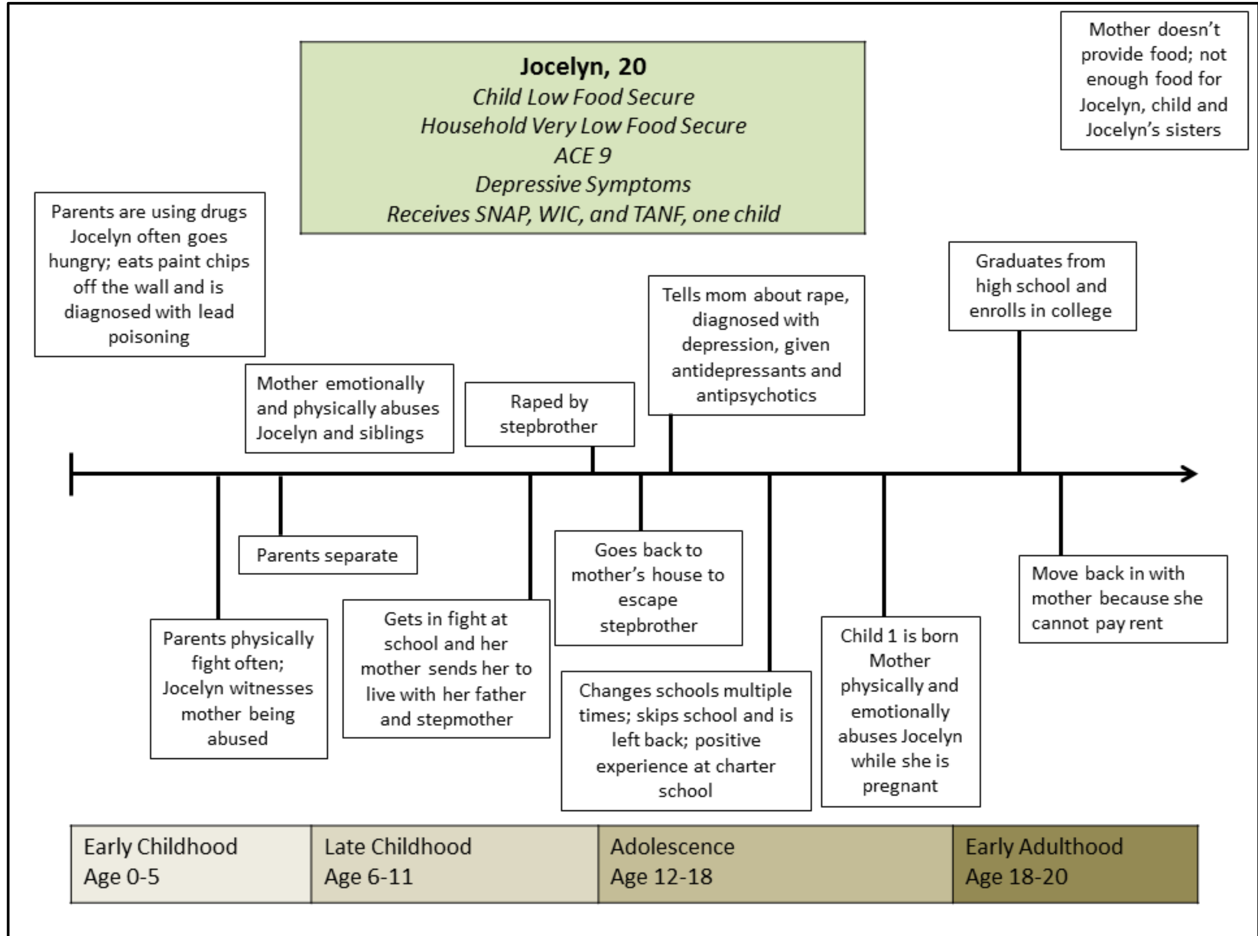
Table 6. Distribution of Types of ACEs by Household Food Security Status at *Time 2*								
	Total N = 31	**Food Secure N = 6**		**Low Food Security N = 6**		**Very Low Food Security N = 19**		**Fishers' Exact Test *(Two-tailed)***
Adverse Childhood Experience	N	N	*%*	N	*%*	N	*%*	p-value
Emotional Abuse	16	1	*17*	3	*50*	12	*63*	0.148
Physical Abuse	16	1	*17*	3	*50*	12	*63*	0.148
Sexual Abuse	14	1	*17*	4	*67*	9	*47*	0.273
Emotional Neglect	**18**	**0**	***0***	**3**	***50***	**15**	***79***	**0.002***
Physical Neglect	**12**	**0**	***0***	**1**	***17***	**11**	***58***	**0.015***
Parents Separated/Divorced	26	6	*100*	6	*100*	14	*74*	0.169
Mother Abused	13	2	*33*	1	*17*	10	*53*	0.364
Household Substance Abuse	20	2	*33*	3	*50*	15	*79*	0.088
Household Mental Illness	19	2	*33*	4	*67*	13	*68*	0.342
Household Incarceration	15	4	*66*	1	*17*	10	*53*	0.249

*Statistically significant differences

Table 7. Impact, Life Stage, and Locus of Adversity by Household Food Security Status

Qualitative Category		Total N = 31		Food Secure N = 6		Low Food Secure N = 6		Very Low Food Secure N = 19	
Reports of Violence & Deprivation		N	%	N	%	N	%	N	%
Impact	Casually Recalled	10	*32*	2	*33*	0	*0*	8	*42*
	Fear of Event	17	*55*	4	*67*	2	*33*	11	*58*
	Short-Lived Impact	24	*77*	5	*83*	4	*67*	15	*79*
	Longer-Lasting Impact	29	*94*	6	*100*	5	*83*	18	*95*
	Life-Changing Impact	24	*77*	2	*33*	5	*83*	17	*90*
Life Stage	Age 0-5	20	*65*	3	*50*	3	*50*	14	*74*
	Age 6-10	23	*74*	5	*83*	4	*67*	14	*74*
	Age 11-15	21	*68*	3	*50*	4	*67*	14	*74*
	Age 16-20	22	*71*	5	*83*	4	*67*	13	*68*
	Past Adult	25	*81*	3	*50*	6	*100*	16	*84*
	Current	18	*58*	2	*33*	3	*50*	13	*68*
Locus	Being a Perpetrator	17	*55*	2	*33*	3	*50*	12	*63*
	Being a Victim	30	*97*	5	*83*	6	*100*	19	*100*
	Children's Experiences	16	*52*	2	*33*	4	*67*	10	*53*
	Close Others	25	*81*	5	*83*	4	*67*	16	*84*
	Distant Others	8	*26*	3	*50*	0	*0*	5	*26*

Chart 1. Selected Participant Timeline



References

1. Coleman-Jensen A, Nord M, Singh A. *Household Food Security in the United States in 2012.* September 2013 2013.

2. Coleman-Jensen A, Nord M, Andrews M, Carlson S. *Household Food Security in the United States in 2010.* United States Department of Agriculture;2011.

3. Nord M, Andrews M, Carlson S. *Household Food Security in the United States, 2006.* U.S. Department of Agriculture, Economic Research Service;2007.

4. Fram MS, Frongillo EA, Jones SJ, et al. Children are aware of food insecurity and take responsibility for managing food resources. *J Nutr.* Jun 2011;141(6):1114-1119.

5. Whitaker RC, Phillips SM, Orzol SM. Food insecurity and the risks of depression and anxiety in mothers and behavior problems in their preschool-aged children. *Pediatrics.* Sep 2006;118(3):e859-868.

6. Zaslow M, Bronte-Tinkew J, Capps R, Horowitz A, Moore KA, Weinstein D. Food security during infancy: implications for attachment and mental proficiency in toddlerhood. *Matern Child Health J.* Jan 2009;13(1):66-80.

7. Casey P, Goolsby S, Berkowitz C, et al. Maternal depression, changing public assistance, food security, and child health status. *Pediatrics.* Feb 2004;113(2):298-304.

8. Heflin CM, Corcoran ME, Siefert KA. Work trajectories, income changes, and food insufficiency in a Michigan welfare population. *Social Service Review.* 2007;81(1):3-25.

9. Heflin CM, Siefert K, Williams DR. Food insufficiency and women's mental health: Findings from a 3-year panel of welfare recipients. *Social Science and Medicine.* 2005;61(9):1971-1982.

10. Tarasuk VS. Household food insecurity with hunger is associated with women's food intakes, health and household circumstances. *J Nutr.* Oct 2001;131(10):2670-2676.

11. Bronte-Tinkew J, Zaslow M, Capps R, Horowitz A, McNamara M. Food insecurity works through depression, parenting, and infant feeding to influence overweight and health in toddlers. *J Nutr.* Sep 2007;137(9):2160-2165.

12. Goodman LA, Smyth KF, Borges AM, Singer R. When crises collide: how intimate partner violence and poverty intersect to shape women's mental health and coping? *Trauma Violence Abuse.* Oct 2009;10(4):306-329.

13. Kendall-Tackett KA. Violence against women and the perinatal period: the impact of lifetime violence and abuse on pregnancy, postpartum, and breastfeeding. *Trauma Violence Abuse.* Jul 2007;8(3):344-353.

14. Dubowitz H, Bennett S. Physical abuse and neglect of children. *Lancet.* Jun 2 2007;369(9576):1891-1899.

15. Hamelin AM, Beaudry M, Habicht JP. Characterization of household food insecurity in Québec: Food and feelings. *Social Science and Medicine.* 2002;54(1):119-132.

16. Chilton M, Rabinowich J. Toxic Stress and Child Hunger Over the Life Course: Three Case Studies. *Journal of Applied Research on Children: Informing Policy for Children at Risk.* 2012;3(1):Article 3.

17. Chilton M, Rabinowich J, Woolf N. Very low food security in the USA is linked with exposure to violence. *Public Health Nutr.* Feb 22 2013:1-10.

18. Hernandez DC, Marshall A, Mineo C. Maternal depression mediates the association between intimate partner violence and food insecurity. *J Womens Health (Larchmt).* Jan 2014;23(1):29-37.

19. Alaimo K, Olson CM, Frongillo EA. Family food insufficiency, but not low family income, is positively associated with dysthymia and suicide symptoms in adolescents. *J Nutr.* Apr 2002;132(4):719-725.

20. Bhattacharya J, Currie J, Haider S. Poverty, food insecurity, and nutritional outcomes in children and adults. *J Health Econ.* Jul 2004;23(4):839-862.

21. Ashiabi G. Household food insecurity and children's school engagement. *Journal of Children & Poverty.* 2005;11(1):3.

22. Eicher-Miller HA, Mason AC, Weaver CM, McCabe GP, Boushey CJ. Food insecurity is associated with iron deficiency anemia in U.S. adolescents. *American Journal of Clinical Nutrition.* 2009;90(5):1358-1371.

23. Gunderson CK, Brent. Bounding the effects of food insecurity on children's health outcomes. *J Health Econ.* 2009;28(5):971-983.

24. Weinreb L, Wehler C, Perloff J, et al. Hunger: its impact on children's health and mental health. *Pediatrics.* Oct 2002;110(4):e41.

25. Kleinman RE, Murphy JM, Little M, et al. Hunger in children in the United States: potential behavioral and emotional correlates. *Pediatrics.* Jan 1998;101(1):E3.

26. Murphy JM, Wehler CA, Pagano ME, Little M, Kleinman RE, Jellinek MS. Relationship between hunger and psychosocial functioning in low-income American children. *J Am Acad Child Adolesc Psychiatry.* Feb 1998;37(2):163-170.

27. Alaimo K, Olson C.M., Frongillo EA, Jr., Briefel RR. Food insufficiency, family income, and health in U.S. preschool and school-age children. *Am J Public Health.* 2001;91:781-786.

28. Wehler C, Weinreb LF, Huntington N, et al. Risk and protective factors for adult and child hunger among low-income housed and homeless female-headed families. *Am J Public Health.* Jan 2004;94(1):109-115.

29. Melchior M, Caspi A, Howard LM, et al. Mental health context of food insecurity: a representative cohort of families with young children. *Pediatrics.* Oct 2009;124(4):e564-572.

30. Melchior M, Moffitt TE, Milne BJ, Poulton R, Caspi A. Why do children from socioeconomically disadvantaged families suffer from poor health when they reach adulthood? A life-course study. *Am J Epidemiol.* 2007;166(8):966-974.

31. Shonkoff JP, Bales SN. Science does not speak for itself: translating child development research for the public and its policymakers. *Child Dev.* Jan 2011;82(1):17-32.

32. Raphael J. Keeping battered women safe during welfare reform: new challenges. *J Am Med Womens Assoc.* Winter 2002;57(1):32-35.

33. Kennedy AC. Urban adolescent mothers exposed to community, family, and partner violence: prevalence, outcomes, and welfare policy implications. *Am J Orthopsychiatry.* Jan 2006;76(1):44-54.

34. Lown EA, Schmidt LA, Wiley J. Interpersonal violence among women seeking welfare: unraveling lives. *Am J Public Health.* Aug 2006;96(8):1409-1415.

35. Swanberg J, Macke C, Logan TK. Working women making it work: intimate partner violence, employment, and workplace support. *J Interpers Violence.* Mar 2007;22(3):292-311.

36. Swanberg JE, Logan T, Macke C. Intimate partner violence, employment,and the workplace: consequences and future directions. *Trauma Violence Abuse.* Oct 2005;6(4):286-312.

37. Langhinrichsen-Rohling J. Top 10 greatest "hits": important findings and future directions for intimate partner violence research. *J Interpers Violence.* Jan 2005;20(1):108-118.

38. Miller J. *Getting played : African American girls, urban inequality, and gendered violence.* New York: New York University Press; 2008.

39. Shonkoff JP, Boyce WT, McEwen BS. Neuroscience, molecular biology, and the childhood roots of health disparities: Building a new framework for health promotion and disease prevention. *Journal of the American Medical Association.* 2009;301(21):2252-2259.

40. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults - The adverse childhood experiences (ACE) study. *Am J Prev Med.* May 1998;14(4):245-258.

41. Schilling EA, Aseltine RH, Gore S. The impact of cumulative childhood adversity on young adult mental health: measures, models, and interpretations. *Soc Sci Med.* Mar 2008;66(5):1140-1151.

42. Hillis SD, Anda RF, Felitti VJ, Marchbanks PA. Adverse childhood experiences and sexual risk behaviors in women: a retrospective cohort study. *Fam Plann Perspect.* Sep-Oct 2001;33(5):206-211.

43. Foster H, Hagan J, Brooks-Gunn J. Growing up fast: stress exposure and subjective "weathering" in emerging adulthood. *J Health Soc Behav.* Jun 2008;49(2):162-177.

44. Bloom SL. *Creating sanctuary : toward the evolution of sane societies.* New York: Routledge; 1997.

45. Bloom SL, Reichert M. *Bearing witness : violence and collective responsibility.* New York: Haworth Maltreatment and Trauma Press; 1998.

46. Anda RF, Vladimir I; Felitti, Vincent J; Edwards, Valerie J; Whitfield, Charles L; Dube, Shanta R; Williamson, David F. Childhood abuse, household dysfunction, and indicators of impaired adult worker performance. *The Permanente Journal.* 2004;8(1):30-38.

47. Cook JT, Frank DA, Berkowitz C, et al. Welfare reform and the health of young children: a sentinel survey in 6 US cities. *Arch Pediatr Adolesc Med.* Jul 2002;156(7):678-684.

48. Braveman P, Barclay C. Health disparities beginning in childhood: A life-course perspective. *Pediatrics.* 2009;124(SUPPL. 3).

49. Olson CM, Bove CF, Miller EO. Growing up poor: long-term implications for eating patterns and body weight. *Appetite.* Jul 2007;49(1):198-207.

50. !!! INVALID CITATION !!!

51. Bronfenbrenner U, Ceci SJ. Nature-nurture reconceptualized in developmental perspective: a bioecological model. *Psychol Rev.* Oct 1994;101(4):568-586.

52. Shonkoff JP. From neurons to neighborhoods: old and new challenges for developmental and behavioral pediatrics. *J Dev Behav Pediatr.* Feb 2003;24(1):70-76.

53. Shonkoff JP, Richter L, van der Gaag J, Bhutta ZA. An Integrated Scientific Framework for Child Survival and Early Childhood Development. *Pediatrics.* Jan 4 2012.

54. Shonkoff JP. Mobilizing science to revitalize early childhood policy. *Issues in Science and Technology.* 2009;26(1):79-85.

55. Bickel G, Nord M, Price C, Hamilton W, Cook J. *Measuring Food Security in the United States: Guide to Measuring Household Food Security.* Alexandria, VA: US Department of Agriculture, Food and Nutrition Service, Office of Analysis and Evaluation;2000.

56. US Department of Health and Human Services. *National Health and Nutrition Examination Survey III Data Collection Forms.* Hyatsville, MD: US Department of Health and Human Services;1991.

57. Kemper KJ, Babonis TR. Screening for maternal depression in pediatric clinics. *Am J Dis Child.* Jul 1992;146(7):876-878.

58. Cook JT, Frank DA, Casey PH, et al. A brief indicator of household energy security: associations with food security, child health, and child development in US infants and toddlers. *Pediatrics.* Oct 2008;122(4):e867-875.

59. Cutts DB, Meyers AF, Black MM, et al. US Housing insecurity and the health of very young children. *Am J Public Health.* Aug 2011;101(8):1508-1514.

60. Jeng K, Ettinger de Cuba S, Coleman S, et al. Healthcare cost "trade-offs" with basic needs: Impact on maternal and child health in five cities. *American Public Health Association, Annual Meeting.* 2010.

61. Dube SR, Williamson DF, Thompson T, Felitti VJ, Anda RF. Assessing the reliability of retrospective reports of adverse childhood experiences among adult HMO members attending a primary care clinic. *Child Abuse Negl.* Jul 2004;28(7):729-737.

62. Chapman DP, Whitfield CL, Felitti VJ, Dube SR, Edwards VJ, Anda RF. Adverse childhood experiences and the risk of depressive disorders in adulthood. *J Affect Disord.* Oct 15 2004;82(2):217-225.

63. Dube SR, Felitti VJ, Dong MX, Giles WH, Anda RF. The impact of adverse childhood experiences on health problems: evidence from four birth cohorts dating back to 1900. *Prev Med.* Sep 2003;37(3):268-277.

64. Nord M, Hopwood H. Does interview mode matter for food security measurement? Telephone versus in-person interviews in the Current Population Survey Food Security Supplement. *Public Health Nutr.* Dec 2007;10(12):1474-1480.