

**When the systems fail:  
Individual and household coping strategies related to child hunger**

Mariana Chilton, PhD, MPH\*  
Jenny Rabinowich, MPH\*  
Amanda Breen, PhD, MPH\*  
Sherita Mouzon\*\*

- \* Drexel University School of Public Health, Center for Hunger Free Communities
- \*\* Witnesses to Hunger, Participatory Action Research Study 2008-2013

This paper was commissioned for the Workshop on Research Gaps and Opportunities on the Causes and Consequences of Child Hunger. The workshop was convened by the Committee on National Statistics and Food and Nutrition Board, on April 8-9, 2013 in Washington, DC with support from the Economic Research Service and the Food and Nutrition Service of the U.S. Department of Agriculture.

Opinions and statements included in the paper are solely those of the individual author, and are not necessarily adopted or endorsed or verified as accurate by the Committee on National Statistics and Food and Nutrition Board or the National Academy of Sciences, including the National Academy of Engineering, Institute of Medicine, or National Research Council.

**When the systems fail:  
Individual and household coping strategies related to child hunger**

Mariana Chilton, PhD, MPH, Jenny Rabinowich, MPH, Amanda Breen, PhD, MPH Sherita Mouzon

**Table of Contents**

*Calls from Angel: a portrait of systems failure*

<b>I.</b>	<b>Introduction.....</b>	<b>1</b>
<b>II.</b>	<b>Up-front concerns: “child hunger” vs. “household food insecurity” .....</b>	<b>4</b>
<b>III.</b>	<b>What we know: Family coping strategies .....</b>	<b>6</b>
	<b>a. Appraisal.....</b>	<b>8</b>
	<b>b. Problem-Focused Coping .....</b>	<b>8</b>
	<b>c. Emotion-Focused Coping .....</b>	<b>15</b>
<b>IV.</b>	<b>Toxic Stress: Emerging knowledge about hunger across the lifecycle.....</b>	<b>18</b>
<b>V.</b>	<b>Significant areas for future research: Thinking beyond “household”.....</b>	<b>22</b>
<b>VI.</b>	<b>Data gaps and ideas on how to address them .....</b>	<b>26</b>
<b>VII.</b>	<b>Conclusions.....</b>	<b>29</b>
<b>VIII.</b>	<b>Acknowledgments .....</b>	<b>31</b>
<b>IX.</b>	<b>Works Cited.....</b>	<b>32</b>

## When the systems fail: Individual and household coping strategies related to child hunger

Mariana Chilton, PhD, MPH, Jenny Rabinowich, MPH, Amanda Breen, PhD, MPH and Sherita Mouzon

### *Calls from Angel: A portrait of systems failure, income volatility and food insecurity*

In April 2013, we received a late afternoon phone call in our offices from Angel, a member of our Witnesses to Hunger study. A working single mother, she relies on SNAP to feed her family. But when the day came for her to receive her renewed SNAP benefits on her electronic benefits card, the balance still read \$0. After several days calling her caseworker and trying to get her SNAP “cut back on,” she was becoming desperate. She had only dry cereal in the house, and she hadn’t been able to send her child to preschool that day because she couldn’t pack a lunch for her. *[Although this childcare center primarily serves low-income families, they do not participate in the federal Child and Adult Care Food Program, so parents are required to provide their children with meals].* We explained we could give her a grocery store gift card, if she came by the next day. But she did not show up: she “couldn’t miss work.” Several days later, I asked her what happened. She told me she had borrowed \$25 from her landlord, who is also her aunt, to buy some food. Her SNAP benefits were still under review but she had no time to go to the county assistance office to wait in line to explain again that her paperwork for recertification had been handed in on time *[our recent observations at this office had mothers with toddlers waiting for over three hours for SNAP benefits].* We got her back on SNAP benefits—but only through string pulling at the highest levels, who got a case worker back on task. *The computer program had pushed her off the rolls despite evidence that she had complied with all the administrative rules and was still eligible for benefits.*

- When we first met Angel in 2008, she was not working, her five-month-old daughter was not yet eating solid food, she reported on the Household Food Security Survey Module (HFSSM): **HH low food secure | child food secure.**
- In 2011, when she had two children aged two and three, she reported on the HFSSM: **HH very low food secure | child very low food secure.**

Over the last several years, Angel has struggled with paying for food for herself and her children, despite working multiple jobs over that time. Most recently her original full-time childcare job was reduced to part time, and many weeks out of the year, her hours were switched or reduced without notice. These shifts have caused unpredictable changes in income, and changes in public assistance, causing major hardship for Angel and her family.

## I. Introduction

Angel’s situation illuminates a variety of experiences that can impact her reports of household and child food insecurity—her childcare situation, administrative mistakes within the SNAP program at the frontline administrative level, and income volatility beyond her control. Severe hardship and food insecurity often occur not because of a “family dynamic” within the household, but because dysfunction in income maintenance programs themselves can exacerbate hardship. Many researchers talk about the importance of family coping mechanisms with food insecurity. But how much can be done at the family level when wages are low, education attainment is low, and the systems that are supposed to respond to family crises do not engage in ways that help protect families? Sometimes the systems do not work well, since they are not

structured to take into account the very human conditions and behaviors that reflect larger economic and social forces beyond the control of individuals and their families.

Through the National Academy of Sciences, this manuscript offers to help the United States Department of Agriculture Food and Nutrition Services program learn more about the systems and experiences that impact child hunger and health, and to chart a new course for research that could lead to improved policies and programs in order to diminish, and ultimately end, hunger in the United States.

After a brief discussion of up-front concerns, this paper adopts a framework of coping categories adapted from Lazarus and Folkman (Lazarus and Folkman, 1984) to describe three major categories of coping processes: appraisal-focused, problem-focused, and emotion-focused. These categories help to characterize the research on how families with children struggle to cope with the stress of food insecurity. We utilize this framework loosely so as not to characterize the relationship between food insecurity and coping as based entirely on psychological factors. Instead, we provide a framework to ensure that as food insecurity research moves forward, food insecurity is addressed within political, economic and social contexts. In addition, we propose that future research endeavors take into account life-course factors and structural factors that are associated with the administration of state and federal programs. Research over the past few decades has shown that childhood exposures to stressful life events during pivotal moments of development can have lifelong consequences for an individual's ability to cope with stress and adversity, which may ultimately impact health status (Shonkoff et al., 2009a). For instance, exposure to adverse experiences during early childhood such as severe hardship or food insecurity, neglect and/or abuse, or family discord can shape the way individuals appraise stressful situations and behave in response to stressful circumstances. Finally, we address the social, economic, and structural barriers related to employment and income assistance programs that are associated with income volatility and food insecurity. Understanding how families experience the dynamics of employment stability and income assistance programs provides the most opportunities for the advancement of food insecurity research.

Throughout this paper, we integrate published research on household food insecurity that relates to coping. We also provide insights from participants in two qualitative studies concerning food insecurity that we have conducted over the last several years in major cities in the United States. *Witnesses to Hunger* is an ongoing participatory action study, begun in 2008, that works with low income caregivers of young children. Our methods are published elsewhere (Chilton et al., 2009). At the outset of each interview, we assessed food security status with the HFSSM, program participation, and health and wellbeing measures. We then integrated semi-structured qualitative interviews with the methodologies of photovoice. We continue to work with the participants through participant observation techniques as they navigate social services and address other basic needs. There are 44 participants in Philadelphia, and there are 25 more participants living in Baltimore, Boston, and Camden, NJ. All interviews are audio recorded and transcribed, and with the assistance of *Atlas.ti*, a qualitative software management program, the participants' photographs and narratives are coded and analyzed using a grounded theory approach. The second study is a qualitative offshoot of the *Children's HealthWatch* study (methods described elsewhere (Cook et al., 2006), carried out in 2010. Fifty caregivers of young children reporting household food insecurity in Boston and Minneapolis carried out an audio recorded semi-structured interview in a hospital setting after they completed the quantitative *Children's HealthWatch* interview. These data are still being analyzed and results will be published in the coming years.

While some of these quotations have been published in peer-reviewed research, others are unique to this paper and are incorporated to enhance the reader's understanding of the lived experience of food insecurity as it relates to coping. These data are not nationally representative, nor are any of the qualitative studies on coping behaviors that are cited in this paper.

## **II. Up-front concerns: “child hunger” vs. “household food insecurity”**

Angel's experience is not the only instance we know of regarding families getting wrongly cut off of SNAP and being left to cope with only dry cereal for 2 days. Her experience is unsettling because it brings to light how dysfunction of the system meant to help families can play a major part in the story of how families are exposed to, and cope with, food insecurity. No family “copes” in a vacuum. There are social, economic and political structures that directly affect how families can stay healthy and economically secure.

A discussion of coping on its own may cause us to call into question the family's ability to shield their children from hunger. Indeed the very nature of the questions in the Household Food Security Survey Module (HFSSM) sets parents on edge, because they worry that it speaks to their individual failings as parents. As we know from our qualitative research studies with Children's HealthWatch and Witnesses to Hunger, parents describe how they respond differently depending on how safe they feel with the interviewers (unpublished data, studies dated 2010, 2008-2013). They admit to being anxious about answering the questions truthfully in a clinical environment surrounded by professionals because they worry that they might appear incapable of caring for their children. It is hard enough for families to admit household level food insecurity; the worry goes deeper when parents are asked about their ability to feed their children consistent and balanced meals. Our qualitative research has uncovered that several heads of household believe that if they admit to not feeding their children for a whole day, they will be reported to child protective services and that their children will be taken away. These fears are founded on personal experiences and deeper anxieties that deserve exploration. We address this during the section entitled “toxic stress.”

Inquiry into families' severe deprivation and the impact on their children also call into question the effectiveness of the measure to truly gauge the magnitude and prevalence of very low food security at the child level. The deepest level of deprivation measured, now termed very low food security at the child level, where families must answer affirmative to at least 5 items in the 8 child focused questions of the HFSSM, is only affirmed by 1.2% of the US children (Coleman-Jensen et al., 2012). However, our research illustrates that this number might be artificially low, given parents and other caregivers' understandable aversion to admitting the level of severity for themselves and their children.

Low rates of households who report very low food security at the child level brings us to the final concern: should the USDA strictly focus on this very small percentage of children, when over 20% of children in the US have been reported to be in food insecure households? It is firmly established that even mild forms of food insecurity, including marginal food security are associated with increased risk of a young child being in fair or poor child health, as well as increased developmental risks (Cook et al., 2013; Rose-Jacobs et al., 2008). Additionally, school-age children in households reporting food insufficiency have more health problems and do not perform as well in school relative to children in food secure homes (Alaimo et al., 2001b), and adolescents in food insecure households have a higher risk of suicidal ideation and attempt than adolescents in food secure households (Alaimo et al., 2002).

If families are masking the true deprivation they experience, or if parent reports of a child’s food security status are not always concordant with those of the child (Fram et al., 2011), then focusing only on the characteristics of the 1.2% can mislead the USDA in its efforts to end child hunger. In addition, this 1.2% is very difficult to reach and to track. It is a group that is more readily found among the very destitute and through small *qualitative* studies, which utilize a variety of techniques to recruit and retain hard-to-reach populations. By USDA Economic Research Service standards, such qualitative research is often discounted because the sample sizes are usually small, and such studies are not nationally representative.

While it is important to seek to alleviate the most severe form of food insecurity, a broader understanding of food insecurity in households with children would push the research towards finding interventions that reach many more children.

### III. What we know: Family coping strategies

Over the past two decades, researchers have uncovered many strategies that families utilize to cope with food insecurity and to prevent the effects of food insecurity from reaching their children. The literature is not exhaustive, however, as no single study has sought to characterize the dimensions of the coping mechanisms families utilize within established coping frameworks from psychology or public health. Most studies that have investigated coping strategies have utilized qualitative methods, and coping has been considered in relation to other correlates and consequences of food insecurity. Additionally, there are only a few studies that have characterized coping strategies in relation to the level of food insecurity reported. On the other hand, few studies report on how households proactively seek to improve and augment their incomes to prevent food insecurity, and how their interactions with the safety net infrastructure including the Supplemental Nutrition Assistance Program (SNAP), WIC, housing assistance, and energy assistance can help or hinder their ability to cope with food insecurity. In this section we will review what is already well established, and we propose new angles to investigate that relate to positive coping that include income generation and public assistance participation.

Table 1 shows the types of coping strategies that families have reported in a variety of research studies. In each category, there are a number of strategies that can be understood to be adaptive or maladaptive. Overall, the greater the severity of food insecurity, the more risky the coping strategy families utilize.

**Table 1. Overview of known coping strategies of food insecure families**

<b>Coping Strategy Type</b>	<b>Strategy</b>
<b>Appraisal</b>	Comparing self to others who are worse off (i.e., those begging on the streets) Saying not hungry / Reducing appetite / blaming not eating on stress Acceptance Minimizing importance of food insecurity
<b>Problem-focused</b>	
<b>Nutrition and Food Related</b>	Using coupons and sales / Shopping at different stores Getting food assistance Changing quality of diet Hunting

	<p>Gardening</p> <p>Reducing amount of food eaten</p> <p>Adults reducing food to allow children to eat</p> <p>Cutting meals</p> <p>Using a food bank/soup kitchen</p> <p>Volunteering at a food bank/taking leftovers from work</p> <p>Eating at homes of family or friends</p> <p>Searching in trash, scanning locales for leftovers</p>
<b>Other trade-offs</b>	<p>Going without heat, electricity or water</p> <p>Reducing use of prescribed medications/foregoing medical care</p> <p>Not paying rent</p> <p>Limiting connectivity: phone/internet/computer</p>
<b>Income generation</b>	<p>Finding another legal/on the books job</p> <p>Working overtime</p> <p>Working under the table (waitress, cooking, housekeeping, childcare)</p> <p>Selling blood/plasma</p> <p>Selling items (food, clothing, furniture, jewelry, tin cans, recyclables, scrap metal, drugs)</p> <p>Pole Dancing/Stripping (formal and informal work)</p> <p>Sex work/tricking</p> <p>Selling food stamps</p>
<b>Public Assistance Participation</b>	<p>Temporary Assistance for Needy Families (TANF)</p> <p>Supplemental Nutrition Assistance Program (SNAP)</p> <p>Women, infants and Children (WIC)</p> <p>LIHEAP</p> <p>Subsidies: Childcare, housing, etc.</p> <p>Lying about presence/knowledge of birth father/not reporting small increments of income</p>
<b>Social networks</b>	<p>Social/emotional support</p> <p>Sending kids to friends and family</p> <p>Store credit with well-known family store owners</p> <p>Moving in with others</p> <p>Sharing food stamp money</p> <p>Pooling financial resources</p> <p>Borrowing money</p> <p>Seeking gifts of food/money</p>
<b>Stealing</b>	<p>Stealing food</p> <p>Stealing other items to offset cost of food or to sell</p>
<b>Giving up children</b>	<p>Turning children over to social services</p>
<b>Emotion-focused</b>	
<b>Aspirational</b>	<p>“This too shall pass,” faith/religion, breaking the cycle with my children, this is better than when I was a kid</p>
<b>Disengagement/Resignation</b>	<p>Isolating oneself, not asking for help</p>
<b>Substance Abuse</b>	<p>Using alcohol, tobacco or illicit drugs to escape</p>
<b>Distraction</b>	<p>Mind tricks, looking at menus to curb hunger</p>

<b>Self-harm</b>	Not eating intentionally
<b>Enduring abuse</b>	Tolerating physical, sexual, or emotional abuse for financial support
<b>Anger/violence</b>	Frustration, short fuse, anger as an outlet

### **III.a. Appraisal**

Several studies have reported that some populations are more or less likely to report food insecurity depending on the food security measure used, and depending on the sociocultural context of the questions being asked (Coates et al., 2006; Kaiser et al., 2004). In our unpublished research results investigating the experiences of 50 low-income caregivers of young children in Minneapolis and Philadelphia with Children’s HealthWatch, we found that several families seemed to accept or resign themselves to their current state of food hardship (unpublished research, 2010). In our Witnesses to Hunger study several participants described keeping things in perspective, always having a sense that there are people worse off than themselves. Statements such as like “I can’t complain” or “I grew up like this,” or “I didn’t think I deserved any better,” were commonly reported in the Witnesses to Hunger sample (unpublished research 2008-2013)

### **III.b. Problem-focused coping**

The most well researched forms of coping associated with food insecurity are studies that have found that families alter their shopping, feeding and eating patterns based on the amount of money they have to spend on food. Indeed, the HFSSM investigates forms of coping when families reply affirmatively to questions focused on those patterns of consumption. Such affirmative answers categorize a family as food insecure. Although all of these strategies are widely practiced, most have proximate and distal health effects.

#### ***Nutrition and food related coping***

The earliest ethnographic and qualitative research on which the modern food insecurity measure is based reports that food insecure families reduce the size and cut meals altogether (Radimer, 2002). These coping mechanisms are built into the HFSSM itself. Diminished quality of nutritional intake by applying these coping strategies has long been reported (Bhattacharya et al., 2004; Rose and Oliveira, 1997).

Parents living in food insecure households with children engage in a variety of strategies to shield their children from the physical and emotional effects of hunger, including eating less, compromising the quality of their own diets, and skipping meals, among other strategies. Many parents, particularly mothers, whose families are struggling with hunger report eating less so their children have adequate, balanced meals (Fram et al., 2011; Hamelin et al., 1999). In order to offset the food shortfall in their homes, these parents also report their increased reliance on the emergency food system, which may result in the diminished quality of their diet (Hamelin et al., 1999). Mothers will sometimes modify eating patterns in other ways to cope with food insecurity. For instance, some parents fill their stomachs with liquids like coffee, tea, or soda to stave off the pangs of hunger and to stretch their limited food supply (Beaumier and Ford, 2010; Bruening et al., 2012; Fram et al., 2011; Smith and Richards, 2008). Food insecure parents have also reported binge eating when food is available and skipping meals like breakfast when food is scarce (Beaumier and Ford, 2010; Bruening et al., 2012). Engaging in these types of strategies has negative consequences for food insecure parents' nutrient intake (Dammann and Smith,



2011; McIntyre et al., 2002; McIntyre et al., 2003). Relative to their children, food insecure parents consume less zinc, folate, vitamin A, calcium, iron, and overall calories; thus compromising their health and wellbeing (McIntyre et al., 2003).

While parents engage in these coping practices to protect their children from the stress and consequences of food insecurity, often times children are aware of household food insecurity and engage in their own coping strategies to try to protect their parents and younger siblings (Fram et al., 2011). Like their parents, children living in food insecure households work to preserve and provide food resources for their families by doing things like eating less, managing the household's food resources, and earning money to buy more food. Sometimes parents must actively engage their children in strategies, like skipping snacks or meals to stretch their limited food supply (Beaumier & Ford, 2010; Fram et al., 2010).

### ***Trade-offs with medicines, utilities and housing***

Conditions of food insecurity have long been associated with indications that households have had to trade off between paying for food and paying for other basic needs. Food insecurity is a sign that families are coping with low incomes by diverting scant resources from food, to housing and utility costs, car payments, or medical costs (Frank et al., 2010; Rose, 1999). In addition trade-offs that families make, such as paying for heat or for medicine by reducing money spent on food, or getting behind on rent in order to have enough money to pay for meals, have strong negative health consequences for children and adults (Cutts et al., 2011; Jeng et al., 2010). In addition, food insecure adults will often trade off paying for medical care or prescriptions in order to pay for food, or vice-versa, which may jeopardize the health of both parents and children (Bengle et al., 2010; Bukusuba et al., 2007; Seligman et al., 2010). Among families with young children for instance, when caregivers reported that they did not have enough money for medical care because they had to pay for food and utilities, their children were more likely to suffer from food insecurity, increased risk of hospitalization, and be reported to have fair/poor health. In addition, the trade-offs were related to increased risk of a child being underweight (Jeng et al., 2010). Underweight during the critical early years of life negatively affects the child's health and development in the immediate and the long-term.

Coping with food insecurity is strongly associated with energy insecurity and housing insecurity. Defining housing and utility stressors is fundamentally important to understanding how families cope. *Energy insecurity* is defined as the lack of consistent access to sufficient household energy (e.g., gas and electricity) to ensure healthy and safe conditions (Cook et al., 2008). Those who are energy insecure often struggle to pay their utility bills on time, have had the gas or electric shut off in their home, or have used a cooking stove to heat their homes. *Housing insecurity* is characterized by frequently moving (more than twice in the past year), living in crowded housing, living with another family because of financial constraints or having been late on rent within the past 12 months (Cutts et al., 2008; Cutts et al., 2011). In addition to being associated with food insecurity, housing insecurity and energy insecurity have independent associations with fair or poor child health and developmental risk (Bailey et al., 2011; Children's Sentinel Nutrition Assessment Program Study Group, 2007). All three of these insecurities—food, energy, and housing, create an escalating situation of hardship that takes its toll on child health (Frank et al., 2010)

Food insecurity research often explores the association between food insecurity, hardship, and poor child health, yet does not investigate the incremental economic consequences of children's poor health, nor the coping strategies that families adopt in response to it. Other

research has found that the consequences of a child's repeated or chronic illnesses directly affect the caregivers' ability to maintain steady employment (Chavkin and Wise, 2002; Romero et al., 2001). In our qualitative research with Witnesses to Hunger, we have found that a child's illness creates a cascade of troubles that can make "coping" with food insecurity more difficult. In the words of Tianna, a Witnesses to Hunger participant, and mother of three young children all of whom have some form of chronic illness (asthma and seizure disorder) "When one child is sick, my husband has to take off of work. That means that's money we're missing, and that means we have to decide: do we pay the rent, or the light bill?" (Witnesses to Hunger, 2008).

Other families report that when they get behind on rent, they can become beholden to their landlord, who may not feel obligated to fix a home in disrepair. This in turn places families at risk for fire, eczema and asthma flare-ups due to toxic mold or pests, and other health problems (unpublished data Witnesses to Hunger 2008-2013). Similarly, in order to cope with the loss of money, individuals may borrow from family and friends, entailing obligations that may cause future hardships and elevated risk. Borrowing money can be protective when family networks are a positive force of strength and support. However, not all family networks are positive. Among primarily very low food secure households, negative family relations during times of need put families into even riskier predicaments such as living with others in a crowded, unsafe or unfriendly environment or becoming indebted to a person who might exploit that relationship (unpublished data, Witnesses to Hunger study, 2008-2013).

### ***Income generation***

The dynamic of hardships, illness, and difficulty finding and maintaining work can send families into a tailspin. Although income is so essential to buffering families from food insecurity, there is little investigation of the types of work that caregivers do to create income or find work. Qualitative research has demonstrated that to prevent food insecurity or cope with it, families will find a job, find a second job, work overtime, or change jobs (Heflin et al., 2007). In the Witnesses to Hunger study, families have reported using these strategies, but also the consequences of taking on more work, or working overtime. The consequences are the potential loss of SNAP benefits due to a minor increase in income, losing important time to nurture and teach their children, and feeling as if they are placing their children at risk when safe, affordable childcare is unavailable.

National CPS data shows that most families with children that are food insecure are working in low-wage jobs, or jobs that have off-hours or shifting hours which make it difficult to find and maintain children care, or earn a stable income (Coleman-Jensen, 2011).

Some studies have described ways that families generate income off the books through under-the-table work. This can include housekeeping and catering for small businesses or companies. While this does generate income, families take on risk, like being injured on the job and left with little to no legal recourse or triggering IRS or public assistance investigations and sanctions. Other ways of generating income include what participants may call a "hustle" or side businesses (Edin, 2013). These business may include doing hair and nails for a nominal fee, making dinners or pies and selling them off the front door stoop, or providing childcare for neighbors, friends and family, or housekeeping and catering (Chilton et al., 2012). Other ad hoc income generating techniques include selling blood, participating in research studies, collecting cans and scrapping for metal (Chilton et al., 2012; Edin, 2013; Kempson et al., 2003).

Families in the Witnesses to Hunger study have described other ways of generating income that are far more risky or potentially illegal. This includes selling food stamps or WIC

vouchers, exotic dancing and stripping, sex for pay, tricking, dealing drugs, or assisting others to deal drugs. When the income generation is “off the books” (either legal or illegal), the cash that families make (ranging from \$5-\$300 or more), is not reported to public assistance case workers. Instead families spend the money immediately on basic needs such as food, clothes, diapers, feminine hygiene items, rent and utilities. Families may not report these minor income increases for fear that they will lose their benefits, whose dollar amount is far greater than the small amount of money they make through other means to supplement income and public benefits. In addition, families will keep these funds out of bank accounts, if they have them at all. Overall, the most food insecure families do not report these minor income supplements to authorities, and lying to the caseworker about them, or not reporting them, are necessary coping strategies to provide the basic needs of their families (unpublished data, Witnesses to Hunger Study 2008-2013).

### ***Public assistance participation***

As our systems have been set up for them to do so, many families avail themselves of the public assistance programs that can help them supplement incomes (Dinour et al., 2007). However, there is significant underutilization of the SNAP and WIC, the federal nutrition programs that provide families with the regular ability to purchase food for their homes. In 2010, 75% of eligible persons received SNAP, and the participation rate for those described as the “working poor” (working but earning below the income threshold for SNAP benefits) was significantly lower, at 65% (Cunnyngham, 2012). Reasons for low SNAP participation rates include stigma related to the receipt of benefits, the transactional cost (in time, paperwork, etc.) of applying for and maintaining benefits, and the low minimum benefit level (\$17) (Gundersen et al., 2011). The impact that SNAP has on household food insecurity can be seen in a recent analysis of the increase in SNAP benefits included in the American Recovery and Reinvestment Act: food insecurity dropped among households eligible to receive SNAP, but not among ineligible households (Nord and Prell, 2011). Similarly, while the WIC program has a higher income eligibility threshold, it is only utilized by an estimated 62.5% of eligible families, due to many of the same reasons for SNAP underutilization (USDA/FNS, 2013). Therefore, facilitating participation in these programs should be addressed as a first-line coping strategy for food insecure households. The potentially negative impacts of losing these benefits, either temporarily or in the long term, are discussed later in this paper.

### ***Social networks***

Utilization of social networks has been found to buffer families from experiencing food insecurity, while some studies have shown that social networks with negative relationships are positively associated with food insecurity (Hamelin et al., 2002; Martin et al., 2004; Tarasuk, 2001b). Informal borrowing relationships to alleviate food insecurity may be understood as generally beneficial, as, for example, by farmworkers who were able to borrow money and purchase food on credit without being charged interest (Quandt et al., 2004). However, other researchers have noted the vulnerable position that borrowing money for food can place families in, leading to potentially permanent indebtedness or, in the case of borrowing from family or friends, straining social networks to their breaking point (Maxwell, 1996)

The social acceptability of taking food or money for food from family and friends varies based on cultural and geographic context, and may be viewed as less acceptable in the United States than in other countries. Conversely, stealing and begging for food are almost universally

described as “socially unacceptable” sources of food, although these processes are well documented in qualitative research as sources of food acquisition (Chilton and Rabinowich, 2012; Coates et al., 2006; Dachner and Tarasuk, 2002)

The child protection system is a significant concern when considering the coping strategies of food insecure parents trying to shield a child from food insecurity. Surrendering children to other family members or to child protective services, or outright abandonment of children due to food insecurity is documented in the research as a drastic last resort of families (Maxwell, 1996). We have also found this in our unpublished Witnesses to Hunger study, among adults who had, as children themselves, been in the foster care system. Data from the Fragile Families and Child Wellbeing Study indicate that food insecure households are more likely to have an open case with child protective services (Berger et al., 2009). Additionally, financial dependence on an intimate partner may open the door for other forms of abuse, such financial abuse, a well-documented dimension of intimate partner abuse, that may include withholding of adequate money from the caregiver to purchase food and other necessities as a control strategy (Chilton and Booth, 2007; Cole and Buel, 2000; Moore, 2003).

### **III.c. Emotion-focused coping**

Emotion-focused coping is a characterization of coping strategies that are associated with an emotional response to stress that does not always include active problem-solving strategies. Emotion-focused strategies can be both positive and negative.

While many of the coping strategies described above might be understood to have potentially negative consequences, it is important to note the roles that aspirations, faith and hope play in the experience of food insecurity. Some have found that among the very poor, emotion-focused coping is more common than it is among higher income groups. In addition, the first line of emotional coping is a tendency to “falsely” minimize the importance of the stress (Palomar Lever, 2008). In the US, emotion-focused coping has been reported among food insecure senior citizens. Faith in God and a sense that good fortune or luck would prevail have been described as helping to contextualize and cope with the lack of consistent food (Quandt et al., 2001). Additionally, maternal sacrifice for children in the context of food insecurity has been well-documented (Maxwell, 1996), and is described qualitatively as a simple fact or an act of faith in the future. A Witnesses to Hunger mother puts it succinctly, “our kids are our future [...] you need to feed the future” (Amy, Witnesses to Hunger, unpublished).

Emotion-focused coping can also include disengaging, or resigning oneself to tough circumstances as described above. These manifest with elevated reports of depressive symptoms or clinical depression, which may further impair caregivers' ability to seek out and utilize other forms of coping (Bronte-Tinkew et al., 2007; Casey et al., 2004; Huddleston-Casas et al., 2009; Laraia et al., 2009; Lent et al., 2009; Melchior et al., 2009).

Disengagement can also take the form of distracting oneself or one's children. We have documented this in the Witnesses to Hunger study, where one participant said she would look at menus delivered to the door, and she would contemplate them to give her the sensation that she had eaten; another tactic is to distract hungry children by playing games, or sending them to bed early. Several parents have described acting as though they have eaten already in an attempt to trick their children or partners into eating more, an attempt to shield the rest of the family from food insecurity. As Melissa from Minneapolis describes, “They eat before I eat anyway, so if I'm gonna cook something, I'm gonna cook it so that they have something in their stomach

before they go to bed, ‘cause I refuse to eat before my kids, period. Even if it’s the last piece of chicken and they’re eating that piece of chicken.” Additionally, it has been documented that mothers often forego healthy foods, especially fruits and vegetables, in their own diets to ensure that their children have enough healthy foods (Olson, 2005).

Other strategies include cognitively suppressing appetite and intentionally not eating, even when food may be available, to get “past the point of experiencing hunger” (Chilton and Booth, 2007). One mother describes how she and her partner don’t eat breakfast because of lack of time, but also “it’s one less meal that we have to buy.” Some participants in our qualitative studies have reported resorting to cigarettes, alcohol and/or illegal or prescription drugs (sometimes bought and sold illegally) to distract, and to take away physical and social pain of hunger. Monica of Witnesses to Hunger, who was thrown out of her home as a teenager and had to provide for herself, speaks about the interconnectedness of drug use and hunger during that time: “I was squatting and selling drugs... selling weed to eat or not eating and just high all day—high so much to the point where my body’s not even taking in food, ‘cause I’m high. I didn’t need to eat. I was too high to eat.” Other research has also found these same strategies used to suppress appetite (Beaumier and Ford, 2010).

Food insecurity is not simply a physiologic or psychological stress but a psychosocial stress that can unleash certain adaptive reactions that include expressing aggression, anxiety, and personal, spiritual pain. Deborah of Witnesses to Hunger describes her childhood experiences with food insecurity as rife with this pain: “We had days where we didn’t eat nothing for three days straight. We had nothing to put in our bellies but water. We were so hungry we used to fight one another.” In addition, this sense of overwhelming struggle could sometimes cloud caregivers from recognizing how hunger was affecting their children (Chilton and Rabinowich, 2012). This has implications, then, for our reliance solely on the caregiver’s report of child hunger.

Social isolation is intertwined with depression, stress, and anxiety, and is associated with “self-medication” through alcohol and drug abuse and is also strongly associated with exposure to violence, abuse, and neglect (Dubowitz and Bennett, 2007; Goodman et al., 2009; Kendall-Tackett, 2007). Mothers who have experienced domestic violence experience household food insecurity at a higher rate, indicating that the victimization of women, and perhaps their children, is a factor that may not only trigger food insecurity but further impair coping responses to it (Melchior et al., 2009).

#### **IV. Toxic stress: Emerging knowledge about hunger across the lifecycle**

Most forms of emotion-focused coping and many forms of instrumental-focused coping that involve risky income generation and utilization of potentially harmful social networks have been commonly referred to as “maladaptive” coping responses (Santiago et al., 2012). From a different perspective, however, these coping strategies can be viewed as adaptive responses to hardship for people who have been exposed to severe hardship and/or “toxic stress” as children.

Toxic stress is a pernicious form of stress that occurs during childhood associated with very powerful, frequent, or prolonged activation of the body’s stress response to experiences with severe deprivation such as hunger and homelessness, or exposure to neglect, violence and abuse, in the absence of the buffering protection of a supportive relationship with caring adults (Shonkoff et al., 2012). Adversity and traumatic events that occur in childhood have a decisive impact on behaviors, choices, and social relationships that extend into adulthood. In such contexts, adults who experienced toxic stress as children may seek out violent relationships, may

constantly be in a state of heightened aggressive arousal, may withdraw and experience social isolation, or may struggle to keep boundaries associated with normal social and professional behavior related to intimacy, safety and security, and job stability (Bloom and Reichert, 1998; Foster et al., 2008; Melchior et al., 2007). 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 an association between adverse childhood experiences and later financial stability (Anda 2004). Clearly, exposure to violence, poverty, and deprivation in childhood could reduce the chances of these same individuals escaping poverty in adulthood (Shonkoff and Bales, 2011; Shonkoff et al., 2009).

In qualitative and quantitative food insecurity research, mental health problems, anxiety, suicidal ideation, post traumatic stress disorder, and social isolation have all been associated with low and very low food security (Bronte-Tinkew et al., 2007; Casey et al., 2004; Chilton and Booth, 2007; Hamelin et al., 1999; Heflin et al., 2007; Heflin et al., 2005; Tarasuk, 2001a; Whitaker et al., 2006; Zaslów et al., 2009). However, these studies leave many questions unanswered about the origins and nature of poor mental health reported by food insecure families.

Research on the effects of food insecurity among adolescents and children give some indication that food insecurity may be both a cause and a consequence of toxic stress. Household food insecurity is associated with suicidal ideation among adolescents and poor physical, mental, and psychosocial health among children (Alaimo et al., 2001a; Ashiabi and O'Neal, 2008; Bhattacharya et al., 2004; Eicher-Miller et al., 2009; Gundersen and Kreider, 2009; Kleinman et al., 1998; Murphy et al., 1998; Weinreb et al., 2002). Wehler and colleagues reported 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 assaulted (Wehler et al., 2004). In this same population, child hunger (as measured by the Childhood Hunger Identification Project measure) was more prevalent in households in which mothers struggled with posttraumatic stress disorder and substance abuse (Weinreb et al., 2002). In a longitudinal food insecurity study Melchior and colleagues 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 (Melchior et al., 2009).

Moreover, results from the Adverse Childhood Experiences (ACE) Study have repeatedly demonstrated that, controlling for all other factors, adverse experiences such as neglect and abuse are associated with major adult diseases such as diabetes, cardiovascular disease, depression, and anxiety and with early mortality (Felitti et al., 1998). Finally, our newest research in the Witnesses to Hunger study suggests that exposure to adversity during childhood, qualitatively described, is related to food insecurity, caregivers' school performance during childhood, and earnings (Chilton and Rabinowich, 2012; Chilton and Booth, 2007), and when these qualitative descriptions of exposure to violence were categorized for the entire Philadelphia sample of 44 women, there were significant associations between very low food security at the household level and severity of violence. This research also describes the quality of the violence exposures that range from rape/incest, exposure to gun violence resulting in death and or injury of oneself and family members, attempted suicide, childhood exposure to abuse and neglect, and intimate partner violence (Chilton et al., 2013).

While some may worry that attention to exposure to violence among respondents of the household food security measure may draw attention away from nutrition-related coping issues, we insist that this exposure is an important consideration regarding family coping behavior.

Given the newest research on early childhood exposure to adversity (which includes exposure to hunger and severe poverty) and how it affects health, wellbeing, and coping mechanisms across the lifespan, it is important to consider these in light of how families cope with food insecurity, especially at the severest levels. In addition, food insecurity research should incorporate the most recent scientific knowledge regarding the relationships between hardship and child development to inform public policy (Shonkoff et al., 2012). An intergenerational look towards food insecurity may yield insight on the coping factors utilized by families. For example, studies that have measured “self-sufficiency,” a composite measure that includes independence from public assistance such as SNAP or TANF, have found that factors such as being born to a teen parent have an impact on the subsequent generation’s ability to be “self-sufficient” (Hardy et al., 1998). Additionally, exposure to toxic stress early in life affects parenting strategies, work success, and relationship choices—all of which have an impact on the health and wellbeing of young children, who then may experience toxic stress similar to the stress that their own parents did as children. Thus, the cycle of poverty is repeated.

We suggest that food security researchers may benefit from reframing their approach to recognize the importance of a life course perspective that takes into account the intergenerational aspects of poverty that affect child health and well being. Such a perspective contributes to an understanding of child food insecurity not as a static event experienced over a month or a year, but rather as a series of experiences that reverberate through a caregiver’s adulthood, and then passed on to the children. With a life course perspective, childhood experiences are shown to influence and shape adult health, ability to work, and earning potential (Braveman and Barclay, 2009; Olson et al., 2007; Wethington, 2005). Finally, exposure to adversity and trauma are highly correlated with severe emotional, cognitive and psychosocial problems that can limit participation in the labor force, and types of jobs that one can hold. Those who have been exposed to adverse experiences in childhood have been found to have more job-related problems, financial problems, and absenteeism from work (Anda et al., 2004). Given that 13.9% of SNAP recipients and almost the same percentage of TANF recipients have mental or emotional limitations, the correlates and consequences of toxic stress may be having a strong impact on family health and wellbeing in relation to food insecurity that is underexplored, and not measured in any national dataset.

Toxic stress is not solely related to family dynamics in and of themselves, but is steeped in an economic context. Laws and regulations within the Temporary Assistance for Needy Families (TANF) that mandate participants to report details on the fathers (where they live and work) to re-gain and garner child support funds, potentially place women and children further at risk. Increases in exposure to domestic violence after welfare reform has been widely reported (Lyon, 2000; Moore, 2003). These increases may have been due in part to the stricter sanctioning laws, as well as the new regulations for child support (Moore, 2003). We noted this phenomenon also in our research with the women of Witnesses to Hunger (Chilton et al., 2009; Rabinowich et al., 2010). Overall, TANF participants report extremely high rates of exposure to current domestic violence compared to the general population, and compared to rates among their counterparts in the same neighborhoods that are not on TANF (Lyon, 2000). Such exposure to violence has been found to be related to income volatility and barriers to stable employment (Adams et al., 2012).

Just as food insecurity increases during times of a recession, so does family stress, and associated reports of domestic violence and child abuse. For instance, in a study in 38 hospitals across the U.S., controlling all other factors, Wood and colleagues saw a recession-related spike

in hospital admissions related to child abuse (Wood et al., 2012). In summary, family coping strategies must be interpreted within the larger economic forces that dictate families' experiences with food insecurity.

#### **V. Significant areas for future research: Thinking beyond “household”**

The highest impact areas for research are not those based on delineating individual differences among families, but rather on the interface of families and the broad and powerful systems where changes in policies, benefits, and implementation can facilitate or overwhelm coping capacities and exacerbate or mitigate food insecurity at all levels of severity.

Most family coping behaviors to food insecurity are known, even at the most severe levels. Reports of risky instrumental coping behaviors in relation to severe food insecurity such as working under the table, selling food stamps, transactional sex and stealing, suggest that these areas do not need further elucidation.

The most important areas that need more research are employment characteristics, wages, labor laws, and public assistance program administrative hurdles faced by food insecure households. More attention should be focused on how public assistance programs such as SNAP and WIC, and the programs meant to support early childhood education and safety, such as Head Start and child protection, interact with family coping strategies, and how employment patterns and fluctuating wages intersect with public assistance participation and food insecurity coping strategies. This approach does not ignore the damage done due to exposure to toxic stress, but integrates it into a broader framework. Does it matter that Angel, the mother of two young children described at the outset of this manuscript, was caught in a violent relationship with the father of her young children, and that she experienced several bouts of homelessness as a child and described how she took care of her mother from age six because her mother suffered from depression and drug addiction, and then died when Angel was a teenager? Yes, it matters. These experiences shape her ability to complete her education, to choose a healthy supportive relationship, to keep a stable, well paying job. But the proximate and immediately remediable cause of very low food security among her children is how the county assistance office did not have the trained workforce and infrastructure to promptly fulfill its legal obligation. This includes providing income and nutrition support to help buffer families from the enormous strain and pain of economic hardship.

#### ***Nutrition assistance programs***

Despite its known limitations, especially in its benefit allotment levels, SNAP remains the largest and most effective nutrition assistance program in the United States (Institute of Medicine and National Research Council, 2013). Losing SNAP benefits can be quite harmful to the health and wellbeing of children and families. Administrative sanctions, reductions, loss of SNAP benefits due to minor improvements in income, administrative burdens for participants, or even administrative errors (such as when caseworkers do not enter recertification documents and assessments in time), are associated with increased food hardship, with a higher percentage of very low food secure households enduring hardship (Edin, 2013). Children's HealthWatch has found that when families reported being sanctioned they had greater odds of reporting household food insecurity compared to families that had not been sanctioned (Cook et al., 2002). Additionally, preliminary investigation by Children's HealthWatch has found that reduction in the SNAP allotment and loss of SNAP benefits for any reason (including employment) are



associated with greater severity of food insecurity, and increased reports of children's fair/poor health and hospitalizations (Frank and C-SNAP Study Group, 2006; Gayman et al., 2010).

As we illustrate in Angel's story, above, there is avoidable harm in the pattern of "churning": when families who are still eligible for SNAP are cut off from benefits because of administrative burdens or errors for relatively brief periods of time, usually under 90 days (Dean, 2011). This can be a significant and unexpected loss of income for families already struggling to make ends meet. This is especially true for families who are working sporadically or whose employment patterns entail income volatility (Kabbani and Wilde, 2003). From the SNAP participants' perspective, recertification is cause for anxiety because of previous experiences with loss of benefits, and because the stakes are so high, as most have no savings to fall back on if benefits are terminated.

SNAP benefits also change in relationship to fluctuating housing costs, receipt of Social Security Income for disability, and other factors. Among some of our research participants, we have heard about the loss of SNAP benefits when SSI benefits kick in for a disabled adult or child, causing families to experience more rather than less difficulty in affording enough food (Witnesses to Hunger, unpublished data collected between 2008-2013). Recent analyses of disability and food insecurity may show an important dynamic that is under-explored (Coleman-Jensen and Nord, 2013). Additionally, researchers have documented a phenomenon called the "cliff effect" at which the net income of a household may drop as new income from employment moves a family beyond the eligibility criteria for various public assistance programs (Dinan et al., 2007).

### *Early education and child welfare services*

While much attention has been given to the importance of investments in early childhood education programs such as Head Start and other early childhood supports (Heckman, 2006; Shonkoff, 2010), the food insecurity research has not adequately described how effectiveness of such programs may decrease food insecurity. In the Delta region, reports of the prevalence of food insecurity among Head Start families are twice the national average, and rates among Hispanic families participating in Head Start have prevalence rates of 50% (Stuff et al., 2009). Gooze and colleagues propose that resources within Head Start programs ought to be utilized to screen for and treat food insecurity (Gooze et al., 2012).

Children in foster care or who have an open child welfare case are particularly at risk for food insecurity. Those aging out of the system are also at risk. Among foster children participating in the Midwest Study in Illinois, Iowa and Wisconsin, 25% have been found to report food insecurity (Courtney and Dworsky, 2006). As greater percentages of parent-absent children are being cared for in kinship care, children in kinship care are particularly at risk for food insecurity and psychological distress (Kelley et al., 2000). Ehrle and Geen of the Urban Institute discovered that from 1997-1999, 48% of low-income families providing kinship care reported household food insecurity, and that even though most of these food insecure families were eligible for SNAP benefits, less than half of the families received them (Ehrle and Geen, 2002).

Categorical eligibility for foster children to receive school breakfast and lunch provided in the Child Nutrition Reauthorization of 2010 is a step in the right direction to help children at risk (Food and Nutrition Service, 2011). Effectiveness of such interventions, and other efforts such as ensuring eligibility for SNAP benefits for late adolescents aging out of foster care, demand further investment and investigation. Research that measures the effectiveness of early

childhood education and child protection programs in relation to food insecurity is particularly urgent.

### ***Employment patterns***

Finally, more exploration into the relationship between employment patterns and wages is needed. As previously noted, Coleman-Jensen's recent analysis shows that working families that were food insecure had jobs with very low wages, inconsistent and unpredictable hours, or hours that were not conducive to finding affordable and safe childcare (Coleman-Jensen, 2011). These conditions reflect a complex interaction of individual level factors, macroeconomic forces, and policy measures which shape wages, employment practices (such as lack of paid sick and parental leave), and union activity. More research should be carried out to understand how these conditions are related to food insecurity over time.

## **VI. Data gaps and ideas on how to address them**

The Survey of Income and Program Participation, the Current Populations Survey, the ECLS-B and ECLS-K, National Health Interview Survey, and NHANES can help us to begin to approximate the dynamics of employment, program participation and food insecurity. We recommend that the Food and Nutrition Services and the Economic Research Service publish more studies on wages earned, types of jobs, childcare subsidies, early head start participation, and other work-related characteristics and how they relate to household food security status. In addition, working with administrative data on longitudinal trends in program participation and potentially matching participants on Medicaid data, one might be able to investigate the effects of SNAP and other program churning on hospital visits, admissions, and health care expenditures. Conversely, health issues may precede loss of benefits or wages so direction of effects should be elucidated. Matching up foster care monitoring systems with those of public assistance would also provide avenues for monitoring the effectiveness of programs to prevent or treat food insecurity.

Currently, there appears to be no dataset that can help us understand the proximate effects of losing SNAP benefits to document strategies that families utilize to feed their children, nor the implications for toxic stress they may endure. This gap calls for more mixed-method, cross-disciplinary research teams that can utilize large datasets and simultaneously interview or partner with a smaller population identified in that dataset, or characterized by that data set to investigate significant patterns of distress. Such multi-disciplinary teams could include researchers with expertise in economics, ethnography, social sciences, public health, child welfare, gender studies, spatial analysis, and performance improvement research. Specific research questions include but are not limited to:

- How do dynamics of unstable low wage jobs and benefit-churning affect food insecurity and family coping behavior? Do dynamics between food insecurity, benefit churning and employment vary by state, county, or county assistance office practices? To what extent are these dynamics related to gender, and number/ages of children in the home?
- How do number of jobs in the previous year, types of jobs, and local minimum wage laws, relate to household food security status? Are there major differences by gender and number/ages of children?

- How does participation in the child protection system help with tracking and addressing household food insecurity? Do particular child protection interventions improve or exacerbate household food security?
- Over a period of 10-15 years, how do patterns of food stamp participation affect child development and maternal depressive symptoms?
- What type of impact do child support enforcement laws have on household and child-level food insecurity?
- Do state limits on amount of education and training that counts toward the TANF work requirement have an impact on household food security?
- Does sanctioning the adult and not the child have an impact of food security status at the household and child level over time?
- In states where there is a strong practical emphasis on reducing fraud, are there impacts on food security status, controlling for all other factors?
- Do SNAP participant satisfaction surveys of county assistance office case managers' performance and customer service relate to food security status? To what extent are these dynamics related to gender, and number and ages of children in the home?
- Does domestic violence reporting to a case manager reduce churning, and therefore have an impact on food security status? Which strategies can county assistance workers utilize to ensure safety and security for SNAP and TANF participants to be willing to report domestic violence?
- Could trauma-informed approaches be integrated into the training and preparedness of county assistance offices to ensure effectiveness of county assistance workers, a better customer service experience, and improved food security?
- Do WIC programs that integrate domestic violence prevention and treatment programs help to reduce food insecurity compared to WIC programs that have no such program?
- What are the temporal relationships between regional rates of violence and domestic violence reports and household and child food insecurity?
- Does drug testing in some counties have an impact on food security status? To what extent are drug testing for SNAP benefits helping to ensure SNAP recipients are referred to appropriate care?

We also recommend that greater investment of funds be utilized for intervention studies that address the following scenarios:

- If SNAP and or WIC recertification were annual rather than every six months, would household food security status differ? To what extent are these dynamics related to gender, and number and ages of children in the home?
- If all children in the foster care system (formal and kinship care) were automatically eligible for SNAP benefits with a 1 year recertification period, would this have an impact on food security status?
- If all enrollees in Head Start and Early Head Start were provided SNAP benefits without the need to be recertified for a year's time, would this have an impact on food security status within 5 years?
- If women who opted for the family violence option were able to be recertified every 12 months, would their rates of household food insecurity decrease?

- If mothers of young children participated in peer support groups to help each other overcome their adverse experiences and to provide positive social support, would child food insecurity be reduced?
- If SNAP participants received voluntary financial education, would their risk of food insecurity be decreased?

Finally, we highly recommend that the perspective of low-income participants be incorporated in generating primary research questions, and characterizing the emphasis that is placed on the significance of the study. Low-income participants can include but are not limited to SNAP participants, WIC participants, SSI participants, foster parents, or foster children that have aged out of the system, Head Start parents, or adults with prison records. Low-income participants can be included in structures that allow them to contribute to research decision-making. This could take the form of advisory boards, lay researchers, individual advisors, or research assistants. Their participation could also be ensured through more participatory research, where at each step of the research or intervention project, a panel of low-income persons have an influential voice in the research questions, research design, research analysis, verification of key findings, and dissemination.

All too often the research that utilizes secondary datasets seems disconnected from the very human, physical and social aspects of food insecurity and hunger. If low income people's perspectives were intentionally included and considered, their perspectives may help to ensure the questions are grounded in reality and experience, that questions are important to low income people, and that the dissemination of the results can be understood by and utilized by low income people to help gain more control over the messages, assumptions and decisions that get made by legislators, researchers, and agency officials about their health and welfare.

## **VII. Conclusions**

In this paper we described what is already known: that some of family coping strategies are instrumental, others emotional. No further research is needed on family coping unless it directly and thoughtfully considers family participation in income generating activities and public assistance programs. Additionally, food insecurity research ought to incorporate a two-generation approach wherever possible. This includes addressing the potential impact of adverse childhood experiences and toxic stress, as well as directing attention to the structures that are intentionally meant to help children. This means that child-focused food insecurity research ought to look beyond SNAP and WIC, to include Head Start, childcare, and child welfare systems. The impact of toxic stress on children has demonstrated negative consequences that can last long into adulthood. It has implications for educational attainment, employment status, income, family relationships, and physical and mental health. These exposures to adverse experiences—food insecurity included—are physically, socially, emotionally and financially painful. Additionally, they inspire the adoption of multiple instrumental and emotional coping strategies that can further exacerbate risk and make families even more vulnerable. Some of these practices such as selling food stamps or working under the table, may be considered fraudulent by USDA rules and regulations. But we insist, based on empirical evidence through our own research, and that of many others, that these measures are utilized not out of malicious or fraudulent intent but rather by necessity and desperation related to food insecurity and severe poverty. They primarily stem from the desire to help and protect one's children and family

members. These hardships take an enormous toll; they demand attention, acknowledgement and care.

The framework for understanding food security has primarily focused on rates of public assistance participation, coping, and health impacts. More emphasis needs to be placed on how the US welfare and nutrition assistance programs fail, and how these failures, either by inadequate design or in error, impact families. We assert that more research should investigate employment patterns, wage structures, and labor laws, each in relation to public assistance participation. Acknowledging and studying income-generation activities and focusing on creating conditions where families are supported and rewarded for their entrepreneurship, for working overtime, and for finding a higher-paying job demand consideration in food insecurity research.

Finally, researchers who seek to address food insecurity must demonstrate more often that they have incorporated the perspectives of SNAP or WIC participants, or of other low-income individuals and families. These participatory efforts should be funded and incentivized by the USDA to ensure that the research questions are grounded in lived experiences, that they pay attention to the health and wellbeing of those we study, and that ultimately, they substantively contribute to helping families lead healthy, hunger-free, and productive lives.

### **VIII. Acknowledgements**

We would like to thank Dr. Deborah Frank, MD, and Katherine Alaimo, PhD, for their thoughtful commentary on an earlier version of this manuscript.

## **IX. Works cited**

- Adams, A. E., R. M. Tolman, D. Bybee, C. M. Sullivan and A. C. Kennedy 2012. The impact of intimate partner violence on low-income women's economic well-being: the mediating role of job stability. *Violence Against Women* 18: 1345-1367. doi: 10.1177/1077801212474294
- Alaimo, K, Olson C.M., E.A. Frongillo, Jr. and R.R. Briefel 2001a. Food insufficiency, family income, and health in U.S. preschool and school-age children. *American Journal of Public Health* 91: 781-786.
- Alaimo, K., C. M. Olson and E. A. Frongillo 2002. Family food insufficiency, but not low family income, is positively associated with dysthymia and suicide symptoms in adolescents. *The Journal of Nutrition* 132: 719-725.
- Alaimo, K., C. M. Olson and E. A. Frongillo, Jr. 2001b. Food insufficiency and American school-aged children's cognitive, academic, and psychosocial development. *Pediatrics* 108: 44-53.
- Anda, R. F., V. Fleisher, V. Felitti, V. Edwards, C. Whitfield, S. R. Dube and D. F. Williamson 2004. Childhood Abuse, Household Dysfunction, and Indicators of Impaired Adult Worker Performance. *The Permanente Journal* 8.
- Ashiabi, G. S. and K. K. O'Neal 2008. A framework for understanding the association between food insecurity and children's developmental outcomes. *Child Development Perspectives* 2: 71-77.
- Bailey, K., S. Ettinger de Cuba, J. T. Cook, E. L. March, S. Coleman and D. A. Frank 2011. LIHEAP stabilizes family housing and protects children's health. In *LIHEAP stabilizes family housing and protects children's health*. Boston, MA.
- Beaumier, M. C. and J. D. Ford 2010. Food insecurity among Inuit women exacerbated by socioeconomic stresses and climate change. *Canadian journal of public health. Revue Canadienne de Sante Publique* 101: 196-201.
- Bengle, R., S. Sinnett, T. Johnson, M. A. Johnson, A. Brown and J. S. Lee 2010. Food insecurity is associated with cost-related medication non-adherence in community-dwelling, low-income older adults in Georgia. *Journal of Nutrition for the Elderly* 29: 170-191. doi: 10.1080/01639361003772400
- Berger, L. M., C. Paxson and J. Waldfogel 2009. Mothers, men, and child protective services involvement. *Child Maltreatment* 14: 263-276. doi: 10.1177/1077559509337255
- Bhattacharya, J., J. Currie and S. Haider 2004. Poverty, food insecurity, and nutritional outcomes in children and adults. *Journal of Health Economics* 23: 839-862.
- Bloom, Sandra L. and Michael Reichert 1998. *Bearing witness : violence and collective responsibility*. New York: Haworth Maltreatment and Trauma Press.
- Braveman, P. and C. Barclay 2009. Health disparities beginning in childhood: A life-course perspective. *Pediatrics* 124.
- Bronte-Tinkew, J., M. Zaslow, R. Capps, A. Horowitz and M. McNamara 2007. Food insecurity works through depression, parenting, and infant feeding to influence overweight and health in toddlers. *The Journal of Nutrition* 137: 2160-2165.
- Bruening, M., R. MacLehose, K. Loth, M. Story and D. Neumark-Sztainer 2012. Feeding a family in a recession: food insecurity among Minnesota parents. *American Journal of Public Health* 102: 520-526. doi: 10.2105/AJPH.2011.300390

- Bukusuba, J., J. K. Kikafunda and R. G. Whitehead 2007. Food security status in households of people living with HIV/AIDS (PLWHA) in a Ugandan urban setting. *The British Journal of Nutrition* 98: 211-217. doi: 10.1017/S0007114507691806
- Casey, P., S. Goolsby, C. Berkowitz, D. Frank, J. Cook, D. Cutts, M. M. Black, N. Zaldivar, S. Levenson, T. Heeren and A. Meyers 2004. Maternal depression, changing public assistance, food security, and child health status. *Pediatrics* 113: 298-304.
- Chavkin, W. and P. H. Wise 2002. The data are in: health matters in welfare policy. *American Journal of Public Health* 92: 1392-1395.
- Children's Sentinel Nutrition Assessment Program Study Group 2007. Fuel for Our Future: Impacts of Energy Insecurity on Children's Health, Nutrition, and Learning. CSNAP in collaboration with Citizens Energy Corporation. Boston, MA.
- Chilton, M and J Rabinowich 2012. Toxic Stress and Child Hunger Over the Life Course: Three Case Studies. *Journal of Applied Research on Children: Informing Policy for Children at Risk* 3: Article 3.
- Chilton, M. and S. Booth 2007. Hunger of the body and hunger of the mind: African American women's perceptions of food insecurity, health and violence. *Journal of Nutrition Education and Behavior* 39: 116-125. doi: 10.1016/j.jneb.2006.11.005
- Chilton, M. M., J. R. Rabinowich and N. H. Woolf 2013. Very low food security in the USA is linked with exposure to violence. *Public Health Nutrition*: 1-10. doi: 10.1017/S1368980013000281
- Chilton, M., J. Rabinowich, AB. Breen and T. Gaines-Turner 2012. On the Fringe: How alternative financial services are related to household food insecurity. American Public Health Association, Annual Meeting, 2012.
- Chilton, M., J. Rabinowich, C. Council and J. Breaux 2009. Witnesses to hunger: Participation through photovoice to ensure the right to food. *Health and Human Rights* 11: 73-86.
- Coates, J., E. A. Frongillo, B. L. Rogers, P. Webb, P. E. Wilde and R. Houser 2006. Commonalities in the experience of household food insecurity across cultures: what are measures missing? *The Journal of Nutrition* 136: 1438S-1448S.
- Cole, Patricia and Sarah Buel 2000. Safety and financial security for battered women: Necessary steps for transitioning from welfare to work. *Georgetown Journal on Poverty Law and Policy* 7.
- Coleman-Jensen, A., M. Nord, M. Andrews and S. Carlson 2012. Household Food Security in the United States in 2011. Economic Research Service, ERR-141. Washington, D.C.: U.S. Department of Agriculture.
- Coleman-Jensen, Alisha 2011. Working for Peanuts: Nonstandard Work and Food Insecurity Across Household Structure. *J Fam Econ Iss* 32: 84-97.
- Coleman-Jensen, Alisha and Mark Nord 2013. Food Insecurity Among Households With Working-Age Adults With Disabilities. Economic Research Service U.S. Department of Agriculture, ERR-144. Washington, D.C.
- Cook, J. T., M. Black, M. Chilton, D. Cutts, S. Ettinger de Cuba, T. C. Heeren, R. Rose-Jacobs, M. Sandel, P. H. Casey, S. Coleman, I. Weiss and D. A. Frank 2013. Are food insecurity's health impacts underestimated in the U.S. population? Marginal food security also predicts adverse health outcomes in young U.S. children and mothers. *Advances in Nutrition* 4: 51-61. doi: 10.3945/an.112.003228
- Cook, J. T., D. A. Frank, C. Berkowitz, M. M. Black, P. H. Casey, D. B. Cutts, A. F. Meyers, N. Zaldivar, A. Skalicky, S. Levenson and T. Heeren 2002. Welfare reform and the health of

- young children: a sentinel survey in 6 US cities. *Archives of Pediatrics & Adolescent Medicine* 156: 678-684.
- Cook, J. T., D. A. Frank, P. H. Casey, R. Rose-Jacobs, M. M. Black, M. Chilton, S. Ettinger de Cuba, D. Appugliese, S. Coleman, T. Heeren, C. Berkowitz and D. B. Cutts 2008. A brief indicator of household energy security: associations with food security, child health, and child development in US infants and toddlers. *Pediatrics* 122: e867-875.
- Cook, J. T., D. A. Frank, S. M. Levenson, N. B. Neault, T. C. Heeren, M. M. Black, C. Berkowitz, P. H. Casey, A. F. Meyers, D. B. Cutts and M. Chilton 2006. Child food insecurity increases risks posed by household food insecurity to young children's health. *The Journal of Nutrition* 136: 1073-1076.
- Courtney, M. and A. Dworsky 2006. Early Outcomes for Young Adults Transitioning from Out-of-Home Care in the U.S. *Child and Family Social Work* 11: 209-219.
- Cunyngham, Karen 2012. Reaching Those in Need: State Supplemental Nutrition Assistance Program Participation Rates in 2010. USDA Food and Nutrition Service, <http://www.fns.usda.gov/ora/MENU/Published/snap/FILES/Participation/Reaching2010.pdf>: Mathematica Policy Research.
- Cutts, D. B., A. F. Meyers, M. M. Black, P. H. Casey, M. Chilton, J. T. Cook, J. Geppert, S. Ettinger de Cuba, S. Coleman and D. A. Frank 2008. Housing Instability and Child Health. National Healthy Homes Conference (HUD). Baltimore, MD.
- Cutts, D. B., A.F. Meyers, M.M. Black, P.H. Casey, M. Chilton, J.T. Cook, J. Geppert, S. Ettinger de Cuba, T. Heeren and S. Coleman 2011. US Housing Insecurity and the Health of Very Young Children. *American Journal of Public Health* 101: 1508.
- Dachner, N. and V. Tarasuk 2002. Homeless "squeegee kids": food insecurity and daily survival. *Social Science & Medicine* 54: 1039-1049.
- Dammann, K. W. and C. Smith 2011. Food-related environmental, behavioral, and personal factors associated with body mass index among urban, low-income African-American, American Indian, and Caucasian women. *American Journal of Health Promotion: AJHP* 25: e1-e10. doi: 10.4278/ajhp.091222-QUAN-397
- Dean, Stacey 2011. Addressing Churn in SNAP. In Addressing Churn in SNAP, <http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CE8QFjAA&url=http%3A%2F%2Ffoodstamp.aphsa.org%2FConf-Presentations%2F2011%2Fchurning-Monday.pdf&ei=EoMiUK7IDOWo0AHsmIBQ&usg=AFQjCNHdHhuYBP6MHLQOZsV4ntMuN9cuVQ>: SNAP Directors Conference.
- Dinan, KA., M. Chau and N. Cauthen 2007. Two Steps Forward and Three Steps Back: The "Cliff Effect"—Colorado's Curious Penalty for Increased Earnings. A quantitative analysis of work supports in seven Colorado counties. National Center for Children in Poverty. New York: Columbia University, Mailman School of Public Health.
- Dinour, L. M., D. Bergen and M. C. Yeh 2007. The Food Insecurity-Obesity Paradox: A Review of the Literature and the Role Food Stamps May Play. *Journal of the American Dietetic Association* 107: 1952-1961.
- Dubowitz, H. and S. Bennett 2007. Physical abuse and neglect of children. *Lancet* 369: 1891-1899. doi: 10.1016/S0140-6736(07)60856-3
- Edin, K., Boyd, M., Mabli, J., Ohls, J., Worthington, J., Greene, S., Redel, N., Sridharan, S. 2013. SNAP Food Security In-Depth Interview Study. Project Officer: Sarah Zapolsky,



- U.S. Department of Agriculture, Food and Nutrition Service, Office of Research and Analysis. Alexandria, VA.
- Ehrle, J. and R. Geen 2002. Children Cared for by Relatives: What Services Do They Need? B-47 Series B, New Federalism National Survey of America's Families. Washington, D.C.: The Urban Institute.
- Eicher-Miller, H. A., A. C. Mason, C. M. Weaver, G. P. McCabe and C. J. Boushey 2009. Food insecurity is associated with iron deficiency anemia in U.S. adolescents. *American Journal of Clinical Nutrition* 90: 1358-1371.
- Felitti, V.J., R.F. Anda, D. Nordenberg, D.F. Williamson, A.M. Spitz, V. Edwards, M.P. Koss and J.S. Marks 1998. Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults: The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine* 14: 245-258.
- Food and Nutrition Service, USDA 2011. P.L. 111-296 § 102 amending 42 U.S.C. § 1758(b) and (d) and Food and Nutrition Service memorandum, Child Nutrition Reauthorization 2010: Categorical Eligibility of Foster Children. [http://www.fns.usda.gov/cnd/Governance/PolicyMemos/2011/SP17\\_CACFP08\\_SFSP05-2011\\_osr.pdf](http://www.fns.usda.gov/cnd/Governance/PolicyMemos/2011/SP17_CACFP08_SFSP05-2011_osr.pdf).
- Foster, H., J. Hagan and J. Brooks-Gunn 2008. Growing up fast: stress exposure and subjective "weathering" in emerging adulthood. *Journal of Health and Social Behavior* 49: 162-177.
- Fram, M. S., E. A. Frongillo, S. J. Jones, R. C. Williams, M. P. Burke, K. P. DeLoach and C. E. Blake 2011. Children are aware of food insecurity and take responsibility for managing food resources. *The Journal of Nutrition* 141: 1114-1119. doi: 10.3945/jn.110.135988
- Frank, D. A., P. H. Casey, M. M. Black, R. Rose-Jacobs, M. Chilton, D. Cutts, E. March, T. Heeren, S. Coleman, S. E. de Cuba and J. T. Cook 2010. Cumulative hardship and wellness of low-income, young children: multisite surveillance study. *Pediatrics* 125: e1115-1123. doi: 10.1542/peds.2009-1078
- Frank, DA and C-SNAP Study Group 2006. Protecting the Health and Nutrition of Young Children of Color: The Impact of Nutrition Assistance and Income Support Programs. Joint Center for Political and Economic Studies.
- Gayman, A., S. Ettinger de Cuba, J. T. Cook, E. March, S. Coleman, M. Chilton and D. A. Frank 2010. Earning More, Receiving Less: Loss of Benefits and Child Hunger. *Children's HealthWatch, Policy Action Brief*. Boston -- <http://www.childrenshealthwatch.org/page/PublicationsDate/> - 2004.
- Goodman, L. A., K. F. Smyth, A. M. Borges and R. Singer 2009. When crises collide: how intimate partner violence and poverty intersect to shape women's mental health and coping? *Trauma, Violence & Abuse* 10: 306-329. doi: 10.1177/1524838009339754
- Gooze, RA, CC Hughes, DM Finkelstein and RC Whitaker 2012. Obesity and Food Insecurity at the Same Table: How Head Start Programs Respond. *Prevention of Chronic Disease* 9.
- Gundersen, C. and B. Kreider 2009. Bounding the effects of food insecurity on children's health outcomes. *Journal of Health Economics* 28: 971-983.
- Gundersen, Craig, Brent Kreider and John Pepper 2011. The Economics of Food Insecurity in the United States. *Applied Economic Perspectives and Policy* 33.
- Hamelin, A. M., M. Beaudry and J. P. Habicht 2002. Characterization of household food insecurity in Québec: Food and feelings. *Social Science and Medicine* 54: 119-132.

- Hamelin, A. M., J. P. Habicht and M. Beaudry 1999. Food insecurity: consequences for the household and broader social implications. *The Journal of Nutrition* 129: 525S-528S.
- Hardy, J. B., N. M. Astone, J. Brooks-Gunn, S. Shapiro and T. L. Miller 1998. Like mother, like child: intergenerational patterns of age at first birth and associations with childhood and adolescent characteristics and adult outcomes in the second generation. *Developmental Psychology* 34: 1220-1232.
- Heckman, J. J. 2006. Skill formation and the economics of investing in disadvantaged children. *Science* 312: 1900-1902.
- Heflin, C. M., M. E. Corcoran and K. A. Siefert 2007. Work trajectories, income changes, and food insufficiency in a Michigan welfare population. *Social Service Review* 81: 3-25.
- Heflin, C. M., K. Siefert and D. R. Williams 2005. Food insufficiency and women's mental health: Findings from a 3-year panel of welfare recipients. *Social Science and Medicine* 61: 1971-1982.
- Huddleston-Casas, C., R. Charnigo and L. A. Simmons 2009. Food insecurity and maternal depression in rural, low-income families: a longitudinal investigation. *Public Health Nutrition* 12: 1133-1140.
- Institute of Medicine and National Research Council 2013. Supplemental Nutrition Assistance Program: Examining the evidence to define benefit adequacy. The National Academies Press. Washington, DC.
- Jeng, K., S. Ettinger de Cuba, S. Coleman, A. Meyers, R. Rose-Jacobs, DA. Frank, P. Casey, D. Cutts, MM. Chilton, M. Black and JT. Cook 2010. Healthcare cost "trade-offs" with basic needs: Impact on maternal and child health in five cities. American Public Health Association, Annual Meeting.
- Kabbani, N. S. and P. E. Wilde 2003. Short recertification periods in the U.S. Food Stamp Program. *The Journal of Human Resources* 38: 1113-1138.
- Kaiser, LL., MS. Townsend, Melgar-Quonez HR, Fujii ML and Crawford PB 2004. Choice of instrument influences relations between food insecurity and obesity in Latino women. *American Journal of Clinical Nutrition*.
- Kelley, S. J., D. Whitley, T. A. Sipe and B. C. Yorker 2000. Psychological distress in grandmother kinship care providers: the role of resources, social support, and physical health. *Child Abuse & Neglect* 24: 311-321.
- Kempson, K., D. P. Keenan, P. S. Sadani and A. Adler 2003. Maintaining food sufficiency: Coping strategies identified by limited-resource individuals versus nutrition educators. *Journal of Nutrition Education and Behavior* 35: 179-188.
- Kendall-Tackett, K. A. 2007. Violence against women and the perinatal period: the impact of lifetime violence and abuse on pregnancy, postpartum, and breastfeeding. *Trauma, Violence & Abuse* 8: 344-353. doi: 10.1177/1524838007304406
- Kleinman, R. E., J. M. Murphy, M. Little, M. Pagano, C. A. Wehler, K. Regal and M. S. Jellinek 1998. Hunger in children in the United States: potential behavioral and emotional correlates. *Pediatrics* 101: E3.
- Laraia, B. A., J. B. Borja and M. E. Bentley 2009. Grandmothers, fathers, and depressive symptoms are associated with food insecurity among low-income first-time African-American mothers in North Carolina. *Journal of the American Dietetic Association* 109: 1042-1047.
- Lazarus, Richard S. and Susan Folkman 1984. *Stress, appraisal, and coping*. New York: Springer Pub. Co.

- Lent, M. D., L. E. Petrovic, J. A. Swanson and C. M. Olson 2009. Maternal mental health and the persistence of food insecurity in poor rural families. *Journal of Health Care for the Poor and Underserved* 20: 645-661.
- Lyon, Elenor 2000. *Welfare, Poverty, and Abused Women: New Research and its Implications*. National Resource Center on Domestic Violence. [http://www.vawnet.org/Assoc\\_Files\\_VAWnet/BCS10\\_POV.pdf](http://www.vawnet.org/Assoc_Files_VAWnet/BCS10_POV.pdf)
- Martin, Katie S., Beatrice L., Rogers, Cook, John, and Joseph, Hugh. 2004. Social capital is associated with decreased risk of hunger. *Social Science & Medicine*: 2645-2654.
- Maxwell, Daniel 1996. Measuring food insecurity: the frequency and severity of "coping strategies". *Food Policy* 21: 291-303.
- McIntyre, L., N. T. Glanville, S. Officer, B. Anderson, K. D. Raine and J. B. Dayle 2002. Food insecurity of low-income lone mothers and their children in Atlantic Canada. *Canadian Journal of Public Health. Revue Canadienne de Sante Publique* 93: 411-415.
- McIntyre, L., N. T. Glanville, K. D. Raine, J. B. Dayle, B. Anderson and N. Battaglia 2003. Do low-income lone mothers compromise their nutrition to feed their children? *Canadian Medical Association Journal* 168: 686-691.
- Melchior, M., A. Caspi, L. M. Howard, A. P. Ambler, H. Bolton, N. Mountain and T. E. Moffitt 2009. Mental health context of food insecurity: a representative cohort of families with young children. *Pediatrics* 124: e564-572. doi: 10.1542/peds.2009-0583
- Melchior, M., T. E. Moffitt, B. J. Milne, R. Poulton and A. Caspi 2007. Why do children from socioeconomically disadvantaged families suffer from poor health when they reach adulthood? A life-course study. *American Journal of Epidemiology* 166: 966-974.
- Moore, Shelby 2003. *Understanding the Connection between Domestic Violence, Crime, and Poverty: How Welfare Reform May Keep Battered Women from Leaving Abusive Relationships*. *Texas Journal of Women and the Law*, 12: 451-484.
- Murphy, J. M., C. A. Wehler, M. E. Pagano, M. Little, R. E. Kleinman and M. S. Jellinek 1998. Relationship between hunger and psychosocial functioning in low-income American children. *Journal of the American Academy of Child and Adolescent Psychiatry* 37: 163-170.
- Nord, M. and M. Prell 2011. *Food Security Improved Following the 2009 ARRA Increase in SNAP Benefits*. Economic Research Service: U.S. Department of Agriculture.
- Olson, C. M., C. F. Bove and E. O. Miller 2007. Growing up poor: Long-term implications for eating patterns and body weight. *Appetite* 49: 198-207.
- Olson, Christine M. 2005. Food Insecurity in Women: A Recipe for Unhealthy Trade-offs. *Topics in Clinical Nutrition* 20: 321-328.
- Palomar Lever, J. 2008. Poverty, stressful life events, and coping strategies. *The Spanish Journal of Psychology* 11: 228-249.
- Quandt, S., T. Arcury, J. McDonald, . Bell and M. Vitolins 2001. Meaning and Management of Food Security among Rural Elders. *Journal of Applied Gerontology* 20: 356-376.
- Quandt, SA, TA Arcury, J Early, J Tapia and JD Davis 2004. Household food security among migrant and seasonal latino farmworkers in North Carolina. *Public Health Reports* 119: 568-576.
- Rabinowich, J., A. Ortiz, I. Sullivan, J. Breaux, M. Welsh and MM. Chilton 2010. Cash assistance and social justice from the perspective of low-income mothers: Community participation to change the dialogue on welfare policies. *American Public Health Association, Annual Meeting, 2010*. Denver, CO.

- Radimer, KL 2002. Measurement of household food security in the USA and other industrialised countries. *Public Health Nutrition* 5: 859-864.
- Romero, D., W. Chavkin, P. H. Wise, C. A. Hess and K. VanLandeghem 2001. State welfare reform policies and maternal and child health services: a national study. *Maternal and Child Health Journal* 5: 199-206.
- Rose, D. 1999. Economic determinants and dietary consequences of food insecurity in the United States. *The Journal of Nutrition* 129: 517S-520S.
- Rose, D. and V. Oliveira 1997. Nutrient intakes of individuals from food-insufficient households in the United States. *American Journal of Public Health* 87: 1956-1961.
- Rose-Jacobs, R., M. M. Black, P. H. Casey, J. T. Cook, D. B. Cutts, M. Chilton, T. Heeren, S. M. Levenson, A. F. Meyers and D. A. Frank 2008. Household food insecurity: associations with at-risk infant and toddler development. *Pediatrics* 121: 65-72. doi: 10.1542/peds.2006-3717
- Santiago, C. D., E. M. Etter, M. E. Wadsworth and T. Raviv 2012. Predictors of responses to stress among families coping with poverty-related stress. *Anxiety, Stress, and Coping* 25: 239-258. doi: 10.1080/10615806.2011.583347
- Seligman, H. K., B. A. Laraia and M. B. Kushel 2010. Food insecurity is associated with chronic disease among low-income NHANES participants. *The Journal of Nutrition* 140: 304-310. doi: 10.3945/jn.109.112573
- Shonkoff, J. P. 2010. Building a new biodevelopmental framework to guide the future of early childhood policy. *Child Development* 81: 357-367.
- Shonkoff, J. P. and S. N. Bales 2011. Science does not speak for itself: translating child development research for the public and its policymakers. *Child Development* 82: 17-32. doi: 10.1111/j.1467-8624.2010.01538.x
- Shonkoff, J. P., W. T. Boyce and B. S. McEwen 2009a. Neuroscience, molecular biology, and the childhood roots of health disparities: building a new framework for health promotion and disease prevention. *JAMA: the Journal of the American Medical Association* 301: 2252-2259. doi: 10.1001/jama.2009.754
- Shonkoff, J. P., A. S. Garner, B. S. Siegel, M. I. Dobbins, M. F. Earls, L. McGuinn, J. Pascoe and D. L. Wood 2012. The Lifelong Effects of Early Childhood Adversity and Toxic Stress. *Pediatrics* 129: e232-e246. doi: 10.1542/peds.2011-2663
- Smith, C. and R. Richards 2008. Dietary intake, overweight status, and perceptions of food insecurity among homeless Minnesotan youth. *American Journal of Human Biology* 20: 550-563.
- Stuff, J. E., M LaCour, Xianglin Du, F Franklin, R. Peters and T. Nickias 2009. The prevalence of food insecurity and associated factors among households with children in head start programs in Houston, Texas and Birmingham, Alabama. *Race, Gender & Class* 16: 31-48.
- Tarasuk, V. S. 2001a. Household food insecurity with hunger is associated with women's food intakes, health and household circumstances. *The Journal of Nutrition* 131: 2670-2676.
- Tarasuk, Valerie 2001b. Household Food Insecurity with Hunger is Associated with Women's Food Intakes, Health and Household Circumstances. *Journal of Nutrition* 131: 2670-2676.
- USDA/FNS 2013. Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) Eligibles and Coverage—2010: National and State-level estimates of the

- population of Women, Infants and Children Eligible for WIC benefits, Executive Summary. Office of Research and Analysis. Washington, DC.
- Wehler, C., L. F. Weinreb, N. Huntington, R. Scott, D. Hosmer, K. Fletcher, R. Goldberg and C. Gundersen 2004. Risk and protective factors for adult and child hunger among low-income housed and homeless female-headed families. *American Journal of Public Health* 94: 109-115.
- Weinreb, L., C. Wehler, J. Perloff, R. Scott, D. Hosmer, L. Sagor and C. Gundersen 2002. Hunger: its impact on children's health and mental health. *Pediatrics* 110: e41.
- Wethington, E. 2005. An overview of the life course perspective: implications for health and nutrition. *Journal of Nutrition education and behavior* 37: 115-120.
- Whitaker, R. C., S. M. Phillips and S. M. Orzol 2006. Food insecurity and the risks of depression and anxiety in mothers and behavior problems in their preschool-aged children. *Pediatrics* 118: e859-868.
- Witnesses to Hunger 2008. Video--Witnesses to Hunger. In Video--Witnesses to Hunger, ed. Center for Hunger Free Communities Drexel University, <http://www.centerforhungerfreecommunities.org/our-projects/witnesses-hunger> Philadelphia, PA.
- Wood, J. N., S. P. Medina, C. Feudtner, X. Luan, R. Localio, E. S. Fieldston and D. M. Rubin 2012. Local macroeconomic trends and hospital admissions for child abuse, 2000-2009. *Pediatrics* 130: e358-364. doi: 10.1542/peds.2011-3755
- Zaslow, M., J. Bronte-Tinkew, R. Capps, A. Horowitz, K. A. Moore and D. Weinstein 2009. Food security during infancy: implications for attachment and mental proficiency in toddlerhood. *Maternal and Child Health Journal* 13: 66-80.