

WORKING MOMS FEEDING KIDS: SOCIAL ECOLOGICAL INFLUENCES
ON LOW-INCOME WORKING MOTHERS' CHILD FEEDING PRACTICES

A Dissertation

Presented to the Faculty of the Graduate School
of Cornell University

In Partial Fulfillment of the Requirements for the Degree of
Doctor of Philosophy

by

Tara Agrawal

August 2016

© 2016 Tara Agrawal

WORKING MOMS FEEDING KIDS: SOCIAL ECOLOGICAL INFLUENCES ON LOW-INCOME WORKING MOTHERS' CHILD FEEDING PRACTICES

Tara Agrawal, Ph.D.

Cornell University 2016

The goal of this research was to explore and understand the ways in which work and family demands influence the child feeding practices of low-income working/student mothers. The overall goal of the research was to provide an initial step towards a larger research agenda committed to closing the gap in racial, ethnic and socioeconomic disparities in nutritional wellbeing among children and families by understanding the daily food choices made by low-income working/student mothers of preschool children.

The research, guided by socio-ecological and stress-response frameworks, was conducted in two phases. The first phase was conducted through two qualitative semi-structured, in-depth interviews with 22 working/student mothers with children in Head Start. Participants from this phase were recruited from a county-based Head Start program in Upstate New York. Interviews were analyzed using the constant comparative method. The second phase was conducted through a two-day telephone survey with 69 working/student mothers with children in Head Start. Participants from this phase were recruited from three county-based Head Start programs in Upstate New York. The findings that emerged from this research were used to develop a socio-ecological model of the multiple intersecting levels of influences that shape low-income mothers' child feeding strategies. New understandings that emerged from this research are: 1) that low-income mothers have routine ways of feeding children in response to broadly-defined

family needs that go beyond saving time and money, and 2) that unpredictability and instability are prevalent work and family conditions that disrupt routines for the feeding of low-income young children. Specific findings with regard to child feeding suggest that low-income mothers' child feeding routines: 1) are shaped by influences inside the household (e.g. being the sole householder) and outside the household (e.g. unpredictable work schedules), 2) regularly depend on child-feeding delegates, and 3) require dynamic adjustment in response to changing social support, time or money due to life events (e.g. job changes, moving). These findings provide new insights useful to nutrition practice, research, and policies aimed to improve low-income young children's diets.

BIOGRAPHICAL SKETCH

Tara has dedicated her personal, professional, and academic endeavors to advance a more just and healthy society for low-income children and children of color and their families. Her pursuit of a doctoral degree in community nutrition is emblematic of this commitment. Prior to Cornell, Tara turned down a lab-based National Science Foundation Fellowship opportunity to conduct research on the role of community gardens throughout the history of the United States, earning her departmental honors in Environmental Studies at the University of California Santa Cruz. With an interest in agricultural autonomy, Tara went to Chiapas, Mexico where she served as technical advisor to the Zapatista bases of support communities and led U.S. delegations to learn about the impact of the North American Free Trade Agreement and community-driven agricultural economic development initiatives. Eager to understand more about the links between food, agriculture, public health, and policy, Tara returned to the United States to pursue a Masters degree in food policy and applied nutrition at the Tufts Friedman School of Nutrition Science and Policy. During her time at Tufts, Tara focused on the design, management, and evaluation of food and nutrition programs in the United States, Nicaragua, Mexico, and Malaysia. After graduating from Tufts, Tara decided to focus her community nutrition efforts closer to home in Boston by working on programs and policies to create access to affordable healthy foods for Boston residents. Tara eventually realized that to be able to develop workable programs and policies for low-income families and families of color she needed more training to understand and address the socio-structural and social psychological factors that shape food choices. Tara found the Division of Nutritional Sciences at Cornell University to be a terrific fit with her goals and values. During the course of her doctoral training at Cornell, Tara was

challenged and inspired by her professors and peers to learn new ways of investigating and addressing community food and nutrition problems. She became interested in how low-income working parents make food choices in the context of work and family demands. With her doctoral training, Tara looks forward to continuing her work to advance a more just and healthy society by working as a community nutrition researcher and strategist.

DEDICATION

For my partner Mark, who provided a constant source of love and encouragement, our son Sachin, who came into being, and my father, Arun, who became no more.

ACKNOWLEDGEMENTS

I would like to thank my advisor Carol M. Devine for her guidance and support during my time at Cornell. I would also like to thank my special committee members: Elaine Wethington for her insights and expertise; Kathy Rasmussen for her many helpful editorial comments; and Paromita Sanyal for her encouragement throughout this process. Thank you to Tracy Jean Farrell for her support and collaboration throughout this project and in particular for her insights, sense of humor, and detailed editing. This project would also not have happened without the willingness of the working mothers who participated in sharing their time, thoughts, and experiences. Thank you to my family for their many years of love and encouragement, especially to my late father Arun K. Agrawal, my mother and step-father, Lois and Chuck Rowe, and my in-laws, Drs. Joe and Barbara Pedulla. Finally, I cannot thank Mark Pedulla, my partner for life and husband, enough for his constant source of love, care, help, and encouragement throughout this process.

Support for this project was provided by the Cornell University Division of Nutritional Sciences and the USDA National Institute of Food and Agriculture Hatch NYC-399428.

TABLE OF CONTENTS

Biographical Sketch	iii
Dedication	v
Acknowledgements	vi
List of Figures	x
List of Tables	xi
Chapter 1 Introduction	1
1.1 Introduction	1
1.2 Childhood nutritional status and dietary behavior	2
1.3 Demographic and societal transitions in work and family	4
1.4 Theoretical background	5
1.4.1 Ecological models of health behavior	6
1.4.2 A transactional model of the stress process	7
1.4.3 Application to low-income working mothers' young child feeding practices	9
1.5 Research methods	10
1.5.1 Research paradigm and design	10
1.5.2 Description of the research sites	12
1.5.3 Research Participants	13
References	16
Chapter 2 "Doing Our Best to Keep a Routine": Examining How Mothers Manage Child Feeding with Unpredictable Work and Family Schedules	20
2.1 Abstract	20
2.2 Introduction	21
2.3 Methods	23
2.3.1 Participants	23
2.3.2 Data Collection	25
2.3.3 Data Analysis	27
2.4 Findings	27
2.4.1 Types of child feeding routines	28
2.4.2 Strategy for planning ahead	32
2.4.3 Strategy for delegating child feeding to others	33
2.4.4 Strategy for making trade-offs	35
2.4.5 Strategy for coordinating with other responsibilities and activities	35
2.4.6 Multiple levels of influence on child feeding routines	36
2.4.7 Mothers' uses of child feeding routines	39
2.5 Discussion	41
2.6 Conclusions	45
2.7 Acknowledgements	45
References	47

Chapter 3 Mothers' Changing Strategies For Feeding Preschool Children in Response to Life Events.....	51
3.1 Abstract.....	51
3.2 Introduction.....	52
3.3 Methods.....	54
3.3.1 Participants.....	54
3.3.2 Data Collection	55
3.3.3 Data Analysis	56
3.4 Findings.....	57
3.4.1 Life events experienced by mothers	58
3.4.2 Mothers' appraisals of life events	59
3.4.3 Mothers' changing resources for feeding children	60
3.4.4 Mothers' adaptations in child feeding strategies	61
3.4.5 Dynamics of mothers' child feeding strategy adjustments over time.....	62
3.4.6 Case studies.....	65
3.5 Discussion.....	71
3.6 Conclusions.....	74
3.7 Acknowledgements.....	75
References.....	76
Chapter 4 Work and Family Contexts Shaping Mother' Child Feeding Strategies and Children's Food and Eating Patterns.....	79
4.1 Abstract.....	79
4.2 Introduction.....	80
4.3 Methods.....	81
4.3.1 Participants.....	81
4.3.2 Procedures.....	81
4.3.3 Measures	82
4.3.4 Data Analysis	84
4.4 Findings.....	86
4.4.1 Child feeding strategy clusters.....	96
4.5 Discussion.....	98
4.6 Conclusions.....	103
4.7 Acknowledgements.....	104
References.....	105
Chapter 5 General Discussion.....	109
5.1 Introduction.....	109
5.2 Integration of findings.....	109
5.2.1 Multiple levels of ecological influence shape mothers' child feeding strategies	111
5.2.2 Different levels of ecological influence interact to shape mothers' child feeding strategies	112
5.2.3 Mothers' adjust their child feeding strategies in response to unpredictable and unstable work and family conditions	113
5.3 Strengths and limitations.....	114

5.4	Implications for research, practice, and policy	118
5.4.1	Research implications for various levels of influence on young child feeding strategies	118
5.4.2	Policy implications for various levels of influence on young child feeding strategies	119
5.4.3	Practice implications for young child feeding strategies	121
	References.....	122
	Appendix A.....	126
	Appendix B.....	129
	Appendix C.....	134
	Appendix D.....	137
	Appendix E.....	159
	Appendix F.....	177

LIST OF FIGURES

Figure 1.1 Initial conceptual model of the work and family influences shaping working/student mothers' role demands, child feeding strategies, and children's diets.....	10
Figure 3.1 Dynamics of child feeding strategy adjustment case study: Kelly "It's not just me doing it"	66
Figure 3.2 Dynamics of child feeding strategy adjustment case study: Laura "It's a struggle right now"	68
Figure 4.1 Adapted CONSORT flow diagram of low-income working/student mothers' telephone survey recruitment and participation.....	87
Figure 5.1 Revised conceptual model of the ecological influences and interactions on low-income working/student mothers' child feeding strategies.....	110

LIST OF TABLES

Table 2.1 Demographic characteristics of low-income mothers participating in the two qualitative in-depth interviews.....	24
Table 2.2 Supporting quotations related to emergent child feeding routine typologies.....	28
Table 2.3 Emergent child feeding routine typologies, usual routine strategies, and children’s food and eating.....	30
Table 3.1 Life events experienced by low-income working/student mothers between the first and second qualitative in-depth interviews.....	59
Table 4.1 Low-income working/student mothers clustered by reported patterns of child feeding strategies.....	90
Table 4.2 Demographic, work and family characteristics of low-income working/student mothers by child feeding strategy cluster.....	93
Table 4.3 Child food and beverage consumption and obesogenic scores of low-income working/student mothers by child feeding strategy cluster.....	96

CHAPTER 1

INTRODUCTION

1.1 Introduction

A diet that promotes healthy growth and development among young children is an important public health nutrition goal (U.S. Department of Health and Human Services, 2013). Parents play an important role in shaping children's diets by how and what they feed children. Feeding children is embedded within daily family life, and the larger social and economic forces that frame family life pose challenges to feeding children. Over the last three decades, increasing instability in work and family conditions have placed significant time, financial and social pressures on low-income mothers (Cherlin, 2005; D'Vera Cohn et al., 2011; McLanahan and Percheski, 2008). These changes in U.S. family life have important consequences for children's food consumption because they implicate the financial, time, and personal resources available to low-income parents in feeding their children. Organized childcare has increased over the last three decades to meet the needs of employed parents; more than two-thirds of children under 5 years are in childcare (Laughlin, 2013). However, managing employment, parenting, and childcare is a significant challenge for many families especially for low-income parents who have fewer resources available to cope with the stressors of daily life. Therefore, understanding child feeding practices within the context of daily life among low-income families with young children in childcare can provide important insights into the factors affecting young children's food consumption. Locating the study in the context of Head Start, a national childcare model for serving low-income families, provides a platform for future interventions.

In this research we sought to explore and understand the ways in which work and family demands influence the child feeding practices of low-income working/student mothers. The following questions guided this research project:

- 1) How do low-income working/student mothers experience feeding their children in daily life?
- 2) How do the demands of work and family roles experienced by low-income working/student mothers influence the child feeding process?
- 3) What strategies do low-income working/student mothers use to cope with these demands and changes in these demands when feeding their children?
- 4) What are the implications of these strategies for children's diets?

The overall goal of the research was to provide an initial step towards a larger research agenda committed to closing the gap in racial, ethnic and socioeconomic disparities in nutritional wellbeing among children and families by understanding the food choices made by low-income working/student mothers of preschool children in the context of their daily lives.

1.2 Childhood nutritional status and dietary behavior

The United States finds itself at a critical moment when it comes to child health and nutrition. Nationwide, young children do not currently meet dietary recommendations for good health (Kirkpatrick et al., 2012). Over the past three decades, there has been an increase in children's overall energy intake (Ford et al., 2013), in their intake of foods high in added sugars and solid fats (Ford et al., 2013), and in their frequency of snacking and calories consumed from snacks (Piernas and Popkin, 2010). Although there have been small increases in children's consumption of fruits, this has not been the case for vegetables (Ford et al., 2013). Low-income

children are less likely than their higher-income counterparts to meet dietary recommendations (Kirkpatrick et al., 2012; Leung et al., 2013).

Early childhood is an important period of children's growth and development. Children's eating patterns and food preferences are established in early life (Birch and Fisher, 1998). Young children are less likely to be obese if they consume a diet that is nutrient-dense, rich in whole grain, fruits, vegetables, and low-fat or nonfat milk, and low in energy-dense, nutrient-poor foods (Bradlee et al., 2009). Although children ages 2 to 5 years old meet the Dietary Guidelines for Americans for fruit and milk consumption, diets of children these ages remain low in fiber and high in saturated fat, sodium, added sugar, and calories (Butte et al., 2010; Fungwe et al., 2009). There are important differences in what children consume across class and race/ethnicity. In a recent study, researchers found that zero percent of low-income children met seven of ten dietary recommendations (Leung et al., 2013). When it comes to race/ethnicity, black and African American children experience poorer quality diets compared to white children (Kirkpatrick et al., 2012).

In the United States, national guidelines are in place to improve children's diets (U.S. Department of Health and Human Services, 2013). Parents are considered critical stakeholders in ensuring that these guidelines are met (White House Task Force on Childhood Obesity, 2010). Yet, for employed parents promoting healthful child nutrition is a challenge given demanding work and family roles, especially among low-income families. Previous studies on child feeding have identified and described different social ecological factors shaping young children's food and beverage consumption, including child, parent, home, school, and community factors (Nicklas et al., 2000; Story et al., 2002). We expand on this research by conducting a multilevel investigation to examine how the work and family pressures experienced by low-income mothers

relate to young child feeding practices and young children's diets.

1.3 Demographic and societal transitions in work and family

The role of mothers as economic providers in their families has changed over the last four decades. According to the U.S. Bureau of Labor Statistics (2016), 67% of mothers with a child under the age of six years are in the labor force. Employment among mothers with children ages 3 to 5 years has increased 27.1 percentage points since 1975. Today, 4.4% of working married-mother families and 39.5% of unmarried working mother families with children under six years of age are in poverty (Bureau of Labor Statistics, 2016). Almost half of low-income working mothers are currently employed in retail and service sector jobs that pay low wages, limit hours and fail to provide benefits (Povich, Roberts, and Mather, 2013). In addition to high rates of poverty among low-income working mothers with young children, high rates of income and job volatility are common. Over the last three decades, low-income families have experienced increasing volatility in income (Hardy and Ziliak, 2014) and employment (Berry et al., 2008). High rates of job churn and poverty experienced by working mothers with young children is a challenge to the economic competitiveness of the United States and the economic security of families.

During the same time period, U.S. family formation patterns have diverged by race and class. Single parent households have doubled since 1975 (Bureau of Labor Statistics, 2016) and are most common among low-income and black families (Kuo and Raley, 2016; Raley et al., 2015). Today, low-income and black mothers experience lower rates of marriage and higher rates of non-marital childbirth compared to higher income and non-Hispanic white mothers (McLanahan and Percheski, 2008).

The changes in work and family conditions by race and class have meant that low-income mothers and black mothers experience significant demands that make it difficult to meet their work and family responsibilities (Roy et al., 2004). These notable changes in U.S. family formation and work conditions have meant that low-income children and black children are more likely to live in households with fewer resources important for their well-being compared to higher income children and non-Hispanic white children (McLanahan, 2004).

Previous research showed positive associations between demanding work and family conditions, family food choice coping strategies, and poor parental dietary quality (Blake et al., 2011; Devine et al., 2006; Devine et al., 2009). We expand on this research to examine how parental work and family demands relate to young child feeding practices and dietary quality. Maternal employment is associated with young children's dietary quality (Crepinsek and Burnstein, 2004), but the underlying mechanisms are not well understood, nor preventive strategies identified especially for low-income employed mothers whose children are likely to have poor diets. This work will lead to understandings of work and family pressures specific to low-income working mothers and the ways these pressures affect low-income mothers' young child feeding practices. This investigation is important at the levels of policy, workplace, and family well-being because it provides detailed insights over time on low-income employed mothers' work and family conditions in the new economy with relevance to children's health. Such insights can be used to educate policymakers and inform employers on the labor force participation of low-income working mothers.

1.4 Theoretical background

This investigation was carried out by drawing on two complementary theoretical concepts: 1) an ecological model of health behaviors and 2) a transactional model of the stress

process. Individual, parent, community and school factors have been previously identified as important influences on what children are fed and what they eat (Larson and Story, 2009). Exploring the influences on low-income mothers' child feeding practices can provide a better understanding of the parental influences on young children's diets. A socio-ecological model of health behaviors provides a way to organize different levels of influence on low-income employed mothers' child feeding practices but does not help us understand the processes by which mothers feed children. Therefore, the socio-ecological approach was complemented by a transactional model of the stress process to understand how low-income employed mothers manage work and family demands and how such demands interact to shape the ways they feed children.

1.4.1 Ecological models of health behavior

Ecological models are widely used in nutrition as a way to understand food choice behaviors. Such contemporary models have been developed out of a rich conceptual tradition within the disciplines of sociology, anthropology, and psychology. The application of ecological models in these disciplines is generally seen as a reaction against reductionist models of human behavior. Key cross-cutting features of ecological models developed in these disciplines are rooted in the understanding that individual and population behaviors are shaped by multiple levels of influence, adaptation is a central characteristic of human-environment interaction, and human behaviors and environmental conditions function as a system consisting of energy balance and feedback.

Key distinctions among the ecological perspectives used in psychology, sociology, and anthropology include the scale and units of measurement specific to each discipline's orientation. For example, the psychological development of ecological models focuses on the unit of the

individual and examines personal behaviors as shaped by their proximal, or most immediate, environments. In sociology, the ecological lens is used to observe the social processes of communities. Anthropology, on the other hand, is concerned with culture as a functional adaptation emerging from human interaction with the lived environment.

Ecological models of health behaviors illustrate how such behaviors are shaped by individual, interpersonal, institutional, community, and policy levels of influence (Glanz et al., 2015). Researchers have suggested the need for further study of how multiple levels of influence work together to shape various domains of health behaviors (Glanz et al., 2015). Nonetheless, ecological models applied to the public health realm remain conceptually underdeveloped compared to the disciplines in which they initially emerged. The underdevelopment of these models offers an opportunity to integrate more robust theories of human-environment interaction into the research process. This research contributes to the development of such ecological models for health behavior by integrating a transactional model of the stress process into an ecological model of child feeding.

1.4.2 A transactional model of the stress process

One way to provide a more robust ecological perspective of health behaviors is through a transactional model of the stress process. This type of model specifically delineates the ways in which individuals appraise and manage demands in their environments in accordance with the psychological and social resources available to them (Lazarus and Folkman, 1984).

A critical element that the transactional model takes into account when approaching human-environment interaction is that of role demands. Role demands refer to the normative set of expectations surrounding the behaviors of certain social players such as workers and parents (Lazarus and Folkman, 1984). Environmental sources of role-related demands range from the

more proximal to the more distal. Workplace and family factors are two proximal environmental sources of role-related demands. On the other hand, more distal sources of such demands may come from broader cultural, political, economic, and institutional influences that regulate relationships and influence work and family conditions. For example, the heavy social value placed on child rearing has left many middle-income working women feeling excessively tired, stressed, and pressured for time (Bianchi, Robinson, and Milkie, 2006; Moen, 1992; Zelizer, 1985).

Chronic and daily demands are two forms of role-related demands. Chronic role-related demands are ongoing demands that require adjustments over an extended period of time, such as when parents exposed to higher levels of job stress become less engaged with children during meals. Daily role-related demands are minor unexpected events that require small behavioral changes, such as waking up late and having to eat breakfast in the car. The content of role demands, such as an argument with a child during dinner, may influence how parents feed children during that meal. Although there is some evidence of work and family demands associated with poorer child feeding strategies (Bauer et al., 2012; Cawley and Liu, 2012; Crepinsek and Burnstein, 2004; Parks et al., 2012), these relationships have not been systematically examined among low-income employed parents of young children.

According to the transactional model of the stress process, individuals are differentially vulnerable to the environmental demands they experience. Such differences are rooted in the varying meanings that individuals attach to their respective social roles and coping resources; socially-constructed meanings that, when considered together, serve as evaluative content. (Lazarus and Folkman, 1984; Thoits, 1995). To cope with demands as they arise, individuals thus develop strategies that draw on these meanings and resources. Individuals' emotions,

broadly known as affective experiences, may further mediate the relationship between demands and the coping strategies used. Coping strategies are an important aspect of health behavior research because they are essentially individual human actions undertaken to manage environmental demands. Researchers have suggested a need for further study of different kinds of coping strategies and how such strategies work together to guide behavior in various domains (Blake et al., 2011; Devine et al., 2006; Folkman and Moskowitz, 2004). This project contributes to the need to further develop such a transactional model, by studying how low-income parents, especially mothers, manage feeding their young children in the face of work and family demands.

1.4.3 Application to low-income working mothers' young child feeding practices

This project integrates the ecological model of health and a transactional model of the stress process to explore the multiple levels of influence exerting pressure on the ways that low-income working/student mothers feed their young children. This project adds to and complements existing research in a number of ways. First, we combine previous perspectives on parental work/family demands, parent food choice coping strategies, and child feeding into a single framework (Bauer et al., 2012; Blake et al., 2011; Devine et al., 2006; Devine et al., 2009). Second, prior research has identified parents as an important influence on children's food and beverage consumption but not the social ecological forces that shape how they feed their children. Third, this project incorporates an inductive, longitudinal approach to explore changes over time in low-income working mothers' child feeding practices. We hope to further understandings of parental food choices by taking into account the multiple ecological demands (i.e. work and family) that play a role in shaping how low-income working/student mothers feed their young children. The concepts discussed above have been summarized into an initial conceptual model (Figure 1.1) to explain how daily and chronic work and family demands may

influence low-income working/student mothers' young child feeding practices.

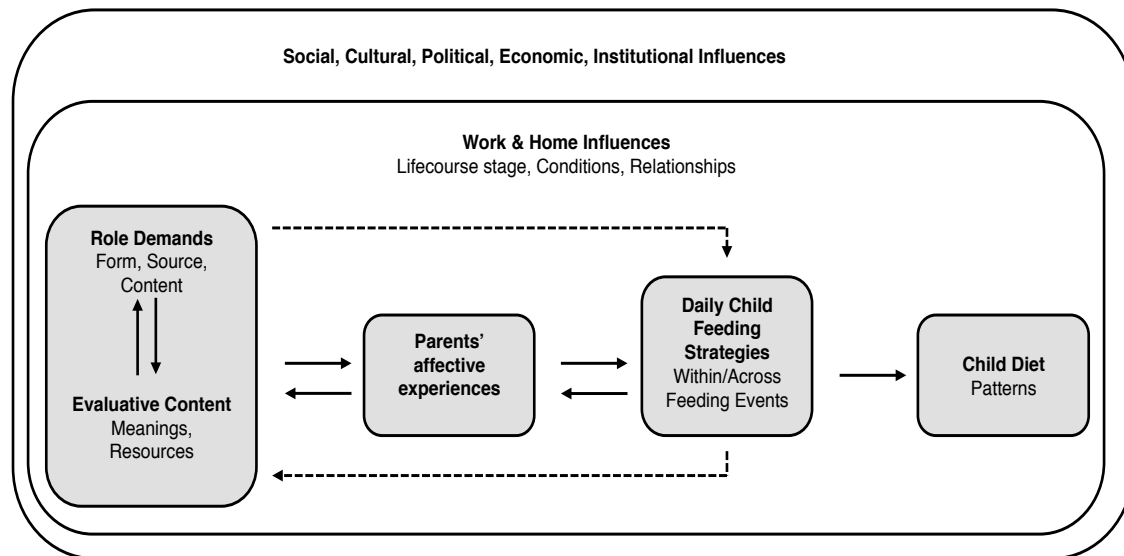


Figure 1.1 Initial conceptual model of the work and family influences shaping working/student mothers' role demands, child feeding strategies, and children's diets.

1.5 Research methods

1.5.1 Research paradigm and design

The research design for this study was a two-phase, sequential mixed-methods design (Tashakorri and Teddlie, 1998). The research design and methods were guided by the constructivist paradigm. Guba and Lincoln (1994) summarize the principles of the constructivist paradigm as including: multiple constructed realities, interaction between the investigator and object of investigation, consensus building through comparing and contrasting individual constructions, and the development of working hypotheses. The first phase of this study used constructivist grounded theory, a methodological approach where the researcher constructs theory based on their interpretation of people's experiences (Strauss and Corbin, 1994). This methodological approach was appropriate to accomplish the research objectives in two primary ways. First, this research project had an objective to explore and understand the ways in which

low-income working/student mothers experienced feeding their young children day-to-day. Grounded theory methods are designed to capture and describe everyday realities using qualitative techniques including interviews. Second, we sought to understand the social context of child feeding. Grounded theory methodology includes an exploration of the social conditions that shape human experiences. Third, in the second phase, a pilot telephone survey was developed based on the findings from the first phase to investigate the relationships among low-income working/student mothers' young child feeding strategies, work and family conditions, and patterns of children's food and beverage consumption.

The first phase was emergent: two qualitative, in-depth interviews using a non-quantitative daily child feeding recall, each approximately 60 minutes in length, were conducted at a location convenient to participants between August 2013 and May 2015. The first qualitative, in-depth interview consisted of guided questions exploring work and family roles and demands, usual ways of feeding children, and satisfaction with child feeding and eating (Appendix A) and a brief baseline survey including demographic, chronic work and home stress items, and household food-choice coping strategies measures (Appendix B) from a previous study (Blake et al., 2011). The second qualitative, in-depth interview consisted of questions exploring changes in work and family conditions and children's feeding and eating since the last interview (Appendix C). Both interview guides were pre-tested for readability and comprehension with a convenience sample of three mothers of preschool-age children. The first qualitative, in-person interview with mothers was conducted within the first two months of children's enrollment in Head Start, while the second interview took place towards the end of the Head Start year. This approach allowed for within-person comparisons in a naturalistic setting (Lazarus and Folkman, 1984).

The second phase of the study used a brief two-day telephone survey that was developed using findings from the first phase and then cognitively tested, piloted, and revised for implementation (Appendices D and E) between January 2014 and May 2015. A three-day period had initially been proposed for the telephone survey, but after pilot testing it was determined that the necessary information could be collected within a two-day period. Based on findings from the first phase of the research project, the telephone surveys were designed to keep respondent burden low by taking no more than 20 minutes to complete. The first telephone survey asked mothers about the context of children's eating episodes the day before, their child feeding strategies, employment conditions, socio-demographic information, and life events in the last six months. The second telephone survey asked mothers about chronic home stressors, foods and beverages at home, the context of children's eating episodes the day before, the involvement of other adults feeding their child, frequency of home-cooked meals and meals prepared away from home, and participation in food assistance programs. For both days, mothers were asked about the food and beverages children consumed the day before through the use of an adapted home inventory checklist based on Fulkerson et al. (2008) (Appendix F).

1.5.2 Description of the research sites

One county-based Head Start program was chosen as the research site for the first phase of this study. The research site was chosen for three reasons: 1) a low-income population of children and families at risk for multiple health problems, 2) convenient location, and 3) the Head Start program's participation in previous research with members of the project team.

Head Start was chosen as the research project location for a number of reasons. Head Start is the nation's largest federally funded preschool program for low-income children and families, the target population for this research project. From 2011 to 2012, Head Start served over one million children nationwide (Head Start, 2012). The Head Start model is based on a

bioecological model of child development, which emphasizes the importance of interaction across multiple levels of influence on children's development and well being (Bronfenbrenner, 1999). Head Start requires that the daily meals and snacks offered to young children meet specific food and nutrition standards. Because Head Start standards require parental involvement in nutrition and health activities, parents may be exposed to child feeding messages and information through interactions with Head Start staff and other parents. Such messages and information could place a burden on parents who feel constrained in their capacity to follow feeding recommendations. On the other hand, parents with limited time and money to purchase and prepare fruits and vegetables at home may value Head Start's role in feeding their children, and may rely on Head Start as part of their daily child feeding strategy.

The research county where phase one was conducted had a population size of 49,474 and median household income of \$45,956 (U.S. Census Bureau, 2013). Approximately 95.1% of the research county's residents identified as non-Hispanic white (U.S. Census Bureau, 2013).

According to the County Health Rankings and Roadmaps program, the research county scored among the worst for health factors compared to a number of other counties across New York State (RWJF, 2013). The second phase of the study included the Head Start programs in the initial research county and Head Start programs in two additional counties with similar demographic compositions (U.S. Census Bureau, 2013).

1.5.3 Research Participants

The sampling frame was based on socio-structural factors associated with chronic and daily role-related demands. These factors included gender, low-income status, never married/divorced versus married, and full-time versus part-time employment status (Grzywacz et al., 2004; Serido, Almeida, and Wethington, 2004; Turner, Wheaton, and Lloyd, 1995).

In the first phase of the research project, 22 low-income working/student mothers were recruited through a Head Start program in one Upstate New York County. Mothers were purposively sampled to vary in household situation. All potential participants were screened to ensure they met the following criteria: they were at least 18 years of age, worked and/or attended school for at least 20 hours a week, were the primary caregiver of a child between 3 to 4 years old who was new to Head Start, and held the primary responsibility for feeding the child.

In the second phase of the project, a convenience sample of 69 low-income working/student mothers was recruited through the initial Head Start program and two other county-based Head Start programs. The eligibility criteria for participation were similar to the first phase of the study with the exception of having a child new to Head Start. The Cornell University Committee on Human Subjects approved the methods for recruiting and collecting data for both of the study phases.

The objective of this project was to explore and understand how low-income working/student mothers feed their young children. The subsequent chapters describe the specific research questions, analyses, and findings for each of the aforementioned research questions. Chapters 2, 3, and 4 were written as papers for publication. Chapters 2 and 3 were written based on qualitative interviews conducted in the first phase of the two-phase study design. Chapter 2 focuses on multiple social ecological levels of influence on low-income mothers' approaches to child feeding. Chapter 3 focuses on the influence that life events have on low-income mothers' approaches to child feeding. Chapter 4 was written based on a two day telephone survey developed from the findings presented in Chapters 2 and 3 and conducted during the second research phase. Chapter 4 describes differences in mothers' child feeding strategies and associations between mothers' child feeding strategies, work and family conditions

and child food and beverage consumption patterns. Finally, Chapter 5 integrates the findings from the previous chapters, addresses the overall strengths and limitations, and discusses the implication of the findings for nutrition research, practice, and policy.

REFERENCES

- Bauer, K., Hearst, M., Escoto, K., Berge, J., and Neumark-Sztainer, D. (2012). Parental employment and work-family stress: associations with family food environments. *Social Science and Medicine*, 75, 496-504.
- Berry, A. A., Katras, M. J., Sano, Y., Lee, J., & Bauer, J. W. (2008). Job volatility of rural, low-income mothers: A mixed methods approach. *Journal of Family and Economic Issues*, 29(1), 5-22.
- Bianchi, S., Robinson, J.P., and Milkie, M.A. (2006). *Changing Rhythms of American Family Life*. New York: Russell Sage Foundation.
- Birch, L. L., and Fisher, J. O. (1998). Development of eating behaviors among children and adolescents. *Pediatrics*, 101(Supplement 2), 539-549.
- Blake, C., Wethington, E., Farrell, T.J., Bisogni, C., and Devine, C. (2011). Behavioral contexts, food-choice coping strategies, and dietary quality of a multiethnic sample of employed parents. *Journal of the American Dietetic Association*, 111(3), 401-407.
- Bradlee, M.L., Singer, M.R., Qureshi, M.M., and Moore, L.L. (2009). Food group intake and central obesity among children and adolescents in the Third National Health and Nutrition Examination Survey (NHANES III). *Public Health Nutrition*, 13(6), 797.
- Bronfenbrenner, U. (1999). Environments in developmental perspective: theoretical and operational models. In S. Frieden and T. Wachs (Eds.), *Measuring environment across the lifespan: Emerging methods and concepts* (pp. 3-28). Washington, DC: American Psychological Association Press.
- Butte, N., Fox, M.K., Briefel, R., Siega-Riz, A., Dwyer, J., Deming, D., and Reidy, K. (2010). Nutrient Intakes of US Infants, Toddlers, and Preschoolers Meet or Exceed Dietary Reference Intakes. *Journal of the American Dietetic Association*, 110, S27-S37.
- Cawley, J., and Liu, F. (2012). Maternal employment and childhood obesity: A search for mechanisms in time use data. *Economics and Human Biology*, 10, 352-364.
- Cherlin, A. J. (2005). American marriage in the early twenty-first century. *The Future of Children*, 15(2), 33-55.
- Crepinsek, M. K., and Burstein, N. R. (2004). Maternal employment and children's nutrition. Report No. E-FAN-04-006-2, Economic Research Service, U.S. Department of Agriculture, Washington, DC.
- D'Vera Cohn, J. S. P., Wang, W., and Livingston, G. (2011). Barely half of US adults are married—A record low. *Pew Research Social & Demographic Trends*. Retrieved June 10, 2013 from <http://media.al.com/bn/other/Marriage-report-Pew-Research-Center-Dec-2011.pdf>

Devine, C.M., Jastran, M., Jabs, J., Wethington, E., Farrell, T.J., and Bisogni, C.A. (2006). "A lot of sacrifices": Work-family spillover and the food-choice coping strategies of income employed parents. *Social Science and Medicine*, 63, 2591-2603.

Devine, C.M., Farrell, T.J., Blake, C.E., Jastran, M., Wethington, E. and Bisogni, C.A. (2009). Work conditions and the food choice coping strategies of employed parents. *Journal of Nutrition Education and Behavior*, 41(5), 365-370.

Folkman, S. and Moskowitz, J. T. (2004). Coping: Pitfalls and promise. *Annual Review of Psychology*, 55, 745-774.

Ford, C.N., Slining, M.M., and Popkin, B.M. (2013). Trends in Dietary Intake among US 2- to 6-Year-Old Children, 1989-2008. *Journal of the Academy of Nutrition and Dietetics*, 113, 35-42.

Fungwe, T., Guenther, P.M., Juan, W., Hiza, H., Lino, M. (2009). The Quality of Children's Diets in 2003-2004 as Measured by the Healthy Eating Index-2005. *Nutrition Insight* 43, U.S. Department of Agriculture, Center for Nutrition Policy and Promotion.

Fulkerson, J. A., Nelson, M. C., Lytle, L., Moe, S., Heitzler, C., and Pasch, K. E. (2008). The validation of a home food inventory. *International Journal of Behavioral Nutrition and Physical Activity*, 5(1), 55.

Glanz, K., Rimer, B. K., and Viswanath, K. (Eds.). (2015). *Health behavior: Theory, research, and practice*. John Wiley and Sons.

Grzywacz, J., Almeida, D., Neupert, S., and Ettner, S. (2004). Socioeconomic Status and Health: A Micro-level Analysis of Exposure and Vulnerability to Daily Stressors. *Journal of Health and Social Behavior*, 45(1).

Guba, E. G. and Lincoln, Y. S. (1994). Competing paradigms in qualitative research. *Handbook of qualitative research*, 2(163-194), 105.

Hardy, B. and Ziliak, J. P. (2014). Decomposing trends in income volatility: the "wild ride" at the top and bottom. *Economic Inquiry*, 52(1), 459-476.

Head Start. (2012). Head Start Program Facts Fiscal Year 2012. Retrieved July 6, 2013 from <http://eclkc.ohs.acf.hhs.gov/hslc/mr/factsheets/2012-hs-program-factsheet.html>.

Kirkpatrick, S.I., Dodd, K.W., Reedy, J., and Krebs-Smith, S.M. (2012). Income and race/ethnicity are associated with adherence to food-based dietary guidance among US adults and children. *Journal of the Academy of Nutrition and Dietetics*, 112(5), 624-635.

Kuo, J. C. L. and Raley, R. K. (2016). Diverging Patterns of Union Transition Among Cohabitors by Race/Ethnicity and Education: Trends and Marital Intentions in the United States. *Demography*, 1-15.

Larson, N. and Story, M. (2009). A review of environmental influences on food choices. *Annals of Behavioral Medicine*, 38(1), 56-73.

Laughlin, L. (2013). Who's minding the kids? Child care arrangements: Spring 2011. Current Population Reports, P70-135. Washington, DC: US Census Bureau.

Lazarus, R. and Folkman, L. (1984). *Stress, Appraisal, and Coping*. New York: Springer Publishing Company.

Leung, C.W., Blumenthal, S.J., Hoffnagle, E.E., Jensen, H.H., Foerster, S.B., Nestle, M., ... and Willett, W.C. (2013). Associations of food stamp participation with dietary quality and obesity in children. *Pediatrics*, 131(3), 463-472.

McLanahan, S. (2004). Diverging destinies: How children are faring under the second demographic transition. *Demography*, 41(4), 607-627.

McLanahan, S. and Percheski, C. (2008). Family Structure and the Reproduction of Inequalities. *Annual Review of Sociology*, 34 (257-76).

Moen, P. (1992). *Women's Two Roles: A Contemporary Dilemma*. Westport, CT: Auburn House.

Nicklas, T.A., Baranowski, T., Baranowski, J.C., Cullen, K., Rittenberry, L., and Olvera, N. (2001). Family and child-care provider influences on preschool children's fruit, juice, and vegetable consumption. *Nutrition Reviews*, 59(7).

Parks, E., Kumanyika, S., Moore, R., Stettler, N., Wrotniak, B, and Kazak, A. (2012). Influence of stress in parents on child obesity and related behaviors. *Pediatrics*, 130(5), e1096-e1104.

Piernas, C. and Popkin, B.M. (2010). Trends in Snacking Among Children. *Health Affairs*, 29(3), 398-404.

Povich, D., Roberts, B., and Mather, M. (2013). Low-Income Working Mothers and State Policy: Investing for a Better Economic Future. *Policy Brief. The Working Poor Families Project*. Retrieved from http://www.workingpoorfamilies.org/wp-content/uploads/2014/02/WFPF_Low-Income-Working-Mothers-Report_021214.pdf.

Presser, H.B. and Cox, A.G. (1997). Work Schedules of Low-educated American Women and the Welfare Reform. *Monthly Labor Review* (April): 25-34.

Raley, R. K., Sweeney, M. M. and Wondra, D. (2015). The growing racial and ethnic divide in US marriage patterns. *The Future of children/Center for the Future of Children, the David and Lucile Packard Foundation*, 25(2), 89.

Robert Wood Johnson Foundation (RWJF). (2013). County Health Rankings and Roadmaps. Retrieved April 5, 2013 from www.countyhealthrankings.org/app/new-york/2013/cortland/county/outcomes/overall/snapshot/by-rank.

Roy, K.M., Tubbs, C.Y., and Burton, L.M. (2004). Don't Have No Time: Daily Rhythms and the Organization of Time for Low-Income Family. *Family Relations*, 53, 168-178.

Serido, J., Almeida, D.M., and Wethington, E. (2004). Chronic Stressors and Daily Hassles: Unique and Interactive Relationships with Psychological Distress. *Journal of Health and Social Behavior*, 45(1), 17-33.

Story, M., Neumark-Sztainer, D., and French, S. (2002). Individual and environmental influences on adolescent eating behaviors. *Journal of the American Dietetic Association*, 102(3), S40-S51.

Strauss, A. and Corbin, J. (1994). Grounded theory methodology. *Handbook of qualitative research*, 273-285.

Tashakkori, A. and Teddlie, C. (1998). *Mixed Methodology. Combining Qualitative and Quantitative Approaches*. Thousand Oaks, CA: Sage.

Thoits, P. (1995). Stress, Coping, and Social Support Processes: Where Are We? What Next? *Journal of Health and Social Behavior* (Extra Issue)

Turner, R.J., Wheaton, B., and Lloyd, D. (1995). The Epidemiology of Social Stress. *American Sociological Review*, 60(1), 104-125.

U.S. Bureau of Labor Statistics. (2016). Working Mothers Issue Brief. Retrieved June 22, 2016 from https://www.dol.gov/wb/resources/WB_WorkingMothers_508_FinalJune13.pdf.

U.S. Census Bureau. (2013). State and County Quick Facts. Retrieved June 6, 2013 from <http://quickfacts.census.gov/qfd/states/36/36023.html>.

U.S. Department of Health and Human Services. (2013). Healthy People 2020. Office of Disease Prevention and Health Promotion. Washington, DC. Retrieved April 15, 2013 from <http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=29>

White House Taskforce on Childhood Obesity. (2010). Solving the Problem of Childhood Obesity Within a Generation.

Zelizer, V. (1985). Pricing the Priceless Child: The Changing Social Value of Children. New York: Basic Books.

CHAPTER 2

“DOING OUR BEST TO KEEP A ROUTINE”: EXAMINING HOW MOTHERS MANAGE CHILD FEEDING WITH UNPREDICTABLE WORK AND FAMILY SCHEDULES

2.1 Abstract

The objective was to understand how low-income mothers experience feeding young children. A purposive sample of twenty-two low-income working mothers was recruited to participate in a semi-structured, in-depth interview about feeding their child between September 2013 and September 2014. Participants had children ranging from 3 to 4 years old who were newly enrolled in a rural county Head Start program in Upstate New York. All participants were employed and/or in school at least 20 hours a week and were sampled to vary in family (single or partnered) and household (living alone or with other adults) structure. Data analysis, based on the constant comparative method of qualitative analysis, used open-coding to identify emergent themes from transcripts of audio-recorded interviews. Three emergent child-feeding routines were identified. These routines required synchronization between the daily schedules of mothers, their children, and other household members. The multiple levels of influence shaping mothers' child feeding routines included work, family, childcare, and macro-socioeconomic factors. Social support and work schedule predictability helped mothers maintain child-feeding routines. On the other hand, unexpected daily events, such as working overtime and waking up late, disrupted usual feeding routines and required mothers to modify how they fed their children. The identification of emergent child feeding routines contributes to the understanding of how low-income parents, particularly mothers, feed young children in daily life. The multiple levels of influence shaping young children's food and eating are illustrated by demonstrating how work

and family conditions shape mothers' child feeding routines. These conditions—for example the predictability of parent's work schedules or the involvement of other adults in feeding—are an area ripe for future research on child feeding. By taking these work and family factors into account, food and nutrition programs and policies can be tailored to the realities of low-income parents to support improvements in low-income children's diets. This research was supported by funds from the US Department of Agriculture HATCH NYC-399428 and the Cornell University Division of Nutritional Sciences.

2.2 Introduction

The United States finds itself at a critical moment when it comes to child health and nutrition. Nationwide, U.S. children do not currently meet dietary recommendations for good health (Kirkpatrick et al., 2012). Over the past three decades, there has been an increase in U.S. children's overall energy intake (Ford et al., 2013), in their intake of foods high in added sugars and solid fats (Ford et al., 2013), and in their frequency of snacking and calories consumed from snacks (Piernas and Popkin, 2010). Although there have been small increases in children's consumption of fruits, this is not the case for vegetables (Ford et al., 2013). Low-income children are less likely than their higher-income counterparts to meet dietary recommendations (Kirkpatrick et al., 2012; Leung et al., 2013).

The changes in children's diets have coincided with dramatic shifts in U.S. work and family life. Around-the-clock, non-standard employment (i.e. working on weekends and evenings) in service occupations has become increasingly common, especially among income working mothers (Presser and Cox, 1997). It is no coincidence that these changes in employment have occurred alongside changes in family structure. In what has come to be known as the “second demographic transition,” U.S. families have over the last 30 years have

been characterized by decreasing rates of marriage and increasing rates of cohabitation, divorce, and non-marital childbearing (Cherlin, 2010). These changes in work and family life have created greater familial and financial instability, particularly for low-income families. This, in turn, has had significant implications for the resources central to child feeding.

In the U.S., approximately 64% of mothers with preschool-age children are employed (U.S. Bureau of Labor Statistics, 2014). Working mothers of young children compared to mothers of older children are most likely to feel that they lack time to do everything they need or want to do (Jacobs and Gerson, 2004), and working mothers as a whole report spending the least amount of time on household food preparation (Mancino and Newman, 2007). Low-income working mothers are overrepresented in jobs where workers have little control over employment conditions or schedules, making it especially difficult to plan and prepare meals (Devine et al., 2006). As a result, feeding young children is difficult for low-income working mothers precisely because they have neither the financial nor time resources to feed their children as they would like, or in ways that meet the dietary recommendations for children's health.

The impact that changes in work and family conditions have had on child nutrition can be observed in the occurrence of family mealtimes. Mealtimes organize family life and bring people together (DeVault, 1991), all the while shaping children's eating habits as parents provide food and interact with their children. A low frequency of weekly family meals has been associated with increased risk for overweight or obesity (Sen, 2006) and poorer dietary quality (Gillman et al., 2000) among non-Hispanic white children and adolescents. Since 1999, the frequency of shared mealtimes has declined (Nicklas et al., 2004), with the greatest drop occurring among low-socioeconomic households (Neumark-Sztainer et al., 2013). Although parents agree that eating together is important, they report that work and family schedules make

it difficult to do so (Devine et al., 2006; Fulkerson et al., 2011).

Yet family dinner meals are only one aspect of feeding children. The increased pressures on low-income working families that have accompanied changes in U.S. work and family life have engendered a number of factors with critical implications for how low-income parents, particularly mothers, feed their young children. Despite this understanding, there remains a lack of in-depth research into the specific role that work and family conditions play in young child feeding. This study was undertaken with the goal of addressing this research gap, by advancing an understanding of how low-income working mothers in particular feed their children in daily life. Working and student mothers of Head Start children were recruited to participate because they were expected to have limited time and financial resources for feeding their children (McLanahan, 2004), and because the preschool years are important for establishing children's future food habits (Birch and Fisher, 1998).

2.3 Methods

2.3.1 *Participants*

This study relied on a purposive sample of 22 low-income women who were employed or in school at least 20 hours a week, and who had a child between 3 and 4 years old new to Head Start, a federally funded preschool program for low-income children and families (Table 2.1). The Head Start program involved was located in a small city within a rural Upstate New York county. Employed and student mothers were selected because in U.S. families, women retain primary responsibility for feeding children even when faced with other work and family responsibilities and pressures (Bianchi, 2011; Jacobs and Gerson, 2004).

The mothers in this study predominately self-identified as non-Hispanic white, which is consistent with the demographic characteristics of the county where the study was located.

Table 2.1 Demographic characteristics of low-income working/student mothers participating in the two qualitative in-depth interviews (N=22)

Age, years	30.3 (23-44)
Race	
Non-Hispanic white only	19
Race other than non-Hispanic white	3
Education	
High school graduate or GED	6
Some college	14
College graduate	2
Household situation	
Mother lives alone with child or alone with child and siblings < 18 yrs. of age	5
Mother lives with child and other adult relatives, child's grandparents or older siblings > 18 yrs. of age	6
Mothers lives with child and spouse or non-married partner	11
Job types	
Health care	7
Food service and/or retail	9
Other (construction, childcare, farming, etc.)	6
School	3
Job and/or school hours in a typical week	
20 to 40 hours per week	6
40 or more hours per week	16
Job/school schedule in a typical week	
Varied	14
Same	8
Food Assistance	
WIC only	2
SNAP only	5
Both	11
Neither	4
Money situation	
Comfortable/Enough no extras	14
Have to cut back/Cannot afford	8

GED = General Education Diploma

Mothers ranged between 23 and 44 years of age. Most mothers had some college education and worked in administrative, healthcare, food retail and service, and other retail occupations. All mothers worked at least part-time. Two mothers were full-time students and were also employed part-time in childcare and agriculture respectively. One mother was a part-time student and a part-time retail employee. Fourteen mothers had a varied weekly schedule for work/school. Only eight mothers had the same work/school schedules each week.

With regard to family conditions, the average number of adults in mothers' households was two, and the average number of people under 18 years of age was three. Ten mothers lived with their child and a husband or boyfriend, five mothers lived alone with their child, and seven mothers lived with their child and either their own parent, an adult child, or their spouse and another adult relative. Three mothers said that they split meal responsibilities with another adult in their household and one mother said that she split meal responsibilities with her child's babysitter.

In term of other socioeconomic conditions, only four mothers did not participate in either Supplemental Nutrition Assistance Program (SNAP) or the Women Infant and Children's Nutrition Program (WIC). Many mothers talked about not having enough money to buy the foods they wanted for their child. For example, they spoke about wanting to be able to buy better quality snacks, more fresh fruits and vegetables in larger amounts, and/or a greater variety of foods to provide new experiences, but said that money was too tight. Only one mother described her money situation as "comfortable with some extras."

2.3.2 Data Collection

A grounded theory design (Bryant and Charmaz, 2007) was used to help conceptualize mothers' daily experiences in feeding preschool children. Semi-structured, in-depth interviews included open-ended questions to elicit mothers' perspectives on their satisfaction with work and

family roles, day-to-day work and family schedules, children's eating behaviors and preferences, and children's food and eating the day prior to the interview (See Appendix A). Role theory (Moen, 1992) and a bio ecological model of child development (Bronfenbrenner, 1994) guided the open-ended questions. Interview guides were pre-tested with a similar group of mothers for comprehension and readability.

Participants were recruited in person by the first and second authors during pick-up and drop-off times at the Head Start program in two separate waves. The first wave of recruitment took place in September 2013 and the second wave of recruitment took place September 2014. At the time of recruitment, both the first and second authors held masters degrees in nutrition and were married. The first author self-identified as a woman of color and the second author self-identified as white. The first author conducted all interviews in English, either in a private room at the Head Start program or in participants' homes, and completed detailed field notes following each interview. Interviews lasted between 40 and 60 minutes and were audio-recorded. These recordings were transcribed verbatim by a professional transcriptionist, and verified for accuracy by the first and second authors. Participants filled out a short demographic questionnaire at the end of the interview to report child gender and age, as well as their own level of education, household food role, employment status, marital status, financial situation, the number of people involved in managing household, home and work demands, and strategies for managing food and eating (Appendix B). Study participants provided written informed consent prior to the interview and received \$20 on completion of the interview. Sample recruitment ceased when the interviews with new participants began to yield no new information (Sobal, 2001). The Cornell University Institutional Review Board approved all study procedures.

2.3.3 Data Analysis

Version 7 of Atlas.ti (Scientific Software Development, GmbH, Berlin, Germany) was used to identify, organize, and code data. The constant comparative method (Strauss and Corbin, 2008) was used to iteratively develop conceptually coherent interview codes. Analytic steps included: (1) team review of all transcripts; (2) open coding for emergent themes; (3) iterative coding of emergent themes; (4) re-analysis to compare and contrast interpretation and themes upon assessment of thematic differences in child feeding experiences; (5) selective review of work and family characteristics associated with child feeding experiences; (6) categorization of child feeding experiences into three typologies; (7) comparison of child feeding typologies and work and family characteristics; and (8) interpretation of findings in the context of existing research.

2.4 Findings

Mothers discussed repetition in contexts for feeding and in how and what children were fed. Mothers used the terms “routines,” “usually,” “normally,” and “always” to describe situations when they or others offered children food and beverages. Mothers’ expressions of how children were fed were termed *child feeding routines*. Child feeding routines were categorized into three emergent typologies. Mothers’ child feeding routines contained an interconnected set of strategies that were embedded in their work, family, and childcare contexts and which helped them accomplish important goals for themselves and their children. These routines had implications for their feelings about feeding their child and what children consumed.

In what follows, the findings surrounding mothers' descriptions of their child feeding routines will first be presented, followed by the contextual influences shaping child feeding routines and how mothers used their child feeding routines.

2.4.1 Types of child feeding routines

Mothers' daily experiences feeding children revealed three distinct child feeding routines that were labeled "All meals...we eat together" ("Together"), "We always...sit down if we can" ("If We Can"), and "We got a whole bunch of people involved" ("Bunch of people involved") (Table 2.2).

Table 2.2 Supporting quotations related to emergent child feeding routine typologies (N=22)

Routine typology	Supporting quotations
Together (n=11)	We do always have TV off at dinner... usually I take out whatever we're going to have if it's meat or whatever in the morning so by the time we get home you know I get, start to get everything ready between 4 and 4:30 and dinner's usually done by 5 or 5:30 and we're eating... and then...we go through the backpacks, it's usually about 6 at this point. Between 6 and 6:30 they get the TV on for a half hour, bath and bed.
	It's supertime, it's we converse you know pretty much all meals are we eat together. We don't do the whole sit-in-the-living-room thing or anything like that.
If We Can (n=7)	We usually have dinner at the table, the three of us together. And if my husband's here, he'll join us.
	It's usually just [my son] and I sitting down to eat dinner or, you know, him eating a sandwich as he's going about the house or wanting to go back outside and play.
Bunch of people involved (n=4)	[Sitting down and eating together] varies... because I don't have a set schedule at either job usually. Well I will come Friday at the diner but like I said because they've been cutting my hours, they've been putting other people in the hotel to fill in for my position so it's hard to say... None of us have set schedules there anymore.
	Dinner, that was just us 'cause [my husband] was at work...But now it's just, we pretty much eat everything in the living room. Occasionally, I'll actually clean off the kitchen table it's kind of shoved in the corner, there's not really a designated place for it (chuckle)...[My daughter] has her little chair that she pulls up to the coffee table though and sits.

Mothers developed workable child feeding routines by using a set of interconnected strategies that included planning ahead, delegating child feeding to others, coordinating child feeding with other responsibilities, and making trade-offs. The routine types differed according to the scope of strategies that mothers used and the context of children's eating episodes (Table 2.3). Mothers were required to adapt their child feeding routines in response to unexpected daily events. Each of the three child feeding routine typologies is described below.

The 11 mothers who used a "Together" child feeding routine described regularly sitting and eating morning and evening meals together with their child. Most mothers with a "Together" routine had other children living at home and lived with a partner/spouse or parent. Only one of these mothers lived alone with her Head Start-aged son and his older brother. Mothers using a "Together" routine discussed having rules for what, where, how much, and when children could eat and drink. Most of these mothers provided their children a limited range of food and beverage options for snacks and meals. These mothers required children to eat "core meals"-- a term one mother used to refer to breakfast, lunch and dinner-- at the table with the television off, but usually allowed children to eat snacks where they wanted.

These mothers also described a set schedule for children's snacks and meals. Andrea, a mom of two living with her boyfriend and working part-time overnights as a home health aide, described how she fed her Head Start son and his older sister on a typical weeknight by saying, "I make dinner and we always sit down family style, we always sit at the table and [the kids] serve themselves." Feeding children snacks and meals was just one aspect of mothers' child feeding routines. Mothers with a "Together" routine also discussed how they purchased the "same snacks every week" and shopped for food weekly, usually on the same day.

Table 2.3 Emergent child feeding routine typologies, usual routine strategies, and children's food and eating (N=22)

Routine typology	Routine strategies	What it means for children's food and eating
Together (n=11)	<p><u>Planning</u>: Plan snacks and meals a week ahead, make bigger meals on days off, regularly scheduled meal time, shop weekly</p> <p><u>Coordination</u>: Synchronize activities with child feeding</p> <p><u>Trade-off</u>: Eat leftovers on hectic days, make same or different meals for child, offer foods child likes but introduce new foods to try</p> <p><u>Delegation</u>: Prepare meals that child's father, grandparents, or siblings who live at home will serve child up to 2x/weekly</p>	<p>Child offered fruits, vegetables, juice, milk for snacks and meals</p> <p>Dinner eaten with most family members >1x/week</p> <p>Dinner meals at table</p> <p>TV usually off for dinner meals</p>
If We Can (n=7)	<p><u>Planning</u>: Plan snacks and meals day-of, meal time fall within range of times, shop on days off</p> <p><u>Coordination</u>: Juggle competing activities with child feeding</p> <p><u>Trade-off</u>: Eat take-out or fast food on hectic days, miss meals with child, buy foods child likes, don't force child to eat foods they don't like</p> <p><u>Delegation</u>: Leave child food and eating up to grandparents and fathers not living at home up to 3x/weekly</p>	<p>Child offered high fat, high salt foods, sugar-sweetened beverages for snacks and meals</p> <p>Dinner eaten with most family members <1x/week</p> <p>TV on for most meals and snacks</p>
Bunch of people involved (n=4)	<p><u>Planning</u>: Plan snacks and meals on the fly, meal times vary, shop on days off and when money is available</p> <p><u>Coordination</u>: Manage conflicting activities with child feeding</p> <p><u>Trade-off</u>: Skip meals for self, miss meals with child</p> <p><u>Delegation</u>: Friends or neighbors feed child, provide quick and convenient food for own and other children 3+x/ weekly</p>	<p>Child offered high fat, high salt foods, sugar-sweetened beverages for snacks and meals</p> <p>Child may be fed twice</p> <p>Child eats with other adults and children >1x/week</p> <p>TV on for most meals and snacks</p>

The seven mothers who described an “If We Can” child feeding routine expressed the aspiration to eat meals together with their child, something they were only sometimes able to achieve. Jessica, a married full-time student and part-time agricultural worker with one son in Head Start and three older children, spoke about her aspirations for her children’s meals in this way: “It’s just because the schedule. It’s like I would like every night to be a family dinner but it just doesn’t work.”

Mothers with an “If We Can” routine described some rules for what and where their child could eat and drink. Three of these seven mothers described living situations in which they did not have a kitchen or dining room table and therefore fed children snacks and meals in the living room. Explaining where she fed her son and his younger sister, the single, full-time working allied healthcare professional Cassidy said, “Because we moved...we don’t have a dining room anymore so we sit in the living room.” Eating in the living room usually meant that the television was on during snacks and meals. Some of the mothers in this group allowed children to eat meals in the living room depending on the meal. Tracy, a married mother of two working part-time doing childcare and a full-time student, spoke about her son’s morning meals: “Usually he is allowed to eat [breakfast] in the living room because he’s still kind of waking up and he has his morning routine and he likes to watch a show.”

Some of these mothers also allowed their child to decide when to eat. Cassidy, spoke about how she fed her son by explaining that “I let him eat when he wants, like I don’t just schedule his times...and I used to let him eat whatever he wants but I don’t anymore.”

The four mothers who labeled their child feeding routine as a “Bunch of people involved” described themselves as being “bad at having sit-down meals” and frequently missing morning and evening meals with their child because of their work schedules. When preparing a meal,

these mothers talked about meals prepared “on the fly” or “last minute” with whatever was available at home. Three out of four of these mothers lived alone with their child(ren) and one mother lived with her daughter and a spouse/partner. Sabrina, a store manager and single mother of two daughters who worked a varied full-time schedule that frequently required her to make last minute schedule changes, described feeding her two daughters:

I just wish I had more time but I mean it’s always different. Sometimes we’ll eat at 5, sometimes we don’t get to eat until 7... between my working and their activities and everything else, we don’t really have a set schedule.

Compared to mothers with the two other types of routines, these mothers expressed more concern with buying “first week foods” such as fresh vegetables because of tight food budgets and limited meal preparation time. Christina, a single mother of two daughters working a temporary position as an allied health professional, described how working between two and four days a week for 13 hours a day shaped what she fed her daughters, “A big huge concern is preserving [fresh vegetables]. Will it last until I can get to it? And then the price...our budget is pretty limited.”

2.4.2 Strategy for planning ahead

Mothers talked about the various ways they managed children’s meals and snacks, which consisted of weekly, daily, or infrequent planning. Most mothers who described a “Together” routine discussed regularly planning ahead by cooking bigger dinner meals on days off, using left overs on particularly busy days, deciding on children’s snacks and meals at the beginning of the week, and talking with children ahead of time, typically in the morning, about what was going to be offered for dinner. Planning made days less hectic for these mothers. For example, Sasha, a mother of four who was a part-time student and a part-time sales associate with an evening work schedule, said, “I just find it to be easier if it’s set and ready to go especially for dinner for some reason, my evenings seem to be crazy.”

Mothers who described an “If We Can” routine regularly planned for meals “day by day.” And finally, mothers who described a “Bunch of people involved” routine were least likely to use plans. Adriana, a mother of one daughter with a “Bunch of people involved” routine who worked a varied part-time evening schedule as a grocery cashier and whose husband worked an evening schedule that also varied week to week, said, “I’m horrible about planning [meals] out but that’s because like our schedules change so much.”

All mothers described how they had to change plans for feeding children in response to unexpected day-to-day events. Waking up late, running last minute errands, staying late at work, attending family functions, or dealing with sick or out-of-sorts children required mothers to change their usual child feeding routines. When plans changed, mothers who described a “Together” routine talked about using leftovers instead of making a “full-out meal” or “resorting to something I may not want [my child] to eat as long as they’re eating something.” In contrast, mothers with an “If We Can” routine spoke about typically getting fast food or take-out for their child when plans were disrupted.

2.4.3 Strategy for delegating child feeding to others

Mothers spoke about delegating children’s food and eating to other adults when they were at work or school. Mothers’ delegates included Head Start, spouses/partners, grandparents, older siblings, other relatives, and friends. Delegates ranged in their involvement from reheating and serving meals made by mothers, to cooking the meals they fed children—often without mothers knowing or asking what their children ate.

Most mothers who described a “Together” routine reported usually preparing and feeding children’s meals most days of the week with a few exceptions. Of these mothers, 2 out of 11 missed evening meals with their child on the same days each week because of conflicting work and/or school schedules. These mothers lived with other adults who they could rely on to feed

their child. For example, one mother prepared meals for her boyfriend or mother to reheat and serve her child, while another mother had a spouse who was a chef and cooked for their children when she was at school. Most mothers with an “If We Can” routine talked about getting help two or more days a week from other adults who did not live with them, including their child’s father, aunts/uncles, grandparents, and friends or neighbors. These mothers routinely left food choices and preparing meals up to these adults. Jessica, a mother of one Head Start-aged son and three older children, spoke about her children’s mealtimes while she was at school and her husband was at work: “Usually it’s my uncle with them...He’ll cook for ‘em but it’s just, you know, simple things—not typically boxed but they’re just quick easy meals.” Most mothers with an “If We Can” routine said that how and what these other adults fed their child was “different” compared to mothers and that “it makes you wonder” what the child ate when these other adults fed their child.

Mothers with a “Bunch of people involved” routine spoke about getting feeding help on a daily basis from other adults who did not live with them, including children’s fathers, grandparents, and babysitters. A couple of these mothers spoke about providing quick, convenient foods to these other adults to feed their child. These mothers hoped that their children were being fed well, but said they often did not know or ask about what their child ate. Vanessa, a single mother working two part-time jobs in food service and hospitality, spoke about why she didn’t ask her child’s father about what her son ate when he was with him:

I try to pick my battles at that point ‘cause you know having them, having [child’s father] in their life is more important than fighting with him over being in their life so if they have a good time, they’re safe and they come home (chuckle) that’s what matters (chuckle) really.

2.4.4 Strategy for making trade-offs

Mothers who described “If We Can” and “Bunch of people involved” types of routines were most likely to discuss trade-offs in what they fed children and in eating sit-down meals with their child. These mothers expressed that it was “not realistic” to feed their child what they had hoped to because they were often too tired or had too little time to plan. Danielle, a mother with an “If We Can” routine, expressed how she felt about the trade-offs she made when feeding her son:

I guess it’s fifty-fifty...Usually I’m so tired [from working] that if there’s nothing or we hadn’t planned anything then I kind of...just go with the easy stuff and I’d rather not do that ‘cause I mean, you know, it’s not healthy for him.

All mothers discussed missing breakfast and lunch meals with their child during the week because their child ate these meals at Head Start, and/or because of work and school schedules, although they also felt that missing these meals was not ideal. Many mothers also spoke about missing dinner meals because of work and school schedules. Three mothers with a “Together” routine missed two or more evening meals with their child each week, whereas most mothers with “If We Can” and “Bunch of people involved” routines spoke about missing at least two evening meals each week. Sabrina, a single mom of two with a “Bunch of people involved” routine, talked about the difficulty of feeding her daughters with a demanding work schedule:

It’s just hard. I’m always working, so they don’t get exactly everything that they should have in every single meal. But I do try to make [vegetables] when we do have a nice actual home-cooked meal.

2.4.5 Strategy for coordinating with other responsibilities and activities

Mothers regularly coordinated their child feeding responsibilities with other activities and responsibilities. Sasha, a partnered mother with a “Together” routine, described how she coordinated transportation, school, and childcare with her feeding her son:

I normally would go home [after dropping my son off at Head Start] and that's when I try to do any housework, or depending on the day I will do my schoolwork...I do try to get dinner at least prepped...Normally I will have it prepped but sometimes I have to run to the store to grab items that I need... You don't think it would take long but it does take (chuckle) most of my day...So then by like 2 or 2:15 I'm back [at Head Start]...

Mothers talked about juggling competing activities, such as doing chores, while children ate. Danielle, a single mother of one son working a varied, full-time schedule as a nursing assistant while temporarily living with her cousin, described her "If We Can" routine as follows:

Usually I eat dinner with [my son] but the days that I work I usually have to come right [to Head Start], pick him up, and then I go home and I try to get [chores] done, so I don't eat with him.

To conclude, mothers who used a "Together" routine successfully synchronized daily activities and responsibilities with their child feeding responsibilities. Mothers with an "If We Can" routine synchronized activities and child feeding responsibilities when they could, but were most likely to multitask during meals. Mothers with a "Bunch of people involved" routine were least likely to use coordination regularly because of the unpredictable and constantly changing work and family schedules they reported.

2.4.6 Multiple levels of influence on child feeding routines

Mothers' child feeding routines were embedded in work, family, and childcare environments, and were linked to larger social and economic circumstances (Table 5.1).

The timing and predictability of mothers' weekly work and school schedules shaped their ability to eat meals with their child and the types of foods they offered. Most mothers described working nonstandard schedules requiring weekday evenings and overnights and weekends. Mothers employed in healthcare, retail, and food service occupations were likely to work evening hours. These mothers expressed feeling "crunched" for time on evenings when they had work or school because they also had to transport family members, finish schoolwork, do chores, and catch up on sleep, in addition to making sure that their child was fed before leaving for work

or school. On these evenings, mothers explained that they missed meals with their child altogether and/or made meals they could “throw together real quick” such as pasta and sauce, hamburgers, hotdogs, macaroni and cheese, or leftovers.

Having work and school schedules that remained constant week to week helped mothers maintain daily routines for children’s food and eating. For example, mothers with a “Together” routine discussed having unchanging weekly work and school schedules, while also describing a “set schedule” for children’s snacks and meals. Mothers with an “If We Can” routine discussed “crazy” and “insane” work and school schedules that varied from week to week and regularly conflicted with time for feeding children. Mothers who described a “Bunch of people involved” routine discussed having fluctuating weekly work hours that changed with little notice, leaving them with “not a lot of room for structure.”

For mothers who lived with spouses/partners and/or other adults, the preferences and schedule obligations of these other household members also shaped child feeding routines. Mothers who described a “Together” routine spoke about living with spouse/partners, grandparents, and/or older children who they could “tell what to do” and who “takes whatever I say [about feeding my child] and does it.” These mothers arranged their schedules with other family members so that work time did not conflict with time for feeding children, and so that children ate meals with most family members most mornings and evenings.

Not all mothers lived with another adult. Three of the four mothers describing a “Bunch of people involved” routine lived alone with their child(ren). Christina, a single mother of two daughters working a constantly changing schedule as an allied health professional, spoke about what it was like to not have someone else to share meal responsibilities with:

Sometimes I'm just too tired to cook during the week...[My children's father] is not here 'cause he would help me cook a lot. Now that he's not here I'm like, 'Oh well, just get milk and have a bowl cereal for supper.

However, having another adult at home did not guarantee that mothers had help with feeding children. Several mothers who described an "If We Can" routine spoke about living with a partner/spouse or another adult who "can do Ramen...but that's about it," who "goes out of town every other week for four days," or who they "don't really ask" to help feed their child. Mothers with an "If We Can" routine were most likely to describe how their own or other family members' schedules conflicted with their time for feeding children. Therefore, most mornings and evenings children ate meals with some, but not all, family members present.

The Head Start schedule helped shape mothers' daily and weekly child feeding routines. While children were offered two meals and a snack at Head Start, most mothers said that they usually offered their child a bowl of cereal and milk or juice before Head Start because the time from when their child woke up to when they ate breakfast at Head Start was "a little stretched." Most mothers also reported that their child was regularly offered a snack after being picked up from Head Start to "tie them over" before dinner, and because mothers often didn't know what or much their child ate at Head Start. Mothers reported receiving information from Head Start teachers and staff about child feeding approaches through informal conversations, giveaways (e.g. plastic plates with My Plate guidance), printed recipes, and menus sent home with their children. Mothers with "Together" and "If We Can" routines described using the information they received to structure a similar schedule of snacks and meals at home, to negotiate with children about trying new foods or eating less-liked foods during meals, and to guide the types and amounts of foods they offered children for snacks and meals. Some mothers said that having their child fed by Head Start was "a relief budget-wise" because they could save on buying food

for their child. Overall, most mothers expressed being “very satisfied” with Head Start feeding because “they’re careful about portioning,” they “serve kids the healthiest snacks,” and they “sit with [the kids] when they eat.”

Finally, the routines of these working mothers were developed within a larger social economic context. At the time of this study, the metropolitan area in which these mothers lived had experienced many years of layoffs and downsizing of major employers (Deitz, 2005). Most mothers were employed in jobs characterized by low wages and unpredictable schedules, such as food service, retail, and healthcare which have increased (Vink, 2013). Many mothers described the strain caused by low wages and underemployment. Some mothers spoke about having their work hours cut because their employers did not want to accommodate their childcare needs or comply with requirement to provide health care coverage for full-time employees under the Affordable Care Act. Many mothers spoke about how the loss of county funding for afterschool childcare, transportation, and Head Start programming strained their ability to work the hours they needed and their capacity to coordinate child feeding and other family responsibilities.

2.4.7 Mothers’ uses of child feeding routines

Mothers described how their child feeding routines helped them to save time and money, respond to their child’s preferences, manage their child’s health and behavior, foster their child’s skills, and to connect as a family.

Mothers who described “Together” and “If We Can” routines were most likely to discuss how set routines helped save time and money. Lisa, a mother of two working part-time in the evenings and describing an “If We Can” routine, spoke about everybody eating the same meals:

I don’t have enough money to make everybody their own individual meal...If I make something, a big pot of like roast beef or something, and [my son] doesn’t like roast beef, I’m gonna at least ask him to eat two things out of it that he might like.

Wendy, a single mother living with her Head Start daughter and two older children who described a “Together” routine, discussed how weekly planning helped save time:

We make Friday night planning and Saturday grocery shopping ‘cause those are the days we can stop and think about it and just do it, and the rest of the week we don’t even have to really think about it when it’s busy and crazy (chuckle).

In addition to saving time and money, mothers used routines to accomplish other goals. For example, mothers discussed having routines for buying and offering food that children liked for snacks and meals. Responding to children’s food likes allowed mothers to avoid arguing with their child over food. Mothers who described an “If We Can” and “Bunch of people involved” routines were most likely to give in to their children’s food requests and offer foods children liked even if it was not always what they hoped their child would eat. Cassidy, a single mother who described an “If We Can” routine, spoke about her regular shopping routine for her Head Start son and his younger sister:

I buy everything they like so they can have what they like...If they don’t like it, I don’t usually get it because if I don’t have what they like, they tend to throw a fit and whine and act out.

Mothers spoke about using routines to manage their children’s food allergies and sensitivities, weight status, and behavioral issues, as well as to ensure children were getting needed vitamins and nutrients. Mothers who described a “Together” routine were most likely to use feeding routines to meet their child’s health and behavioral needs. For example, Brittney, a single mother of a hyperactive son, described how she sat with her son and his brother during meals to ensure that they stayed calm while eating.

I have to sit there... to keep them right in their chair and calm and quiet meals. It’s the only way to get them to eat because...my kids bounce off the walls.

Compared to mothers who described other types of routines, mothers who described a “Together” routine saw feeding as an opportunity to foster children’s skills. Sasha described how she encouraged her son’s independence by regularly placing snacks within his reach.

The cereal bars I’ll keep down in a lower cupboard where he can help himself...I think with him having the access to get to [the cereal bars]...he knows that is what he wants. So he can go in and get it, and start to be independent like that.

Mothers reported that eating meals together, and even involving children in preparing meals, offered ways to spend time together as a family. Most mothers with “Together” and “If We Can” routines spoke about evening mealtimes as “family time,” and about how they learned about their child’s day through mealtime conversations. Involving children in meal preparation was another way for mothers to connect with their child. Kelly, a single mother of two sons who described a “Together” routine, spoke about what it meant to involve her sons in cooking.

I feel like for me, I don’t get to spend that much time with them, so if they’re not helping me [make dinner], they’re watching TV and we’re distant...Or they’re outside when I’m trying to do something, and so I feel like [making dinner together is] a way that we all get to spend time with each other.

However, not all mothers were able to regularly involve their children in meal preparation.

Working in the evenings, working double shifts, and not having enough space in the kitchen, for example, made this kind of involvement a challenge for many mothers.

2.5 Discussion

In this qualitative analysis we sought to develop an understanding of how low-income working and/or student mothers experience feeding their children. These findings reveal distinct and recurring ways mothers feed children, and how work schedule predictability, work, conditions, and family social support, influence the recurring ways mothers feed children to accomplish goals that go beyond saving time and money.

The concept of routines for food and eating is not new (Jastran et al., 2009). Although prior research has focused on adult food and eating routines this research elucidates feeding routines for children. Child feeding routines are a useful concept for capturing the different ways in which parents feed young children. Such routines account for both the context of situations in which children are offered foods/beverages, as well as the kinds of foods/beverages children consume. Taking the situational context into account can help to identify and organize the various attributes of child feeding routines, so as to better understand how and what children are fed.

For example, mothers with child feeding routines that included setting schedules for snacks and sitting together as a family for most meals, encouraged children to try new and less preferred foods. Mothers with child feeding routines characterized by varying snack/meal times and missed meals reported that their children ate snacks and meals in front of the T.V., or that children were frequently offered foods they liked for snacks and meals, which were typically high fat, sugar and salt foods. These findings suggest that predictable and consistent feeding routines are likely to consist of practices that are nutritionally beneficial for young children.

The notion that mothers use a variety of strategies to feed their preschool-age children is supported by previous research in which employed parents were found to plan meals ahead (Jabs et al., 2009; Blake et al., 2011), coordinate other responsibilities with feeding children (Devine et al., 2009; Jabs et al., 2010; Fulkerson et al., 2011), and make trade-offs about the foods they offered (Blake et al., 2009; Devine et al., 2009; Jabs et al., 2009).

The present study expands on this existing research by revealing how the feeding strategies of low-income employed mothers of young children frequently rely on delegates, other people inside and outside of the household to feed their children. This finding is significant

because although parental role modeling is an important predictor of young children's dietary quality (Young et al., 2004), less is known about the influence of other adults on young children's food and eating. The scope and influence of non-maternal caregivers on parents' child feeding strategies and young children's food and eating is an important area for future research.

The findings that mothers' child feeding routines are linked to work schedules and who mothers live with, contributes to an understanding of how multiple levels of influence shape children's food and eating. The child feeding routines explored here were developed in response to mothers' environments, which included working in service sector jobs with unstable schedules and low wages, raising children alone or with another adult in the home, and coping with unexpected day-to-day events. The findings regarding the influences of work schedules and living with others on mothers' child feeding routines suggest that the most optimal routine strategies mothers use to manage their child feeding responsibilities, such as planning ahead and coordinating child feeding responsibilities with other activities, work best with a predictable work and/or school schedule and living with another reliable adult.

In this study, the planning and coordination of child feeding by mothers with unpredictable work and school schedules were constrained by both time and money. Previous research has found that children eat fewer family dinner meals when mothers work full time (Devine et al., 2009; Bauer et al., 2012), work in the evenings (Sliwa et al., 2015), and/or have limited control over their work schedule (Hill et al., 2013). Several qualitative studies have suggested that unpredictable work schedules interfere with the time that working parents need to effectively plan for and meet family responsibilities (Roy et al., 2004; Henly and Lambert, 2005). In this study, it was difficult for mothers with unpredictable work/school schedules to fulfill responsibilities positively associated with children's nutritional well-being, including

involving children in meal preparation, sitting and eating meals together, buying fresh fruits and vegetables, and preparing home-cooked meals.

These findings support other research suggesting that behavioral interventions that encourage parents to spend money and time preparing fresh foods and eating meals together may be especially unrealistic for low-income parents (Rose 2007; Davis and You 2011). To counter this, nutrition professionals might offer guidance that reduces both time and money requirements. Suggestions might include purchasing foods with a long shelf life that are quick to prepare, such as frozen fruits and vegetables; preparing home-cooked meals with few steps, such as one pot meals; or batch cooking when time is available. Further research is needed to establish specific recommendations that would appeal to parents.

The strengths of this study include the use of grounded theory with in-depth interviews, which allowed the findings to emerge from the point of view of low-income working mothers. Basing this study in Head Start, the nation's largest federally funded preschool program for low-income families, offers the opportunity for research translation, although findings may be different for Head Start mothers of other races and/or ethnicities living in other geographic regions. The study's limitations included reliance on a small sample of predominantly white low-income working/student mothers from a specific geographic region. Although not racially or ethnically diverse, the sample did reflect the racial and ethnic composition of the general population in the mostly rural, low-income area where the study was conducted (U.S. Census Bureau, 2015). Furthermore, the mothers who participated may have had organization in their lives that allowed them to participate, and/or limited financial circumstances that motivated their participation, while mothers who were too busy or who didn't feel that they wanted to share details of feeding their child for fear of judgment (possibly based on the perception of

dissimilarities in background with the first and second authors) likely self-selected out of the study. Mothers with less stable circumstances and mothers who are not working or in school may provide different information related to child feeding routines, as they may have less time pressures but greater financial constraints. This analysis did not specifically attempt to link children's food and beverage consumption with child feeding routines. Rather, the analysis identifies emergent child feeding patterns as a way to understand how low-income mothers feed their children in the context of their daily lives.

2.6 Conclusions

The identification of emergent child feeding routines contributes to the understanding of how low-income parents, particularly mothers, feed young children in daily life. The multilevel influences shaping young children's food and eating are illustrated by demonstrating how work and family conditions shape mothers' child feeding routines. These conditions—for example the predictability of parent's work schedules or the involvement of other adults in feeding—are an area ripe for future research on child feeding. By taking these work and family factors into account, food and nutrition programs and policies can be tailored to the realities of low-income parents to support improvements in low-income children's diets.

2.7 Acknowledgements

The authors would like to thank all Head Start staff and parents for their collaboration and participation. The first author designed the study and study materials in collaboration with the co-authors, conducted all of the qualitative interviews, and completed all of the analysis for the present chapter. The first author is grateful for the guidance from the co-authors in the

interpretation of the findings. The first author would also like to thank the co-authors and Professor Kathleen Rasmussen for their review of this dissertation chapter.

REFERENCES

- Bauer, K.W., Hearst, M.O., Escoto, K., Berge, J.M., and Neumark-Sztainer, D. (2012). Parental employment and work-family stress: Associations with family food environments. *Social Science and Medicine*, 75, 496-504.
- Bianchi, S. M. (2011). Family change and time allocation in American families. *The Annals of the American Academy of Political and Social Science*, 638(1), 21-44.
- Birch, L.L., and Fisher, J. O. (1998). Development of eating behaviors among children and adolescents. *Pediatrics*, 101(Supplement 2), 539-549.
- Blake, C.E., Devine, C.M., Wethington, E., Jastran, M., Farrell, T.J., and Bisogni, C.A. (2009). Employed parents' satisfaction with food-choice coping strategies. Influence of gender and structure. *Appetite*, 52(3), 711-719.
- Blake, C.E., Wethington, E., Farrell, T.J., Bisogni, C.A., and Devine, C.M. (2011). Behavioral Contexts, Food-Choice Coping Strategies, and Dietary Quality of a Multiethnic Sample of Employed Parents. *Journal of the American Dietetic Association*, 111(3), 401-407.
- Bronfenbrenner, U. (1994). Ecological models of human development. In: Husen, T, Postlewaite TN. (eds). *The International Encyclopedia of Education*, 2nd ed. New York: Elsevier Science.
- Bryant, A and Charmaz, K. (2007). *The SAGE Handbook of Grounded Theory*. Los Angeles, CA: SAGE Publications.
- Cherlin, A. (2010). Demographic Trends in the United States: A Review of Research in the 2000s. *Journal of Marriage and Family*. 72 (3) 403-419.
- Davis, G.C. and You, W. (2011). Not enough money or not enough time to satisfy the Thrifty Food Plan? A cost difference approach for estimating a money–time threshold. *Food Policy*, 36(2), 101-107.
- Deitz, R. (Winter 2005). The Regional Economy of Upstate New York Population Out-Migration from Upstate New York. Buffalo Branch, Federal Reserve of New York website. Retrieved on June 7, 2005 from http://www.newyorkfed.org/research/regional_economy/upstate/winter05.pdf.
- DeVault, M. (1991). *Feeding the Family: The Social Organization of Caring as Gendered Work*. Chicago: The University of Chicago Press.
- Devine, C.M., Jastran, M., Jabs, J., Wethington, E., Farrell, T.J., and Bisogni, C.A. (2006). “A lot of sacrifices”: Work-family spillover and the food-choice coping strategies of income employed parents. *Social Science and Medicine*, 63, 2591-2603.

- Devine, C.M., Farrell, T.J., Blake, C.E., Jastran, M., Wethington, E., and Bisogni, C.A. (2009). Work Conditions and the Food-Choice Coping Strategies of Employed Parents. *Journal of Nutrition Education and Behavior*, 41(5), 365-370.
- Ford, C.N., Slining M.M., and Popkin, B.M. (2013). Trends in dietary intake among US 2- to 6-year-old children, 1989-2008. *Journal of the Academy of Nutrition and Dietetics*, 113, 35-42.
- Fulkerson, J.A., Kubik, M.Y., Rydell, S., Boutelle, K.N., Garwck, A., Story, M.,...Dudovitz, B. (2011). Focus groups with working parents of school-age children: What's needed to improve family meals? *Journal of Nutrition Education and Behavior*, 43(3), 189-193.
- Gillman, M.W., Rifas-Shiman, S.L., Frazier, A.L., et al. (2000). Family dinner and diet quality among older children and adolescents. *Archives of Family Medicine*, 9(3), 235-240.
- Henly, J.R. and Lambert, S. (2005). Nonstandard work and child care needs of low-income parents. In Suzanne Bianchi, Lynne Casper, and Rosalind King (Eds.), *Work, Family, Health, and Well-Being*, pp. 472–91. Mahwah, NJ: Lawrence Erlbaum Associates.
- Hill, R., Tranby, E., Kelly, E., and Moen, P. (2013). Relieving the time squeeze? Effects of a white-collar workplace change on parents. *Journal of Marriage and Family*, 75(4), 1014-1029.
- Jabs, J., Devine, C.M., Bisogni, C.A., Farrell, T.J., Jastran, M., and Wethington, E. (2009). Trying to find the quickest way: Employed mothers' constructions of time for food. *Journal of Nutrition Education and Behavior*, 39(1), 18-25.
- Jacobs, J. and Gerson, K. (2004). *The Time Divide: Work, Family and Gender Inequality*. Cambridge, MA: Harvard University Press.
- Jastran, M., Bisogni, C.A., Sobal, J., Blake, C., and Devine, C.M. (2009). Eating routines: Embedded, value based, modifiable, and reflective. *Appetite*, 52, 127-136.
- Kirkpatrick, S., Dodd, K., Reedy, J., Krebs-Smith, S. (2012). Income and race/ethnicity are associated with adherence to food-based dietary guidance among US adults and children. *Journal of Academy of Nutrition and Dietetics*, 112, 624-635.
- Leung, C.W., Blumenthal, S.J., Hoffnagle, E.E., Jensen, H.H., Foerster, S.B., Nestle, M., ... and Willett, W.C. (2013). Associations of food stamp participation with dietary quality and obesity in children. *Pediatrics*, 131(3), 463-472.
- Mancino, L., and Newman, C. (2007). *Who Has Time To Cook? How Family Resources Influence Food Preparation (Vol. 40)*. Report for the United States Department of Agriculture.
- McLanahan, S. (2004) Diverging destinies: How children are faring under the second demographic transition. *Demography*, 41(4), 607-627.

- Moen, P. (1992). *Women's Two Roles: A Contemporary Dilemma*. New York, NY: Auburn House.
- Neumark-Sztainer, D., Wall, M., Fulkerson J., and Larson, N. (2013). Changes in the frequency of family meals from 1999 to 2010 in the homes of adolescents: trends by sociodemographic characteristics. *Journal of Adolescent Health, 52*(2), 201-206.
- Nicklas, T., Morales, M., Linares, A., et al. (2004). Children's meal patterns have changed over a 21-year period: The Bogalusa Heart Study. *Journal of the American Dietetic Association, 104*, 753-761.
- Ogden, C.L., Carroll, M.D., Curtin, L.R., Lamb, M.M., and Flegal, K.M. (2010). Prevalence of high body mass index in US children and adolescents, 2007-2008. *JAMA, 303*(3), 242-249.
- Piernas, C. and Popkin, B.M. (2010). Trends in snacking among children. *Health Affairs, 29*(3), 398-404.
- Presser, H.B. and Cox, A.G. (1997). Work Schedules of Low-educated American Women and the Welfare Reform. *Monthly Labor Review* (April): 25-34.
- Rose, D. (2007). Food stamps, the Thrifty Food Plan, and meal preparation: the importance of the time dimension for US nutrition policy. *Journal Nutrition Education and Behavior, 39*, 226-232.
- Roy, K.M., Tubbs, C.Y., and Burton, L.M. (2004). Don't have no time: Daily rhythms and the organization of time for low-income families. *Family Relations, 53*, 168-178.
- Sen, B. (2006). Frequency of family dinner and adolescent body weight status: Evidence from the national longitudinal survey of youth, 1997. *Obesity, 14*(12), 2266-2276.
- Sliwa, S.A., Must, A., Peréa, F., and Economos, C.D. (2015). Maternal employment, acculturation, and time spent in food-related behaviors among Hispanic mothers in the United States. Evidence from the American Time Use Survey. *Appetite, 87*, 10-19.
- Sobal, J. (2001). Sample extensiveness in qualitative nutrition education research. *Journal of Nutrition Education and Behavior, 33*, 184-192.
- U.S. Bureau of Labor Statistics. (2015, April 13). Employment Characteristics of Families – 2014. U.S. Retrieved on June 7, 2015 from <http://www.bls.gov/news.release/famee.nr0.htm>.
- U.S. Census Bureau. (Updated 2015, August 31). *State and County Quick Facts*. Retrieved on September 1, 2015 from <http://quickfacts.census.gov/qfd/states/>.
- Strauss, A.L. and Corbin, J. (2008). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. 3rd ed. Thousand Oaks, CA: Sage.

Vink, J. (2013). *Cortland County Profile 2013: A collection of recent demographic, social, economic, and agricultural data*. Report by the Program on Applied Demographics, Cornell University. Retrieved on June 7, 2015 from <https://pad.human.cornell.edu/profiles/Cortland.pdf>.

Young, E.M., Fors, S.W., and Hayes, D.M. (2004). Associations between perceived parent behaviors and middle school student fruit and vegetable consumption. *Journal of Nutrition Education and Behavior*, 36, 2-8.

CHAPTER 3

MOTHERS' CHANGING STRATEGIES FOR FEEDING PRESCHOOL CHILDREN IN RESPONSE TO LIFE EVENTS

3.1 Abstract

The aim of this study was to understand how changes in work and family conditions over the course of a school year influenced low-income working/student mothers' young child feeding practices. This qualitative study used a grounded theory, theory-guided approach to understand these issues from the perspective of low-income employed mothers of young children. We purposively recruited 19 low-income working/student mothers with a child in Head Start between the ages of 3 and 4 years from a rural county in Upstate New York to participate in two qualitative in-depth interviews 6 to 8 months apart. A transactional model of the stress process informed the interpretation of findings. Six types of dynamic strategic adjustment patterns for feeding young children, organized across three levels, emerged. Each pattern was linked with interconnected life events, appraisals of those events, the availability of coping resources, and adaptations to mothers' child feeding strategies. Changes in work and family situations led to increased or decreased availability of social support, time, and money. Mothers reported a large number of disruptive life events between the two interviews that led to adjustments in their child feeding strategies. Life events led to changes in work and family characteristics influential in child feeding. Future investigations should examine how life events experienced by parents, specifically related to work and family, shape young children's food and eating. It may be useful for nutrition practitioners and policymakers seeking to promote improvements in young children's diets to support approaches that promote stability in the work and family lives of low-

income parents. This research was supported by funds from the US Department of Agriculture HATCH NYC-399428 and the Cornell University Division of Nutritional Sciences.

3.2 Introduction

Adaptations to life events have important implications for health and well-being. The association between negative life events among parents (i.e. divorce, job loss) and risk of childhood obesity has been documented (Kamp Dush et al., 2013; Lumeng et al., 2013), although the mechanisms linking the two are not well understood. Parents exert a significant influence on children's weight status through their child feeding practices (Birch and Fisher, 1998). An understanding of the links between life events and adaptations in parents' young child feeding practices would inform research and interventions.

There is widespread concern among scholars, government and the public that young children in the U.S., especially those who are low-income, do not meet dietary recommendations for good health. Parents influence what young children are offered to eat (Nicklas et al., 2001; Spence et al., 2010). The previous chapter demonstrates how low-income mothers use a number of strategies to feed their children while managing work and family demands. One strategy, eating few family meals together, has been associated with poorer child weights; low consumption of fruits, vegetables, and fiber; and consumption of fried food and soda among children and adolescents (Anderson and Whitaker, 2010; Gillman et al., 2000). As highlighted in the previous chapter, predictable work schedules, work hours that do not interfere with feeding times, and the presence of other reliable adults in the home help low-income mothers maintain predictable and consistent child feeding routines which include eating family meals together often.

In addition to greater schedule unpredictability, low-income mothers are currently experiencing greater instability in work and family conditions compared to previous generations (Presser and Cox, 1997). Instability in work and family contexts, such as job loss or change of residence, can lead to changes in social roles and responsibilities, as well as physical, social, and economic resources. Life events, such as changes in residence, employment, and intimate partners have become increasingly common among low-income women with young children (Franklin, 2003; Golden 2001; Han, 2005; Bumpass and Lu, 2000). These drastic life events can fundamentally disrupt key contexts for children's development by de-stabilizing the ecological settings important for children's health and well-being (Bronfenbrenner 1979; Evans, 2004; Kamp Dush et al., 2013; Marcynyszyn et al., 2008). In prior child feeding research, work and family conditions have been conceptualized as time-stable characteristics (Bauer et al., 2012; Brannen et al., 2013; Cawley and Liu, 2012). Studying work and family conditions as they relate to child feeding in this way overlooks the dynamic nature of the social ecological influences on children's food and eating and how policy and systems changes shape children's diets. Understanding how changes in low-income mothers' work and family conditions affect their child feeding practices would provide information to improve young children's diets.

A transactional model of the stress process explains how people cope with and adapt to life's difficulties (Lazarus and Folkman, 1984). The way a person interprets life events is important because this interpretation can lead to behaviors that modify the impact of the event in question (Lazarus and Folkman, 1984). Known as "appraisal" in the psychological stress tradition, this interpretation informs a person's actions because it is based on an assessment of resources available to them (Lazarus and Folkman, 1984). Because life events cause shifts in social, financial, and time resources, they may lead to changes in how mothers feed children—a

resource intensive process. The association between life events and health have been documented in several studies (Holmes and Rahe, 1967; Lazarus and Folkman, 1984), although reports have focused on specific events (i.e. divorce, illness, injury) and health outcomes (i.e. mortality, cardiovascular disease) with little attention to the processes by which the two are linked (Kanner et al., 1981) and have focused primarily on life events experienced by middle to upper-middle income white older adult and student populations (Billing and Moos, 1981; Kanner et al., 1981; Serido et al., 2011). Understanding how life events shape low-income mothers' child feeding practices would highlight life events and processes of adaptation of importance to the health and well-being of low-income children.

The aim of this study was to understand how changes in work and family conditions over the course of a school year influenced low-income working/student mothers' young child feeding practices. This qualitative study used a grounded theory (Strauss and Corbin, 2000), theory-guided approach (Greene, 1993) to gain an understanding from the perspective of participants. Grounded theory methods are systematic inductive guidelines for analyzing and building theoretical frameworks to explain data. Such methods also incorporate theory in the design and interpretation of study findings as they emerge. A transactional model of the stress process informed the interpretation of the findings for this study (Lazarus and Folkman, 1984). Exploring how low-income mothers manage feeding children over time may help further an understanding of why children eat what they do.

3.3 Methods

3.3.1 Participants

Working and student mothers were purposively sampled through Head Start, a federally funded preschool program serving low-income children and their families, in an Upstate New

York county. Recruitment focused on finding women who had a 3- to 4-year-old child new to Head Start, were working and/or going to school at least 20 hours a week, and had varied living arrangements. This provided a sample of participants who shared the same recent life event—a child entering a new school—and similar economic circumstances, but who had potentially different home eating environments and schedules. The analysis is based on interviews with 19 mothers who participated in two in-depth interviews over a six- to eight-month period during the course of a Head Start school year. Three additional mothers were unable to be reached after multiple attempts to contact them for a second interview. At the time of the first interview, the 19 women who completed both interviews were between 23 and 44 years of age. Eighteen participants self-identified as white and one self-identified as black. Eleven of the participants were married or living with a partner. Three lived alone with their child, and five lived with their child and an adult relative. Sixteen of the participants had more than one child. The Cornell University Institutional Review Board (IRB) approved all recruitment and data collection activities.

3.3.2 Data Collection

The data analyzed for this study were collected during two in-depth qualitative interviews as part of a larger study on how low-income working mothers feed young children. The current analysis focused on mothers' descriptions of life events—particularly stability and change in job and school situations, living arrangements, childcare arrangements, spouse/partner relationships, and if applicable, spouse/partner job situations—and on changes in child feeding strategies.

Mothers were interviewed in person on two separate occasions. One trained interviewer (TA) conducted all of the interviews at times and in locations chosen by participants, such as Head Start programs or their own homes. Interviews were audio- recorded, transcribed verbatim,

and verified by the interviewer and another project staff member. Participants were informed that the project was a study of how they managed food and meals for their children.

The initial interview, conducted at the beginning of the Head Start program year, included a series of questions about work and family situations, children's food and eating, and a qualitative recall of all of the food and beverages consumed by children the day prior to the interview. The second interview, conducted six to eight months later toward the end of the Head Start program year, included questions about changes that had occurred since the prior interview, how these changes affected ways of managing food and eating for children, and the same qualitative recall. The interview guide was designed to allow participants to clarify meanings and introduce ideas not brought about by the interviewer. The interviewer used probes to explore deeper meanings. Each interview lasted about an hour.

3.3.3 Data Analysis

The transactional model of stress informed the interpretation of findings. During initial data analysis it became clear that many mothers experienced life events between their first and second interviews that appeared to influence child feeding. Subsequently, transcript passages that dealt with changes in participants' work, school, residence, childcare, and spouse/partner situations—including employment—and in children's food and meals became the focus of analysis. Using the constant comparative method (Strauss and Corbin, 2000), text passages were coded for emergent themes related to participants' experiences with these changes, paying particular attention to descriptions of how these changes affected children's food and eating. Prominent emergent themes included changes in resources for children's food and eating over time; aspects of these changes leading to positive, negative and mixed assessments of children's food and eating; and approaches for managing children's food and eating. To help interpret these themes, the researchers applied Lazarus's framework of stress, appraisal and coping. Specifically,

mothers' experiences were interpreted according to the following constructs: life events, appraisals, resources, and adaptations (Lazarus and Folkman, 1984; Marcynyszyn et al., 2008; Thoits, 1995; Wethington, 2005).

Through an iterative process of analyzing emergent themes from the data in the context of existing literature, the researchers formulated and delineated the key concepts of dynamic child feeding strategy adjustments over time (referred to as 'dynamic'), life events, appraisals, resources, and adaptations. Using these concepts, the researchers summarized the dynamics of strategy adjustments over the Head Start program year for each participant. Each participant's dynamic was then triangulated with the data from the qualitative recall on children's food eating as a practical check on the way each mother applied her child feeding strategies. The researchers then compared participants' dynamics for commonalities and differences. From this analysis, six types of dynamic patterns emerged, with all participants represented by one type. Each type of dynamic was labeled using participants' words.

3.4 Findings

During the second interview, mothers described multiple changes over the previous six to eight months in their a) job/school; b) living arrangements; c) childcare arrangements; d) spouse/partner relationships; and e) spouse or partner's job/school. These life events were described as disruptions that led to changes in mothers' existing ways of feeding their children. When they experienced disruptive life events, mothers appraised them according to available resources and then made adaptations in their child feeding strategies. Appraisals were defined as mothers' interpretations of and emotions related to these life events. The resources used to manage these life events included social support, time, and money. Adaptations included changes to behaviors related to child feeding, such as shopping, cooking, and the timing and

organization of meals. Mothers' appraisals and resources affected their ability to successfully adapt to life events. The concept of dynamic strategic adjustments was used to describe how the themes of life events, appraisals, resources, and adaptations were linked. Each dynamic was associated with interconnected life events, appraisals of those events, the availability of resources to cope with those events, and adaptations to child feeding.

3.4.1 Life events experienced by mothers

At the time of the first interview, mothers revealed complex living arrangements, work/school situations, and childcare arrangements. Many mothers spoke about recent and hoped-for changes in their situations. They described challenging living arrangements such as temporarily staying with family and friends; planning to move to a larger or cheaper place; living with cousins, aunts, and siblings; and experiencing recent separation from spouses/partners. A number of mothers hoped to change to daytime work shifts so they could be home with their children, and for job changes that would give them more predictability, better pay, and better benefits. All mothers discussed having to rely on family and friends to care for their child during times that they worked or attended school outside of Head Start hours.

At the second interview, all except one mother experienced at least one life event, with most reporting a range of between one to six events. The mother who did not experience a life event did experience a temporary change in her job schedule in between the first and second interviews, but by the second interview she had returned to her original schedule. Mothers discussed changes in their employment, school, living and childcare arrangements, spouse/partner situations, and spouse/partner employment over the past six to eight months (See Table 3.1). Their responses to these changes provided insights into how their approaches to child feeding had changed. The most commonly discussed life events were changes in

employment, including where mothers worked and their job schedules. Changes in home and family and childcare arrangements were also common among mothers.

Table 3.1 Life events experienced by low-income working/student mothers between the first and second qualitative in-depth interviews (N=19)

Life event	No. of participants
Job/school changes	
School on hold or graduated	3
Job schedule change, at same job	5
Job schedule change, at new job	7
Home and family changes	
Spouse/partner moved out	1
Moved residence	5
Lives with different individuals	7
Childcare changes	
Change in childcare situation (not including Head Start)	10
Spouse/partner changes	
Divorced from non-resident spouse/partner	1
Spouse/partner job or school schedule change	8

3.4.2 Mothers' appraisals of life events

Mothers' appraisals of life events were represented by their summaries about how they felt about these changes. Mothers appraised similar life events (e.g. moving to a different apartment or house) differently, with these ranging from positive or negative to mixed, depending on the context of the change. For example, one mother who lived alone with her two children and who was no longer working at the time of the second interview talked about how it was harder to feed her children with less income, but that she felt more organized and relaxed during mealtimes compared to when she had been working. A few mothers who experienced changes that included a job promotion and a spouse/partner's job loss expressed neither positive nor negative appraisals, because they felt that the way they fed their child stayed consistent. At

the same time, these mothers noted some changes in their child's food preferences linked to developmental changes and social environment influences at Head Start.

Participating mothers' appraisals provided insight into how life events affected their financial, emotional, social, and time resources for feeding children. They explained their views on the changes they experienced by describing impacts to their finances ("I took a little bit of a loss [in income]," or "Saving that money [from eating out less], it's like wow."); their emotional state ("[Being home 24/7] gets stressful, crazy, and overwhelming sometimes" or "I'm able to think more about things."); the availability of social support ("[My husband]'s more available to cook which is good," or "When [my partner] wasn't working, he was here to help."); and their time availability ("I get more time with my kids...that's kind of nice" or "There's a lot more 'okay lets grab this, hurry up.'"). Mothers' appraisals were either positive or negative for single life events and sometimes mixed when describing more than one life event.

3.4.3 Mothers' changing resources for feeding children

Social support was the most common resource that changed for mothers and that mothers drew upon to manage child feeding in the wake of life events. They discussed relying on grandparents, spouses/partners, friends, and older siblings to help with responsibilities such as meal planning ("[My mom and I] try to schedule all of our week's worth of food."), food shopping ("When we go shopping my mom comes with me."), paying grocery bills ("[My mom and I] just split [the grocery bill] right down the middle."), and cooking ("My friend [who I recently moved in with] cooks."). Seven participants reported changes in their sources of feeding support as a result of changes in where they lived, who lived in the household, and in having home-based child behavioral support. Two mothers discussed needing to rely more heavily on the same sources of feeding support, due to increased caregiving responsibilities and temporary job schedule changes since the first interview. Five mothers lost their previous

sources of social support because of changes to their or a spouse/partner's job schedules. In one case, feeding support was lost when an older child went off to college.

Time and money were also important resources that helped mothers manage family eating and child feeding amidst life events. Nine mothers had stopped working or had changed work schedules from evening and overnight to daytime shifts. These mothers reported having more time to prepare meals and eat with children because they were no longer "constantly running around." Three other mothers reported having less time for child feeding. One of these mothers had recently enrolled in school full time; another now had to pick up her child from Head Start, her boyfriend from work, feed her family and go to work; and the third had picked up a second job in addition to her full-time weekend job. Two mothers reported work and family changes that helped them save money because they were eating out and shopping for food less often. Two mothers who were no longer working described how the loss of income made it "really hard to get everything you need."

3.4.4 Mothers' adaptations in child feeding strategies

For the purposes of this study, adaptations are processes that influence specific behaviors around child feeding in response to life events. Mothers participating in this study described different adaptations that depended on social support, time, and money resources. For example, they described modifications in food shopping. At the time of the second interview, some mothers shopped for groceries in different stores, while others had changed the frequency of shopping or of "splurging" on fast food or ice cream. Others reported shopping with different people. Participants also spoke about adaptations in cooking, which varied according to mothers' work and school schedules, and the availability and skills of others. The adaptations in cooking included increased or decreased frequency of home-cooked meals, exchanging cooking roles with another person, speeding up preparation, and simplifying meals. Mothers whose job

schedules changed to daytime hours or who stopped working explained that they were making dinner “pretty much every night” and were more “relaxed” during mealtimes. Some also described adaptations in the timing and organization of mealtimes such as eating later, sitting and eating together, and missing meals.

Mothers who felt they had less time for feeding children at the time of the second interview talked about using time-saving child feeding strategies such as making “quick throw-together meals,” “cooking easier,” “thinking about what I’m going to make [at work],” and “once a month do a real shopping.” Mothers who stopped working and had less income took up money-saving strategies where they “buy things that we can stretch,” “have to borrow [money for food],” and “plan to go to the grocery store once or twice a month.”

3.4.5 Dynamics of mothers’ child feeding strategy adjustments over time

Most mothers adjusted their strategies for child feeding between the first and second interviews. Six types of dynamic strategic adjustment patterns grouped together by level of adjustment, emerged from mothers’ descriptions. Each mother represented by one type. These dynamic patterns grouped together by level can be summarized as “Not really a big change” and “It’s a struggle right now”; “It’s more of myself doing it” and “It’s not just me doing it”; and “A lot more quick, throw-together meals” and “Cook dinner most nights”.

At the broadest level, the three mothers who described a “Not really a big change” dynamic had work schedules that remained consistent between the first and second interviews. One mother received a job promotion with a small pay increase, but her schedule remained unchanged. Another mother in a managerial role had temporarily increased her hours to cover for other staff, but had since returned to her original schedule. All three mothers were living with other children in addition to the Head Start child. Two had spouses/partners, and one had an adult son who she relied on for meal preparation and child feeding while she was at work.

Although these mothers felt that the ways they fed their children were similar between the first and second interviews, two of them described changes in their child's food preferences. The three mothers with the "It's a struggle right now" dynamic all lived with older children aside from their Head Start child and two also lived with their spouses/partners. Two of these mothers had stopped working, and described financial challenges to child feeding due to insufficient SNAP benefits and not being able to afford gasoline to get to the store or work. One of these mothers also had a husband whose work hours were cut. Another mother, who lived with her husband, spoke about increased caregiving responsibilities for a sick parent. These mothers' child feeding strategies mainly dealt with not being able to feed their child how they wanted. For example, the two mothers experiencing financial difficulties reported buying cheaper foods that lasted longer, adults skipping meals, visiting the food pantry, and sending children with relatives for snacks and meals. The mother with increased caregiving responsibilities spoke about missing meals and relying on her husband and older daughter to feed meals to her Head Start daughter, which she felt resulted in her Head Start daughter eating less for dinner.

Mothers discussed adjustments in who was doing the feeding. The two mothers with the "It's more of myself doing it" dynamic had stopped working outside the home and going to school. One mother had decided to stay at home with her newborn, and the other had graduated from a master's program. The children of these mothers were no longer eating meals at Head Start. One mother's child refused to eat the food at Head Start and therefore ate breakfast and lunch at home. The other mother moved out of the Head Start service area and cared for her son at home. Additionally, these mothers both had spouses/partners who had increased their work hours due to seasonal changes and were therefore less available to help with meals. These mothers described mealtimes as "hectic" and reported feeling "overwhelmed" due to of this lack

of help. At the same time, since they were no longer working or in school, these mothers discussed feeling less rushed and having more time for child feeding responsibilities. They described offering their children preferred foods, and as a result felt that their children were exposed to less variety of foods than they had been at Head Start. Whereas, the five mothers with the “It’s not just me doing it” dynamic talked about how they had reduced the number of hours they worked, or had changed their work schedules, in order to have more time with their family, and because of changes in their living arrangements. These mothers described now sharing their child feeding responsibilities (including planning, shopping, paying bills, cooking, and cleaning up) with other adults at home. Four out of five of these mothers said they were “able to actually sit and eat” the evening meal with their child because of changes in who they lived with, instead of accomplishing other tasks while their child ate. One mother described how she and her husband had “reversed roles” because she changed her work schedule from overnights to days and he was now home earlier and was cooking dinner meals for the family.

Finally mothers described making adjustments at the meal level. The three mothers with the “A lot more quick, throw-together meals” dynamic described having less time for preparing and eating meals with children and planning more meals day-by-day. Two of these mothers lived alone with their child(ren). One mother was working more hours, and one had enrolled full time in school in hopes of finding a job with benefits after graduation. The third mother said that her live-in boyfriend was now going in to work earlier and getting out later, something which interfered with time for preparing family meals and feeding children. These mothers described having less time to plan, prepare, and shop for meals and therefore resorted to “cooking easier” or “throwing something together.” At the other end of the spectrum, the three mothers with the “Cook dinner most nights” dynamic experienced work and school schedule changes that

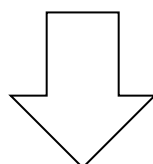
increased the frequency of cooking and eating sit-down meals together with their child each week. One mother lived alone with her two sons, the second lived with her daughter and her husband, and the third lived with her two sons, her mother, her younger sister and her child's father who had recently moved in. These mothers expressed satisfaction with their new schedules and their ability to make more meals for their child than was previously possible. Two of these mothers felt that as a result their children were eating new and different foods.

3.4.6 Case studies

Insights from two mothers (identified by pseudonym) illustrate different dynamics and the relationship between life events, appraisal, resources, and adaptations.

The first mother, Kelly, described an "It's not just me doing it" dynamic (Figure 3.1). Kelly described a large number of self-initiated life events that led to what she viewed as positive adaptations in feeding her child. At the time of the first interview, Kelly and her three-year-old daughter, Taylor, were living in an apartment with her ex-partner and her ex-partner's parents. She often took the family out to eat and described Taylor's mealtimes as chaotic. By the second interview, Kelly had moved in with her own parents, changed jobs twice, and was satisfied with her most recent job in fast food. Although her current job paid less than her previous job, it allowed her to spend more time with Taylor. Kelly felt that living with her own parents was better for her daughter's food and eating because Taylor could help cook, the family sat and ate evening meals together, and the food was fresher because her mother cooked each day. Kelly also spoke about how she was able to save money because she was eating out less and sharing feeding responsibilities like planning, shopping, and cooking, with her own mother.

Domain	Interview 1	Life Events	Interview 2
Home	Lived in home of ex-partner's parents, apartment	Moved	Lives with her own parents, smaller home
Household	Self, ex-partner, one child, ex-partner's parents	Moved	Self, one child, her parents, her brother
Family	Far from family	Moved	With family
Work	Food delivery driver, long, irregular hours, 12-hour days	Job change	Fast food, full time, predictable hours, 8-hour days
Economic	Bought food for whole household	Moved	Able to save money but makes less money



Child feeding strategy adjustment – illustrative quotes	
Appraisal	<p>“It’s much easier (chuckle) and I don’t have the long, long hours. Like I go in 10:30, 11 and then get done at 4:30, it’s nice.”</p> <p>“In a way I’m happy I don’t have six 12-hour [work days]. I like my 40 hours a week but I can see the difference with money-wise.”</p> <p>“Saving that money already, it’s like wow, I ate out this much times and all this money went to waste.”</p>
Resources	<p>“[My parents] cook somewhat better than the people I lived with, instead of the same thing every week, it’s different...And then [my daughter]’s also helping in the kitchen compared to where she couldn’t be in the kitchen at all. She couldn’t even step a foot in the kitchen.”</p>
Adaptations to child feeding strategies	
A. Plan snacks and meals ahead	<p>“[My mom and I] try to schedule all of our week’s worth of food and then plan from that, plan from snacks...”</p> <p>“[We eat] fresher. Yeah because it’s my mom [who cooks meals] just mainly uh real fruit, real vegetables...[She] makes it from scratch.”</p>
B. Shop fresh and often	<p>“[Shopping for food] is a little different...We don’t buy for the whole month like [when I was living with] the other people. We buy for a week at a time because we have a smaller fridge um really, really small (chuckle). It can barely fit a week’s worth of food in it.”</p>
C. Eat meals together	<p>“We don’t have the chaos of [my ex-partner] and [my ex-partner’s] parents telling [my daughter] what to do...And then on top of that we’re all sitting down and eating compared to [when my daughter] eats with one person and then the another person eats at a different time...”</p>

Figure 3.1 Dynamic of child feeding strategy adjustment case study: Kelly, “It’s not just me doing it”

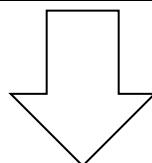
Kelly's "It's not just me doing it" dynamic of strategy adjustment over time covered a wide range of child feeding strategies, from meal planning to eating together. In her second interview, Kelly's overall appraisal of the multiple life events she experienced was positive. Her dynamic shows how she made adaptations in feeding her daughter and that she was satisfied with the adaptations.

Laura's interviews illustrate the dynamic of "It's a struggle right now" (Figure 3.2). Laura, a married mother of four, including 3-year-old Conrad, experienced a loss in income between the two interviews as she was struggling to feed her family. At the time of the first interview, Laura was a full-time community college student who also worked part time doing outdoor labor. By the second interview, she had stopped working and going to school because she could not afford to repair her car and had no way to get to work or school.

Although Laura's husband took on a second job to compensate her loss of income, his hours were eventually cut at both his primary and secondary jobs, leaving the family with very little income. The financial loss limited the kinds of foods Laura could buy and where she could shop. In addition to money being "extremely tight," Conrad, Laura's son in Head Start, experienced increased behavioral problems which required the support of a respite worker who visited their home a few days a week. In a positive shift, Laura found the respite worker helpful in managing Conrad's behavior and helping with her other children while she prepared meals and during mealtimes.

Figure 3.2 Dynamic of child feeding strategy adjustment case study: Laura,
“It’s a struggle right now”

Domain	Interview 1	Life Events	Interview 2
Home	Lives in farmhouse outside of town	None	Same
Household	Self, husband, four children	None	Same
Family	Partner works one job, child with special needs	Job change and job schedule change, increased child behavioral issues	Husband got a second job but working fewer hours, respite worker visits home 2x/week
Work	PT outdoor labor, makes own schedule	Car broke down	No longer working
Economic	Enough no extras	No longer working	Not enough money for food
School	FT student	On hold	No longer in classes



Child feeding strategy adjustment – illustrative quotes	
Appraisal	<p>“I have hours but I’ve got to have a way to get there. Luckily it’s flexible. I can work whenever I want. They have work for me but I have yet to be able to work [laughter].”</p> <p>“[Not having money] limits our ability to get to a food pantry cause we don’t have the gas to get anywhere...It limits our ability to go [food] shopping.”</p> <p>“Well yeah because the food stamps don’t last barely two weeks...When we don’t have any food stamps we have to use [my husband’s] paycheck to buy food and when there’s no paycheck and there’s no food stamps things aren’t good.”</p> <p>“So money is extremely tight.”</p> <p>“So yeah I would say he’s more available to cook which is good because I can’t stretch things as good as he can [laughter].”</p>
Resources	<p>“...And we stretch [the food stamps] as much as we can and buy things that we can stretch with like rice.”</p> <p>“Well [my husband’s] home more so he can cook more (laughter) which saves me. Nobody has to eat my burnt offerings.”</p> <p>“[The respite worker] is a help because then both little boys are watched. Then I can actually focus on what I’m doing. It gives me a little extra time to oh, be a little creative [with the meal].”</p> <p>“If the kids are hungry and they want a snack they don’t ask me. They run over and raid [my uncle’s] fridge. He’ll feed them whenever. If he’s home, if there’s food. There’s always something sitting out and they just go over there and get it. And it’s usually not very healthy stuff.”</p>

Adaptations to child feeding strategies	
A. Shop less	“[One car and little money] limits our ability to go shopping...Normally, I would go to [discount stores], but the store downtown is really becoming one of our few options at this point and their prices are ridiculous and that’s why we cannot make the food stamps last is because we’re forced to shop there.”
B. Cut back on food, skip meals	“I mean what else can you do besides buy a huge bag of rice, buy flour, you know the staple stuff that you can use to make things. That’s how we stretch it. It’s not buying pizza, it’s not buying candy, all this other stuff.” “I don’t cook breakfast because it’s just me and I’m not hungry and I’m trying to save what we have for dinners when everybody’s home.”
C. Cook quick and easy	“So [the days my husband is not around] are a little more rough...I have no cooking skills [laughter]. No, I have no cooking skills but I make - it’s always fresh food but I always make the easiest, fastest thing that I can possibly think of [laughter] and that doesn’t always go together but it’s food.”

Laura's dynamic communicates her struggle in feeding Conrad and his siblings because she can no longer get to work and her husband's work hours have been cut making money tight and food stamps insufficient. Her appraisal of changes in her and her spouse's work situations are negative and her dynamic demonstrates the adaptations she made in her family's eating and child feeding.

3.5 Discussion

We found that the majority of low-income working mothers in this study had more than one work/family life event over a six to eight month period that led them to adapt their child feeding strategies. We identified six dynamic child feeding strategy adjustment patterns across three levels that were linked with resource changes and mothers' appraisals of life events. Overall, these findings illustrate how young children's social environments, in particular their families, are a changing source of influence on their food and eating.

We identified possible mechanisms through which negative life events may be associated with risk of childhood obesity found in previous studies (Schmeer, 2012; Lumeng et al., 2013). The findings presented here make it possible to conclude that negative life events involve increased demands on social support, time, and money resources for feeding children. These increased demands in turn make it difficult to provide good nutritional choices for children. For example, some mothers made adjustments that decreased family meal frequency, decreased shopping frequency, and increased quick home food preparation in response to life events. These strategies have been linked to increased childhood obesity risk and poor dietary intakes among children (Anderson and Whitaker, 2010; Gustat et al., 2015; Blake et al., 2011).

We expand on prior research focused on the impact of negative life events and children's nutritional well being by exploring life events in the context of low-income employed mothers'

daily lives. With this approach, we found that some life events can also have a positive influence on mothers' child feeding strategies by decreasing social, time, and money demands thereby making it easier to feed children well. For example, mothers who experienced life events that led to greater social support (i.e. moving in with family), time (i.e. job schedule change), and money (i.e. job change or promotion) discussed adjustment patterns that included greater frequency of cooking, shopping, and family meals.

We also found that the majority of mothers experienced more than one life event with each event affecting the demands on mothers' social, time, and money resources for feeding children. Multiple life events place multiple demands on parents that interact to increase some resources for feeding young children while decreasing others. In this study, these interacting demands could be both challenging and beneficial to young children's food and eating. For example, one mother who was not working but had moved into a bigger home by the second interview spoke about how she had less money but more time and space for family meals.

Three important innovations of our study compared to past research on child feeding and life events, include examining: 1) changes in child feeding practices over time, 2) families where mothers lived with a non-spousal adult, and 3) a sample of mothers' employed in low-level, hourly jobs with limited access to work-life supports. With these innovations, we were able to both examine changes in mothers' social, time and money resources for feeding children, differences in the experience of life events both within and between households, and differences in the experiences of life events within the macro-social context of mothers' daily lives. With regards to the effect of life events, spouses/partners and non-spousal adults were both important sources of child feeding support, but life events were experienced differentially by event type and household composition. For example, job schedule changes for mothers and

spouses/partners were important influences on mothers' spousal/partner feeding support while moving and changes in household composition were most important in shaping the involvement of non-spousal feeding support. We also found that life events involving voluntary versus involuntary job changes led to differences in mothers' child feeding adjustment patterns but that both types of life events reflected the macro-social context of low-wage work which is characterized by fluctuating work hours, poor wages, and limited access to benefits. These findings extend research on life events and coping, which has primarily emphasized the roles of marital partners (Lazarus and Folkman, 1984; Thoits, 1995), to include the role of non-spousal adults in the process of managing work and family demands. These findings also expand upon existing child feeding research to suggest that parent-driven life events may help low-income employed parents to achieve important goals for feeding their children but that such events are driven by the macro-social context within which they are embedded and thus need to be addressed.

We found that changes in mothers' social characteristics, specifically their work and family conditions, changed over time, which led them to adjust their child feeding strategies. At a time when an increasing number of low-income American children experience changes in where they live, who they live with, and their parents' jobs (Franklin, 2003; Golden 2001; Han, 2005; Bumpass and Lu, 2000), we shed light on these how these changes influence young children's food and eating, an important determinant of obesity risk. We suggest that researchers assess parents' life events, specifically the type and nature of work and family changes, as factors that shape young children's food and eating. Finally, policies aimed at improving what low-income young children eat should promote not only healthy eating habits, but also stability in their parents' work and family conditions. For example, policies to improve greater job

stability among low-income employed parents may include attention to not only wages but also to the distribution of hours as income is both a function of wages and hours worked (Lambert, 2009).

This study provides insight into the dynamics of child feeding strategies in a sample of 19 low-income employed/student mothers living in a rural Upstate New York county. These findings may not be generalizable to other mothers living in different places or at different times. Mothers with older children may have different kinds of strategy adjustment patterns since older children make more independent food choices. The adjustments that participants made for the specific kinds of life events explored in this study may differ from those made for other kinds of life events. Finally, data were collected at two time points, making it difficult to know what happened in between each interview. Although researchers attempted to capture participants' experiences of feeding children through open-ended questions, it is difficult to recreate real-life experiences.

3.6 Conclusions

Low-income employed mothers experienced multiple life events within a short period of time that led to adjustments in their child feeding strategies. Life events led to changes in mothers' work and family characteristics influential in child feeding. Future investigations should examine how life events experienced by parents, specifically related to work and family, shape young children's food and eating. It may be useful for nutrition practitioners and policymakers seeking to promote improvements in young children's diets to support approaches that promote stability in the work and family lives of parents.

3.7 Acknowledgements

The authors would like to thank all Head Start staff and parents for their collaboration and participation. The first author designed the study and study materials in collaboration with the co-authors, conducted both the first and second in-depth interviews, and completed all of the analysis for the present chapter. The first author is grateful for the guidance from the co-authors in the interpretation of the findings. The first author would also like to thank the co-authors and Professor Kathleen Rasmussen for their review of this dissertation chapter.

REFERENCES

- Anderson, S.E., and Whitaker, R. (2010). Household Routines and Obesity in US Preschool-Aged Children. *Pediatrics*, 125(3), 420-428.
- Bauer, K.W., Hearst, M.O., Escoto, K., Berge, J.M., and Neumark-Sztainer, D. (2012). Parental employment and work-family stress: associations with family food environments. *Social Science and Medicine*, 75, 496-504.
- Blake, C.E., Wethington, E., Farrell, T., Bisogni, C., and Devine, C.M. (2011). Behavioral Contexts, Food-Choice Coping Strategies, and Dietary Quality of a Multiethnic Sample of Employed Parents. *Journal of the American Dietetic Association*, 111(3), 401-407.
- Billings, A. G., and Moos, R. H. (1981). The role of coping responses and social resources in attenuating the stress of life events. *Journal of behavioral medicine*, 4(2), 139-157.
- Birch, L.L., and Fisher, J.O. (1998). Development of eating behaviors among children and adolescents. *Pediatrics*, 101(Supplement 2), 539-549.
- Brannen, J, O'Connell, R, and Mooney, A. (2013). Families, meals, and synchronicity: eating together in British dual earner families. *Community, Work and Family*, 16(4):417-434.
- Bronfenbrenner, U. (1979). *The Ecology of Human Development*. Cambridge, MA: Harvard University Press.
- Bumpass, L., and Lu, H.H. (2000). Trends in cohabitation and implications for children's family contexts in the United States. *Population Studies*, 45, 29-41.
- Cawley, J., and Liu, F. (2012). Maternal employment and childhood obesity: A search for mechanisms in time use data. *Economics and Human Biology*, 10, 352-364.
- Charles, N. and Kerr, M. (1986). Servers and Providers: The Distribution of Food Within the Family. *Sociological Review*, 34(1):115-157.
- DeVault, M. (1991). *Feeding the Family: The Social Organization of Caring as Gendered Work*. Chicago: The University of Chicago Press.
- Kamp Dush, C.M., Schmeer K.K., and Taylor, M. (2013). Chaos as a social determinant of child health: Reciprocal associations? *Social Science and Medicine*, 95, 69-76.
- Evans, G.W. (2004). The environment of childhood poverty. *American Psychologist*, 59(2), 77-92.
- Faith, M.S., Scanlon, K.S., Birch, L.L., Francis, L.A., and Sherry, B. (2004). Parent-child feeding strategies and their relationships to child eating and weight status. *Obesity Research*, 12(11), 1711-1722.

Franklin, S. (2003, November). Migration of the young, single, and college educated: 1995 to 2000. Census 2000 special reports, CENSR-12, US Census Bureau, Washington, DC.

Gillman, M.W., Rifas-Shiman, S.L., Frazier, L., Rockett, H.R.H., Carmago, C.A., Field, A.E.,...Colditz, G.A. (2000). Family dinner and diet quality among older children and adolescents. *Archives of Family Medicine*, 9, 2355-2240.

Golden, L. (2001, March). Flexible work schedules: What are we trading to get them? *Monthly Labor Review*, 50–67.

Greene, J.C. (1993). The role of theory in qualitative program evaluation. In D. Flinders and GE Mills, Eds. *Theory and Concepts on Qualitative Research: Perspectives from the Field*. New York: Teachers College Press, 24-45.

Gustat, J., O'Malley, K., Luckett, B. G., and Johnson, C. C. (2015). Fresh produce consumption and the association between frequency of food shopping, car access, and distance to supermarkets. *Preventive Medicine Reports*, 2, 47–52.

Han, W.J. (2005). Maternal nonstandard work schedules and child cognitive outcomes. *Child Development*, 76(1), 137–154.

Holmes, T.H. and Rahe, R.H. (1967). The Social Readjustment Rating Scale. *Journal of Psychosomatic Research*, 11(2), 213-18.

Kanner, A. D., Coyne, J. C., Schaefer, C., and Lazarus, R. S. (1981). Comparison of two modes of stress measurement: Daily hassles and uplifts versus major life events. *Journal of behavioral medicine*, 4(1), 1-39.

Lambert, S.J. (2009). Making a difference for hourly employees. In A.C. Crouter & A. Booth (Eds.) *Work-life policies* (pp. 169-195). Washington, DC: Urban Institute Press.

Lazarus, R. and Folkman, L. (1984). *Stress, Appraisal, and Coping*. New York: Springer Publishing Company.

Lumeng, J. C., Wendorf, K., Pesch, M. H., Appugliese, D. P., Kaciroti, N., Corwyn, R. F., & Bradley, R. H. (2013). Overweight adolescents and life events in childhood. *Pediatrics*, 132(6), e1506-e1512.

Marcynyszyn, L.A., Evans, G.W. and Eckenrode, J. (2008). Family instability during early and middle adolescence. *Journal of Applied Developmental Psychology*, 29, 380-392.

Nicklas, T.A., Baranowski, T., Baranowski, J.C., Cullen, K., Rittenberry, L., and Olvera, N. (2001). Family and Child-care Provider Influences on Preschool Children's Fruit, Juice, and Vegetable Consumption. *Nutrition Reviews*, 59(7).

Presser, H. B., and Cox, A. G. (1997). Work schedules of low-educated American women and welfare reform, *The Monthly Labor Review*, 120, 25.

Schmeer, K.K. (2012). Family structure and obesity in early childhood. *Social Science Research*, 41, 820-832.

Serido, J., Almeida, D.M., and Wethington, E. (2004). Chronic Stressors and Daily Hassles: Unique and Interactive Relationships with Psychological Distress. *Journal of Health and Social Behavior*, 45(1), 17-33.

Spence, A., Campbell, K., and Hesketh, K. (2010). Parental correlates of young children's dietary intakes: a review. *Australasian Epidemiologist*, 17, 17-20.

Strauss, A.L. and Corbin, J. (2000). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory* (3rd ed.). Thousand Oaks, CA: Sage.

Story, M., Kaphingst, K.M., Robinson-O'Brien, R., and Glanz, K. (2008). Creating healthy food and eating environments: policy and environmental approaches. *Annual Review of Public Health*, 29, 253-272.

Thoits, P.A. (1995). Stress, Coping, and Social Support Processes: Where Are We? What Next? *Journal of Health and Social Behavior* (Extra Issue).

Wethington, E. (2005). An overview of the life course perspective: implications for health and nutrition. *Journal of Nutrition Education and Behavior*, 37, 114-119.

CHAPTER 4

WORK AND FAMILY CONTEXTS SHAPING MOTHERS' CHILD FEEDING STRATEGIES AND CHILDREN'S FOOD AND EATING PATTERNS

4.1 Abstract

The objective was to quantitatively test how the child feeding strategies of low-income mothers were related to work and family conditions and children's food and beverage consumption patterns. Two telephone interviews were conducted with low-income women (N=69) who were employed and/or in school at least 20 hours/week, and who had a child in one of three county-wide Head Start programs in Upstate New York. Data on work and family conditions, socio-demographic characteristics, child feeding strategies, and children's food and beverage consumption were collected between 2014 and 2015. Hierarchical cluster analysis (Ward's Method) was used to identify clusters of mothers differing in their child feeding strategies. Cluster socio-demographic, work, and family characteristics were compared using chi-square and Fisher's Exact tests. Cluster differences in children's food and beverage consumption were analyzed using analysis of variance. Three child feeding strategy clusters were identified: (1) Eating with family; (2) Delegating feeding; and (3) Hectic eating. Clusters differed significantly ($P \leq 0.05$) on child feeding strategies, work characteristics (i.e. nonstandard work), and children's food and beverage consumption patterns (i.e. total fruit and milk). The findings from this study show how low-income mothers' child feeding strategies are embedded in specific ecological contexts and are linked to patterns of children's food and beverage consumption. Some work conditions may make it easier for mothers to feed their children in ways that may have positive impacts on young children's diets. It is important to consider the

variety of settings and caregivers involved when assessing young children's diets. Nutrition practitioners should understand key ecological contexts of busy working parents to promote workable and sustainable strategies for families. Policies that support standard and predictable schedules among low-income parents may contribute to healthful child feeding practices. This research was supported by funds from the US Department of Agriculture HATCH NYC-399428 and the Cornell University Division of Nutritional Sciences.

4.2 Introduction

Employed parents use food-choice coping strategies to manage work and family demands as they feed themselves and their families (Devine et al., 2006). Parents' individual food choices reflect broader behavioral contexts such as social class, race and ethnicity, gender, and family and employment conditions. Social class is strongly associated with the availability of and access to food, particularly relating to food cost, and consequently affects diet quality (Darmon and Drewnowski, 2008). Race and ethnicity, which often determine where families live, influence not only food availability and access, but also ideals, attitudes, concerns, identities, and family roles related to food and eating (Dean et al., 2010; DiSantis et al., 2013; Devine et al., 1999). Gender affects food acquisition and meal preparation roles (DeVault, 1991) and child feeding approaches (Orrell-Valente et al., 2007). Marriage and parenthood affect diet quality and child feeding motives (Blake et al., 2011; Russell et al., 2014; Peters et al., 2014). Work/family conflict, long work hours, and nonstandard work hours are associated with fewer family meals prepared or eaten at home (Bauer et al., 2012; McIntosh et al., 2011), as well as poorer nutritional quality of meals served (Neumark-Sztainer et al., 2014).

Pressures on parents' food choices are important for children's nutrition and health status because, as meal providers and eating role models, parents determine what young children are

fed (Patrick and Nicklas, 2005). Despite evidence to suggest that parents use a combination of strategies to integrate daily work and family demands (Devine et al., 2009), much of the research on the relationship between work/family conditions and parents' food choices is focused on a single behavior or a small set of behaviors. Furthermore, until now, the dietary outcomes for parents' food-choice coping strategies have been examined for parents, but not for children (Bauer et al., 2012; Blake et al., 2011).

This analysis was informed by formative qualitative research aimed at understanding how low-income mothers' work and family roles affected the feeding of their preschool-age children (Chapter 2). That earlier study suggested work and family conditions influenced routines for children's food and eating. The aim of the current study was to quantitatively test how the child feeding strategies of low-income mothers were related to work and family conditions and children's food and beverage consumption patterns.

4.3 Methods

4.3.1 *Participants*

Employed and student mothers with a child in one of three county-wide Head Start programs in Upstate New York were recruited in person during Head Start pick-up and drop-off times by the first (TA) and third authors (TJF). To be eligible for the study, mothers needed to report working and/or being in school at least 20 hours a week. They varied in living arrangements.

4.3.2 *Procedures*

Mothers were recruited to participate in two brief telephone interviews during the fall of 2014 and winter/spring of 2015. Two trained interviewers (TA and TJF) conducted all interviews at times chosen by participants. Sixty-nine participants completed both interviews

within a one-week period, and each participant worked with the same interviewer for both interviews. One interview took place on a day after a working day, while the other interview happened on a day following a day off. Workdays were selected so as to focus on employment demands. Participants received \$10 for each interview they completed. The Cornell University Institutional Review Board for Human Participants approved the study protocol and consent procedures. Participants provided verbal consent over the phone prior to the first interview. Each mother received a copy of the study objectives and informed consent.

4.3.3 Measures

In the first 20-minute phone interview, 57 standard items (Brim et al., 1996; Centers for Disease Control, 2002; Galinsky, 1992; Lambert et al., 2014) (Appendix D) were used to ask about elements of mothers' ecological contexts such as socio-demographic (race/ethnicity, education, income), work (hours, schedule), and family (marital, parental) characteristics.

Mothers reported their child feeding strategies in the second 20-minute telephone interview. Nineteen total child feeding strategy items measured the following dimensions of child feeding: "Missing meals" (3 items); "Child-centered feeding" (4 items); "Child feeding delegation" (2 items); "Child access" (3 items); "Planning" (3 items); and "Food at/away from home" (4 items) (Appendix E).

Responses for two "Missing meals" items and one "Food at/away from home" item were on a four-point scale: 1= Never; 2= Rarely; 3= Sometimes; 4= Often/Always. Responses for "Child-centered feeding," "Planning" and "Child access" items were on a 4-point scale: 1= Strongly Disagree; 2=Disagree; 3=Agree; 4=Strongly Agree. Mothers indicated how many days in the last week they used – "Food at/away from home"(1 item), Child feeding delegation" (2 items), and one "Missing meals" (1 item). These 19 child feeding strategy items were developed based on formative research (Chapter 2) and prior studies of food-choice coping strategies

(Blake et al., 2011). The items were cognitively tested with a group of mothers of preschoolers (Beatty and Willis, 2007). Convergent validity was established through formative research (Chapter 2).

An exploratory measure of child food and beverage consumption patterns, based on a subset of items selected from a validated household food inventory checklist measure (Fulkerson et al., 2008), was adapted for use in this study during both the first and second interview (Appendix F). The adapted measure was limited to food items that young children typically consume and that are associated with dietary quality and weight status. These items included fruits, vegetables, sugar sweetened beverages, quick foods, sweetened grain desserts, and candy (Ford et al., 2013; Reedy et al., 2010). Mothers responded, “Yes” or “No” when asked whether their child consumed various food and beverage items on the day prior to each of the interview days, from the time they left Head Start until bedtime. The goal was to assess what these children consumed when they were not in Head Start because this is when mothers have most control over what children are fed or consume. Child food and beverage consumption scores for 65 foods and beverages in 10 subcategories were calculated for each participant by summing mothers’ responses (zero points for “No” and one point for “Yes”) over the two interview days, with higher scores indicating greater child consumption. For mothers who only knew what their child ate on one of two days, child food and beverage scores were based on one interview day. This checklist approach was chosen to reduce participant burden based on the formative research phase (chapter 2), which revealed that participants would not have a lot of time. Therefore, the adapted checklist was designed to require only a few minutes of time and was easy for busy mothers to answer on the telephone.

An obesogenic score was calculated based on Fulkerson et al.'s (2008) approach, in which typical fats and sugars in food and beverage items are used to determine healthful and less healthful categories associated with overweight and obesity (Reedy et al., 2010). Unlike the Fulkerson categorization, however, we did not include nuts as part of the obesogenic food score in our study because of recent research suggesting their health benefits (Bao et al., 2013). The obesogenic score included regular-fat versions of dairy (one item); regular-fat savory snacks (two items, excluding nuts); regular fat frozen desserts (one item); candy/sweets (three items); regular sugar beverages (five items, including 100% juice and four items, excluding 100% juice); quick home foods (six items); and sweetened grain desserts (eight items). Scores range from 0-52, including 100% juice, and 0-50, excluding 100% juice. Obesogenic scores are summative, with higher scores indicating greater child consumption of foods and beverages high in fats and sugar.

4.3.4 Data Analysis

Previous research on food-choice coping strategies and adult diets conducted by Blake et al. (2011) informed the data analytic approach for our study. Based on that research, we hypothesized that: (1) Distinct clusters based on mothers' child feeding strategies would emerge; (2) Demanding maternal work/school and family conditions (e.g. schedule unpredictability, living alone) would be positively associated with poorer child feeding strategies (e.g. missing meals, meals away from home); and (3) Poorer child feeding strategies would be positively associated with poorer child consumption.

First, cluster analysis was conducted to identify subgroups of participants based on their food-choice coping strategies. Cluster analysis is a multivariate procedure used to identify relatively homogenous clusters through inter-subject similarity (Aldenderfer and Blashfield, 1984), with the goal of minimizing within-group variability and maximizing between-group

variability (Aldenderfer and Blashfield, 1984). The procedure is appropriate for small samples (Henry et al., 2005). The 19 child feeding strategies formed three broad clusters using Ward's hierarchical cluster method and squared Euclidean distances (Henry et al., 2005). The contingency coefficient (Aldenderfer and Blashfield, 1984) was used to test the agreement between this cluster solution and two other clustering methods (between- and within-group linkage). These cluster solutions closely correspond to results from Ward's method, as indicated by statistically significant contingency coefficients of 0.73 (between group) and 0.75 (within-group) confirming the stability of the cluster classification (Henry et al., 2005). A K-means non-hierarchical cluster analysis was also performed for a three-cluster solution and results were compared to the Ward cluster solution (Henry et al., 2005). Finally, the three-cluster solution was chosen using one-way ANOVA with Tukey's post-hoc comparisons to identify meaningful clusters (Henry et al., 2005; Schneider and Roberts, 2004). The literature on cluster analysis is divided about the whether or not to statistically standardize data (Aldenderfer and Blashfield, 1984). The data for this project were analyzed using both standardized and unstandardized scores. Since both solutions yielded similar patterns, the unstandardized values were chosen to preserve unidentified differences between groups (Aldenderfer and Bashfield, 1984). Three clusters were then identified, and each cluster named after its distinguishing child feeding strategy: "Eating meals as a family," "Delegating feeding," and "Hectic eating."

Following the method established by Blake et al (2011), three of the 19 child feeding strategy items originally scaled from one to four as "Often/always," "Sometimes," "Rarely," and "Never" responses were dichotomized by grouping the "Often/always" and "Sometimes" responses, and the "Rarely" and "Never" responses. Meanwhile, ten of items originally scaled from one to four as "Strongly agree," "Agree," "Disagree," and "Strongly disagree" responses

were dichotomized by combining the “Strongly agree” and “Agree responses,” and the “Disagree” and “Strongly disagree” responses. Five items originally scaled for weekly frequency or quantity were dichotomized using the median (Devine et al., 2009): number of missed dinner meals, occurrences of child eating fast food for dinner, days others were involved in child feeding, number of home-cooked and food-away-from-home meals, and the total number of other adults other than the mother involved in feeding child. The frequency and percentage of mothers using each of the various child feeding strategy items was then calculated for each cluster.

In analyzing the data, chi-square test, Fisher’s Exact test, and analysis of variance (ANOVA) were used when appropriate to examine associations between clusters and participants’ individual characteristics and work and family conditions. Post-hoc chi-square analysis was conducted to understand whether there were differences among clusters in whether mothers ate dinner with their child the day prior and in their knowledge of what children ate. ANOVA was then used to examine how cluster membership was associated with child diet by using the child food and beverage consumption and obesogenic scores.

A p-value of $p \leq 0.10$ was considered the upper range for significance given the small sample size and exploratory nature of the analysis. All statistical analyses were conducted using Statistical Package for the Social Sciences (SPSS version 23, 2015, SPSS, Inc, Chicago, IL).

4.4 Findings

Out of the 353 people approached to participate, 125 were eligible or lived in the same household with an eligible mother (Figure 4.1). Out of these, 78 mothers (62% of eligible) completed the first interview, which asked about foods and beverages their child had consumed the day before.

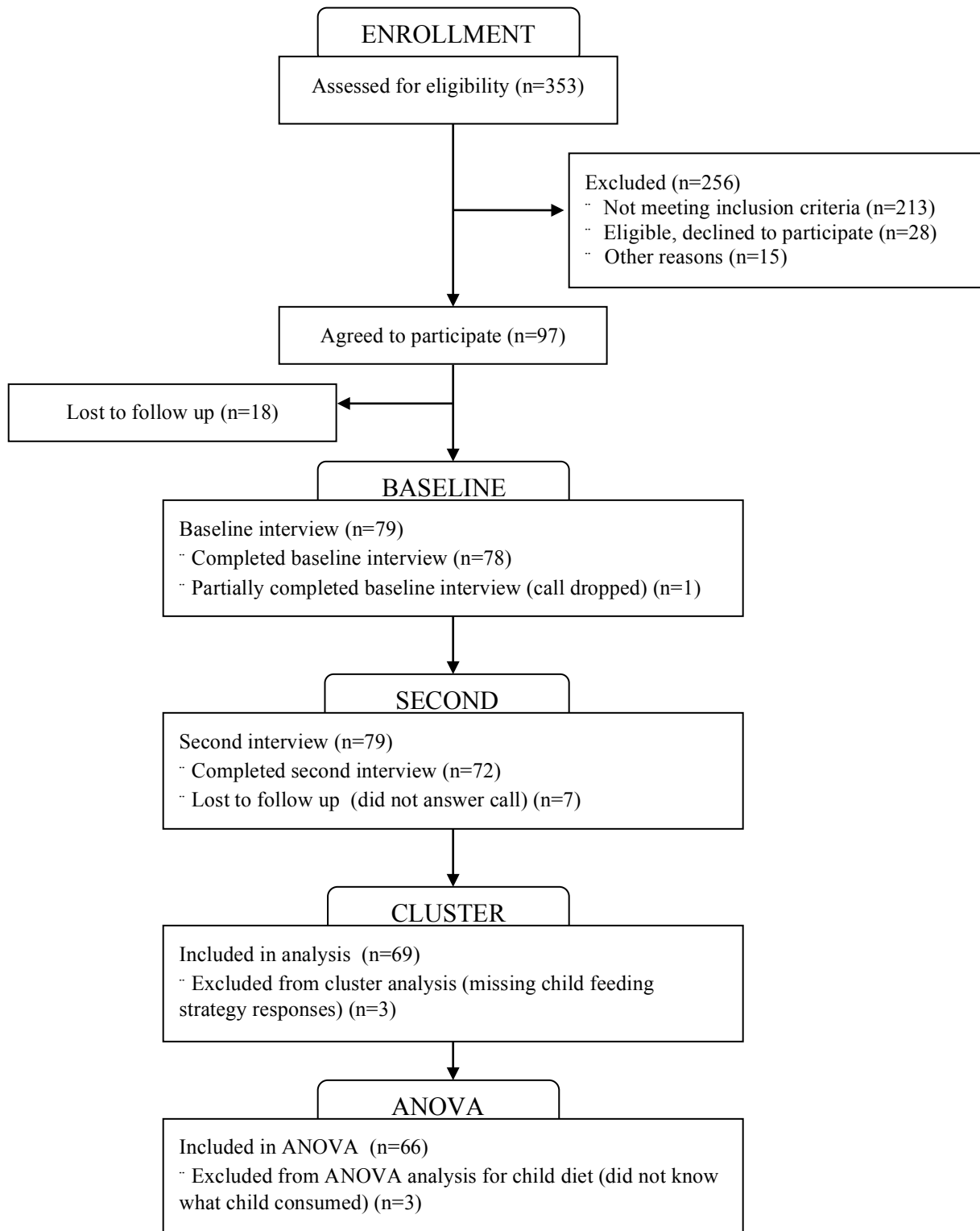


Figure 4.1 Adapted CONSORT flow diagram of low-income working/student mothers telephone survey recruitment and participation.

For the second interview, 72 mothers (58% of the original eligible pool and 92% of first-interview participants) participated, and were asked about child feeding strategies and foods and beverages their child had consumed the day before. Because three mothers did not know or refused to answer one of the 19 child feeding strategy items, 69 (95%) of the 72 mothers who participated in both interviews were ultimately included in all analyses. Of these 69 mothers, three did not know what their child had eaten on either interview day and thus were excluded in the analysis with children's food and beverage consumption (n=66) (Figure 4.1).

Of the 69 participants aged 21 to 46 years old, the majority (91%) self-identified as white; about one third lived alone with their child(ren); 26 (38%) had a high school education or less; 22 (32%) had variable work and/or school schedules; 50 (72%) worked nonstandard hours; and 15 (22%) received one week or less advance notice of the days and hours they needed to work. Of the 36 mothers with a spouse or partner, 27 (93%) had an employed spouse/partner working at least 20 hours a week. Of these 69 mothers, 45 (65%) experienced at least one life event in the last six months, the most common being related to changes in work—reported by 29 mothers (42%)—and residence—reported by 21 mothers (30%). Only 35 (51%) of these mothers ate dinner with their child, and 44 (64%) knew what their child ate on both interview days.

The Tukey post-hoc testing revealed that the frequency of missed dinner meals ($p \leq 0.01$), delegate involvement three or more days/week ($p \leq 0.01$), and number of home cooked meals in typical week ($p \leq 0.01$) reliably differentiated the three clusters through their cluster means. The number of days family meals were food away from home, child eating fast food for dinner on hectic days, days in last week child ate fast food for dinner, buying food child will eat, and child not seated during meals significantly differentiated between clusters 1 and 3 ($p \leq 0.01$)

and clusters 2 and 3 ($p \leq 0.05$). Frequency of missing breakfast ($p = 0.001$) and planning meals a week ahead ($p = 0.000$) were significantly different between clusters 1 and 3.

Clusters significantly differed by food-choice coping strategies (Table 4.1), lending support to the first hypothesis that distinct clusters would emerge. The second hypothesis—that demographic, work, and family conditions would be associated with the different clusters—is partially supported. The proportion of mothers who were working nonstandard hours and working frequent overtime hours significantly differed among clusters, but there were no other significant differences in demographic or family conditions (Table 4.2). Mothers who worked nonstandard hours and experienced work schedule unpredictability were more likely to miss meals and rely on other adults to feed their child. Significant differences in child food and beverage consumption scores among clusters support the third hypothesis that distinct strategy clusters would be associated with the kinds of foods and beverages children consumed (Table 4.3). Mothers who missed meals and relied on others to feed their child reported lower fruit and vegetable consumption for their child.

4.4.1 *Child feeding strategy clusters*

“Eating with family” cluster. Mothers in the “Eating with family” cluster reported the highest frequency of home-cooked family meals in a typical week, and the lowest frequency of meals away from home. These mothers, as well as those in the “Delegating feeding” cluster, were more likely to stick to a daily routine for their child’s snacks and meals. Compared to the other clusters, fewer mothers in this cluster indicated missing breakfast and dinner meals with their child, missing dinner two or more times in the previous week, having someone else feed their child meals three or more days in the last week, having children who did not stay seated during meals, or feeding their child fast food for dinner in the last week. Few mothers in this cluster reported frequently working overtime.

Table 4.1 Low-income working/student mothers clustered by reported patterns of child feeding strategies (N=69)

Child feeding strategy items^{ab}	Total mothers (N=69) n (%)	Cluster 1- Eating with family (n=28) n (%)	Cluster 2- Delegating feeding (n=19) n (%)	Cluster 3- Hectic eating (n=22) n (%)
Missing meals				
Can't eat breakfast with child because of schedule.*	37 (54)	10 (36)	10 (53)	17 (77)
Can't eat dinner with child because of schedule.**	29 (42)	2 (7)	19 (100)	8 (36)
Missed dinner two or more days in the past week.**	30 (44)	6 (21)	19 (100)	9 (41)
Child-centered feeding				
My child's food preferences influence what we eat for dinner.	47 (68)	17 (61)	13 (68)	17 (77)
The T.V. or something else with a screen is on when my child is eating meals.	11 (16)	3 (11)	3 (16)	5 (23)
I only buy food I know my child will eat. [†]	23 (33)	9 (32)	3 (16)	11 (50)
My child does not stay seated during meals.**	25 (36)	4 (14)	7 (37)	14 (64)
Feeding delegation				
Two or more people at and/or outside home are involved in feeding child when I am at work and/or school.	25 (36)	8 (29)	7 (37)	10 (46)
Other adults at and/or outside home fed child meals three or more days in previous week.**	39 (57)	8 (29)	17 (90)	14 (64)
Planning				
I plan the main meal for my family a week ahead of time.	30 (44)	16 (57)	8 (42)	6 (27)
I plan the main meal day by day.	54 (78)	20 (72)	14 (74)	20 (91)
My family sticks to a daily routine for meals and snacks.*	52 (75)	23 (82)	17 (90)	12 (55)
Child access				
I keep fruits and vegetables where my child can help themselves.	62 (90)	27 (96)	15 (79)	20 (19)
I keep snacks and sweets where my child can help themselves.	19 (28)	7 (25)	6 (32)	6 (27)
I keep food on hand when I am on the go with my child.	51 (74)	21 (75)	16 (84)	14 (64)

Table 4.1 Continued

Food at home and away				
> 5 family's main meals are home-cooked in a typical week. ^{**}	45 (65)	28 (100)	12 (63)	5 (23)
On hectic days child has fast food for dinner. ^{**}	20 (29)	4 (14)	3 (16)	13 (59)
Child ate fast food for dinner one or more days in the past week. ^{**}	32 (46)	6 (21)	7 (37)	19 (86)
≥ 1 family's main meals are not home-cooked in a typical week. ^{**}	39 (57)	10 (36)	9 (47)	20 (91)

^a Cells are the percent in that cluster who responded strongly agree/agree, often/sometimes or yes.

^b Comparisons used chi-square tests, Fisher's exact test when cell sizes <5.

Significance for three-cluster solution:

^{*} $P \leq 0.05$.

^{**} $P \leq 0.001$.

[†] $P \leq 0.10$.

Table 4.2 Demographic, work and family characteristics of low-income working/student mothers by child feeding strategy cluster (N=69)

Individual, work, and family characteristics ^a	Total mothers (N=69)	Cluster 1- Eating with family (n=28)	Cluster 2- Delegating feeding (n=19)	Cluster 3- Hectic eating (n=22)
	n (%)	n (%)	n (%)	n (%)
Education				
High school/GED ^b or less	26 (38)	10 (36)	6 (32)	10 (46)
College/Some college	43 (62)	18 (64)	13 (68)	12 (55)
Marital status				
Married, living with spouse/Unmarried, living with partner	36 (53)	17 (61)	9 (47)	10 (46)
Unmarried, Divorced/Separated/Never married	33 (48)	11 (39)	10 (53)	12 (55)
Family conditions				
Adults in household (n), mean	0.80	0.89	0.63	0.82
Children in household (n), mean	2.1	2.0	2.1	2.2
Lives alone with child/children	23 (33)	8 (27)	7 (37)	8 (36)
Spouse/partner works more than 20 hours in average week	27 (93)	13 (93)	5 (83)	9 (100)
Financial situation				
Money situation is enough but no extras/Have to cut back/Can't make ends meet	41 (59)	16 (57)	13 (68)	12 (55)
Food insecure	25 (36)	7 (25)	9 (47)	9 (41)
Participate in SNAP and/or WIC	49 (71)	19 (68)	11 (58)	19 (86)
Work conditions				
Work and/or attend school part time (34 or fewer hours) in average week	19 (26)	9 (32)	4 (21)	6 (27)
Varied work/school schedule in average week	22 (32)	9 (32)	7 (37)	6 (27)
Nonstandard work and/or school hours [*]	50 (72)	19 (68)	18 (95)	13 (59)
Works overtime at job (often) [†]	9 (13)	2 (7)	7 (37)	0 (0)
Knows two weeks or less in advance what days/hours need to work	28 (41)	11 (39)	9 (47)	8 (36)
Working hours decided by employer	20 (29)	8 (29)	5 (26)	7 (32)

Table 4.2 Continued

Life events				
No life events	24 (35)	10 (36)	6 (32)	8 (36)
One life event	15 (22)	5 (18)	5 (26)	5 (23)
Two life events	17 (25)	8 (29)	6 (32)	3 (14)
Three or more life events	13 (18)	5 (18)	2 (11)	6 (27)
Age (y), mean	28.6	28.8	27.7	29.1

^a Comparisons used chi-square tests, Fisher's exact test when cell sizes <5.

^b GED=general equivalency diploma.

^c Nonstandard hours refers to work and school hours on the weekends and/or outside of 8 a.m. to 6 p.m. on weekdays.

Significance of the three-cluster solution:

* $P \leq 0.05$.

** $P \leq 0.001$.

† $P \leq 0.10$.

Table 4.3 Child food and beverage consumption and obesogenic scores of low-income working/student mothers by child feeding strategy cluster (N=66)

Child diet variables^{abc} Mean (s.d.)	Total mothers (N=66)	Cluster 1- Eating with family (n=28)	Cluster 2- Delegating feeding (n=19)	Cluster 3- Hectic eating (n=19)
Total vegetable ^{d†} (19 items)	2.32 (1.88)	2.82 (2.02)	2.32 (1.73)	1.58 (1.64)
Total vegetable, not including potato [‡] (18 items)	1.98 (1.62)	2.43 (1.69)	1.95 (1.58)	1.37 (1.42)
Dark-green and orange vegetables [‡] (8 items)	0.80 (1.02)	1.00 (1.05)	.95 (1.27)	.37 (0.50)
Total fruit, including 100% juice ^{e*} (12 items)	3.06 (1.98)	3.86 (2.07)	2.47 (1.84)	2.47 (1.61)
Total whole fruit [‡] (11 items)	2.27 (1.58)	2.75 (1.67)	1.79 (1.58)	2.05 (1.58)
Total sweetened grain desserts [†] (8 items)	0.53 (.73)	.68 (.82)	.26 (.45)	.58 (.77)
Total sweets/candy ^g (3 items)	0.35 (.57)	.50 (.69)	.21 (.42)	.26 (.45)
Total quick foods ^h (6 items)	0.71 (1.08)	.61 (1.13)	.58 (1.07)	1.00 (1.00)
Total savory snacks ⁱ (6 items)	0.94 (1.02)	1.25 (1.14)	.68 (.95)	.74 (.81)
Milk ^{j*} (2 items)	1.18 (.82)	1.50 (.79)	.79 (.79)	1.11 (.74)
Total obesogenic score ^k (of 52 combined score for both days)	3.79 (2.49)	4.29 (2.96)	2.89 (1.41)	3.95 (2.48)
Total obesogenic score, not including 100% fruit juice (of 50 combined score for both days)	3.00 (2.17)	3.18 (2.57)	2.21 (1.32)	3.53 (2.09)

^a Sixty six of 69 participants completed two foods/beverages child consumed yesterday checklists.

^b Mean score (standard deviation) in each category.

^c Analysis of variance.

^d Includes all forms fresh, frozen or canned of following: beets, bell peppers, broccoli, cabbage, cauliflower, carrots, celery, corn, cucumber, green beans, lettuce, mushroom, peas, potatoes, spinach, squash, sweet potatoes, tomatoes and mixed vegetables.

^e Includes all forms fresh, frozen or canned of following: apples, applesauce, mixed fruit, raisins, orange, bananas, grapes, strawberries, blueberries, pears, peaches/nectarines, and 100% juice.

[†] Includes following: cookies, cupcakes, muffins, brownies, other snack cakes, pop-tarts, granola bars and pastry, sweet rolls, or donuts.

^g Includes following: chewy candy, chocolate, and fruit roll up/gummy snacks.

^h Includes following: chicken nuggets, hot pocket, ramen, macaroni and cheese, frozen pizza, and French fries/tater tots.

ⁱ Includes following: chips, cheese curls/puffs, crackers, pretzels, and popcorn.

^j Includes following: whole milk and skim, 1 or 2% milk.

^k Includes following: regular fat versions of dairy (1 item), savory snacks (2 items), frozen desserts (1 item), candy (3 items), regular sugar beverages (5 items), quick home foods (6 items), and sweetened grain desserts (8 items).

Significance of the three-cluster solution: * $P \leq 0.05$; ** $P \leq 0.001$; † $P \leq 0.10$.

Mothers in this cluster had children with significantly higher consumption scores for total vegetables, total vegetables not including potatoes, dark green and orange vegetables, total fruit, whole fruit, and milk, while also scoring higher on consumption of most high sugar, salt, and fat foods.

Delegating Feeding cluster. Mothers in the Delegating Feeding cluster reported the highest frequency of missed family dinner meals due to work and school schedules, and of having other adults involved in child feeding three or more days in the past week. Like mothers in the “Eating with family cluster,” they reported high frequency of home-cooked family meals, low frequency of meals away from home, and a low likelihood that their child would have eaten fast food for dinner in the past week. Notably, the majority of mothers in the “Delegating feeding” cluster worked and/or went to school during nonstandard hours. More of these mothers reported regularly working overtime at their job, compared to mothers in the other two clusters. Mothers in the “Delegating feeding” clusters had children with significantly lower milk and whole fruit consumption scores, and tended to score lower on consumption of high sugar, fat, and salt foods compared to the other two clusters on most other diet measures.

“Hectic eating” cluster. The majority of mothers in the “Hectic eating” cluster reported a high frequency of family main meals that were either take-out, or eaten at sit-down buffet and fast food restaurants. They often fed their child fast food for dinner on hectic days, and were most likely to have at least one day in the past week where their child ate fast food for dinner. These mothers were least likely to report frequent home-cooked meals or a daily routine for family snacks and meals. They were most likely to practice child-centered feeding by only buying foods their child would eat, and to report that a child did not stay seated during meals. These mothers were more likely to report missing breakfast and dinner meals because of work and/or

school schedules, and to have had at least three days in the past week where someone else fed their child a meal. Findings regarding mothers work conditions were counterintuitive. Mothers in the “Hectic eating” cluster reported working overtime at their job with the least frequency. And over half of these mothers (albeit fewer than compared to other clusters) reported working nonstandard hours. Mothers in the “Hectic eating” cluster had children with significantly lower consumption scores for total vegetable, total vegetable without potatoes, and dark green and orange vegetables than the other two clusters, and tended to score between the other clusters on most other diet measures.

4.5 Discussion

We found three emergent child feeding strategy clusters that differed by the different types of child feeding strategies mothers used to feed children on a daily basis. The emergent clusters were associated with two aspects of mothers’ work conditions, nonstandard work hours and frequent overtime work (a proxy for unpredictability in this sample as overtime was largely unplanned), and were associated with children’s vegetable, fruit, and milk consumption patterns. We found that nonstandard work schedules and frequent overtime work interfere with the time that low-income working/student mothers spend eating meals together with their young children. Specifically, we found that mothers’ nonstandard work schedules and frequent overtime work can preclude them from eating breakfast and dinner meals with children and require mothers to delegate child feeding responsibilities to other adults three or more times weekly. We also found some support for the idea that nonstandard and unpredictable work conditions hamper mothers’ ability to eat meals with and feed their children which can negatively affect young children’s consumption patterns.

We add to prior studies on the negative associations between maternal employment conditions among well-educated mothers and child body mass index (Anderson et al., 2003; Morrissey et al., 2011; Ruhm, 2008), child dietary quality (Crepinsek and Burstein, 2004; Datar et al., 2014), and time use for child feeding activities (Mancino and Newman, 2007; Cawley and Liu, 2012) by exploring associations between working conditions that occur more frequently among low-income working mothers and child feeding practices. The finding that nonstandard work and frequent overtime work is associated with delegating child feeding is consistent with the findings from our previous qualitative work. Through our previous qualitative research (Chapter 2), we found that low-income working/student mothers who worked evenings with unpredictable schedules, where they received little advance notice of when they needed to work, had fluctuating work hours week to week, and described having to frequently work overtime when they were scheduled to work, had difficulty maintaining child feeding routines. Our study is the first to examine the association between nonstandard work among low-income mothers and child feeding practices. Although there have been four previous studies on parental nonstandard employment and child obesity (Champion et al., 2012; Miller and Han, 2008; Miller and Chang, 2015; Morrissey et al., 2011), only one of these studies focused on low-income parents (Miller and Chang, 2015), finding that maternal secondary nonstandard employment was associated with children's higher body mass index.

Meals where children sit and eat together with their parents are enabled by home cooked family meals. The increase in food away from home for family meals and negative relationships with young children's dietary intake have been described previously (Guthrie et al., 2002; Nielsen et al., 2002) In this study, we elaborate on the conditions that contribute to low frequency of family dinner meals including because mothers may work during meal times and

therefore rely on other people their children or many have had a busy day so they get fast food or takeout for children. This study adds to the literature the findings that parental meal skipping, delegating child feeding to others, and hectic eating are strategies associated with poorer dietary patterns among young children.

By exploring sets of strategies we expand an understanding of the constellation of practices that busy, working mothers use to feed their children on a daily basis and underscore the importance of moving beyond specific behaviors to improve young children's diets. Our findings that mothers with nonstandard work schedules miss meals and use delegates to feed children, provide insight into the socio-structural constraints that make frequent family dinner meals a challenge and highlight how children are fed when mothers are not able to feed children themselves. Given the socio-structural constraints that make frequent family meals a challenge for low-income working families, efforts to promote increased family dinner meal frequency as a way to improve young children's diets may have limited impact. To encourage improvements in the diets of low-income children, it may be more realistic to support parents to work with delegates or design nutrition interventions targeting delegates themselves.

We found that mothers who missed dinner meals and frequently delegated food and feeding to other adults reported poorer whole fruit and milk consumption patterns among their children compared to the other two clusters despite being between the two with regards to frequency of foods away from home for family meals and eating fast food on hectic days. This finding should be replicated for two reasons. First this finding may be due to the fact that mothers may underreport intakes when children are fed by others. We conducted a post-hoc analyses and found significant differences in mothers who reported eating dinner with their child and knowing what their child ate and drank after leaving Head Start by strategy cluster.

Compared to mothers in the other two clusters, a significantly greater proportion of mothers in the “Delegating feeding” cluster reported not having eaten dinner with their child or knowing what their child ate or drank the prior day compared to mothers in the two other clusters.

Second, this finding also needs to be replicated particularly because only one previous study has been conducted where it was found that increased delegate use was associated with a greater likelihood of consuming fruit juice and whole fruit among African-American infants and toddlers (Wasser et al., 2011).

The number of life events was an important shared characteristic across all three clusters. The majority of mothers experienced one or more life events within the last six months. Compared to other studies of life events in middle-aged populations, the large proportion of mothers experiencing one or more life events is notable because of the implications for children’s food and eating. In the qualitative study preceding this chapter (Chapter 3), we described how life events required low-income mothers to adjust their child feeding routines in ways that led to lesser or greater satisfaction for mothers. Other studies have shown that the stability in children’s proximal environments (e.g. parental employment, parental relationship status, and residence) is important for their overall well-being (Evans, 2004; Marcynyszyn et al., 2008) and lower risk of obesity (Lumeng et al., 2013). We did not find significant differences in clusters, life events, and children’s consumption patterns, which may be attributed to the fact that we did not use a life events measure that differentiated negative versus positive life events. Nevertheless, based on the prevalence of life events among the low-income working mothers in this sample, further examination into the relationship between life events and young children’s nutrition within this population is needed given the noted limitation.

In addition to eating breakfast and lunch meals at Head Start, the young children in this

sample ate dinner meals in a variety of settings with a variety of people other than their mothers. The current study supports the need for understanding the context of child feeding when asking mothers about children's diets, including where their child ate and who fed them. Although most nutrition interventions target children's primary caregivers in home settings, our study supports the need to include children's other caregivers across a variety of settings.

The strengths of this study include the active recruiting strategy which allowed us to identify eligible mothers, the inclusion of various measures of maternal work and family conditions, strong retention of willing and eligible participants, participants' feedback that the interview format was quick and easy, and the use of the same interviewer across two interview days.

The study also had several limitations that should be taken into account when interpreting the findings. First, over half of eligible mothers were recruited into the study, but those who could not be reached for the first interview after agreeing to participate could have differed in meaningful ways from those mothers who participated in both interviews. Second, the checklist approach did not directly measure children's intake of specific amounts of foods and beverages. The purpose of this study was not to conduct a detailed assessment of what children ate but rather to explore general patterns of what they were fed and the environmental influences on those patterns. That we were able to show these effects with a crude measure of child diet, suggests that it would be well worthwhile to conduct similar future research using a more robust measure of child diet. Second, children's consumption was measured for only those meals and snacks consumed after Head Start until bedtime. This decision was made based on prior qualitative research which found that this was a time when mothers had most control over what children were fed. The decision to exclude breakfast was also based on this research, which

found that mothers stopped providing their child breakfast before going to Head Start in the morning as the year progressed. Third, mothers were asked about some but not all foods their child consumed after Head Start. Based on prior research, an important objective was to keep participant burden low for the duration of two interviews. This objective was accomplished in part by asking mothers about a limited set of foods and beverages. Despite likely missing some important foods because of the limited measure, we were successful in retaining in 91% of participating mothers from the first interview and were able to identify three emergent and conceptually coherent child feeding clusters thereby strengthening the findings. Although there were some statistically significant associations between clusters of child feeding strategies, work conditions, and foods and beverages children were offered, a larger study with a validated measure for child diet is needed to examine smaller observed differences in other maternal characteristics and child diet. Finally, the fact that some mothers reported knowing what their child ate despite not eating with them highlights an important limitation for this and other studies of young children's food and eating about the reliability of assessments of young children's dietary intake.

4.6 Conclusions

The findings from this study show how low-income mothers' child feeding strategies are embedded in specific ecological contexts and are linked to patterns of children's food and beverage consumption. Some work conditions may make it easier for mothers to feed their children in ways that may have positive impacts on young children's diets. It is important to consider the variety of settings and caregivers involved when assessing young children's diets. Nutrition practitioners should understand key ecological contexts of busy working parents to promote workable and sustainable strategies for families. Policies that support standard and

predictable schedules among low-income parents may contribute to healthful child feeding practices.

4.7 Acknowledgements

The authors would like to thank all Head Start staff and parents for their collaboration and participation. The first author designed the study and study materials in collaboration with the co-authors, conducted about half of the telephone interviews, and completed all of the analysis for the present chapter. The first author is grateful for the guidance from the co-authors in the interpretation of the findings. The first author would also like to thank the co-authors and Professor Kathleen Rasmussen for their review of this dissertation chapter.

REFERENCES

- Aldenderfer, M.S. and Blashfield, R.K. (1984). *Cluster Analysis*. Newbury Park, CA: Sage Publications.
- Bao, Y., Han, J., Hu, F.B., Giovannucci, E.L., Stampfer, M.J., Willett, W.C., and Fuchs, C.S. (2013). Association of nut consumption with total and cause-specific mortality. *New England Journal of Medicine*, 369(21), 2001-2011.
- Bauer, K.W., Hearst, M.O., Escoto, K., Berge, J.M., and Neumark-Sztainer, D. (2012). Parental employment and work-family stress: Associations with family food environments. *Social Science and Medicine*, 75, 496-504.
- Beatty, P.C. and Willis, G.B. (2007). Research Synthesis: The practice of cognitive interviewing. *Public Opinion Quarterly*, 71(2), 287-311.
- Blake, C.E., Wethington, E., Farrell, T.J., Bisogni, C.A., and Devine, C.M. (2011). Behavioral contexts, food-choice coping strategies, and dietary quality of a multiethnic sample of employed parents. *Journal of the American Dietetic Association*, 111(3), 401-407.
- Brim, O.G., Baltes, P.B., Bumpass, L.L., Cleary, P.D., Featherman, D.L., Hazzard, W.R., Kessler, R.C., Lachman, M.E., Markus, H.R., Marmot, M.G., Rossi, A.S., Ryff, C.D., Shweder R.A. (1996). *A National Survey of Midlife Development in the United States (MIDUS)*. Ann Arbor, MI: DataStat Inc.
- Bronfenbrenner, U. (1979). *The Ecology of Human Development*. Cambridge, MA: Harvard University Press.
- Cawley, J. and Liu, F. (2012) Maternal employment and childhood obesity: A search for mechanisms in time use data. *Economics and Human Biology*, 10, 352-364.
- Centers for Disease Control and Prevention (CDC). (2002). *Behavior Risk Factor Surveillance System (BRFSS)*. Washington, DC: Centers For Disease Control and Prevention.
- Crepinsek, M.K. and Burstein, N.R. (2004). Maternal Employment and Children's Nutrition Volume I, Diet Quality and the role of the CACFP. In A. Associates (Ed.), (Vol. 1): Economic Research Service.
- Darmon, N. and Drewnowski, A. (2008). Does social class predict diet quality? *The American Journal of Clinical Nutrition*, 87, 1107-1117.
- Datar, A., Nicosia, N., and Shier, V. (2014). Maternal work and children's diet, activity, and obesity. *Social Science and Medicine*, 107, 196-204.

Dean, W.R., Sharkey, J., Cosgriff-Hernandez, K., Martinez, A.R., Ribardo, J., and Diaz-Puentes, C. (2010). "I can say that we were healthy and unhealthy": Food choice and the reinvention of tradition. *Food, Culture, and Society*, 12(4).

DeVault, M. (1991). *Feeding the Family: The Social Organization of Caring as Gendered Work*. Chicago: The University of Chicago Press.

Devine, C.M., Sobal, J., Bisogni, C.A., and Connors, M. (1999). Food choices in three ethnic groups: Interactions of ideals, identities, and roles. *Journal of Nutrition Education and Behavior*, 31(2), 86-93.

Devine, C.M., Jastran, M., Jabs, J., Wethington, E., Farrell, T.J., and Bisogni, C.A. (2006). "A lot of sacrifices": Work-family spillover and the food-choice coping strategies of income employed parents. *Social Science and Medicine*, 63, 2591-2603.

Devine, C.M., Farrell, T.J. Blake, C., Jastran, M., Wethington, E., Bisogni, C.A. (2009). Work conditions and the food-choice coping strategies of low/moderate income employed parents. *Journal of Nutrition Education and Behavior*, 41, 365-370.

DiSantis, K.I., Grier, S.A., Odoms-Young, A., Baskin, M.L., Carter-Edwards, L., Rohm Young, D., Lassietr, V., and Kumanyika, S.K. (2013). What "price" means when buying food: Insights from a multisite qualitative study with black Americans. *American Journal of Public Health*, 103(3).

Evans, G.W. (2005). The Environment of Childhood Poverty. *American Psychologist*, 59(2), 77-92.

Ford, C.N., Slining, M.M., and Popkin, B.M. (2013). Trends in Dietary Intake among US 2- to 6-Year-Old Children, 1989-2008. *Journal of the Academy of Nutrition and Dietetics*, 113, 35-42.

Fulkerson, J.A., Nelson, M.C., Lytle, L., Moe, S., Heitzler, C., and Pasch, K.E. (2008). The validation of a home food inventory. *International Journal of Behavioral Nutrition and Physical Activity*, 5(1), 55.

Fulkerson, J.A., Farbakhsh, K., Lytle, L., et al. (2011). Away-from-home family dinner sources and associations with weight status, body composition, and related biomarkers of chronic disease among adolescents and their parents. *Journal of the American Dietetic Association*, 111, 1892-7.

Galinsky, E. (1992). *The National Study of the Changing Work Force*. New York, NY: Families and Work Institute.

Gillman, M.W., Rifas-Shiman, S.L., Frazier, L., Rockett, H.R.H., Carmago, C.A., Field, A.E., . . . Colditz, G.A. (2000). Family dinner and diet quality among older children and adolescents. *Archives of Family Medicine*, 9, 2355-2240.

- Guthrie, J. F., Lin, B. H., and Frazao, E. (2002). Role of food prepared away from home in the American diet, 1977-78 versus 1994-96: changes and consequences. *Journal of nutrition education and behavior*, 34(3), 140-150.
- Henry, D.B., Tolan, P.H., and Gordon-Smith, D. (2005). Cluster analysis in family psychology research. *Journal of Family Psychology*, 19(1), 121-132.
- Lambert, S.J., Fugiel, P.J., and Henly, J.R. (2014). *Precarious Work Schedules among Early-Career Employees in the US: A National Snapshot*.
- Li, J., Johnson, S.E., Han, W.J., Andrews, S., Kendall, G., Strazdins, L., and Dockery, A. (2014). Parents' nonstandard work schedules and child well-being: A critical review of the literature. *The Journal of Primary Prevention*, 35(1), 53-73.
- Lumeng, J. C., Wendorf, K., Pesch, M. H., Appugliese, D. P., Kaciroti, N., Corwyn, R. F., and Bradley, R. H. (2013). Overweight adolescents and life events in childhood. *Pediatrics*, 132(6), e1506-e1512.
- National Cancer Institute (NCI). (2007). *Usual Dietary Intakes: Food Intakes, US Population, 2001-2004*. Retrieved on January 20, 2016 from <http://epi.grants.cancer.gov/diet/usualintakes/pop/2007-10/#findings>.
- Neumark-Sztainer, D., MacLehose, R., Loth, K., Fulkerson, J.A., Eisenberg, M.E., and Berge, J. (2014). What's for dinner? Types of food served at family dinner differ across parent and family characteristics. *Public Health Nutrition*, 17(01), 145-155.
- Nielsen, S. J., Siega-Riz, A. M., and Popkin, B. M. (2002). Trends in food locations and sources among adolescents and young adults. *Preventive medicine*, 35(2), 107-113.
- Mancino, L. and Newman, C. (2007). *Who Has Time To Cook? How Family Resources Influence Food Preparation (Vol. 40)*. Report for United States Department of Agriculture.
- Marcynyszyn, L.A., Evans, G.W. and Eckenrode, J. (2008). Family instability during early and middle adolescence. *Journal of Applied Developmental Psychology*, 29, 380-392.
- McIntosh, A., Kubena, K.S., Tolle, G., Dean, W., Kim, M.J., Jan, J.S., and Anding, J. (2011). Determinants of children's use of and time spent in fast-food and full-service restaurants. *Journal of Nutrition Education and Behavior*, 43(3), 142-149.
- Miller, DP, and Chang, J. (2015). Parental work schedules and child overweight or obesity: Does family structure matter? *Journal of Marriage and Family*, 77, 1266-1281.
- Orrell-Valente, J.K., Hill, L.G., Brehwald, W.A., Dodge, K.A., Pettit, G.S., and Bates, J.E. (2007). "Just three more bites": An observational analysis of parents' socialization of children's eating at mealtime. *Appetite*, 48(1), 37-45.

Patrick, H. and Nicklas, T.A. (2005). A review of family and social determinants of children's eating patterns and diet quality. *Journal of the American College of Nutrition*, 24(2), 83-92.

Peters, J., Parletta, N., Lynch, J., and Campbell, K. (2014). A comparison of parental views of their preschool children's 'healthy' versus 'unhealthy' diets. A qualitative study. *Appetite*, 76, 129-136.

Reedy, J., and Krebs-Smith, S.M. (2010). Dietary sources of energy, solid fats, and added sugars among children and adolescents in the United States. *Journal of the American Dietetic Association*, 110(10), 1477-1484.

Russell, C.G., Worsley, A., and Liem, D.G. (2014). Parents' food choice motives and their associations with children's food preferences. *Public Health Nutrition*, 18(6), 1018-1027.

Schneider, A. and Roberts, A.E. (2005). Classifications and the relations of meaning. *Quality and Quantity*, 38(5), 547-557.

CHAPTER 5

GENERAL DISCUSSION

5.1 Introduction

A healthy diet among young children is a significant public health challenge to the United States today. Parental food choices are important in shaping what young children are offered to eat but the factors influencing parental food choices remain poorly understood. Through this investigation we offer a timely exploration into how work and family pressures and changes in these pressures that shape low-income mothers' approaches to feeding young children. Prior to this investigation, the contextual factors influencing low-income parents' food choices for young children had rarely been examined. Parents of young children play an important role in deciding what young children are offered to eat. As demonstrated in the three previous chapters, unpredictability and instability in the work and family lives of low-income families is common and plays an important role in young children's health and nutrition. The following sections focus on integrating the findings across the three chapters, and explore the relationship of the study findings to existing literature, the strengths and limitations of the overall project, and the implications for research, practice, and policy.

5.2 Integration of findings

The inductive, longitudinal approach used in this investigation improved on prior child feeding research, which has primarily been conducted using cross-sectional perspectives of the dyadic interactions between the mother and child (Anzman et al., 2010; Black and Aboud, 2011; Faith et al., 2004), to reveal three main findings. Firstly, influences at multiple levels, both

inside and outside of the household, such as living with reliable adults and childcare food and nutrition policies, shape low-income mothers' child feeding practices. Secondly, low-income mothers' child feeding practices are shaped by interactions among these multiple levels of influence. And thirdly, low-income mothers change their approaches to child feeding on a daily basis and over time in response to daily hassles and life events that change the time, social, and financial resources for feeding children.

The initial conceptual model that guided this research has been revised to reflect the findings emerging from this investigation (Figure 5.1). Each of these key findings is discussed in the sections that follow with consideration for the policies, research, and practices needed to support improvements in the health and nutrition of low-income young children.

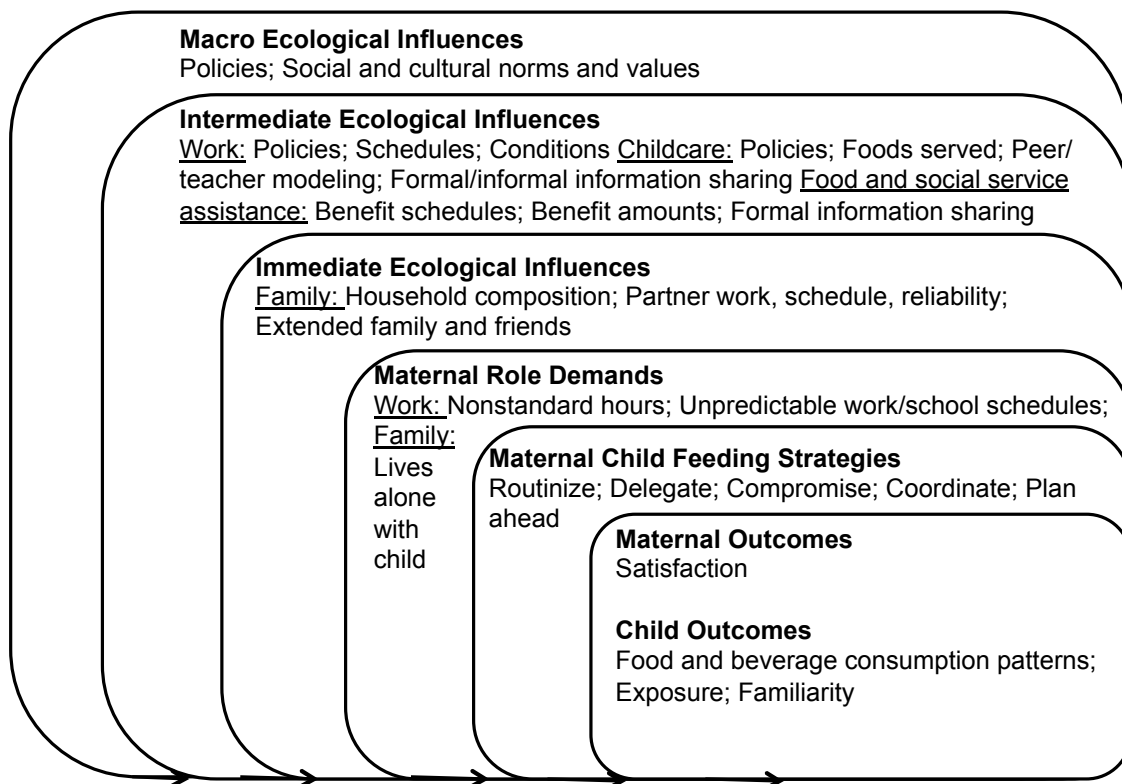


Figure 5.1 Revised conceptual model of the ecological influences and interactions on low-income working/student mothers' child feeding strategies.

5.2.1 Multiple levels of ecological influence shape mothers' child feeding strategies

We revised the initial conceptual model guiding this investigation to reflect the multiple levels of influence shaping these mothers' child feeding strategies and maternal and child outcomes. The key outcomes that emerged and were explored through this investigation were mothers' satisfaction with their child feeding strategies, children's exposure to foods/beverages, children's familiarity of food/beverages and children's food/beverage consumption patterns. These outcomes are linked with five emergent child feeding strategies that include routinizing children's food and eating, delegating children's food and eating to others, compromising what foods children were offered for snacks and meals, coordinating food and eating with other activities, and planning snacks and meals ahead of time. In this investigation, delegation is a new child feeding strategy that has not been identified in previous research.

Work and family are two key sources of role demands on mothers. Mothers discussed how these role demands created pressures on their ability to feed their children in the ways that they wanted. We found that mothers routinize, compromise, coordinate, delegate and plan ahead child feeding to manage daily work and family pressures. Work and family role demands include getting out of work late, working nonstandard hours, and living with their child(ren) and no other adults.

Immediate ecological influences include family conditions that shape mothers' role demands. Mothers who live alone with their children, live with unreliable adults, and live with spouse/partners with unpredictable job schedules and seasonal work have difficulty maintaining child feeding routines, have to multitask during meals, miss meals three or more days weekly, and shop less frequently and for non-perishable food.

Intermediate ecological influences shaping maternal role demands and child feeding strategies include work, childcare, and food and social service assistance programs. For

example, mothers who work in service and retail sector jobs need to delegate feeding to other adults because their work schedules interfere with times for feeding children. Unpredictable (i.e. little advance notice and fluctuating weekly hours) and nonstandard (i.e. work/school in evenings, nights, or weekends) work/school schedules make it difficult for mothers to maintain child feeding routines, plan snacks and meals ahead of time, and sit and eat meals together. Limited Head Start hours can conflict with mothers' work hours. Mothers arrange their schedules to ensure coverage for childcare when children are not in Head Start and rely on extended family and babysitters to feed children at the last minute. Low wages, fluctuating working hours, and inadequate food assistance benefits limit mothers' food budgets. Planning snacks and meals ahead of time and cooking in bulk are two ways mothers save time and money.

Macro ecological influences are the most distal influence on mothers' child feeding strategies and outcomes. Macro ecological influences include work, family, and food and nutrition policies that shape the intermediate and immediate ecological influences on child feeding strategies. This level also includes social and cultural norms and values such as low-income mothers' attitudes towards feeding children. The outcomes, child feeding strategies, maternal role demands, immediate ecological and intermediate ecological influences are embedded within and shaped by this larger context.

5.2.2 Different levels of ecological influence interact to shape mothers' child feeding strategies

A number of researchers have previously identified and described different factors that shape child feeding, including parent, home, school, and community factors with particular emphasis on the family and household (Story et al., 2002).

We further this research by exploring mothers' own descriptions of daily child feeding to reveal interactions between factors inside and outside the household. We found that interactions

between work and family policies (a macro-ecological influence) and mothers' work conditions (an intermediate ecological influence) and mothers' work conditions (an intermediate ecological influence) and family conditions (an immediate ecological influence) influence the ways children are fed (e.g. mom works in the evenings because of lack of affordable child care and therefore relies on another adult to feed her child).

5.2.3 Mothers' adjust their child feeding strategies in response to unpredictable and unstable work and family conditions

We identified unpredictability and instability in work and family conditions among low-income mothers as shaping their child feeding strategies. These two factors have not been previously identified in research on child feeding. We found that day-to-day unpredictability in work and family schedules, such as working late, disrupted mothers' child feeding routines. Whereas, short term instability in mothers' work and family situations, such as moving residence or a new job, changes their resources for feeding children. Both daily unexpected events (e.g. waking up late) and life events (e.g. moving) require mothers to adjust their usual ways of feeding children.

In this investigation we also found that the majority of mothers experienced more than one life event and that life events impact the social, time, and financial resources for feeding children in different ways, sometimes having a mixed influence on child feeding strategies. For example, one mother who stopped working by the second interview described moving to a bigger residence with a kitchen table so she and her daughters could sit and eat together, but that she had less money to buy the foods she wanted to feed her child. According to the transactional model of stress, the ways in which individuals experience and manage demands depends on their appraisals of such demands and the coping resources available to them (Lazarus and Folkman, 1987). Our findings thus confirm this research and extend existing understandings by illustrating

how multiple life events work together to shape the ways mothers manage feeding young children.

5.3 Strengths and limitations

This project used a sequential, mixed methods research design consisting of qualitative and quantitative methods to explore and describe how income mothers feed their young children. The strengths of the overall research are described in the paragraphs below and are followed by a discussion on its limitations.

Mixed methods research uses more than one methodological approach to provide deeper understanding and greater confidence in conclusions (Johnson and Onwuegbuzie, 2004; Johnson et al., 2007). In this investigation, qualitative methods involving in-depth interviews and extensive field notes in the first phase were used to plan the design of the telephone survey instrument for the second phase. The qualitative approaches employed in Chapters 2 and 3 allowed for a rich understanding of how multiple levels of influence impacted the usual ways mothers fed their children, and the dynamic ways these mothers adjusted their feeding strategies based on changes in their time, money, and social support. The quantitative approach employed in Chapter 4 drew upon the emergent themes found in the two previous studies from the qualitative phase. Here, a set of child feeding strategies was developed and empirically tested to understand whether distinct feeding clusters would emerge and be associated with the salient work and family conditions identified in Chapter 2, the life event changes identified Chapter 3, and the exploratory measure of child food and beverage consumption presented in Chapter 4.

The qualitative portion of the project in the first phase was oriented towards a constructivist paradigm, which assumes that an individual's knowledge is generated from their experiences and social relationships (Fosnot, 1996). Proposed criteria for the trustworthiness of

qualitative research include credibility, transferability, dependability, and confirmability (Lincoln and Guba, 1985). Credibility means that results are believable from the participants' perspective. Transferability refers to the degree to which results can be generalized to other people or contexts. Dependability emphasizes the need for researchers to account for the ever-changing research context. Confirmability refers to the degree to which others can corroborate the findings.

The perspectives, experiences and interpretations of participants were allowed to emerge naturally, thus strengthening the credibility of this investigation. This project involved several exchanges with participants at times and places they designated, which provided an opportunity to establish rapport, extensive field notes, and a good understanding of the research context. Grounded theory methods provided analysis guidelines to ensure that the results were grounded in the perspective of participants (Denzin and Lincoln, 2000; Corbin and Strauss, 1990). Member checking was accomplished through the presentation of preliminary analysis and interpretations during the second interview (Lincoln and Guba, 1985). This project used a combination of two in-depth interviews incorporating the extensive use of probes, and a telephone survey with a separate and larger sample of mothers. The sequential use of qualitative methods to inform the survey design strengthens the transferability of results to other groups of mothers. Dependability was enhanced through attention and adaptation to the research context. Analysis of the data began with the first interview informing subsequent interviews, participant sampling, and the development of the second in-depth interview guide. Ongoing purposive sampling for the qualitative portion of this study allowed for the recruitment of mothers with specific work and family characteristics that researchers identified as potentially informative. Confirmability was established through the involvement of multiple researchers in all aspects of

the project, including the development of data collection tools, data collection, data analysis, and the interpretation of the findings. Peer debriefing was conducted through oral presentations (Agrawal et al., 2014a; Agrawal et al., 2014b; Agrawal et al., 2016).

The quantitative phase of the project was informed by findings from the qualitative phase of this project. Proposed criteria for the validity of survey research include content validity and convergent validity. Content validity assesses the extent to which a measure represents all facets of a given social construct. Convergent validity is the degree to which two measures of constructs that should theoretically be related are, in fact, related. Cognitive interviews were conducted with a sample of mothers (N=9) with preschool-age children using a combination of “think aloud” and targeted verbal probing to evaluate survey items (Beatty and Willis, 2007). Convergent validity was accomplished through qualitative interviews. Constant comparison (Charmaz, 2006) was used to analyze the qualitative data to understand key emergent concepts related to child feeding. The child feeding strategy survey items were based on the emergent findings from the qualitative phase of this project.

The limitations of this project must be recognized. The research team proposes some fundamental ideas about child feeding processes linked to behaviors and contexts common among low-income mothers of preschoolers. The participating mothers in both phases of this study were a small sample of mothers with Head Start children willing to volunteer their time. The study findings may not be transferable to other mothers, because different types of feeding routines and strategies may emerge from mothers living in other geographic zones, belonging to other cultures with other kinds of work and family policies, working in other occupations, and having different socioeconomic characteristics. As for the child-diet measure used in this study, the adaptation or exclusion of some food and beverage items included in the original household

food inventory measure may have resulted in the emphasis of given food groups. Lastly, we asked about but did not observe feeding in the real-life context of income mothers. In the area where this project took place, mothers described using a number of full service grocery stores and seasonal farmers' markets, which required personal transportation to access. Although we did not explore the broader food procurement context we recognize that the food procurement context may be related to mothers' child feeding routines, strategic adjustments, and what children were offered to eat. Examining child feeding in real-life, real-time settings may yield different results (Meiselman, 1992).

The background and orientations of the investigators involved in this project influenced all aspects from design to interpretation. The primary investigator came to this project as a community nutrition interventionist oriented toward gaining a better understanding of how busy, income mothers manage food and eating to address nutritional inequalities in food and eating. The primary investigator was not a parent nor did she share the same racial and ethnic background as participants. As a childless, woman of color, the primary investigator may have overlooked important questions or have been perceived as an outsider with whom the participants may have viewed as less trustworthy than someone sharing their own demographic background. On the other hand the primary investigator's background may have been advantageous to eliciting detailed explanations about the phenomenon without mothers feeling judged as they might by an interviewer sharing a similar background. This project also explored specific ideas related to the interests and expertise of the involved investigators. At the time of this project, the primary investigator held a masters degree in food policy and applied nutrition. Researchers in other fields might ask different research questions and have different interpretations of the in-depth interviews.

5.4 Implications for research, practice, and policy

We contribute to research, practice, and policy by documenting the household influences and the outside forces shaping young children's food and eating. Through the in-depth grounded theory approach, we identified the multiple levels of influence shaping low-income mothers child-feeding practices and the context of variation in these practices. Researchers have suggested that multilevel investigations of child feeding are needed to understand how parental influences on young children's diets vary and to improve dietary assessment (Nicklas et al., 2002; Patrick and Nicklas, 2005). A discussion of the research, policy, and practice implications follows.

5.4.1 Research implications for various levels of influence on young child feeding strategies

Our findings have implications for the design and measurement of child feeding research. At the most immediate ecological level, parental household conditions, including the availability, reliability and feeding skills of other adults (i.e. spouses/partners and non-spousal/partner adults), helped these busy, working mothers to maintain child feeding routines. In cases where mothers were able to feed children, having a spouse/partner also enabled them to sit and eat with children compared to un-partnered mothers who described having to multitask during mealtimes. These findings are important because current approaches to young children's dietary assessment rely on reports from a single busy reporter of children's intake and are critiqued with having limited accuracy. To achieve more accurate assessments of young children's dietary intakes, evaluating approaches that expand the number of people who report young children's dietary intake and including questions to ascertain whether a reporter was with the child while the child was eating is needed.

The research presented here is a first look at work conditions unique to low-income parents of young children in the new economy. Researchers exploring work conditions and child

feeding have primarily focused on nonstandard hours, number of hours worked, and full/part-time employment. This new context of work is different from the work/family context of past decades. Future research on work conditions and child feeding among low-income parents should include questions about work schedule predictability (i.e. advance notice, fluctuating hours) to account for this new context of work and how work demands are integrated with family demands and supports. To engage busy, working parents of young children, child feeding studies and interventions should be designed with limited time burdens for participation (e.g. messaging/activities conducted by text and/or phone).

Another intermediate ecological influence that shaped mothers daily child feeding strategies was the childcare context. Some mothers based their daily snack and meal offerings on what children were fed at Head Start. Other mothers discussed using similar mealtime strategies (e.g. tasting new/unfamiliar foods) with their children at home as in Head Start. Further research on parental influences on young children's diets should look beyond household and family influences to also include institutional influences, such as the childcare context.

In this study, we also found that low-income working mothers' baseline family, work, and childcare characteristics changed over a short period of time. This finding underscores the need for researchers to reassess these characteristics when conducting child-feeding research over more than one time point as such characteristics are likely to change and affect parents' food choices for their young children.

5.4.2 Policy implications for various levels of influence on young child feeding strategies

Our findings have implications for food and nutrition and work and family policies. Policies that change the current context of child feeding by giving low-income working parents the resources they need to feed their children are needed. Food and nutrition policies aimed at supporting healthy diets among low-income children and families need to consider the social,

time, and financial constraints of busy, working low-income parents. For example, the current USDA Thrifty Food Plan, of which SNAP benefits are based upon, factor in financial but not low-income working parents social and time constraints for feeding children. We found evidence that Head Start, a public institution that serves low-income young children, plays an important role in supporting young children's developing taste preferences while helping parents to share their daily child feeding responsibilities and save money. Food and nutrition policies that take into account the social, time, and financial constraints of low-income working parents of young children may be most effective in improving young children's diets. Although providing supplemental benefits to purchase food alleviates low-income working parents' financial constraints, food and nutrition policymakers should also consider designing policies that save parents time and invest food and nutrition resources in public institutions serving low-income families.

Policies that change the current context for child feeding are also needed to improve low-income young children's diets. The low-income mothers who participated in this project aspired to prepare, sit and eat meals with their children and to feed their children healthy foods but expressed the need for more predictable work schedules and higher wages to allow them to feed their children in the ways that they wanted. Work and family policies that support greater work schedule predictability, higher wages, and greater job security could offer more time and financial resources to otherwise busy, working mothers with limited social support, time and money for feeding children. For example, policies that support greater schedule predictability for low-income working parents, such as requiring employers to give employees advance schedule notice, may help to improve young children's diets by ensuring consistency in the availability of financial resources and regularity of time for child feeding.

5.4.3 *Practice implications for young child feeding strategies*

Finally, our research has implications for food and nutrition practice with regards to young children's dietary assessment and messaging. With regards to young children's dietary assessment, we find that nutrition practitioners working with low-income parents of young children need to be mindful of not only family contexts but also work and childcare contexts when offering dietary guidance. For example, during an initial encounter, practitioners may find it useful to ask clients about their family, work, and childcare conditions in addition to conducting a recall of all of the food and beverages the child ate yesterday. When conducting the feeding recall, practitioners should probe about whether yesterday's child feeding episodes were typical to understand the typical child feeding context and disruptions. Practitioners can then use this information to help parents plan for disruptions. Practitioners can also ask about who is involved in feeding the child and parents' feelings towards these others. This information can then be used to develop strategies for working with other people who feed children. With regards to messaging, the USDA's 10 Tips Nutrition Education Series (2015) includes budget friendly advice but does not include tips for saving time or for working with other adults who are feeding children. These tips can be made more relevant to low-income working parents by including tips for saving time, such as cooking one pot meals and freezing leftovers for busy nights, and for working with other adults who feed children, such as quick, healthy meals that can be easily prepared ahead of time and reheated.

REFERENCES

- Agrawal, T., Farrell, T.J., Wethington, E., and Devine, C.M. (2014). "Doing our best to keep a routine:" *How low-income working mothers manage feeding the preschool age children in the face of the unpredictability of everyday life*. International Society for Behavioral Nutrition and Physical Activity Conference, Houston, Texas.
- Agrawal, T., Farrell, T.J., Wethington, E., and Devine, C.M.. (2014). "Lives we choose to live:" *Linking employed mothers' daily schedules to daily routines for feeding children*. American Public Health Association Annual Conference, New Orleans, Louisiana.
- Agrawal, T., Farrell, T.J., Wethington, E., and Devine, C.M. (2016). *Changes in children's close social environments disrupts feeding routines*. Childhood Obesity in the Community: Turning Science Into Care Conference, Boston, Massachusetts.
- Anderson, S.E., and Whitaker, R. (2010). Household Routines and Obesity in US Preschool-Aged Children. *Pediatrics*, 125(3), 420-428. <http://dx.doi.org/10.1542/peds.2009-0417>
- Anzman, S.L., Rollins, B.Y., and Birch, L.L. (2010). Parental influence on children's early eating environments and obesity risk: implications for prevention. *International Journal of Obesity*, 34, 1116-1124.
- Almeida, D.M., Wethington, E., and Kessler, R. C. (2002). The daily inventory of stressful events an interview-based approach for measuring daily stressors. *Assessment*, 9(1), 41-55.
- Almeida, D.M. (2005). Resilience and vulnerability to daily stressors assessed via diary methods. *Current Directions in Psychological Science*, 14(2), 64-68.
- Bauer, K., Hearst, M., Escoto, K., Berge, J., and Neumark-Sztainer, D. (2012). Parental employment and work-family stress: associations with family food environments. *Social Science and Medicine*, 75, 496-504.
- Beatty, P.C. and Willis, G.B. (2007). Research synthesis: The practice of cognitive interviewing. *Public Opinion Quarterly*, 71(2), 287-311.
- Black, M.M. and Aboud, F.E. (2011). Responsive feeding is embedded in a theoretical framework of responsive parenting. *The Journal of Nutrition*, 141, 490-494.
- Blake, C.E., Wethington, E., Farrell, T., Bisogni, C., and Devine, C.M. (2011). Behavioral contexts, food-choice coping strategies, and dietary quality of a multiethnic sample of employed parents. *Journal of the American Dietetic Association*, 111(3), 401-407.
- Bisogni, C.A., Jastran, M., and Blake, C.E. (2011). The construction of eating episodes, food scripts, and food routines. In: Preedy V., Watson R.R., Martin C.R. (Eds.). *Handbook of Behavior, Food and Nutrition*. New York: Springer.
- Bronfenbrenner, U. (1979) *The Ecology of Human Development*. Cambridge, Mass.: Harvard University Press.

Cawley, J., and Liu, F. (2012). Maternal employment and childhood obesity: A search for mechanisms in time use data. *Economics and Human Biology*, 10, 352-364.

Charmaz, K. (2006). *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis*. SAGE Publications, Thousand Oaks, CA.

Corbin, J. M. and Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociology*, 13(1), 3-21.

Crepinsek, M.K. and Burstein, N.R. (2004). Maternal Employment and Children's Nutrition Volume I, Diet Quality and the role of the CACFP. In A. Associates (Ed.), (Vol. 1): Economic Research Service.

Denham, S.A. (2003). Relationships between family rituals, family routines, and health. *Journal of Family Nursing*, 9(3), 305-330.

Denzin, N.K. and Lincoln Y.S. (2000) Eds. *Handbook of Qualitative Research*. Thousand Oaks: Sage.

Devine, C.M., Jastran, M., Jabs, J., Wethington, E., Farrell, T.J., and Bisogni, C.A. (2006). “A lot of sacrifices”: Work-family spillover and the food choice coping strategies of low-income employed parents. *Social Science and Medicine*, 63, 2591-2603.

Faith, M.S., Scanlon, K.S., Birch, L.L., Francis, L.A., and Sherry, B. (2004). Parent-child feeding strategies and their relationships to child eating and weight status. *Obesity Research*, 12(11).

Folkman, S. and Moskowitz, J. T. (2004). Coping: Pitfalls and promise. *Annual Review of Psychology*, 55, 45-774.

Fosnot, C.T. (1996). *Constructivism: Theory, Perspectives, and Practice*. New York: Teachers' College Press.

Fulkerson, J.A., Larson, N., Horning, M., and Neumark-Sztainer, D. (2014). A review of associations between family or shared meal frequency and dietary and weight status outcomes across the lifespan. *Journal of Nutrition Education and Behavior*, 46, 2-19.

Glanz, K., Rimer, B. K., and Viswanath, K. (Eds.). (2015). *Health Behavior: Theory, Research and Practice*. John Wiley and Sons.

Gillman, M.W., Rifas-Shiman, S. L., Frazier, A. L., Rockett, H. R., Camargo Jr, C. A., Field, A. E., ... and Colditz, G. A. (2000). Family dinner and diet quality among older children and adolescents. *Archives of Family Medicine*, 9(3), 235.

Heymann, J. (2000). *The Widening Gap*. New York, NY: Basic Books.

Henly, J.R., and Lambert, S.J. (2010, March). *Schedule unpredictability and flexibility in hourly retail jobs: Contributions to work-to-family conflict, work-life interference, and employee stress*. Paper presented at the International Labour Process Conference, Rutgers University.

Hochschild, A. (1989). *The Second Shift*. New York: Avon Books.

Jastran, M., Bisogni, C.A., Sobal, J., Blake, C., and Devine, C.M. (2009). Eating routines. Embedded, value based, modifiable, and reflective. *Appetite*, 52, 127-136.

Jabs J., Devine C.M., Bisogni C., Farrell T.J., Jastran, M. and Wethington E. (2009). Trying to find the quickest way: Employed mothers' constructions of time for food. *Journal of Nutrition Education and Behavior*, 39(1), 8-25.

Johnson R.B., Onwuegbuzie, A.J., and Turner, L.A. (2007). Toward a Definition of Mixed Methods Research. *Journal of Mixed Methods Research*, 1, 112-133.

Johnson R.B. and Onwuegbuzie, A.J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, 33(7), 14-26.

Larson, N. and Story, M. (2009). A review of environmental influences on food choices. *Annals of Behavioral Medicine*, 38(Suppl 1), S56-S73.

Lazarus, R.S. and Folkman, S. (1987). Transactional theory and research on emotions and coping. *European Journal of Personality*, 1(3), 141-169.

Lincoln, Y. S. and Guba, E. G. (1985). *Naturalistic Inquiry* (Vol. 75). Newbury Park, CA: Sage Publications.

Meiselman, H.L. Obstacles to studying real people eating real meals in real situations. *Appetite*, 19(1), 84-86.

Milkie, M. A., Raley, S. B., and Bianchi, S. M. (2009). Taking on the second shift: Time allocations and time pressures of US parents with preschoolers. *Social Forces*, 88(2), 487-517.

Nicklas, T.A., Baranowski, T., Baranowski, J.C., Cullen, K., Rittenberry, L., and Olvera, N. (2001). Family and child-care provider influences on preschool children's fruit, juice, and vegetable consumption. *Nutrition Reviews*, 59(7).

Patrick, H. and Nicklas, T.A. (2005). A Review of family and social determinants of children's eating patterns and diet quality. *Journal of the American College of Nutrition*, 24(2), 83-92.

Presser H.B. (2003). *Working in a 24/7 Economy: Challenges for American Families*. New York: Russell Sage Foundation.

Sliwa, S.A., Must, A., Peréa, F., and Economos, C.D. (2015). Maternal employment, acculturation, and time spent in food-related behaviors among Hispanic mothers in the United States. Evidence from the American Time Use Survey. *Appetite*, 87, 10-19.a

Story, M., Neumark-Sztainer, D., and French, S. (2002). Individual and environmental influences on adolescent eating behaviors. *Journal of the American Dietetic Association*, 102(3), S40-S51.

United States Department of Agriculture. (2015, July). *10 Tips Nutrition Education Series*. Retrieved from USDA website <http://www.choosemyplate.gov/ten-tips>

APPENDIX A

SEMI-STRUCTURED INTERVIEW GUIDE 1

Participant ID# _____
Interviewer _____
Interview _____
Date _____

A. PERSONAL FACTORS

1. Can you tell me a bit about yourself? I know that you are a mother and a [other known roles, e.g. work, school]. What other things take up your time?
2. Please tell me about your child? (gender, age) What is your child's first name? What does she/he like to do?

B. WORK AND FAMILY CONDITIONS

1. Tell me about your work. What kind of work do you do? What kinds of activities do you do at work?
2. How satisfied are you with your work roles and responsibilities ?
3. Tell me about your family. How would you describe your family?
4. How satisfied with your family roles and responsibilities are you?

C. PARENTING ROLES

1. I am interested in your experience as a parent of a young child. What are all of the different kinds of activities you do for and with your child?
2. Which of the activities you listed are the most important for you? What are some reasons for this?
3. What are some activities with your child that are challenging for you? What are some of the reasons for that?
4. What other activities do you participate in as a parent that may be related to your child's health and development but that your child does not necessarily attend (i.e. mothers groups, parenting classes)?

D. 24-HOUR QUALITATIVE FEEDING RECALL (from Cornell Food Choice Research Group 2012)

I am interested in getting a better idea of how young children eat. I would like to start by asking you to describe all of the eating and drinking events for you and your child yesterday. There are no right or wrong answers, I am trying to get a mental picture of how feeding [child's name] went yesterday.

PASS 1

It would be helpful if you would start by listing everything you fed [child's name] yesterday from the morning until their bedtime. Include everything you fed them at home and away from home.

PROBES: Anything else? And after that? Did they have anything to drink with that?]

PASS 2

Now I'm going to ask you for more detail about the eating events you just listed. When you remember anything else your child ate or drank as we go along, please tell me.

E. FEEDING SITUATION DETAILS

1. Can you tell me more about [FEEDING EVENT IN PARTICIPANTS WORDS]?

PROBES:

- a. Time (time of day, length of eating event)
- c. **Where** were you and [child] at the time?
- d. What was [child] doing while he/she was eating? What was his/her mood?
- e. How was the food offered to your child? (e.g. plate, by hand, at a table, etc)\
- f. Were you eating? If YES, were you eating the same or different food?
- g. **Who else** was there?
- h. **What** were these other people doing? Were they eating? IF YES: Were they eating the same food?
- i. **How** did you decide to feed your child that?
- j. Who **prepared** the food? [SKIP THIS QUESTION FOR RESTAURANT FOODS or prepared foods]
- k. How were you **feeling** at that time?
- l. What else **was going on?** ? PROBES: talking, tv, phone, reading, computer, cooking etc.
- m. Was this eating situation typical?

REPEAT PASS 2 FOR EATING SITUATION PRESENTED UNTIL THE ENTIRE DAY IS COVERED.

2. Sometimes meals or feeding children gets disrupted by daily activities and events at home or at work. Were any of your child's meals or snacks affected yesterday because of something like this? What happened? What caused the disruption? How was your child's eating disrupted?
3. How did the way you fed your child yesterday work from your perspective? Did the way you fed him/her yesterday go as planned or as you expected?
4. Is there anything else that I should know that I did not ask that would help me understand feeding your child yesterday?
5. How does the way you feed your child on a work day compare with the way you feed him/her on non-work days?

F. CHILD FEEDING AND EATING IDENTITY

1. Tell me about feeding your child. What is it like for you?
2. How would you describe your feeding style?
3. How would you describe your child's eating? What type of eater is he/she?
4. How does the way your child eats compare with others in your family? Other children?
5. How satisfied are you with the way your child eats? (Probes: What are some of the things you would like to change about the way he/she eats?; What is difficult about feeding your child?; What is easy about feeding your child?)

6. What are some things you have tried or thought about trying to help him/her change?
(Probe: Can you give me an example and what did you do?)
7. How do your child's reactions influence the way you feed your child?

G. FOOD FOR CHILD AND SELF

1. How would describe the food you feed your child? Is the food you feed your child different from the food you eat yourself? (Probe if different: How would you say they are different?)
2. What are your five go to foods you eat when you feel stressed? What are the five go to foods you feed your child when you feel stressed? Are these food different from what you would eat yourself? How would say they are different?
3. Are there foods you do not feed your child...why? Would you eat this food yourself?
4. Are there foods you would like to feed your child but don't? Why is this?

H. PERSONAL AND SOCIAL RESOURCES FOR FEEDING

1. How satisfied are you with the way you are able to feed your child on a daily basis?
2. Are there any things you would like to do differently in feeding your child?
3. Who else is involved in feeding your child?
4. How are they involved in feeding your child?
5. How satisfied are you with the way they feed your child? (Probe: How does the way they feed your child compare to the way you feed your child?)

I. OTHER LIFECOURSE INFLUENCES

1. Who has the primary responsibility for feeding [child] ?
2. Who had this responsibility for you when you were growing up?
3. What are some of the things do you teach your child about food and eating? Probe: What are some of the ways you do this?
4. How were dirruptions to eating and meals handled when you were a child?

We have come to the end of my questions. Is there anything else you would like to say about feeding your child?

Thank you very much for your help.

APPENDIX B

DEMOGRAPHIC QUESTIONNAIRE

Participant ID# _____
Interviewer _____ Date _____

In order for me to understand your situation, I have a few questions about you and your child.

Your Child

1. How old was your child on her/his last birthday? _____ years old
2. What is the name of your child's teacher? _____ (teacher's name)
3. What is your child's gender? Circle one: Male Female

Food and Meals at Your House

4. Are you the person who prepares the main meal for your household on most days?
YES _____ NO _____
5. If NO, who prepares the main meals for your household on most days? *Circle one:*
Spouse/Partner Older child Other [specify] _____
6. Assuming that your family eats 7 main meals in a week, please answer the following questions about your main family meals in a typical week:
 - a. How many of your family's main meals each week are homecooked? _____ meals
 - b. How many of your family's main meals each week are at a fast food restaurant? _____ meals
 - c. How many of your family's main meals each week are take out? _____ meals
 - d. How many of your family's main meals each week are in a sit-down or buffet restaurant? _____ meals

7. This is a list of things that busy parents do to manage food and meals. In a typical work week, is each of the following true for your family: OFTEN, SOMETIMES, RARELY, or NEVER *(circle column with the best answer for each item)*

a. I miss eating meals with my family because of my job	Often	Sometimes	Rarely	Never
b. I miss eating breakfast because of work and family demands	Often	Sometimes	Rarely	Never
c. I miss eating lunch because of my job	Often	Sometimes	Rarely	Never
d. After work, I grab something quick to eat	Often	Sometimes	Rarely	Never
e. I overeat later after missing a meal	Often	Sometimes	Rarely	Never
f. Everyone in my family eats something different for a main meal	Often	Sometimes	Rarely	Never
g. My family watches TV during our main meal	Often	Sometimes	Rarely	Never
h. I eat my main meal with my whole family together	Often	Sometimes	Rarely	Never
i. The children eat first and adults eat later	Often	Sometimes	Rarely	Never
j. My family's main meal is something that is quick to prepare	Often	Sometimes	Rarely	Never
k. Our family meals include canned, frozen, and boxed entrees	Often	Sometimes	Rarely	Never
l. I eat while I work	Often	Sometimes	Rarely	Never
m. At work, I grab something quick to eat instead of a meal	Often	Sometimes	Rarely	Never
n. My family cooks enough so that there will be leftovers	Often	Sometimes	Rarely	Never
o. I pack a lunch to take to work	Often	Sometimes	Rarely	Never

p. I keep food on hand at work	Often	Sometimes	Rarely	Never
q. I cook more on days off	Often	Sometimes	Rarely	Never

About Your Time at Home *Circle one:*

8. How often do you control the amount of time you spend on tasks at home?

All the time Usually Sometimes Rarely Never

9. How often do you have enough time to get everything done?

All the time Usually Sometimes Rarely Never

10. How often do you have too many demands made on you at home?

All the time Usually Sometimes Rarely Never

11. How often do you have a lot of interruptions at home?

All the time Usually Sometimes Rarely Never

About Your Work

12. Is your job schedule? *Circle one:* The same every week Varied every week

13. How true is each of the following of your work?

a. You have more work to do than most people. *Circle one:*

Not true Somewhat True Very True

b. Your supervisor is always monitoring what you do at work.

Not true Somewhat True Very True

c. You want to change jobs or career but don't feel you can.

Not true Somewhat True Very True

d. Your job often leaves you feeling both mentally and physically tired.

Not true Somewhat True Very True

e. You want to achieve more at work but things get in the way.

Not true

Somewhat True

Very True

f. Your work is boring and repetitive.

Not true

Somewhat True

Very True

About You

14. What is the highest grade or year of school you completed? *Circle one:*

Elementary (Grades 1- 8)

Some high school (Grades 9 - 11)

High school grad (Grade 12 or GED)

College 1 year to 3 years

College 4 years or more

Post graduate

15. Which one of these group best represents your race? *Circle all that apply:*

White

Black or African American

Other: [specify]_____

Asian

Native Hawaiian/Pacific Islander

American Indian/Alaska Native

16. Are you of Hispanic origin? ____ YES, Hispanic or Latino ____ NO

17. Are you? *Circle one:*

Married

Divorced

Widowed

Separated

Never Married

Living with Partner (If so how many months? _____)

18. How many children under 18 live at home with you all together? ____ number

19. How many people eat the main meal at your house on most days? ____ number

20. How would you describe the money situation in your household right now?

A dollar amount is not needed.

Circle only one below:

Comfortable with
some extras

Enough but
no extras

Have to
cut back

Cannot make
ends meet

21. I would like to ask your permission to contact Head Start for your child's height and weight so that I have complete information on your child.

☐ **I am willing to have you contact Head Start for my child's height and weight information.**

Signed: _____

Date: _____

I want to remind you that either myself or Tracy will contact you in the next three months to schedule the telephone diary study with you. Have there been or will there be any changes in your contact information that we should know about? Please feel free to contact us if anything changes for you.

Thank you very much for your help.

APPENDIX C

SEMI-STRUCTURED INTERVIEW GUIDE 2

Participant ID#_____

Interviewer _____ **Date** _____

A. IT'S NICE TO SEE YOU AGAIN.

1. How have things been going for you and for _____ (child's name)?
2. How have things been going for you at work? How about at home?

B. LIFE CHANGES AND CHILD FEEDING

Our chat today will be a chance for us to briefly catch up with recent changes in your life and _____ (child's name)'s life and talk about how these changes may have influenced the way _____ (child's name) is eating now that he/she has been in Head Start for a year. Before we begin I just want to confirm the changes you mentioned when I/Tracy talked with you on the phone. [Review the changes]

1. Has anything else changed since the telephone interviews? How, if at all, have these changes affected how you manage food and meals for yourself and your family?
 - a. Probes: each type of change (job, partner job, household, child care)
2. What were some of the reasons for these changes?
3. How have these changes affected how you manage food and meals for (Child's name)?

C. CHANGES IN CHILD'S EATING BEHAVIORS.

1. I was wondering if you could tell me what changes there have been in your child's eating since the last time we met?

[PROBES: What kinds of changes have there been in

- a. Types of food he/she is familiar with?
- b. Types of foods he/she likes?
- c. Types of foods he/she eats?
- d. Appetite?
- e. His/her willingness to try new foods or eat foods not previously liked?]
2. What were some of the reasons for these changes?
3. How have these changes been for you, for other members of your family?

D. HEAD START AND CHILD FEEDING

1. How has being in Head Start affected the way your child eats:
 - o At Head Start?
 - o At home?
2. What kinds of discussions have you had with the staff at Head Start about your child's eating?
3. What kinds of things have you learned about feeding your child from Head Start?
4. Has your child's experience with Head Start affected the ways you feed your child at

home? How so?

E. 24-HOUR QUALITATIVE FEEDING RECALL

Just as we did the first time we talked, I would like to ask you to describe all of the eating and drinking events for you and your child yesterday. There are no right or wrong answers, I am trying to get a mental picture of how feeding [child's name] went yesterday.

PASS 1

It would be helpful if you would start by listing everything you fed [child's name] yesterday from the morning until their bedtime. Include everything you fed them at home and away from home.

PROBES: Anything else? And after that? Did they have anything to drink with that?]

PASS 2

Now I'm going to ask you for more detail about the eating events you just listed. When you remember anything else you ate or drank as we go along, please tell me.

F. FEEDING SITUATION DETAILS

1. Can you tell me more about [FEEDING EVENT IN PARTICIPANTS WORDS]?

PROBES:

- a. Time (time of day, length of eating event)
- c. **Where** were you and [child] at the time?
- d. What was [child] doing while he/she was eating? What was his/her mood?
- e. How was the food offered to your child?
- f. **Who else** was there?
- g. **What** were these other people doing? Were they eating? IF YES: Were they eating the same food?
- h. **How** did you decide to feed your child that?
- i. Who **prepared** the food? [SKIP THIS QUESTION FOR RESTAURANT FOODS or prepared foods]
- j. How were you **feeling** at that time?
- m. What else **was going on**? PROBES: talking, tv, phone, reading, computer, cooking etc.
- n. Was this eating situation typical?

REPEAT PASS 2 FOR EATING SITUATION PRESENTED UNTIL THE ENTIRE DAY IS COVERED.

2. Sometimes meals or feeding children gets disrupted by daily activities and events at home or at work. Were any of your child's meals or snacks affected yesterday because of something like this? What happened? What caused the disruption? How was your child's eating disrupted?
3. How did the way you fed your child yesterday work from your perspective? Did the way you fed them yesterday go as planned or as you expected?
4. Is there anything else that I should know that I did not ask that would help me understand feeding your child yesterday?

G. ROUTINES AND DISRUPTIONS

Mothers have told us that one of the things that helps them manage food and meals for their young children is maintaining a daily routine for food and meals.

1. How do you use routines to manage food and meals?

Mothers also tell us that things that disrupt their daily routines, make it difficult to feed their children the way they would like.

2. What types of disruptions do you typically have in your daily life?

Probe: kinds of chronic and acute disruptions mentioned by this mother.

Chronic probes:

- How about your work or work schedule?
- How about your partner's work hours or schedule?
- How about family schedules?
- How about other children's schedules or school schedules?
- How about childcare?
- How about transportation and commuting?
- How about health problems?
- How about money problems?
- How about daily transitions?

Acute probes:

- How about child behavior (fussiness, conflict)?
- How about child illness?
- How about transportation?
- How about family conflict?

3. How do those disruptions affect food and meals for (child's name)?

H. DELEGATION

I am interested in understanding more about how others may be involved in feeding your child.

1. For those others (e.g. from first interview: partner, other family, older child) who live with you how are they involved in food and meals for (child's name)?
2. How much guidance do you give to those you live with about feeding your child?
3. And for others who do not live with you (e.g. from first interview: neighbor, family, child care), how are they involved in food and meals for (child's name)?
4. How much guidance do you give to them about feeding (child's name)? How satisfied are you with these arrangements?

I. SOURCES OF INFORMATION

1. What other kinds of information do you rely on about child feeding? Where do you get this information from?
2. How do you think advertising influences the ways you feed your child?

I have come to the end of my questions. Is there anything else you would like to say or that you think we should know?

Thank you very much for your help.

APPENDIX D

TELEPHONE INTERVIEW DAY 1

INTERID: Enter name or code number for interviewer

Participant ID: Enter name or code for participant

DAY: Enter "1" for day 1 interview

DATE: Enter date of interview

DAYTIME: Is this interview in the

1= Evening (6:00 PM or later)

2= Day time (Before 6:00 PM)

WEEKDAY: Today is...

1=Monday

2=Tuesday

3=Wednesday

4=Thursday

5=Friday

6=Saturday

7=Sunday

SIGOTH Respondent's current partner status:

1=Married

2=Divorced

3=Widowed

4=Separated

5=Never married

6=Living with partner

77=Don't know

88=Not applicable

99=Refused

RJOB Respondent's job status:

1=Working for pay at least 20 hours

2=Going to school at least 20 hours a week

3=Working for pay and going to school at least 20 hours a week

77=Don't know

88=Not applicable

99=Refused

"Hello. This is (name) from the Head Start CORNELL Project calling for (R name).

I am calling for our scheduled phone interview. Am I speaking with [R name]? Before we begin I just want to check if this is still a good time for you."

[NOTE: If not a good time ask, “When would be a good for you?” Record time and day and confirm. Let participant know you will send a text reminder.]

“Before we get started I need to review the form that we gave you at Head Start to make sure that you understand what is involved and that you agree to participate. Did you read the form and do you have any questions for me?”

[If participant did not review then review verbal consent form with participant.]

Would still like to participate? [NOTE: If R does not want to participate thank them for their time and do not continue with the interview.] **Thank you, we appreciate your participation.**

“For today’s interview I will be asking you questions about feeding your child, your work, and your family situations. It should take about 20 minutes depending on what you have to say. All of the responses you share with me today will be kept confidential meaning that your responses will not be able to be traced back to you.”

Before we get started today, I need to check on a couple of things.

WORK1 Did you work yesterday?

1=Yes

2=No

77=Don’t know

88=Not applicable

99=Refused

HS1 Did your child attend Head Start yesterday?

1=Yes

2=No

77=Don’t know

88=Not applicable

99=Refused

“For this interview I’ll be asking about you and your child in Head Start [child name]. When I ask about a child I will be asking about [child name]. ”

“To begin I have a few questions about your household.”

1. MML Are you the person who prepares the main meal for your household on most days?

1=Yes →Skip to Q3.

2=No

77=Don’t know

88=Not applicable

99=Refused

2. OTHMML Who prepares the main meals for your household on most days?

- 1=Spouse or partner
2=Other child (including step)
3=Other relative (including in-laws)
4=Other (Specify) _____
77=Don't know
88=Not applicable
99=Refused

3. PPLMNML What is the number of people who eat the dinner meal in your house on most days?

No. people _____

"My next questions are about your child's food and eating yesterday and how it went from your perspective. Let's begin with the dinner meal that your child ate yesterday."	
4.	CHLDTM1 Yesterday what time was your child's dinner? Time _____ 77=Don't know 88=Not applicable 99=Refused
5.	CHLDMM1 Yesterday, where did your child eat dinner? 1=At home 2=At other family member's house 3=At neighbor or friend's house 4=Restaurant →Skip to Q7. 5=Other (specify) _____ 77=Don't know 88=Not applicable 99=Refused
6.	WHOPREP1 Yesterday, who prepared your child's dinner? 1=Self 2=Spouse or partner 3=Child's father (not living in household) 4=Older child (including step) 5=Other relative (including in-laws) 6=Friend/Neighbor 7=Other (Specify) _____ 77=Don't know 88=Not applicable 99=Refused
7.	CHLDTV1 Was the T.V. or something else with a screen on in the same room while he/she was eating dinner? 1=Yes 2=No

	77=Don't know 88=Not applicable 99=Refused
8.	DINCH1 Yesterday, did you eat dinner with your child? 1=Yes →Skip to Q10. 2=No 77=Don't know 88=Not applicable 99=Refused
9.	NODIN1 Who ate the dinner meal with your child? 1=Spouse or partner 2=Child's father (not living in household) 3=Other child (including step) 4=Other relative (including in-laws) 5=Friend/Neighbor 6=Other (Specify) _____ 77=Don't know 88=Not applicable 99=Refused Probe... Was there anybody else there?
10.	WHOATE1 Who else ate dinner with your child? (Check all that apply.) 1=Spouse or partner 2=Child's father (not living in household) 3=Other child (including step) 4=Other relative (including in-laws) 5=Friend/Neighbor 6=Other (Specify) _____ 77=Don't know 88=Not applicable 99=Refused Probe... Was there anybody else there?
11.	CHLDKNOW1 Yesterday, do you know what your child ate from the time they left Head Start (or 3pm if child not at Head Start) until they went to bed? 1=Yes 2=No →Skip to Q84. 77=Don't know 88=Not applicable 99=Refused
“Now I am going to ask you about any interruptions or changes in [child's name] usual dinner routine yesterday. Please think about the dinner meal when answering this next question.”	

12.	<p>DISDN1 Yesterday, did anything happen during your child's dinner that was disruptive or was your child's dinner interrupted or different than usual because of something that happened yesterday?</p> <p>(If necessary, clarify: Starting at midnight on (day) until midnight last night)</p> <p>1=Yes 2=No → Skip to Q16. 77=Don't know → Skip to Q16. 88=Not applicable → Skip to Q16. 99=Refused → Skip to Q16.</p>
13	<p>HAPDISDN1 What happened and what about it would most people consider disruptive?</p> <p><u>Description:</u></p> <p>77=Don't know 88=Not applicable 99=Refused</p> <p>Probe.... Could you tell me a little more about that? Could you tell me a little more about the background to that?</p>
14.	<p>HWDISDN1 How disruptive was this for you - very, somewhat, not very, or not at all?</p> <p>1=Very 2=Somewhat 3=Not Very 4=Not at all 77=Don't know 88=Not applicable 99=Refused</p>
15.	<p>ABDISDN1 One a scale of 1 to 6 with 6 being the most confident and 1 being least confident, how did you feel about your ability to handle (state the disruptive situation using participant's own words)?</p> <p>_____ (number from 1-6)</p>

“Now I would like to ask you about all the foods your child had yesterday from when they left Head Start [if not in Head Start yesterday, say ‘3 o’clock’] until bedtime. We are interested in getting a realistic picture of what young children actually eat, even if it is not always what their parents hope they would eat.”

A.	<p>CVEG1 First, is a list of vegetables. Please answer Yes or No as to whether your child ate any of the following vegetables before, during, or after dinner. Vegetables can be fresh, frozen, or canned. Did your child eat:</p>	Yes	No
----	---	------------	-----------

16.	Beets		
17.	Bell peppers (example: green, red)		
18.	Broccoli		
19.	Cabbage		
20.	Cauliflower		
21.	Carrots		
22.	Celery		
23.	Corn		
24.	Cucumbers		
25.	Green beans		
26.	Lettuce (example: iceberg, romaine)		
27.	Mushrooms		
28.	Peas		
29.	Potatoes		
30.	Spinach/other greens (collard)		
31.	Squash (example: butternut, zucchini)		
32.	Sweet potatoes		
34.	Tomatoes		
35.	Mixed vegetables		
B.	CFRT1 The next items are Fruit. Please answer Yes or No as to whether your child ate any of the following fruits yesterday before, during, or after dinner. Fruits can be fresh, frozen, dried, or canned. Did your child eat:	Yes	No
36.	Apples		
37.	Apple sauce		
38.	Bananas		
39.	Blueberries		

40.	Grapes (red or green)		
41.	Mixed fruit/fruit cocktail		
42.	Peaches/nectarines		
43.	Oranges (Tangerines, Clementines)		
44.	Pears		
45.	Raisins		
46.	Strawberries		
C.	CFTRT1 The next items are frozen treats. Please answer Yes or No as to whether your child ate any of the following frozen treats before, during or after dinner. Did he/she eat:	Yes	No
47.	Ice cream or frozen yogurt		
48.	Popsicles/juice bars		
D.	CQKFD1 The next items are quick home foods. Please answer Yes or No as to whether your child ate any of the following quick home foods before, during, or after dinner. Did he/she eat:	Yes	No
49.	Frozen pizza		
50.	Hot pockets		
51.	Chicken nuggets		
52.	French fries or tater tots		
53.	Mac and cheese/other canned pasta		
54.	Ramen noodles		
E.	CTRT1 The next items are treats. Please answer Yes or No as to whether your child ate any of the following before, during or after dinner. Did your child eat:	Yes	No
55.	Cookies		
56.	Cupcakes		
57.	Muffins		
58.	Brownies		

59.	Other snack cakes		
60.	Pastry, sweet rolls, donuts		
F.	CSNK1 The next items are snacks. Please answer Yes or No as to whether your child ate any of the following snacks before, during, or after dinner. Did your child eat:	Yes	No
61.	Crackers (whole grain, regular, graham)		
62.	Potato/ Tortilla chips		
63.	Cheese curls or puffs		
64.	Pretzels		
65.	Popcorn		
66.	Nuts		
67.	Granola bars		
68.	Pop-Tarts		
69.	Chocolate		
70.	Fruit rollups, fruit snacks		
71.	Chewy candy (example: Skittles)		
G.	CBEV1 And the last items are beverages. Please answer Yes or No as to whether your child drank any of the following beverages before, during, or after dinner. Did he/she drink:	Yes	No
72.	Regular soda pop		
73.	Diet soda pop		
74.	Prepared ice teas or lemonade (ex: Snapple)		
75.	Prepared light ice tea or lemonade (ex: crystal light)		
76.	Sports drinks		
77.	100% fruit juice		
78.	Fruit drinks		
79.	Bottled water		
80.	Whole milk		

81.	Skim, 1%, or 2% milk		
-----	----------------------	--	--

82.	<p>SATCEAT1 Overall, how satisfied were you with [child name]'s food and eating yesterday since they were picked up from Head Start (or 3PM) until bedtime? Would you say you were very satisfied, satisfied, not very satisfied, or not at all satisfied? (NOTE: check 'Not applicable' mom does not know what child ate from 3pm until bedtime)</p> <p>1=Very satisfied→Skip to Q84. 2=Satisfied→Skip to Q84. 3=Not very satisfied 4=Not at all satisfied 77=Don't know 88=Not applicable 99=Refused</p>
83.	<p>If Not Very or Not At All Satisfied otherwise skip: NOSATEAT1 What is the reason that you were Not Very/ Not At All Satisfied? Description 77=Don't know 88=Not applicable 99=Refused</p>

“Now I would like to get your perspective about Head Start’s role with feeding your child. Please tell me whether you strongly agree, agree, disagree, or strongly disagree for each of the following statements:”

84.	<p>HSKNOW I know what my child eats when he/she is at Head Start.</p> <p>1= Strongly Agree 2= Agree 3= Disagree 4= Strongly Disagree 77= Don't know 88= Not applicable 99= Refused</p>
85.	<p>DELHS Head Start does a good job of feeding my child during the day.</p> <p>1=Strongly Agree 2=Agree 3=Disagree 4=Strongly Disagree 77=Don't know 88=Not applicable 99=Refused</p>

“Busy work schedules can mean moms sometimes have less time than they would like with their children. Would you say the following happens Often, Sometimes, Rarely, or Never:”

86.	TMCHLD I don't have enough time to spend with my child.
-----	---

	1=Often 2=Sometimes 3=Rarely 4=Never 77=Don't know 88=Not applicable 99=Refused (If R answers "always," categorize it as "often.")
87.	TMHML I don't have enough time to make healthy meals for my child. 1=Often 2=Sometimes 3=Rarely 4=Never 77=Don't know 88=Not applicable 99=Refused (If R answers "always," categorize it as "often.")
88.	WORRDIET I worry that my child's diet is not as healthy as it should be. 1=Often 2=Sometimes 3=Rarely 4=Never 77=Don't know 88=Not applicable 99=Refused (If R answers "always," categorize it as "often.")
89.	WORRWGHT I worry that my child's weight is not as healthy as it should be. 1=Often 2=Sometimes 3=Rarely 4=Never 77=Don't know 88=Not applicable 99=Refused (If R answers "always," categorize it as "often.")

The next questions are about your work and family situations and any changes since (x month).	
86.	I want to confirm that when we spoke with you at Head Start that you said that you were (confirm marital status): 1=Married 2=Divorced → Skip to Q89. 3=Widowed → Skip to Q89. 4=Separated → Skip to Q89. 5=Never Married → Skip to Q89. 6=Living with Partner (for _____ months)

	77=Don't know 88=Not applicable 99=Refused
87.	CHNGSIGOTH Have there been any changes in your partner status with since (x month). 1=Yes 2=No → Skip to Q89. 77=Don't know 88=Not applicable 99=Refused
88.	If YES, CHNGSIGOTH WHTSIGOTH What was the change in your partner situation since (x month)? 1= Divorced 2=Separated 3=New partner 4=Partner left 5=Other _____ 77=Don't know 88=Not applicable 99=Refused
89.	How many adults live at home with you altogether? Number =
90.	How many children under 18 live at home with you altogether? Number =
91.	CHNGLVG Have there been any changes in where you live or who you live with since (x month). 1=Yes 2=No → Skip to Q93. 77=Don't know 88=Not applicable 99=Refused
92.	CHNGLVGWHT What was the change? 1=Moved, same members in HH 2=Moved, more/less members in HH 3=No move, more/less HH members 4=Other (specify) _____ 77=Don't know 88=Not applicable 99=Refused
93.	I want to confirm that when we spoke with you at Head Start that you said you were (confirm job/school status). 1=Working for pay at least 20 hours a week

	2=Going to school at least 20 hours a week → Skip to Q116. 3=Working for pay and going to school at least 20 hours a week
94.	JOB What is your job? Description _____ 77=Don't know 88=Not applicable 99=Refused
95.	JOBREG Is your work schedule the same every week, or does it vary? 1=Same 2=Varied 77=Don't know 88=Not applicable 99=Refused
96.	JOBSND Do you have a second job? 1=Yes 2=No → Skip TO Q98. 77=Don't know 88=Not applicable 99=Refused
97.	JOBSNDWHT What is your second job? Description _____ 77=Don't know 88=Not applicable 99=Refused
98.	JOBSCH Do you usually work days, evenings, nights, or a combination of these schedules at your (main) job? 1=Day/first shift 2=Evenings/Second shift 3=Night/Third shift 4=Combination 77=Don't know 88=Not applicable 99=Refused

99.	<p>JOB DAYS In a typical week, does your work schedule (for all jobs) include: only weekdays/ only weekends (any time on Saturday or Sunday)/ or both weekdays and weekends?</p> <p>1=Weekdays only 2=Weekend only 3=Both weekdays and weekends 77=Don't know 88=Not applicable 99=Refused</p>
100.	<p>JOB OT How often do you work overtime at your job(s)?</p> <p>1=Often 2=Sometimes 3=Rarely 4=Never 77=Don't know 88=Not applicable 99=Refused</p>
101.	<p>JOB AD How far in advance do you usually know what days and hours you will need to work? One week or less, between 1 and 2 weeks, between 3 and 4 weeks, or 4 weeks or more?</p> <p>1=One week or less 2=Between 1 and 2 weeks 3=Between 3 and 4 weeks 4=Four weeks or more 77=Don't know 88=Not applicable 99=Refused</p>
102.	<p>JOB HRS About how many hours, including overtime, do you work for pay at all your jobs in an average week?</p> <p>_____ hours</p> <p>77=Don't know 88=Not applicable 99=Refused</p>
103.	<p>JOB CON Which of the following statements best describes how your working hours are decided. By working hours we mean the time you start and finish work, not the total hours you worked per week or month. [Read responses]</p> <p>1=Starting and finishing times are decided by my employer and I cannot change them on my own. 2=Starting and finishing times are decided by my employer but with my input. 3=I can decide the time I start and finish work, within certain limits. 4=I am entirely free to decide when I start and finish work. 5=When I start and finish work depends on things outside of my control and outside of my employer's control. 77=Don't know 88=Not applicable</p>

	99=Refused
“The next questions are about job demands and control. How true is each of the following of your work? Please answer Not true, Somewhat true, or very true.”	
104.	JOBDMND You have more work to do than most people. 1=Not true 2=Somewhat True 3=Very True 77=Don't know 88=Not applicable 99=Refused
105.	JOBMON Your supervisor is always monitoring what you do at work. 1=Not true 2=Somewhat True 3=Very True 77=Don't know 88=Not applicable 99=Refused
106.	JOBLV You want to change jobs or career but don't feel you can. 1=Not true 2=Somewhat True 3=Very True 77=Don't know 88=Not applicable 99=Refused
107.	JOBTIR Your job often leaves you feeling both mentally and physically tired. 1=Not true 2=Somewhat True 3=Very True 77=Don't know 88=Not applicable 99=Refused
108.	JOBMOR You want to achieve more at work but things get in the way. 1=Not true 2=Somewhat True 3=Very True 77= Don't know 88= Not applicable 99= Refused
109.	JOBREP Your work is boring and repetitive. 1=Not true 2=Somewhat True 3=Very True 77=Don't know 88=Not applicable 99=Refused

110.	JSSUP How often do you get help and support from your immediate supervisor? All of the time, Most of the time, Sometimes, Rarely, Never 1= All of the time 2= Most of the time 3= Sometimes 4= Rarely 5= Never 77=Don't know 88=Not applicable 99=Refused
111.	JOBSAT How satisfied are you with your current work situation? Are you Very Satisfied, Satisfied, Not Very Satisfied or Not At All Satisfied? 1= Very satisfied 2= Satisfied 3= Not very satisfied 4= Not at all satisfied 77=Don't know 88=Not applicable 99=Refused
112.	CHNGJOB Since x month, were there any changes in your job situation? 1= Yes 2= No → Skip to Q114. 77=Don't know 88=Not applicable 99=Refused
113.	CHNJOBWHT What about your job situation changed? 1= Change in hours or days working at same job 2= Lost job now unemployed 3= Lost job now new job 4= Quit job now unemployed 5= Quit job now new job 6= Other (specify) started with company, in office 77=Don't know 88=Not applicable 99=Refused
Now I'm going to ask you about how you arrange your work schedule. For each statement I would like you to tell me whether you strongly agree, agree, disagree, or strongly disagree.	
114.	FAMHRS I arrange my work schedule to fit my family's schedules. 1=Strongly Agree 2=Agree 3=Disagree 4=Strongly Disagree 77=Don't know

	88=Not applicable 99=Refused
115.	If significant other/partner/or spouse otherwise skip: OPPHRS I work an opposite shift to my significant other/partner/spouse to save on childcare. 1=Strongly Agree 2=Agree 3=Disagree 4=Strongly Disagree 77=Don't know 88=Not applicable 99=Refused
116.	CHNGSCHL Have there been any changes in your school situation since (x month). 1=Yes 2=No → Skip to Skip to Q122. 77=Don't know 88=Not applicable 99=Refused
117.	CHNGSCHLWHT What about your school situation changed? 1=Started school 2=Graduated from school → Skip to Q122. 3=Schedule changed 4=Dropped out of school → Skip to Q122. 5=Other (specify) _____ 77=Don't know 88=Not applicable 99=Refused
118.	SCHLHRS About how many hours do you spend attending classes and doing schoolwork in a typical week? _____ hours 77=Don't know 88=Not applicable 99=Refused
119.	SCHLREG Is your class and schoolwork schedule the same or varied from week to week? 1= Same 2= Varied 77=Don't know 88=Not applicable 99=Refused
120.	SCHLSCH Do you usually attend classes and do schoolwork during days, evenings, or nights or a combination? 1=Days 2=Evenings 3=Nights

	4=Combination 5=Other (specify) _____ 77=Don't know 88=Not applicable 99=Refused
121.	SCHLDAYS In a typical week, does your class and schoolwork schedule include: only weekdays, only weekends (any time on Saturday or Sunday), or both weekdays and weekends? 1=Weekdays only 2=Weekend only 3=Both weekdays and weekends 77=Don't know 88=Not applicable 99=Refused
122.	SCHLSAT How satisfied are you with your current school situation? Are you Very Satisfied, Satisfied, Not Very Satisfied, or Not At All Satisfied? 1=Very satisfied 2=Satisfied 3=Not very satisfied 4=Not at all satisfied 77=Don't know 88=Not applicable 99=Refused
123.	CHNGCARE Have there been any changes in your childcare situation since (month). 1=Yes 2=No → Skip to Q125. 77=Don't know 88=Not applicable 99=Refused
124.	CHNGCAREWHT What about your childcare situation changed? Description _____ 77=Don't know 88=Not applicable 99=Refused
125.	CARESAT How satisfied are you with your current childcare situation? Are you Very Satisfied, Satisfied, Not Very Satisfied or Not At All Satisfied? 1=Very satisfied→Skip to Q127. 2=Satisfied →Skip to Q127. 3=Not very satisfied 4=Not at all satisfied 77=Don't know 88=Not applicable 99=Refused
126.	If Not Very or Not At All Satisfied otherwise skip: CARENOSAT What is the reason that you are Not Very/ Not At All Satisfied? Description _____

	77=Don't know 88=Not applicable 99=Refused
--	--

If SIGNIFICANT OTHER/SPOUSE otherwise skip “I also have a some questions for you about your significant other/partner/spouse’s job situation.”	
127.	PJOB What is significant other/partner/spouse’s current job status? 1=Working now for pay 2=Self-employed 3=Looking for work 4=Temporarily laid off 5=Retired 5=Homemaker 6=Student 7=Other (may volunteer: sick leave; permanently disabled) 77=Don't know 88=Not applicable 99=Refused
128.	PSNJOB Does your spouse or partner have a second job? 1=Yes 2=No 77=Don't know 88=Not applicable 99=Refused
129.	PJOBHRS About how many hours, including overtime, does your significant/other/partner/spouse usually work for pay at their jobs in an average week? <i>(Include total weekly hours for all jobs and overtime.)</i> Number of hours: 77=Don't know 88=Not applicable 99=Refused
130.	PJOBShift Does your significant other/partner/spouse usually work days, evenings, nights or a combination at their job(s)? 1=Days 2=Evenings 3=Nights/Graveyard 4=Combination 77=Don't know 88=Not applicable 99=Refused <i>(Use the following categories if R needs help clarifying. Day is any time between 7:00am and 5:00pm</i>

	<p><i>Evening is any time between 5:00 pm and 9:30 pm</i></p> <p><i>Night/Graveyard is any time between 9:30pm and 4:30am or overnight.)</i></p>
131.	<p>CHNGPJOB Have there been any changes in your significant other/partner/spouse's job situation since (month).</p> <p>1=Yes</p> <p>2=No →Skip to Q133.</p> <p>77=Don't know</p> <p>88=Not applicable</p> <p>99=Refused</p>
132.	<p>CHNGPJOBWHT What about the job situation changed?</p> <p>1=Same job, change in hours or days</p> <p>2=Lost job, now unemployed</p> <p>3=Lost job, now new job</p> <p>4=Quit job, now unemployed</p> <p>5=Quit job, now new job</p> <p>6=Other (specify) _____</p> <p>77=Don't know</p> <p>88=Not applicable</p> <p>99=Refused</p>
133.	<p>SPHAPPY Finally, would you say that you and your significant other/partner/spouse are:</p> <p>1=Very happy</p> <p>2=Happy</p> <p>3=Not very happy</p> <p>4=Not at all happy</p> <p>77=Don't know</p> <p>88=Not applicable</p> <p>99=Refused</p>
134.	<p>If ANY CHANGES, otherwise skip:</p> <p>CHNGINCM Overall did any of the changes since (month) that we discussed result in a loss of income for you and your family?</p> <p>1=Yes</p> <p>2=No</p> <p>77=Don't know</p> <p>88=Not applicable</p> <p>99=Refused</p>

“This last set of questions I have for you today are about you.”	
135.	<p>AGE What is your age?</p> <p>Years: _____</p>

136.	<p>EDU What is the highest grade or year of school you completed? [Note: Read options below to R.]</p> <p>1=Elementary (Grades 1- 8)</p> <p>2=Some high school (Grades 9 – 11)</p> <p>3=High school grad (Grade 12 or GED)</p> <p>4=College 1 year to 3 years</p> <p>5=College 4 years or more</p> <p>6=Post graduate</p> <p>77=Don't know</p> <p>88=Not applicable</p> <p>99=Refused</p>
137.	<p>RACE Which of the following group best represents your race? Please select all that apply. [Note: Read options below to R.]</p> <p>1=White</p> <p>2=Black or African American</p> <p>3=Asian</p> <p>4=Native Hawaiian/Pacific Islander</p> <p>5=American Indian/Alaska Native</p> <p>6=Other: [specify] _____</p> <p>77=Don't know</p> <p>88=Not applicable</p> <p>99=Refused</p>
138.	<p>HIS Are you of Hispanic origin?</p> <p>1=Yes</p> <p>2=No</p> <p>77=Don't know</p> <p>88=Not applicable</p> <p>99=Refused</p>
139.	<p>HLTH Would you say that in general your health is poor, fair, good, or excellent?</p> <p>1=Poor</p> <p>2=Fair</p> <p>3=Good</p> <p>4=Excellent</p> <p>77=Don't know</p> <p>88=Not applicable</p> <p>99=Refused</p>

<p>Please tell me whether you Strongly Agree, Agree, Disagree, or Strongly Disagree with the following statements.</p>	
140.	<p>ESLP I don't get enough sleep.</p> <p>1=Strongly Agree</p> <p>2=Agree</p> <p>3=Disagree</p>

	4=Strongly Disagree 77=Don't know 88=Not applicable 99=Refused
141.	OTHHL P There are people I can depend on to help if I really need it. 1=Strongly Agree 2=Agree 3=Disagree 4=Strongly Disagree 77=Don't know 88=Not applicable 99=Refused
142.	OTHEMG There are people I can count on in an emergency. 1=Strongly Agree 2=Agree 3=Disagree 4=Strongly Disagree 77=Don't know 88=Not applicable 99=Refused
143.	OTHAVAIL How often is someone available to feed your child if you were unable to do it yourself? [Note: Read options below to R.] 1=All of the time 2=Most of the time 3=Some of the time 4=A little of the time 5=None of the time 77=Don't know 88=Not applicable 99=Refused
144.	RMON Finally, how would you describe the money situation in your household right now? A dollar amount is not needed. [Note: Read options below to R.] 1=Comfortable with some extras 2=Enough but no extras 3=Have to cut back 4=Cannot make ends meet 77=Don't know 88=Not applicable 99=Refused

“That’s my last question for today. Thank you so much for your time. We will be sending you a ten-dollar gift card to Walmart as a thank you gift for completing today’s interview.”

“Just to be sure, I want to see that I have your correct name and address:”

Verify name and address as collected during initial screening.

First name

Last name

Street Address

City

State

Zip

Now, let’s set up days and times for your second phone call.

We want to call you once more over the week at a time that is convenient for you to talk for about 20 minutes.

Your second interview must be on a day following a workday. What day and time this week works best for you?

Confirm that Day 2 follows a day on which R is working.

_____ will be calling you on _____ day, date and time.

If you have any problems with these times, you can call or text me at, (phone number). Do you want to write that down?

I will call you at (time) on (day and date) to talk with you again for about 20 minutes. Remember that it is important to allow enough time. If we are interrupted we will need to reschedule the interview and start over.

Is that time still ok with you?

Just to check, should I still call you at (confirm phone number).

I’d also like to check that we have the correct name and phone number of a friend or family member whom we can call if we can’t reach you.

Verify names and phone numbers as collected during initial screening.

Name/phone number: _____

Name/phone number: _____

If you have any problems with that time, please call or text me at (phone number).

Thanks again, and I will be calling on (confirm day, date, and time).

APPENDIX E

TELEPHONE INTERVIEW DAY 2

INTERID: Enter name or code number for interviewer

Participant ID: Enter name or code for participant

DAY: Enter "2" for day 2 interview

DATE: Enter date of interview

DAYTIME: Is this interview in the...

1=Evening (6:00 PM or later)

2=Day time (Before 6:00 PM)

WEEKDAY: Today is...

1=Monday

2=Tuesday

3=Wednesday

4=Thursday

5=Friday

6=Saturday

7=Sunday

“Hello. This is (name) from the (HEAD START) CORNELL Project calling for (R name). I am calling for our scheduled phone interview. Am I speaking with [R name]? Before we begin I just want to check if this is still a good time for you.”

[NOTE: If not a good time ask, “When would be a good time for you?” Record time and day and confirm. Let participant know you will send a text reminder.]

I want to remind you that today’s interview should take about 20 minutes depending on what you have to say. All of the responses that you share with me today will be kept confidential meaning that your responses will not be able to be linked back to you.

Before we get started today, I need to check on a couple of things.

WORK2 Did you work yesterday?

1=Yes

2=No

77=Don’t know

88=Not applicable

99=Refused

HS2 Did your child attend Head Start yesterday?

1=Yes

2=No

77=Don't know
88=Not applicable
99=Refused

“To begin I would first like to ask you about your time at home. Please answer often, sometimes rarely, or never to the following questions.”

1. CTRLTM How often do you control the amount of time you spend on tasks at home? [Note: repeat the response choices after this question]

1=Often
2=Sometimes
3=Rarely
4=Never
77=Don't know
88=Not applicable
99=Refused
[Note: code “always” as “often”]

2. ENGHTM How often do you have enough time to get everything done? [Note: Pause for a moment and repeat the response choices after this question only if necessary.]

1=Often
2=Sometimes
3=Rarely
4=Never
77=Don't know
88=Not applicable
99=Refused
[Note: code “always” as “often”]

3. HMDMND How often do you have too many demands made on you at home?

1=Often
2=Sometimes
3=Rarely
4=Never
77=Don't know
88=Not applicable
99=Refused
[Note: code “always” as “often”]

4. HMINTRPT How often do you have a lot of interruptions at home?

1=Often

2=Sometimes

3=Rarely

4=Never

77=Don't know

88=Not applicable

99=Refused

[Note: code "always" as "often"]

"Now, I'm going to ask you about the foods that you have at home. Please do your best when answering the following questions and remember that there are no right or wrong answers."			
A.	HFIVEG First, is a list vegetables. Please answer Yes or No as to whether you have any of the vegetables at home. Vegetables can be fresh, frozen, or canned. Do you have:	Yes	No
5.	Beets		
6.	Bell peppers (example: green, red)		
7.	Broccoli		
8.	Cabbage		
9.	Cauliflower		
10.	Carrots		
11.	Celery		
12.	Corn		
13.	Cucumbers		
14.	Green beans		
15.	Lettuce (example: iceberg, romaine)		
16.	Mushrooms		
17.	Peas		
18.	Potatoes		
19.	Spinach/other greens (collard)		
20.	Squash (example: butternut, zucchini)		
21.	Sweet potatoes		
22.	Tomatoes		
23.	Mixed vegetables		
B.	HFIFRT The next items are Fruit. Please answer Yes or No as to whether you have any of the fruits at home. Fruits can be fresh, frozen, dried, or canned. Do you have:		
24.	Apples		
25.	Apple sauce		
26.	Bananas		
27.	Blueberries		
28.	Grapes (red or green)		
29.	Mixed fruit/fruit cocktail		
30.	Peaches/nectarines		
31.	Oranges (Tangerines, Clementines)		
32.	Pears		
33.	Raisins		

34.	Strawberries		
C.	HFIFTRT The next items are frozen treats. Please answer Yes or No as to whether you have any of the frozen treats I list at home. Do you have:		
35.	Ice cream or frozen yogurt		
36.	Popsicles/juice bars		
D.	HFIQKFD The next items are quick home foods. Please answer Yes or No as to whether you have any of the frozen foods I list at home. Do you have:		
37.	Frozen pizza		
38.	Hot pockets		
39.	Chicken nuggets		
40.	French fries or tater tots		
41.	Mac and cheese/other canned pasta (ex: chef Boyardee)		
42.	Ramen noodles		
E.	HFITRT Thank you for your patience, we are almost done with this section of the survey I just have three more groups of foods I would like to ask you about. The next items are treats. Please answer Yes or No as to whether you have any of the treats I list at home. Do you have:		
43.	Cookies		
44.	Cupcakes		
45.	Muffins		
46.	Brownies		
47.	Other snack cakes		
48.	Pastry, sweet rolls, donuts		
F.	HFISNK The next items are snacks. Please answer Yes or No as to whether you have any of the snacks I list at home. Do you have:		
49.	Crackers (whole grain, regular, graham, goldfish)		
50.	Potato/ Tortilla chips		
51.	Cheese curls or puffs		
52.	Pretzels		
53.	Popcorn		
54.	Nuts		
55.	Granola bars		
56.	Pop-Tarts		
57.	Chocolate		
58.	Fruit rollups, fruit snacks		
59.	Chewy candy (ex: Skittles)		
G.	HFIBEV The last items are beverages. Please answer Yes or No as to whether you have any of the following beverages at home. Do you have:		
60.	Regular soda pop		
61.	Diet soda pop		
62.	Prepared ice teas or lemonade (ex: Snapple)		
63.	Prepared light ice tea or lemonade (ex: crystal light)		
64.	Sports drinks (ex: Gatorade)		
65.	100% fruit juice		
66.	Fruit drinks (ex: Sobe)		

67.	Bottled water		
68.	Whole milk		
69.	Skim, 1%, or 2% milk		

“Thank you again for answering those last questions.”

“My next questions are about your child’s food and eating yesterday and how it went from your perspective. Let’s begin with the dinner meal that your child ate yesterday.”	
70.	CHLDTM2 Yesterday what time was your child’s dinner? Time _____ 77=Don’t know 88=Not applicable 99=Refused
71.	CHLDEAT2 Yesterday, where did your child eat dinner? 1=At home 2=At other family member’s house 3=At neighbor or friend’s house 4=Restaurant → Skip to Q73. 5=Other (specify) _____ 77=Don’t know 88=Not applicable 99=Refused
72.	WHOPREP2 Yesterday, who prepared your child’s dinner? 1=Self 2=Spouse or partner 3=Child's father (not living in household) 4=Older child (including step) 5=Other relative (including in-laws) 6=Friend/Neighbor 7=Other (Specify) _____ 77=Don’t know 88=Not applicable 99=Refused
73.	CHLDTV2 Was the T.V. or something else with a screen on in the same room while he/she was eating dinner? 1=Yes 2=No 77=Don’t know 88=Not applicable 99=Refused
74.	DINCH2 Yesterday, did you eat dinner with your child? 1=Yes → Skip to Q76. 2=No 77=Don’t know 88=Not applicable

	99=Refused
75.	<p>NODIN1 Who ate the dinner meal with your child?</p> <p>1=Spouse or partner 2=Child's father (not living in household) 3=Other child (including step) 4=Other relative (including in-laws) 5=Friend/Neighbor 6=Other (Specify) _____ 77=Don't know 88=Not applicable 99=Refused</p> <p>Probe... Was there anybody else there?</p>
76.	<p>WHOATE2 Who else ate dinner with your child? (Check all that apply.)</p> <p>1=Spouse or partner 2=Child's father (not living in household) 3=Other child (including step) 4=Other relative (including in-laws) 5=Friend/Neighbor 6=Other (Specify) _____ 77=Don't know 88=Not applicable 99=Refused</p> <p>Probe... Was there anybody else there?</p>
77.	<p>Yesterday, do you know what your child ate from the time they left Head Start (or 3pm if child not at Head Start) until they went to bed?</p> <p>1=Yes 2=No → Skip to Q149. 77=Don't know 88=Not applicable 99=Refused</p>
<p>“Now I am going to ask you about any interruptions or changes in [child's name] usual dinner routine yesterday. Please think about the dinner meal when answering this next question.”</p>	
78.	<p>DISDN2 Yesterday, did anything happen during your child's dinner that was disruptive or was your child's dinner interrupted or different than usual because of something that happened yesterday?</p> <p>(If necessary, clarify: Starting at midnight on (day) until midnight last night)</p> <p>1= Yes</p>

	<p>2= No → Skip to Q32. 77=Don't know→ Skip to Q32. 88=Not applicable → Skip to Q32. 99=Refused→ Skip to Q32.</p>
79.	<p>HAPDISDN2 What happened and what about it would most people consider disruptive? Description:</p> <p>77=Don't know 88=Not applicable 99=Refused</p> <p>Probe.... Could you tell me a little more about that? Could you tell me a little more about the background to that?</p>
80.	<p>HWDISDN2 How disruptive was this for you - very, somewhat, not very, or not at all? 1=Very 2=Somewhat 3=Not Very 4=Not at all 77=Don't know 88=Not applicable 99=Refused</p>
81.	<p>ABDISDN2 One a scale of 1 to 6 with 6 being the most confident and 1 being least confident, how did you feel about your ability to handle (state the disruptive situation using participant's own words)?</p> <p>_____ (number from 1-6)</p>

<p>“Now I would like to ask you about all the foods your child had yesterday from when they left Head Start [if not in Head Start yesterday, say ‘3 o’clock’] until bedtime. We are interested in getting a realistic picture of what young children <u>actually</u> eat, even if it is not always what their parents hope they would eat. This list is similar to the first list I asked you about but this one is about the foods your child ate yesterday before, during, and after dinner rather than the foods you have at home.”</p>			
H.	CVEG First, is a list of vegetables. Please answer Yes or No as to whether your child ate any of the following vegetables before, during, or after dinner. Vegetables can be fresh, frozen, or canned. Did your child eat:	Yes	No
82.	Beets		
83.	Bell peppers (example: green, red)		
84.	Broccoli		
85.	Cabbage		
86.	Cauliflower		
87.	Carrots		

88.	Celery		
89.	Corn		
90.	Cucumbers		
91.	Green beans		
92.	Lettuce (example: iceberg, romaine)		
93.	Mushrooms		
94.	Peas		
95.	Potatoes		
96.	Spinach/other greens (collard)		
97.	Squash (example: butternut, zucchini)		
98.	Sweet potatoes		
99.	Tomatoes		
100.	Mixed vegetables		
I.	CFRT The next items are Fruit. Please answer Yes or No as to whether your child ate any of the following fruits yesterday before, during, or after dinner. Fruits can be fresh, frozen, dried, or canned. Did your child eat:	Yes	No
101.	Apples		
102.	Apple sauce		
103.	Bananas		
104.	Blueberries		
105.	Grapes (red or green)		
106.	Mixed fruit/fruit cocktail		
107.	Peaches/nectarines		
108.	Oranges (Tangerines, Clementines)		
109.	Pears		
110.	Raisins		
111.	Strawberries		
J.	CFRT he next items are frozen treats. Please answer Yes or No as to whether your child ate any of the following frozen treats before, during or after dinner. Did he/she eat:	Yes	No
112.	Ice cream or frozen yogurt		
113.	Popsicles/juice bars		
K.	CQKFD he next items are quick home foods. Please answer Yes or No as to whether your child ate any of the following quick home foods before, during, or after dinner. Did he/she eat:	Yes	No
114.	Frozen pizza		
115.	Hot pockets		
116.	Chicken nuggets		
117.	French fries or tater tots		
118.	Mac and cheese/other canned pasta		
119.	Ramen noodles		
L.	We are almost to the end of this portion of the survey. There are three more food groups that I need to ask you about,	Yes	No

	thank you for your patience in giving us this important information.		
	CTRT The next items are treats. Please answer Yes or No as to whether your child ate any of the following before, during or after dinner. Did your child eat:		
120.	Cookies		
121.	Cupcakes		
122.	Muffins		
123.	Brownies		
124.	Other snack cakes		
125.	Pastry, sweet rolls, donuts		
M.	CSNK The next items are snacks. Please answer Yes or No as to whether your child ate any of the following snacks before, during, or after dinner. Did your child eat:	Yes	No
126.	Crackers (whole grain, regular, graham)		
127.	Potato/ Tortilla chips		
128.	Cheese curls or puffs		
129.	Pretzels		
130.	Popcorn		
131.	Nuts		
132.	Granola bars		
133.	Pop-Tarts		
134.	Chocolate		
135.	Fruit rollups, fruit snacks		
136.	Chewy candy (example: Skittles)		
N.	CBEV And the last items are beverages. Please answer Yes or No as to whether your child drank any of the following beverages before, during, or after dinner. Did he/she drink:	Yes	No
137.	Regular soda pop		
138.	Diet soda pop		
139.	Prepared ice teas or lemonade (ex: Snapple)		
140.	Prepared light ice tea or lemonade (ex: crystal light)		
141.	Sports drinks		
142.	100% fruit juice		
143.	Fruit drinks		
144.	Bottled water		
145.	Whole milk		
146.	Skim, 1%, or 2% milk		
147.	SATCEAT2 Overall, how satisfied were you with [child name]'s food and eating yesterday since they were picked up from Head Start (or 3PM) until bedtime? Would you say you were very satisfied, satisfied, not very satisfied, or not at all satisfied? (NOTE: check 'Not applicable' mom does not know what child ate from 3pm until bedtime)		

	1=Very satisfied 2=Satisfied 3=Not very satisfied 4=Not at all satisfied 77 Don't know 88=Not applicable 99=Refused
148.	If Not Very or Not At All Satisfied otherwise skip: NOSATEAT2 What is the reason that you were Not Very/ Not At All Satisfied? Description _____ 77=Don't know 88=Not applicable 99=Refused

Now I would like to ask you about feeding your child on hectic days. On hectic days, moms have told us that their children eat foods that are quick, easy, or convenient to prepare for dinner. Would you say your child Often, Sometimes, Rarely or Never has the following for dinner on hectic days:

149.	HTCFF On hectic days, my child has fast food for dinner. 1=Often 2=Sometimes 3=Rarely 4=Never 77=Don't know 88=Not applicable 99=Refused (If R answers "always," categorize it as "often.")
150.	HTCFFDAYS If R says O, S, or R ask: How many days in the last week did this happen? _____ days/week
151.	HTCTO On hectic days, my child has take-out food eaten at home for dinner? (such as pizza, wings, spaghetti). 1=Often 2=Sometimes 3=Rarely 4=Never 77=Don't know 88=Not applicable 99=Refused (If R answers "always," categorize it as "often.")
152.	HTCTODAYS If R says O, S, or R ask: How many days in the last week did this happen? _____ days/week

“Moms have also told us that busy family schedules make it challenging to eat at home or to eat together for every meal. Would you say the following things happen Often, Sometimes, Rarely, or Never?”	
153.	MISBFST I can’t eat breakfast with my child because of my schedule. 1=Often 2=Sometimes 3=Rarely 4=Never 77=Don’t know 88=Not applicable 99=Refused (If R answers “always,” categorize it as “often.”)
154.	MISBFST DAYS If R says O, S, or R ask: How many days in the last week did this happen?
155.	MISDNR I can’t eat dinner with my child because of my schedule. 1=Often 2=Sometimes 3=Rarely 4=Never 77=Don’t know 88=Not applicable 99=Refused (If R answers “always,” categorize it as “often.”)
156.	MISDNR DAYS If R says O, S, or R ask: How many days in the last week did this happen?
“Next, I’m going to ask you about your child’s [name] eating and drinking before and after going to Head Start. Please tell me whether your child does the following Often, Sometimes, Rarely or Never.” [Note: If R says ‘always’ code as Often]	
157.	EATBFRHS My child has something to eat or drink before going to Head Start in the morning. 1=Often 2=Sometimes 3=Rarely 4=Never 77=Don’t know 88=Not applicable 99=Refused
158.	EATAFTRHS My child has a snack in the afternoon after pick up from Head Start. 1=Often 2=Sometimes 3=Rarely 4=Never

	77=Don't know 88=Not applicable 99=Refused
--	--

“The next questions are about other people involved in feeding your child meals, not including Head Start, when you are at work or at school.”	
159.	DELHH Do other people who <u>live</u> with you feed your child when you are working or at school? 1=Yes 2=No→ Skip to Q162. 77=Don't know→ Skip to Q162. 88=Not applicable→ Skip to Q162. 99=Refused→ Skip to Q162.
160.	WHODELHH (Of the people who live with you) Who is involved in feeding your child meals when you are working or at school (Check all that apply.) 1=Partner or spouse 2=Other children 3=Parent (including in-laws) 4=Other relative 5=Other person in household (specify) _____ 77=Don't know 88=Not applicable 99=Refused
161.	DELHHDAYS Ask: How many days in the last week was [x] involved in feeding your child a meal when you were working or at school?
162.	DELOTH Do any family members, friends, or neighbors who <u>do not live</u> with you feed your child meals when you are working or at school? 1=Yes 2=No→ Skip to Q165. 77=Don't know 88=Not applicable 99=Refused
163.	WHODELOTH (Of the people who do not live with you) Who is involved in feeding your child when you are working or at school? (Check all that apply.) 1=Your partner or spouse 2=Child's father (not living in household) 3=Other children 4=Parent (including in-laws) 5=Other relative 6=Friend or neighbor 7=Other person (specify) 77=Don't know 88=Not applicable 99=Refused
164.	DELOTHDAYS Ask: How many days in the last week was [x person] involved?

165.	PRPOTH How often do you prepare meals for others to serve your child when you are working or at school? 1=Often 2=Sometimes 3=Rarely 4=Never 77=Don't know 88=Not applicable 99=Refused
“Moms have told us that when others feed their child that they may not know what their child is fed and, that the family or friends who feed their child may not do as good of a job as moms do themselves. Do the following happen Often, Sometimes, Rarely, or Never when family or friends feed your child:”	
166.	DELKNOW I know what my child eats when others feed him/her. 1=Often 2=Sometimes 3=Rarely 4=Never 77=Don't know 88=Not applicable 99=Refused
167.	WORRFAMFD I worry that the family or friends who feed my child do not give my child healthy food. 1=Often 2=Sometimes 3=Rarely 4=Never 77=Don't know 88=Not applicable 99=Refused (If R answers “always,” categorize it as “often.”)
168.	WORRFAMEAT I worry that the family or friends who feed my child are not good eating role models for my child. 1=Often 2=Sometimes 3=Rarely 4=Never 77=Don't know 88=Not applicable 99=Refused (If R answers “always,” categorize it as “often.”)
“Now, for this next set of questions I'm going to read a list of things that we have heard working moms tell us they do to manage food and eating for their children. Please tell me whether you Strongly Agree, Agree, Disagree, or Strongly Disagree for each of the following statements.”	

169.	PAHEAD I plan meals for my family a week ahead of time. 1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree 77=Don't know 88=Not applicable 99=Refused
170.	PMORN I plan the main meal for my family day by day. 1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree 77=Don't know 88=Not applicable 99=Refused
171.	SLFHLPFV I keep fruits and vegetables where my child [name] can help themselves. 1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree 77=Don't know 88=Not applicable 99=Refused
172.	SLFHLPSS I keep snacks and sweets where my child can help themselves. 1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree 77=Don't know 88=Not applicable 99=Refused
173.	CHLDPRF My child's food preferences influence what we eat for dinner. 1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree 77=Don't know 88=Not applicable 99=Refused
174.	FAMRTN My family sticks to a daily routine for meals and snacks. 1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree 77=Don't know

	88=Not applicable 99=Refused
175.	EATSTD My child does not stay seated during meals. 1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree 77=Don't know 88=Not applicable 99=Refused
176.	EATTV The TV or something else with a screen is on in the same room when my child is eating meals. 1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree 77=Don't know 88=Not applicable 99=Refused
177.	SAVMON I only buy food that I know my child will eat. 1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree 77=Don't know 88=Not applicable 99=Refused
178.	TRANSFD I keep food on hand when I am on the go with my child. 1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree 77=Don't know 88=Not applicable 99=Refused
179.	OTHHELP I share meal responsibilities with another adult in my household. 1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree 77=Don't know 88=Not applicable 99=Refused

"Now think about your main family meals. Main family meal refers to dinner or supper. Assuming that your family eats 7 main meals in a week, please answer the following

questions about your main family meals in a typical week:	
180.	WKHM In a typical week, how many of your family's main meals each week are <u>homecooked</u> ?
181.	WKFF In a typical week, how many of your family's main meals each week are at a <u>fast food restaurant</u> ?
182.	WKTO In a typical week, how many of your family's main meals each week are <u>take out</u> ?
183.	WKBUFF In a typical week, how many of your family's main meals each week are in a <u>sit-down or buffet restaurant</u> ?
"Moms always want the best for their children, but in spite of their best efforts, moms have told us that they need to make compromises on the foods that they feed their child. The next questions are about compromises. Please tell me whether you Strongly agree, Agree, Disagree, or Strongly Disagree with each of the following statements."	
184.	DIFFRSH It is difficult for me to feed my child healthy food when I am rushed. 1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree 77=Don't know 88=Not applicable 99=Refused
185.	DIFFTIRED It is difficult for me to feed my child healthy food when I am tired. 1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree 77=Don't know 88=Not applicable 99=Refused
186.	DFSTRSS It is difficult for me to feed my child healthy food when I am stressed. 1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree 77=Don't know 88=Not applicable 99=Refused
"These next to last questions are about feeding your family. Please tell me whether you Strongly Agree, Agree, Disagree or Strongly Disagree with the following statements."	
187.	AFFDHLTHY I cannot afford to buy the healthy foods that I'd like to feed my child(ren). [Repeat responses to participant if necessary] 1=Strongly agree

	2=Agree 3=Disagree 4=Strongly disagree 77=Don't know 88=Not applicable 99=Refused
188.	FDROUT I worry whether our food will run out before I have money to buy more. [Repeat responses to participant if necessary] 1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree 77=Don't know 88=Not applicable 99=Refused
189.	FDMNY The food I buy just doesn't last and I don't have money to get more. [Repeat responses to participant if necessary] 1=Strongly agree 2=Agree 3=Disagree 4=Strongly disagree 77=Don't know 88=Not applicable 99=Refused

And finally, do you or anyone in your household currently participate in any of the following programs. Please answer Yes or No:	
190.	FOODSTMP Food Stamps/SNAP 1=Yes 2=No 77=Don't know 88=Not applicable 99=Refused
191.	WIC WIC (Women, Infants, Children Nutrition Program) 1=Yes 2=No 77=Don't know 88=Not applicable 99=Refused
192.	TANF Temporary Assistance for Needy Families or Welfare 1=Yes 2=No 77=Don't know 88=Not applicable 99=Refused
193.	SCHLUNCH Free or reduced price school lunch for children

	1=Yes 2=No 77=Don't know 88=Not applicable 99=Refused
194.	FDPANTRY Food pantries 1=Yes 2=No 77=Don't know 88=Not applicable 99=Refused

“That’s the last question for today. Thank you so much for your time. Your insight will help us and others who work with parents to understand all that working mothers experience when feeding their children each day. We will be sending you a ten-dollar gift card to (store) as a thank you for completing today’s interview.”

APPENDIX F

WMFK Household Food Inventory items based on Fulkerson et al. 2008

Food category	# WMFK items	Notes
Dairy (Cheese, Milk/other dairy beverages, Yogurt, other Dairy)	WMFK has 2 items under Milk/other dairy beverages.	Fulkerson et al. 2008 had 6 items under Milk/other dairy beverages. WMFK excluded Cheese (All 11 items excluded), yogurt and other dairy.
Milk/other dairy beverages - Regular fat	1 (Whole milk)	Same as Fulkerson et al. 2008.
Milk/other dairy beverages - Reduced fat	1 (Skim, 1 or 2% milk)	Fulkerson et al 2008 had 5 items. WMFK excluded 3 items and combined two items (Skim milk and 1% or 2% milk) into one item (Skim, 1 or 2% milk).
Quick foods	WMFK has 6 items. (Chicken nuggets, Hot pocket, Ramen, Mac and Cheese, Frozen pizza, French fries/tater tots)	Fulkerson et al. 2008 8 items. WMFK excluded burritos or other Mexican snacks and egg rolls based on Reedy et al. 2010. Not major sources of fats for preschool children.
All vegetables, including potatoes	WMFK has 19 items.	Fulkerson et al. 2008 had 20 items. WMFK excluded Asparagus.
All vegetables, not including potatoes	18	Fulkerson et al. 2008 had 19. WMFK excluded Asparagus.
Dark green	2 (spinach, broccoli)	Not created by Fulkerson et al. 2008. Based on Dietary Guidelines for Americans p. 52.
Red orange	6 (beets, carrots, peppers, squash, tomatoes, sweet potatoes)	Not created by Fulkerson et al. 2008. Based on Dietary Guidelines for Americans p. 52.
Starchy	3 (Corn, potatoes, peas)	Not created by Fulkerson et al. 2008. Based on Dietary Guidelines for Americans p. 52.
Other	8 (green beans, mushroom, cucumber, mixed vegetable, lettuce, celery, cabbage, cauliflower)	Not created by Fulkerson et al. 2008. Based on Dietary Guidelines for Americans p. 52. Cauliflower from 'Starchy' to 'Other' because can be more like a green vegetable except not as high in Vitamins A and C.
Savory snacks	WMFK has 6 items.	Fulkerson et al 2008 had 18 items.
Regular fat	3 (Chips, cheese curls/puffs,	Fulkerson et al. 2008 had 10 items.

	<p>nuts) 2 (Chips, cheese curls/puffs, nuts excluded)</p>	<p>WMFK combined 5 items (reg. potato chips, red. fat potato chips, corn chips, tortilla chips, and red. fat tortilla chips) into 1 item (Chips). WMFK combined 2 items (reg. and red. fat cheese curls/puffs) into 1 item (Cheese curls or puffs). WMFK excluded 2 items – reg. and red. fat bagel chips. WMFK combined 2 items (reg. and red. fat granola bars) in to 1 item (granola bars) and considered granola bar as sweetened grain dessert based on Reedy et al. 2010 & Ford et al. 2013. WMFK combined 4 items (whole grain crackers, reg. crackers, red. fat crackers, and graham crackers) into 1 item (Crackers) and considered item as reduced fat. Fulkerson et al. 2008 included nuts in obesogenic home food availability score. WMFK nuts not included in obesogenic home food availability score b/c considered ‘healthy’ in new dietary guidelines, opinions have been evolving remove from this category.</p>
Reduced fat	3 (Crackers, pretzels, popcorn)	<p>Fulkerson et al. 2008 had 8 items. See notes on WMFK differences above.</p>
Frozen desserts	WMFK has 2 items.	Fulkerson et al. 2008 had 7 items.
Regular fat	1 (Ice cream or frozen yogurt)	<p>Fulkerson et al. 2008 had 3 items. WMFK combined 3 items reg. ice cream red. fat ice cream, and frozen yogurt into 1 items and excluded frozen treats made with ice cream.</p>
Reduced fat	1 (Popsicles or juice bars)	<p>Fulkerson et al. 2008 had 4 items. WMFK excluded 2 items frozen treats made with ice milk, frozen yogurt, sherbert, sorbet and frozen soy/rice desserts and combined reg. and red. fat ice cream into ice cream.</p>
Candy	WMFK has 3 items. (Chewy candy, chocolate, fruit roll up/gummy snacks)	<p>Fulkerson et al. 2008 had 5 items. WMFK excluded hard candy. WMFK combined 2 items (gummies and fruit rollups/snacks) into 1 item (fruit roll up/gummy snacks).</p>
Beverages	WMFK has 8 items.	Fulkerson et al. 2008 had 9 items.

Regular sugar	5 (Regular soda, 100% fruit juice, prepared iced tea, sports drinks, fruit drinks)	Fulkerson et al. 2008 had 6 items. WMFK excluded soy/rice milks.
Low sugar	3 (Water, Diet soda, Prepare light ice teas or lemonade)	Same as Fulkerson et al. 2008.
Fruits	11 (Apples, applesauce, mixed fruit, raisins, orange, bananas, grapes, strawberries, blueberries, pears, peaches/nectarines)	Fulkerson et al. 2008 had 26 items. WMFK excluded 13 items (Apricots, Avocado, Cranberries, Dates, Grapefruit, Kiwi, Lemons/Limes, Mango, Melons, Plums, Prunes, Pineapple, Raspberries) based on qualitative interviews. WMFK combined 2 items (peaches and nectarines) into one item (peaches/nectarines). WMFK did not ask fresh/frozen/canned.
Sweetened grain desserts (changed from 'Prepared Dessert' in Fulkerson et al. 2008)	WMFK has 8 items. (cookies; cupcakes; muffins; brownies; other snack cakes; pastry, sweet rolls, donuts; pop-tarts; granola bars)	Fulkerson et al. 2008 category 'Prepared desserts' with 6 regular (reg. cookies, reg. cupcakes, reg. muffins, brownies/bars, other snack cakes, pastry /sweet rolls/donuts) and 2 reduced fat (red. fat cookies and red. fat cupcakes) items. WMFK combined 2 items (reg. cookies and red. fat cookies) into 1 item (cookies). WMFK combined 2 items (reg. cupcakes and red. fat cupcakes) into one item (cupcakes). WMFK did not ask whether store bought or homemade. Pop-tarts included based WMFK qualitative interview findings. Category changed to Sweetened grain dessert based on two citations Reedy et al. 2010 and Ford et al. 2013.
Obesogenic home food availability score	WMFK total score is 26.	Fulkerson et al. 2008 total score was 71. Sample: range = 9–53, M = 29.4, SD = 7.6
Food categories from Fulkerson that were not included in WMFK	Butter/Margarine/Oils (All 8 items excluded), Salad Dressing (All 2 items excluded), Condiments (all 4 items excluded), Types of condiments, Deli, luncheon, sandwich meats (All 6 items excluded), Meats and other proteins (All 10 items	

	excluded), Bread (All 12 items excluded), Dry cereal, Whole grain cereal, Cereals with less than 6g sugar/serving, Cereals with more than 6g sugar/serving, Kitchen items readily available, Refrigerator items readily available	
--	---	--

Table notes: According to Fulkerson et al. (2008), selected foods represent a range of more healthful and less healthful foods that commonly contribute to children's energy intake and are associated with overweight and obesity. Healthful and less healthful categories were determined by typical fats and sugars for food items following Fulkerson et al.'s (2008) approach. Exceptions are noted with regards to the following food items: Nuts are not included as part of the obesogenic food score because recent research suggests nuts having numerous health benefits. Obesogenic food availability is a summative score that includes regular fat versions of dairy (1 item), savory snacks (2 items), frozen desserts (1 item); candy (3 items); regular sugar beverages (5 items); quick home foods (6 items); and sweetened grain desserts (8 items). Scores range from 0-26. Scores are summative, higher scores represent greater availability.